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CONTAMINATED LAND STUDY

Prepared for:

FOR THE

**PICTON TAHMOOR THIRLMERE ACTION GROUP
(PTTAG)**

**Job reference: 201334
8 June 2012**

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CONTAMINATED LAND STUDY

FOR THE

PICTON TAHMOOR THIRLMERE ACTION GROUP (PTTAG)

Executive Summary

Harvest Scientific Services Pty Ltd (Harvest) was commissioned by the Picton-Thirlmere-Tahmoor Action Group (PTTAG) to carry out a Contaminated Land Assessment (CLA) over 87 lots located between Picton, Thirlmere and Tahmoor. Of the 87 lot owners, 42 have given consent to enter their properties and provide information regarding potential contaminating activities.

PTTAG has lodged a Planning Proposal for the rezoning of the Study Area with Wollondilly Shire Council (WSC) and the NSW Department of Planning and Infrastructure (DPI) which would enable the lots located within the study site to be subdivided into smaller lots, subject to a normal Development Application Process. The DPI's Gateway Determination process now requires the Planning Proposal to be upgraded by a number of specialist studies, including this Contaminated Land Study.

The Contaminated Land Study requires the following outputs:

- A "preliminary desk top" contaminated site report as required in accordance with SEPP 55 – Remediation of Land;
- Field verification of potential contamination sites; and
- Recommendation for the future development controls for the management and assessment of these potential contamination sites at the development stage.

The objective of this study is:

"to determine if there is any expectation of contamination of the study area associated with previous agricultural land use and the likely sources of that contamination."

A number of assessments were undertaken as part of this study to determine whether current or historical activities have led to contamination which could be harmful to human health. The desired outcome of these assessments is to delineate any Area of Environmental Concern (AEC) which may require invasive investigation should the land on which any particular AEC be located upon be subject to a development proposal. The assessments included field inspections of participating PTTAG property owners, review of historical aerial photography, compilation of responses from a questionnaire and a review of Wollondilly Shire Council records to name the main sources of information.

The assessment identified a number of potential AECs throughout the study area. Each have been described and their location noted. These AEC's are varied in nature and are associated with activities predominantly occurring many years (if not decades) ago.

Given the objective of the study, it was concluded that there is some potential that contamination may have occurred and that such contamination remains to the present day. The likely sources of the contamination are considered to be:

- The application of pesticides, herbicides and fertilizers used to increase the agricultural productivity of land; and
- Construction and application of infrastructure and other like activities in support of agricultural enterprises.

In addition, the assessment process has indicated that past and current potentially contaminating activities not associated with agricultural enterprises may also have occurred.

Potential contaminants have been listed for all identified AECs. However, these have been provided for guidance only, as only a full assessment of each AEC will determine which potential contaminants should be tested. This is a process which would only be undertaken at the DA stage.

The assessment process has revealed that the study area contains a number of examples of past activities which may have resulted in contamination either in the past or present. It is concluded however, that the scale and extent of these potentially contaminated sites are considered to be relatively minor in the context of the size of the study area. It is further concluded that the application of appropriate development controls at the Development Application stage should ensure that any potential contamination is properly assessed and where appropriate, steps taken to remediate the relevant sites. In general terms, it is considered that there will be no impediment to the further subdivision of the study area as a result of the findings of this study.

Based on the results of this study, a number of development controls are recommended where land within the study area is to be developed by way of subdivision or other activities requiring development consent. These controls entail both Phase 1 and Phase 2 contaminated site assessments and where appropriate, remediation of confirmed contamination.

It is not possible at this stage, to develop a specific schedule of actions and types of remediation works that will need to be undertaken should contamination be confirmed at any one site. Such detailed site specific contamination assessments will need to be considered in the context of future building envelopes and waste water irrigation areas at the DA stage. This is because the extent and level of contaminants are unknown. Each identified contamination site will have its own unique characteristics and will require a unique remediation solution which will be dependent upon the ultimate land use. In general terms however, future development assessment should be based on the following criteria; viz:

- Contaminated sites are left untreated;
- On-site treatment of contamination;
- Off-site treatment of contaminated materials and return of materials to original site;
- Removal of contaminated materials to an appropriately licensed waste facility; or
- Consolidation and isolation of contaminated materials on-site by a properly designed barrier.

It is concluded that remediation options are very much dependent on the nature and level of individual contaminants in combination with the proposed land use. Until sites are fully investigated and tested, the most appropriate remediation option cannot be determined.

The assessment process has revealed that the study area contains a number of examples of past activities which may have resulted in contamination either in the past or present. It is concluded however, that the scale and extent of these potentially contaminated sites are considered to be relatively minor in the context of the size of the study area. Furthermore, it is concluded that the application of appropriate development controls at the Development Application stage should ensure that any potential contamination is properly assessed and where appropriate, steps taken to remediate the relevant sites.

In general terms, it is considered that there will be no impediment to the further subdivision of the study area as a result of the findings of this study.

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ABBREVIATIONS

AEC	Area of Environmental Concern
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
GIPA	Government Information (Public Access) Act
HBIL's	Health Based Investigation Levels
HSS Pty Ltd	Harvest Scientific Services Pty Ltd
LGA	Local Government Area
Metals	Heavy metals: Arsenic, Cadmium, Chromium, Copper, Lead, Manganese, Mercury, Nickel and Zinc.
OCs	Organochlorine pesticides / insecticides
OPs	Organophosphate pesticides / insecticides
PAH	Poly Aromatic Hydrocarbons
TPH	Total Petroleum Hydrocarbons

1.0 INTRODUCTION

Following a tender process, Harvest Scientific Services Pty Ltd (Harvest) was commissioned by the Picton-Thirlmere-Tahmoor Action Group (PTTAG) to carry out a Contaminated Land Assessment (CLA) over 87 lots (study area) located between Picton, Thirlmere and Tahmoor. The extent of the study area is approximately 232 hectares.

PTTAG has lodged a Planning Proposal for the rezoning of the study area with Wollondilly Shire Council (WSC) and the NSW Department of Planning and Infrastructure (DPI) which would enable the lots located within the study site to be subdivided into smaller lots, subject to a normal Development Application Process. The DPI's Gateway Determination process now requires the Planning Proposal to be upgraded by a number of specialist studies, including this CLA.

The following sections describe the scope of works in more detail as well as the results of the component assessment which combined, makes up the bulk of the CLA. Finally, a management and control regime is outlined for identified and yet to be identified contaminated or suspected contaminated sites.

2.0 SCOPE OF WORKS

The tender brief for the Contaminated Land Study requires the following outputs:

- A preliminary "desk top" contaminated site report as required in accordance with SEPP 55 – Remediation of Land;
- Field verification of potential contamination sites; and
- Recommendation for the future development controls for the management and assessment of these potential contamination sites at the development stage.

The objective of this work is "to determine if there is any expectation of contamination of the study area associated with previous agricultural land use and the likely sources of that contamination."

The scope of works submitted as part of the tender based on SEPP 55 (NSW Environmental Protection Authority, 1998) and is detailed as follows:

- Review and summarise WSC and NSW Office of Environment and Heritage (OEH) Contaminated Lands Register and historical aerial photos;
- Review existing soil landscape and geological maps;
- Review Section 149 certificates for each property;
- Conduct a detailed search of Wollondilly Shire Council's files for each property;
- Review and summarise individual property histories;
- Interview each current property owner regarding any potential contaminating activities;
- Carry out a visual site inspection of each property;
- Recommend development controls for management and assessment of any identified potential contaminated sites; and
- Dependent on the level of potential contamination, develop a schedule of actions and types of remediation works that will need to be undertaken at the development application stage; and
- The preparation and presentation of a "first draft" of a Justification Report followed by a final report suitable for exhibition makes up the final steps of the submission process.

It should be noted that this study does not seek to delineate with any accuracy, the extent and depth of any potentially contaminated site (defined herein as an "AEC"), merely to note their presence for future reference. For that reason, no invasive sampling has been undertaken as this is outside the scope of the brief.

Whilst the assessment is based on the NSW EPA (1997) guidelines for 'Consultants Reporting on Contaminated Sites' - Phase 1, the level of detail for each lot is limited. It is understood that in the event of the rezoning proposal being accepted by WSC and DPI, individual contaminated site assessments will be required for each subdivision development application that may be lodged with WSC. Hence, until such applications are submitted (where new proposed lot boundaries are identified), the need for a full Phase 1 contamination assessment is not warranted.

It should be noted that of the 87 properties located within the study area, 42 property owners provided their consent to Harvest to enter their respective properties and carry out the relevant assessment. As a consequence, the assessment of the entire study area is thus technically limited.

3.0 SITE DETAILS

3.1 Lot Descriptions and Property Ownership of the Study Area

Property descriptions and ownership for each of the 87 lots located within the subject land are listed in Appendix 1. The list also indicates (by yellow highlight) those property owners that provided consent to Harvest to enter their property and obtain the relevant information required.

3.2 Site Location and Investigation Boundary of the Study Area

The study area is delimited by Redbank Creek to the North, Thirlmere Way to the West and South and the Main Southern Railway to the East - see Figure 1.



Figure 1: Location of PTAG study area (Google Maps).

3.3 Existing Property Features and Walk-over

A site walk-over was undertaken by a Senior Environmental Scientist from Harvest Scientific Services Pty Ltd during the 16-17 April, 2012. Observations from the walk-over are discussed in detail in Sections 4 and 5, with the main features of each property being summarized in Appendix 1.

3.4 Proposed Land Uses of the Study Area

It is proposed that the study area is to be host to residential development of a greater density than currently exists. It is unknown at this stage what the minimum allotment size may be upon the completion of the rezoning process.

3.5 Topography

The topography within the investigation area is generally gently undulating and includes hill-crests, side slopes and drainage lines of variable extent. The site topography is bounded on the northern side by Redbank Creek and to the south by Myrtle Creek.

3.6 Geology

Based on the 1:100,000 Wollongong to Port Hacking Map Sheet this site is underlain by two geological units (Sherwin and Holmes, 1982). Ashfield Shale was the dominant geological unit occurring within the major part of the study area. Hawkesbury sandstone occurs to a limited extent in the northern and southern portions of the study area, associated with Redbank and Myrtle Creeks respectively (Figure 2).

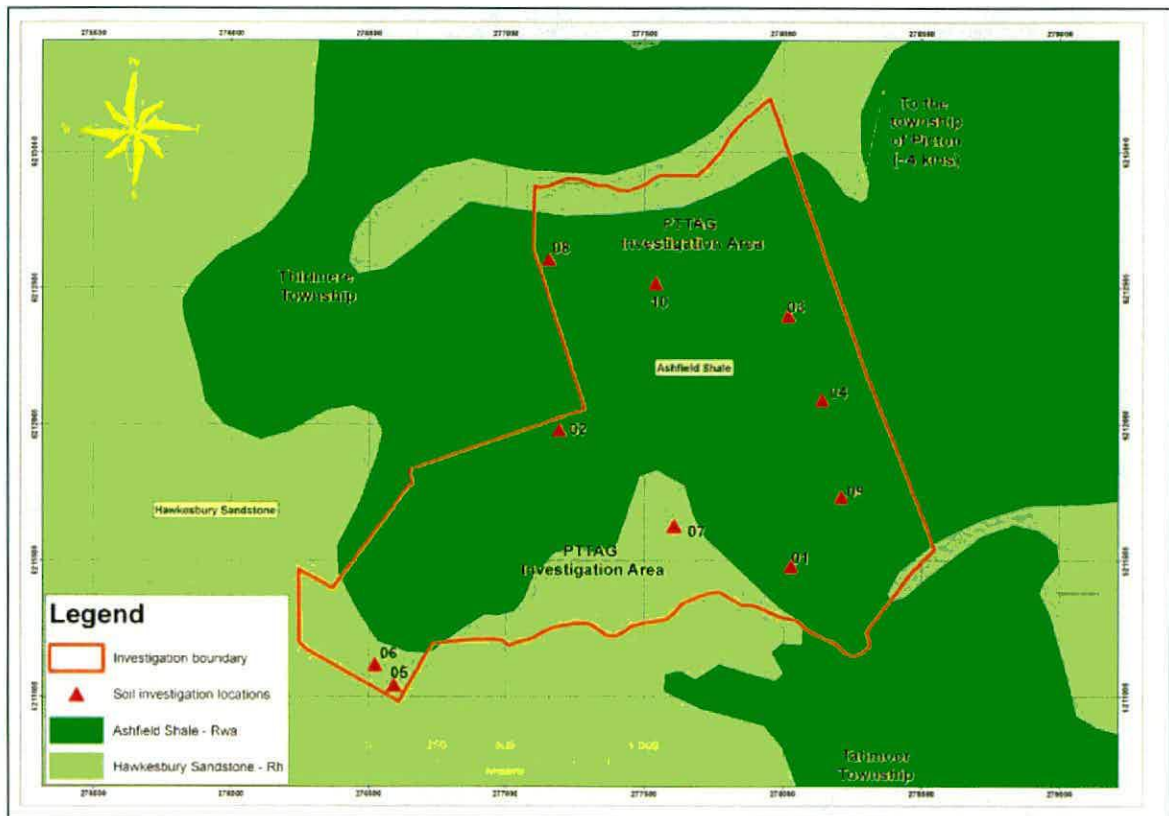


Figure 2: Geology of Study Area

3.7 Soil Landscapes

Based on the Wollongong 1:100,000 Soil Landscape Group map (Hazelton and Tille, 1990), the Blacktown, Luddenham and Lucas Heights Soil Landscape Groups are mapped by as occurring within the study area (Figure 3).



Figure 3: Soil Landscapes of Study Area

4 STUDY AREA ASSESSMENT

4.1 Overview

The objective of the various assessments described in the following sections is to determine whether current or historical activities have led to contamination which could be harmful to human health. The desired outcome of these assessments is to delineate AECs which may require invasive investigation should the land on which any particular AEC be located upon be subject to a development proposal.

For the benefit of this report, an AEC is defined as part of the land surface and subsurface which has been subjected to filling by imported materials, is covered by man-made structures or has been subjected to some form of chemical or physical treatment, all of which may result in a potential contamination event or issue. The delineation of any AEC will require further investigation (usually invasive) in order for it to be dealt with under any proposed development scenario.

It should be noted that an invasive investigation of any one AEC may lead to one of several results, viz:

- The AEC is found to be benign and not associated with any contamination;
- The AEC is found to be moderately contaminated but within acceptable limits as determined by the proposed future land use on which the AEC is located upon; and
- The AEC is found to be contamination which exceeds acceptable limits as determined by the proposed future land use on which the AEC is located upon. In this case, steps to remediate the AEC will need to be undertaken.

Whilst the scope of the work undertaken on the study area is extensive, it can only generate an appreciation of the types of contamination that could be encountered, should development proposals such as subdivision be approved. Furthermore, as this work does not entail any invasive investigations, the real limits on any one AEC are unknown.

Hence, whilst the study has identified the location of a number of AEC's, their full assessment can only be advanced once development proposals are submitted for the land so affected. Furthermore, investigations at

the development proposal stage may lead to the discovery of additional AEC's which are currently not obvious.

The following sections describe a number of investigative processes which have resulted in the identification of a number of AEC's.

4.2 Field Inspection of Properties

A field inspection of virtually all PTTAG participant properties was conducted during 16-17 April, 2012. This work was critical in obtaining an appreciation of existing site conditions and determining any obvious potential contamination issues. It should be noted that the extent of each property inspection was limited to suit the scope of the brief. To that extent, there is thus the possibility that not all potentially contaminated sites were actually observed or identified.

Field observations together with the location of identified AEC's have been recorded in Appendix 1. The location of each AEC is illustrated on Figure 4.

4.3 Review of aerial photography

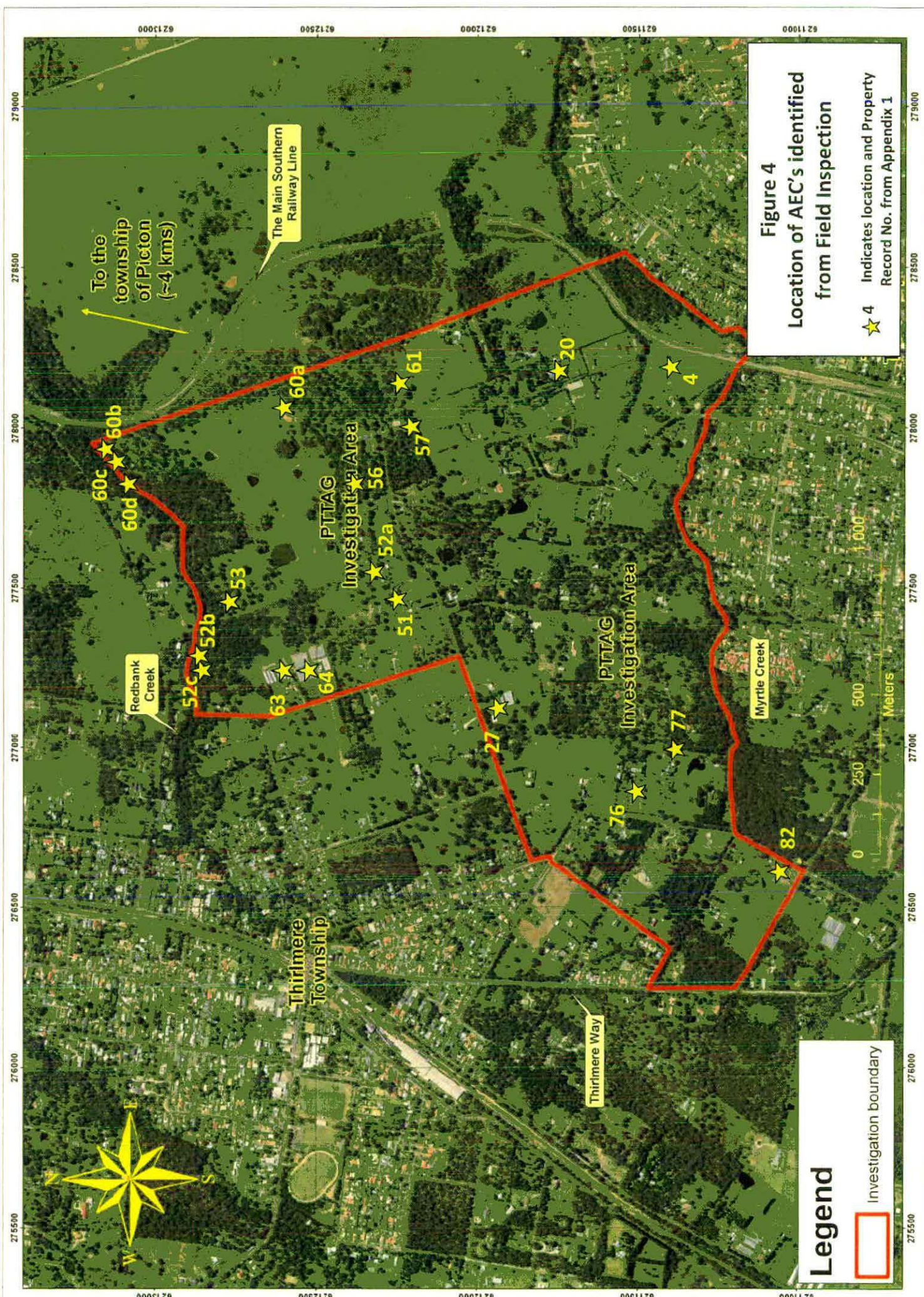
Historical aerial photos were sourced from the NSW Land and Property Management Authority (LPMA) and observations are summarised in Table 1. All photos are stored in the offices of Harvest Scientific Services Pty Ltd and are available upon request by authorised persons.

Observations together with the location of identified AEC's have been recorded in Appendix 1 and the location of each AEC is illustrated on Figure 5.

Table 1: Review of aerial photography

LPMA File No.	Locality Identifier	Date of Photo	Scale	Comments
581_10_5032	Run10	5/7/55	?	B/W. Warragamba Catchment. Moderate quality.
1440_SL_5030	Run 5	22/3/66	?	B/W. Wollongong-Port Hacking. Good quality.
1623_4L_5142	Run 4C	29/6/69	?	B/W. Wollongong. Good quality.
2300_04_060	Run 4	2/4/75	?	B/W. B/W. Wollongong. Good quality.
3341_04_097	Run 4	27/10/83	1:40,000	B/W. Wollongong. Good quality.
3609_10W_049	Run 10W	21/3/88	1:16,300	Colour. Wollongong ISG. Good quality.
3754_10_009	Run 10	5/10/90	1:16,000	Colour. Wollongong. Good quality.
4178_06_178	Run 6	4/1/94	1:25,000	Colour. Wollongong. Good quality.
4455_04_151	Run 4	14/10/98	1:50,000	Colour. Poor quality photo. No useful information.
4599_06_195	Run 6	22/2/02	1:25,000	Colour. Wollongong.
4942_06_063	Run 6	20/12/05	1:25,000	Colour. Wollongong.

Note: The quality of these photos varied considerably and the level of detail – particularly for such a small site, is limited. Although they merely represent a "snapshot" in time, these photos are useful for determining the presence of significant infrastructure (such as buildings, roads etc) and changes to the surrounding areas which may have implications for any assessment of the land and its proposed development.



4.4 Interview with property owners and/or occupiers

The current property owners and/or occupiers or their representatives were forwarded a questionnaire in relation to potential contamination issues associated with their property. Where questionnaires were not returned an attempt was made to interview the relevant property owner directly (either face to face or by telephone). The cover letter for the questionnaire and a summary of responses are detailed in Appendix 2.

Analysis of the responses is outlined in Table 2.

Table 2: Analysis of Questionnaire Responses				
Period of Ownership (years)	Average: 25 Range: 4 - 79			
Current Land Use	Agricultural: 2	Hobby Farm: 18	Indust/comm: 0	Other: 15
Property History	Answer: Yes	Answer: No		
Q 6	1	34		
Q 7	4	31		
Q 8	5	30		
Q 9	2	33		

Hence of the 35 respondents to date, only two considered that they operated an agricultural enterprise, with the remainder being fairly evenly split between hobby farms and other (most of this category being declared as residential).

In terms of the contamination issues (Questions 6 to 9), the vast majority of property owners concluded that their activities had not resulted in potential contamination issues, nor that they were aware of any potential contamination issues prior to their ownership of the property.

4.5 Wollondilly Shire Council Files

Records pertaining to each of the 87 lots located within the PTTAG study area were made available by Wollondilly Shire Council during May 2012. These records were initially presented as computer printouts which indicated the nature and number of records registered against each lot. A typical example is presented in Table 3.

Table 3: Council Computer File Header				
Indi	Formatted Account	Document Type	External Reference	Precis
	006.1950.00000199.001	1986 to 1988 DA's	S490/50	Septic

In the above example, there is one record registered against the lot, indicating an application for a septic system was lodged. In some cases, records were amended by hand written entries.

In the first stage of the records assessment, the information on all of the lots within the study area was recorded and is attached as Appendix 3. The main observations regarding these data are as follows:

The vast majority of records relate to applications associated with the following activities:

- Dwellings +/- extensions or alterations;
- Septic systems;
- Pools (above ground, inground, concrete, etc);
- Sheds, stables, pergolas, garages, verandahs, awnings and carports;

These applications were considered to represent routine developments which in normal circumstances would not result in a contaminating activity.

The remaining records were quite varied, ranging from subdivisions, agricultural/horticultural activities such as glasshouses and igloos, demolition of dwellings and structures to name a few. The very nature of these activities do however invoke the potential for contamination and were automatically noted for future reference and in most cases led to a more detailed assessment of data files associated with the affected property.

The second stage of the information assessment was to request extraction of files associated with each record. A small portion of the files were available as hard copy, with the remaining being available as scanned files available on computer only.

A selection of records were requested for detailed inspection and these were provided subject to the attendance of a Council officer at all times to ensure that privacy matters were respected.

The selection process was based on the objective of seeking out any information regarding existing contamination or potentially contaminating activities, past or present. Information of interest is recorded on the Comments column in Appendix 3. As a result, several lots were noted as containing Areas of Environmental Concern (AEC), the locations of which are indicated on Figure 5.

4.6 Department of Lands Title search

Records held by the Department of Lands (Sydney) were reviewed with comments and observations summarised in Appendix 4. These records represent a 'first pass' extraction and is intended to identify as a minimum, the ownership of each lot prior to the current owner. In some cases, the records can indicate a number of previous owners. Hence, the search carried out under this tender is not exhaustive, but is considered adequate for the requirements of this study.

The main objective of the search is to identify whether any of the lots subject to this study were owned by entities that might suggest past contaminating activities.

4.7 S 149 Planning certificates

Section 149 certificates, which are available from Wollondilly Shire Council, can provide information indicative of contaminating issues. However, it is considered more appropriate to assess these certificates at the time of a future subdivision application. A blanket review of these certificates for the benefit of this study was thus not carried out.

4.8 NSW EPA Contaminated Sites Register

None of the properties located within the Study Area is listed on the Contaminated Sites register (EPA, 2011) held by the NSW EPA under section 58 of the Contaminated Land Management Act 1997.

4.9 Workcover Authority of NSW

Enquiries were made of the Workcover Authority of NSW for reportable incidents or activities which might suggest the presence of potential contamination issues within the Study Area. Unlike the NSW EPA Contaminated Site Register, there is no similar register that is publically available. Furthermore, information under the GIPA legislation may be made available only upon the request against a specific reportable incident, location and time. A generalised list of incidents or rulings within a geographic area is not available.

4.10 Photographic Record

During the current assessment, a number of past and present land use activities were noted which could potentially represent a contamination matter and have been noted as AEC's. Examples of these are illustrated in the photographic record – Appendix 5.

5 SUMMARY OF AREAS OF ENVIRONMENTAL CONCERN (AEC)

5.1 Overview of observations

Areas of Environmental Concern were noted at a number of locations throughout the study area and were identified as a result of assessing several sources of information. These sources included:

- Physical inspection of participant properties;
- Review of historical aerial photos;
- Compilation of property owner responses to a contamination questionnaire;
- Review of Wollondilly Shire Council records;
- Review of historical land titles; and

- Review of NSW EPA Contamination Sites Register

A summary of findings as a result of these surveys is outlined in the following sections.

5.2 Assessment of Identified AEC's

5.2.1 Field Assessment and Observations

This assessment identified several Area's of Environmental Concern (AEC's) and these are summarised in Table 4. The location of these AEC's is depicted on Figure 4.

Table 4. Areas of Environmental Concern (AEC) identified as a result of Field Inspections			
AEC	Land use	Area affected	Potential contaminants
AEC 4	Older style residence with accompanying work shed. Major part of property is open paddock with high grass throughout. Contains an elevated (artificial) mound adjacent to excavated portion and immediately west of railway. Concrete slab in centre suggests previous building.	~20,000m ²	Heavy metals, OC/Ops, Asbestos
AEC 20	Residence currently being constructed. Numerous stockpiles of rock and earth. Sheds and containers. Looks like a building site.	~15,000m ²	Heavy metals, OC/Ops, Asbestos
AEC 27	Old residence derelict due to mine subsidence damage. Property contains extensive old farm infrastructure. Farm and work sheds constructed from corrugated iron and/or fibro. Property used for cattle grazing. Lightly timbered.	~25,000m ²	Heavy metals, OC/Ops, Asbestos
AEC 51	Large shed/workshop (aircraft hanger type) for trucks. Large amount of gas cylinders. Fuel drums. Bitumen road waste stockpiles.	~5,000m ²	Heavy metals, TPH, BTEX,
AEC's 52a, 52b and 52c	Large area of gravel fill (for parking?) near residence. Old car bodies and parts in creek at northern extremity of property.	~ 100m ² each	Heavy metals, OC/Ops, Asbestos
AEC 53	Shale stockpile near Redbank Creek. A few old car body parts in drainage line near shale stockpile. Minor household refuse west side of main dam.	~ 100m ²	Heavy metals, OC/Ops, Asbestos
AEC 56	Minor amounts of steel and corrugated iron stockpile.	~ 100m ²	Heavy metals, Asbestos
AEC 57	Remnants of old trucks and building infrastructure present.	~ 100m ²	Heavy metals, TPH, Asbestos
AEC's 60a, 60b and 60c	Small fibro? outhouse. Shed and remnants of old vehicles, old fuel drums, timber, PVC, roofing iron on Redbank Creek.	~ 100m ² each	Heavy metals, TPH, Asbestos
AEC 61	Northern side of entrance road drops away steeply. Part of road shoulder filled with construction waste (concrete blocks, bricks and tiles).	~ 1000m ²	Heavy metals, Asbestos
AEC 63	Standard residence and sheds and other infrastructure supporting intensive horticultural activities - igloos.	~20,000m ²	Heavy metals, Asbestos, OC/OP's
AEC 64	Standard residence and sheds and other infrastructure supporting intensive horticultural activities - igloos.	~20,000m ²	Heavy metals, Asbestos, OC/OP's
AEC 78	Sawdust generation business at back of property and occupying unformed road. Includes old vehicles and other machinery.	~10,000m ²	Heavy metals, TPH, BTEX, Asbestos
AEC 83	Old but well maintained farm sheds (part built with corrugated fibro sheeting).	~1,000m ²	Heavy metals, TPH, BTEX, Asbestos

5.2.2 Assessment of Historical Aerial Photography

The assessment of historical aerial photography indicated that broad scale agricultural activities were more pronounced in the period from 1955 – 1990, with a number of properties displaying orcharding activities. Properties with apparent furrowing(?) were also noted to be relatively widespread. Infrastructure such as long rectangular sheds were also evident in a number of locations. These activities have been noted as AEC's and are listed in Table 5. Their locations are illustrated in Figure 5.

Table 5. Areas of Environmental Concern (AEC) identified from Historical Aerial Photography			
AEC	Land use	Area affected	Potential contaminants
AEC 4	Numerous elongated shed-like structures - possibly sheds in place from 1955.	~20,000m ²	Heavy metals, OC/Ops, Asbestos
AEC 7	Extensive orcharding activities- 1969.	Part of ~20Ha site	Heavy metals, OC/Ops, Asbestos
AEC 8	Extensive orcharding activities- 1969.	Part of ~20Ha site	Heavy metals, OC/Ops, Asbestos
AEC 9	Furrowed paddocks - from 1955.	Part of ~20Ha site	Heavy metals, OC/OPs.
AEC 10	Furrowed paddocks - from 1955.	Part of ~20Ha site	Heavy metals, OC/Ops, Asbestos
AEC 12	Furrowed paddocks - from 1955.	Part of ~20Ha site	Heavy metals, OC/OPs.
AEC 20	Small scale orcharding? 1966.	~ 100m ²	Heavy metals, OC/OPs.
AEC 32	Furrowed paddocks - from 1955.	Part of ~20Ha site	Heavy metals, OC/OPs.
AEC 33	Furrowed paddocks - from 1955.	Part of ~20Ha site	Heavy metals, OC/OPs.
AEC36	Patches of unknown white material scattered over property. Also, dark patch located centrally (shale/coal wash?).	~ 20,000m ²	Heavy metals, OC/Ops, Asbestos, TPH, BTEX.
AEC 37	Furrowed paddocks - from 1955.	~40,000m ²	Heavy metals, OC/OPs.
AEC 40	Furrowed paddocks - from 1955.	~40,000m ²	Heavy metals, OC/OPs.
AEC 60	Small patch of furrowed ground.	~10,000m ²	Heavy metals, OC/OPs.
AEC 61	Igloos or sheds located south of entrance road. 1983 (removed by 1988).	~ 1000m ²	Heavy metals, OC/OPs.
AEC 63	First appearance of igloos on site 1990.	~20,000m ²	Heavy metals, OC/OPs.
AEC 64	First appearance of igloos on site 1994.	~20,000m ²	Heavy metals, OC/OPs.
AEC 67	Furrowed paddocks - from 1955.	~20,000m ²	Heavy metals, OC/OPs.
AEC 71	Possible orchard?	Part of ~25,000 m ² area	Heavy metals, OC/OPs
AEC 73	Possible orchard?	Part of ~25,000 m ² area	Heavy metals, OC/OPs
AEC 76	Numerous small shed(kennel?) like structures in rows. 1955.	~20,000m ²	Heavy metals, OC/OPs.
AEC 77	Numerous small shed(kennel?) like structures in rows. 1955.	~20,000m ²	Heavy metals, OC/OPs.
AEC 78	Market gardening activities? 1975.	~20,000m ²	Heavy metals, OC/OPs.

5.2.3 Assessment of Property Owner Questionnaire and Wollondilly Shire Council Records

A total of 42 questionnaires were forwarded to participating PTTAG property owners and at the time of this report, 32 responses had been received. At the same a review of Council records was completed. A small number of AEC's were noted and these are summarized in Table 6 and their locations indicated on Figure 5. A number of these AEC's have already been identified in the previous sections.

Table 6. Areas of Environmental Concern (AEC) identified from Owner Questionnaires and Wollondilly Shire Council Records			
AEC	Land use	Area affected	Potential contaminants
AEC 4	8 Poultry sheds operating over time. Also general agricultural activities and orcharding. Soil dumped by sewerage contracts to level land after poultry sheds removed. Farm infrastructure apparently removed.	~20,000m ²	Heavy metals, OC/Ops, Asbestos
AEC 10	Property used for apple orchards. No to questions 6-9.	Part of ~20Ha site	Heavy metals, OC/Ops.
AEC 11	Property used for apple orchards? No to questions 6-9.	Part of ~20Ha site	Heavy metals, OC/Ops.
AEC 51	Tahmoor Gas Centre operated from this site. Asked to cease operations in 1999.	~5,000m ²	Heavy metals, OC/Ops, Asbestos, TPH, BTEX.
AEC 54	Approval by Wollondilly Shire Council subject to consent conditions. Poultry shed and dwelling. Subject to Waste Management Plan for on-site disposal of manure and litter. Existing poultry sheds up to 32 years old. Potential to generate waste waters. Consent not acted upon due to "disease" in poultry? Consent lapsed.	Unknown part of lot	Heavy metals, OC/Ops, Asbestos
AEC61	Cattle grazing. Chicken sheds, some vegetables. Sheds now removed. Chicken manure used for pasture improvement.	~ 1000m ²	Heavy metals, OC/OPs.
AEC 63	ASC. Includes use of chemicals and fertilisers subject to Pesticides Act and Fertiliser Act.	~20,000m ²	Heavy metals, OC/Ops, Asbestos
AEC 64	ASC. Significant landuse conflict generated by Igloos.	~20,000m ²	Heavy metals, OC/OPs.
AEC 65	Motor bike jumps using imported fill. Direction to remove from Council.	Unknown part of lot	Heavy metals, OC/Ops, Asbestos, TPH, BTEX.
AEC 71	Building debris from demolished building.	Unknown part of lot	Heavy metals, OC/Ops, Asbestos, TPH, BTEX.
AEC 82	Veterinary practice. Also used for dog kennels. No record of approvals.	Unknown part of lot	Heavy metals, OC/Ops, Asbestos.
AEC 84	Veterinary practice. Also used for dog kennels. No record of approvals.	Unknown part of lot	Heavy metals, OC/Ops, Asbestos.

5.2.5 Historical Title Search

A historical title search did not reveal any additional AECs. See Appendix 4.

5.2.6 Results of the Assessment Process

The assessment process has indicated that a number of Areas of Concern occur throughout the study area. These AEC's are varied in nature and are associated with activities predominantly occurring many years (if not decades) ago. The principle objective of this assessment was to determine if there is any expectation of contamination associated with previous agricultural land use. This is taken to mean activities such as:

- The application of pesticides, herbicides and fertilizers used to increase the productivity of land used for agricultural purposes; and
- Construction and application of infrastructure and other like activities in support of agricultural enterprises.

Given that the historical record points to a number of locations where agricultural activities have taken place, there is some potential that contamination may have occurred and that such contamination remains to the present day.

In addition, the assessment process has indicated that past and current potentially contaminating activities not associated with agricultural enterprises may also have occurred – for example, the dumping of automobile waste in drainage lines.

Potential contaminants have also been listed in Tables 4, 5 and 6. However, these are provided for guidance only, as only a full assessment of each AEC will determine which potential contaminants should be tested.

In the event that the study area is rezoned and development applications for the land are submitted, the identified AEC's will require detailed assessment, including invasive sampling to determine, the nature and extent of any contamination.

5.2.7 Conclusions

As a result of this contaminated land study, it is concluded that:

- Due to past agricultural practices there may be potential for contaminants to occur within the Study Area;
- No properties within the Study Area are listed on the EPA website as contaminated or have been reported for contamination events;
- The individual identification of sources of contamination are more appropriately dealt with at the development application stage. The level of these potential contaminants, need to be assessed in relation to future development proposals including the positioning of access, building envelopes and effluent management areas;
- This study has not revealed any broad based contamination issue that would preclude the rezoning of the land for greater residential density;
- This study does not remove any of the assessment provisions that would normally apply at the development application stage, which will require an appropriate subdivision layout and the placement of effluent management areas;
- There is no one major or large contamination source that would preclude the rezoning of the Study Area as a whole; and
- An inspection of the 87 Study Area property files at Council under a GIPA application did not reveal any contamination issues or events of significance.

The assessment process has revealed that the study area contains a number of examples of past activities which may have resulted in contamination either in the past or present. It is concluded however, that the scale and extent of these potentially contaminated sites are considered to be relatively minor in the context of the size of the study area. Furthermore, it is concluded that the application of appropriate development controls at the Development Application stage should ensure that any potential contamination is properly assessed and where appropriate, steps taken to remediate the relevant sites.

In general terms, it is considered that there will be no impediment to the further subdivision of the study area as a result of the findings of this study.

6.0 RECOMMENDATIONS FOR THE FUTURE DEVELOPMENT CONTROLS FOR THE MANAGEMENT AND ASSESSMENT OF POTENTIAL CONTAMINATION SITES AT THE DEVELOPMENT STAGE.

6.1 Introduction

Based on the results of this study, a number of development controls are recommended where land within the study area is to be developed by way of subdivision or other activities requiring development consent. These controls entail both Phase 1 and Phase 2 contaminated site assessments and where appropriate, remediation of confirmed contamination.

6.2 Phase 1 Contamination Assessment

A Phase 1 contamination assessment is to be undertaken on all new development proposals and is to include the following;

- This report and supporting documentation is to be made available to all entities proposing to undertake a development within the study area;
- Review and summarise WSC and NSW Office of Environment and Heritage (OEH) Contaminated Lands Register and historical aerial photos;
- Review existing soil landscape and geological maps;
- Review Section 149 certificates for each property;
- Conduct a detailed search of Wollondilly Shire Council's files for each property;
- Review and summarise individual property histories;
- Assess each property owner subject to the development proposal regarding any potential contaminating activities, either by interview or questionnaire;
- Carry out a visual site inspection of each property affected by the development proposal;
- Undertake judgemental sampling where appropriate;
- Identify the location and extent of AECs; and
- Recommend development controls for the management and assessment of any identified potential contaminated sites.

As a result of this study, the following additional measures are to be undertaken:

- All drainage lines are to be inspected for old refuse and characterized. Where contaminants are suspected, an appropriate area is to be identified as an AEC;
- Land hosting market gardens and other horticultural pursuits currently or in the past are to be designated as AEC's;
- All AEC's (other than those where only orcharding activities have taken place) are to be tested for asbestos as a matter of course;

6.3 Phase 2 Contamination Assessment

Upon the confirmation or identification of any AEC's within a development proposal, including those described in section 5 of this report, a Phase 2 Contamination Assessment is to be undertaken. The objective of a Phase 2 Contamination Assessment is to undertake laboratory analysis of onsite soils to determine if AEC's identified in the Phase 1 Contamination Assessment have resulted in soil contamination to a level that presents or potentially presents a risk of harm to human health and/or the environment.

A Phase 2 Contamination Assessment is to include the following activities:

- A Sampling Analysis Plan (SAP) is to be prepared based on the following criteria:
 - **Volume based:** Where AEC's have been identified as being restricted to a discrete volume of material (such as a stockpile of imported earth), the sampling is to be based on a volumetric approach. The sampling density is to be determined subject to the investigators assessment of the material in question.
 - **Area based:** Where AEC's have been identified over a large area (such as a paddock where agricultural activities have taken place) a grid-based sampling protocol is to be undertaken. The sampling density is to be based on 'Table A' of the NSW EPA guidelines for 'Consultants Reporting on Contaminated Sites'.

- At times there may be instances where both sampling options need to be considered. In such cases, the project environmental scientist will need to determine the optimum sampling regime so as to focus on the areas considered to have the greatest likelihood for contamination.
- The SAP is to include the following details:
 - AEC Number
 - Land Use
 - Area affected (in m²) or volume affected (m³);
 - Number of sampling locations;
 - Application of composite sampling;
 - Sample depths; and
 - Nature of laboratory analysis to be undertaken (reflecting potential contaminants that may be found). All samples are to be analyzed by a NATA registered laboratory.
- All sampling is to incorporate field and laboratory quality assurance and quality controls;
- All analytical results are to be assessed against adopted Health Based Investigation Levels (HIBL's). The main references for these HIBL's include:
 - NEPC (1999): *Measure for Health-Based investigation levels*.
 - NSW EPA (1998): Contaminated Sites. Guidelines for the NSW Site Auditor Scheme.
 - NSW EPA (1994): Contaminated Sites, guidelines for assessing service station sites.
- Where it is suspected that contamination has entered the groundwater system, an appropriate testing regime will be determined and executed; and
- A report on the findings is to be prepared and submitted as part of the conditions of consent for any proposed development.

6.3 Remediation of Contaminated Land

In the event that contamination is identified, a Remedial Action Plan (RAP) is to be submitted which will indicate the measures to be taken to remediate the site affected. The RAP is to be completed inclusive of validation testing and reporting prior to the development being approved.

6.4 Potential Remediation Works

It is not possible at this stage, to develop a specific schedule of actions and types of remediation works that will need to be undertaken should contamination be confirmed at any one site. This is because the extent and level of contaminants are unknown. Each identified contamination site will have its own unique characteristics and will require a unique remediation solution which will be dependent upon the ultimate land use. In general terms however, there will be five main approaches, viz:

- Contaminated sites are left untreated;
- On-site treatment of contamination;
- Off-site treatment of contaminated materials and return of materials to original site;
- Removal of contaminated materials to an appropriately licensed waste facility; or
- Consolidation and isolation of contaminated materials on-site by a properly designed barrier.

The nature of the final land use or "exposure settings" is important in determining any treatment option (Taylor and Langley, 1998). These exposure settings (abbreviated) are:

- 'Standard' residential;
- Residential with substantial vegetable garden;
- Residential with substantial vegetable garden, poultry excluded;
- Residential with minimal opportunities for soil access;
- Parks, recreational open space and playing fields; and
- Commercial/industrial.

Each of these exposure settings have their own acceptable Health Based Investigation Level (HBIL) for any one contaminant.

In certain cases, exceedances of HBILs for a nominated land use can be dealt with by on-site vertical mixing. This has application for general broad-acre agricultural land and may or may not be appropriate for the study area.

In the case of those sites found to be contaminated with asbestos, the likely option is complete removal to an appropriate waste facility.

In conclusion, remediation options are very much dependent on the nature and level of individual contaminants in combination with the proposed land use. Until sites are fully investigated and tested, the most appropriate remediation option cannot be determined.

7.0 LIMITATIONS OF THIS REPORT

This report has been prepared subject to a number of limitations. These include:

- No contamination assessment can eliminate all risk. Even a rigorous professional assessment may not detect all contamination within a site. Contaminants may be present in areas that were not sampled or surveyed, or may migrate to areas which did not show any signs of contamination when sampled. Contaminant analysis cannot cover every type of contaminant that may occur, only the most likely contaminants are screened;
- Site assessment identifies actual sub-surface conditions only at those points where samples are taken and when they are taken. Data obtained from the sampling and subsequent laboratory analysis are interpreted by professional consultants and opinions are drawn about the overall sub-surface conditions, the nature and extent of the contamination, the likely impact on any proposed development and appropriate remediation measures. Actual conditions may differ from those inferred, because no professional no matter how qualified and no sub-surface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than an assessment indicates. Actual conditions in areas not sampled may differ from predictions. Nothing can be done to prevent the unanticipated;
- In preparing this report, Harvest Scientific Services Pty Ltd has relied upon certain verbal information and documentation provided by the client and/or third parties. Harvest Scientific Services Pty Ltd did not attempt to independently verify the accuracy or completeness of that information. To the extent that the conclusions and recommendations in this report are based in whole or in part on such information, they are contingent on its validity. Harvest Scientific Services Pty Ltd assumes no responsibility for any consequences arising from any information or condition that was concealed, withheld, misrepresented, or otherwise not fully disclosed or available to Harvest Scientific Services Pty Ltd.
- The findings contained in this report are the result of discrete/specific methodologies used in accordance with normal practices and standards. To the best of our knowledge, they represent a reasonable interpretation of the general condition of the site in question. Under no circumstances, however, can it be considered that these findings represent the actual state of the site/sites at all points.

The application of conditions of approval or impacts of unanticipated future events could modify the outcomes described in this document. In particular, implications of climate change and/or global warming of any magnitude and extreme rainfall events have not been considered but should they occur, may have a significant impact on the site. The client agrees that such events are possible but nevertheless accepts the risk that they pose.

Prepared by:



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Principal

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APPENDIX 1

Appendix 1: Property Ownership and Description of Field Inspections Completed

Property Record No.	Street No.	Owner	Lot No.	DP No.	Leat Area (ha)	Descriptions from Field Inspections and Identified AEC's (Refer to Figure 4)	AEC's identified from Aerial Photos (Refer to Figure 6)	AEC's identified from Owner Questionnaire (Refer to Figures 4 and 6)	S 148 Certificate Viewed/Not Viewed
1	York Street	Goofing, Jay Marie	31	25,545	2,061				
2	Hilton Park Road		13	11038	0.0275				
4		Bowden, Ann Vienne	1	11038	4.148	Older able residence with accompanying well shed. Major part of property is open paddock with high grass throughout. Contains an elevated artificial mound adjacent to excavated portion and immediately west of railway. AEC 4. Concrete slab in centre suggests previous building.	Numerous elongated shed-like structures - possibly glass in place from 1951 (AEC 4)	Property sheds operating over time. Also several agricultural activities and activating AECs. Soil disturbed by sewerage contents to level land after poultry sheds removed. Farm infrastructure apparently removed.	
5		Galt, William (B) & Marjorie	32	783108	1.223	Standard residence surrounded by numerous verandas - some located on large concrete parking area. Large shed downslope of residence. Bank of creek overgrown with dense vegetation.		No to questions 6-9	
6		Toume, Joseph (Ennwood)	5	11938	3.173	Standard residence. Drainage line through centre with some trees along drainage line - otherwise open well grassed paddocks. Property used for horse agestment and training.			
7		Crawford, Andrew	2	559446	2.084				
8		Porter & Pettell	11	782874	1.315				
9		Anderson, Andrew & Christine	10	782874	2.110				
10		Wells, Peter & Susan, Robin	13	716077	2.070				
11		Boles, Peter & Jessie	41	748608	2.000				
12		Thompson, William & Marjorie	12	719677	2.000	Standard residence with accompanying shed and other minor infrastructure. Minor drainage. Paddock with heavy grass cover. Much of property is open paddock.	Standard residence - from 1955 (AEC 10)	Property used for apple orchards (AEC 10). No to questions 6-9	
13		Derrick, Marc & Christine	11	716077	2.040	Standard residence with shed and pool. Open paddocks with moderate tree cover.	Unroofed paddocks - from 1955 (AEC 12)	Property used for goats and horses. No to questions 6-9	
14		Cook, Wayne & Jeanette	42	786308	1.565				
15		Blount, Michael	32	614455	2.023				
16		Anderson, Tom	10	11938	3.387	Standard residence with sheds and pool. Moderate size dam. Lightly grazed.			
17		Stading, Geoff & Lyn	31	614455	2.071				
18		Duncan, Brian & Christine	21	869533	2.003				
19		Deane, David & Julie	11	71524	2.835				
20		Pascal, David & Suzanne, Debra, Ian	20	869533	1.845	Standard residence. Large dam at entrance to property. Predominantly residential country being constructed. Numerous stockpiles of rock and rubble. Some sheds. Looks like a building site. AEC 20.	Small scale orcharding? 1965 (AEC 20)	No to questions 6-9	
21		Watts, Mark	1	592611	2.831	Standard residence.		No to questions 6-9	
22		Colburn, Denise & Geoff	3	562611	1.197			No to questions 6-9	
23		McPhar, Michael	3	592611	10.819	Ranch style residence with extensive gardens. Also pool house and a row of sheds which contain tools, tools and other equipment. Cattle yards with loading ramp. Property mostly grazed.		No to questions 6-9	
24				55,783	na				
25		Pig-Fin Projects P/L	1	705428	2.023				
26		Davies, Neil & Christine	2	705428	2.083				
27		Davies, Mural	3	705428	3.054				
28				2.031		Old residence oriented due to mine subsidence damage. Property contains extensive old farm infrastructure. Farm and shed sheds. Property used for grazing. Lightly grazed. AEC 27.		No to questions 6-9	
29		MacRae, John	1	244682	2.021	Property used for grazing. Lightly grazed. No visible sign of any infrastructure.		No to questions 6-9	
30		Jarrett, Colin (Nathan's Property)	3	244682	2.021	Vegetable garden. Wall timbered - dense grass. No visible sign of any infrastructure.		No to questions 6-9	
31		Able, John & Amanda	191	619371	2.023	Standard residence. Moderate vegetable garden adjacent to large dam.		Vegetable Garden. No to questions 6-9	
32		Lynch, Leone	14	730970	2.003				
33		Hurak, Joe & Sharon	15	730970	2.003				
34		Pace, Tony (Benart n)	4	244682	2.021	Standard residence. Open paddock - lightly timbered.		Some cattle. No to questions 6-9	
35		McKinn, Mike (Sonia)	16	730970	2.003	Standard residence with garden shed. Wall timbered paddock.		No to questions 6-9	
36		Parsons, Scott & Robyn	3	244682	2.021	Standard residence with sheds. Partial orchard on southern side of property.		No to questions 6-9	
37		Stevens, Corinne & Anna	22	768867	2.007	Standard residence with sheds. Mostly heavily timbered.			
38		Williams, Heather	20	776161	1.605				
39		Solomon, Richard	18	748882	2.007	Standard residence with sheds. Cattle or horse grazing. Loading ramp and yard.		Yes to Q 8. Sand imported from Nesian Quarries for dressage area. Small scale vegetables - cattle, horses, fruit trees. No to questions 6-9.	
40		MacGregor, Stuart & Jo	19	768867	2.003	Standard residence with sheds. Mostly heavily timbered.			
41		Flagg, Eli & Gaye	21	776161	3.078				
42		Pope, Craig	35	685	na				
43		Obvious Place		35,685	na				
44		Thair, Gary & Terry	1	245405	2.576				
45		Oleagine Family (contact Jamie)	8	245405	2.167	Standard residence with sheds and pool. Rins horses. Some a few goats. Well maintained.		No to questions 6-9.	
46		Devier & Dick, Va & M	2	245405	2.119				
47		Gavin, Peter & Terry	7	245405	2.378				
48		Cave, Peter & Lee	6	245405	2.299				
49		Ellery, Maxwell & Janice	3	245405	2.104				
50		Mrs. Susan (B) & John	5	245405	2.142				
51		Davis, Blain	4	245405	2.034				
52		Summerville, Orlando	4	245405	2.034				

APPENDIX 2

Appendix 2: Property Owner Questionnaire

Property Record	Question 3		Question 4				Question 6		Question 7		Question 8		Question 9	
	Period of ownership	Agricultural	Hobby Farm	Industrial or Commercial	Other	Yes	No	Yes	No	Yes	No	Yes	No	
1														
2														
3														
4	79				1	0	1	1	0	1	0	0	1	
5	15				1	0	1	0	1	0	1	0	1	
6														
7														
8														
9														
10	11				1	0	1	0	1	0	1	0	1	
11	33		1			0	1	0	1	0	1	0	1	
12														
13	22		1			0	1	0	1	0	1	0		
14														
15														
16														
17														
18														
19	29		1			0	1	0	1	0	1	0	1	
20	9				1	0	1	0	1	0	1	0	1	
21	14		1			0	1	0	1	0	1	0	1	
22														
23	25		1			0	1	0	1	0	1	0	1	
24														
25														
26														
27	40				1	0	1	0	1	0	1	0	1	
28	40				1	0	1	0	1	0	1	0	1	
29	32				1	0	1	0	1	0	1	0	1	
30	12		1			0	1	0	1	0	1	0	1	
31														
32														
33	8	1				0	1	0	1	0	1	0	1	
34	23				1	0	1	0	1	0	1	0	1	
35	10				1	0	1	0	1	0	1	0	1	
36														
37														
38	25		1			0	1	0	1	1	0	0	1	
39	24		1			0	1	0	1	0	1	0	1	
40														
41														
42														
43	7				1	0	1	0	1	0	1	0	1	
44														
45														
46														
47														
48														
49														
50														
51														
52	35		1			0	1	1	0	1	0	0	1	
53	32		1			1	0	0	1	0	1	0	1	
54														
55	4		1			0	1	0	1	0	1	0	1	
56	50		1			0	1	0	1	0	1	0	1	
57	50		1			0	1	0	1	0	1	0	1	
58														
59														
60														
61	38		1			0	1	1	0	1	0	1	0	
62	7				1	0	1	0	1	0	1	0	1	
63														
64	20	1				0	1	0	1	0	1	0	1	
65														
66														
67														
68														
69														
70														
71	11				1	0	1	0	1	0	1	0	1	
72														
73														
74														
75														
76	25		1			0	1	0	1	0	1	0	1	
77														
78														
79														
80														
81														
82	26				1	0	1	1	0	0	1	1	0	
83														
84														
85														
86	20		1			0	1	0	1	0	1	0	1	
87	30				1	0	1	0	1	1	0	0	1	
88	806	2	16	0	14	1	31	4	28	5	27	2	30	

APPENDIX 3

Appendix 3: Property Ownership and Summary of Council Records

Record No.	Street No.	Current Owner	Lot No.	DP No.	Land Area (ha)	Council Entries for each lot	Precis
York Street							
1		Godfrey, Fay Maree	31	253459	2.066	B294/83	Machinery Sheds
Hilton Park Road							
2	4	Murray-Leslie, Nicholas	13	11938	0.0275	NIL	NIL
3	4	McCormack, Lawrence & Erica	31	793108	0.1795	S280/92	Septic
						B693/92	D
						010.2008.00000627.001	Water Tank
						010.2008.00000486.001	D
						C505-07	Demolition of D
						D284/92	D
4	10	Bowden, Mrs Yvonne	1	11938	4.148	B622/83	Restoration of Building
5	15	Gatt, William (Bill) & Martin	32	793108	1.723	D1609/98	Use Shed as Research Facility
6	20	Touma, Joseph (Earlwood)	5	11938	3.173	B757/84	D
7	25	Crawford, Andrew	2	556946	2.084	B104/98	IGP
						B997/84	D
						S407/94	Septic
						D352/94	D
8	35	Portelli & Portelli	11	792874	1.311	C353-01	DE
9	45	Anderson, Andrew & Christine	10	792874	2.110	C1649/98	G
						B49/95	D ST 19/95
						S19/95	BA 49/95
						B313/93	D ST 125/93
						S125/93	BA 313/93
						D30/95	D
						D132/93	D + Stables
10	49	Wells, Peter & Stucki, Robyn	13	716677	2.070	010.2011.000000421.001	DE
						C938-02	G
						D346/93	TAXI BASE
11	50	Roser, Peter & Jackie	41	786808	2.000	S232/90	BA 373/90
						B373/89	D + G
						B201/82	D
						D168/89	D + G
						D180/87	2 LOT SD
12	55	Thompson, William & Marjorie	12	716677	2.000	S157/91	Septic
						B849/90	SH
						B418/88	ST
						D425/90	SH
13	65	Dench, Mark & Christina	11	716677	2.492	B709/97	IGP
						B741/92	ADDITIONS
						S221/89	Septic
						B305/89	D
						C1588-99	SH
						D214/95	REMOVAL OF 30 GUM TREES
						D140/89	D
14	70	Cook, Wayne & Jeanette	42	786808	1.550	B1126/89	G
						B597/89	IGP
						D180/87	2 LOT SD
15	74	Blount, Michael	32	614455	2.023	B503/92	SH
						B404/87	D
16	75	Anderson, Tom	10	11938	3.387	B882/92	SH
						B578/83	P
						B450/81	G
17	80	Stalling, Geof & Lyn	31	614455	2.071	B30/95	IGP
						B418/88	ST
18	84	Duncan, Brian & Christine	21	806833	2.003	B356/93	D
						S143/93	BA 356/93
						C954-02	SH
						D162/93	D
19	85	Jolliffe, David & Julie	11	11938	2.831	B42/92	P
						B300/85	D
						C374-99	IGP
20	90	Pescud, David & Sanders, Deborah	20	806833	1.845	B193/93	G
						010.2008.000000707.001	D
						C978-07	D
						D284-06	EARTH DAM
21	95	Webb, Mark	1	599811	2.831	B511/84	SH
						D18/97	2 LOT SD
22	99	Colburn, Denise (& Geoff)	2	599811	1.197	B213/91	CARPORT
						C1466-03	PATIO AWNING
						C1265-99	SH
						B828/79	D + G
23	100	McPhee, Michael	3	599811	10.810	B447/82	ALTERATION?
						B380/82	ENSUITE?
Brundah Road							
24	4	Planfirst Projects P/L	4	709428	2.023	B488/96	G

						B609/93	SH
						S169/93	Septic
						010.2011.000000369.001	DRAINAGE INSPECTS FOR 24 D'S
						ID532-05	S96 MOD OF CONSENT
						B1064/85	P
25	2	Davies, Neil & Christine	2	709428	2.083	B1013/89	SH
						B647/85	D
						010.2011.000000369.001	DRAINAGE INSPECTS FOR 24 D'S
						ID532-05	S96 MOD OF CONSENT
26	3	Davies, Muriel	3	709428	3.054	B25/85	D
						010.2011.000000369.001	568 DRAINAGE INSPECTS FOR 24 D'S
						ID532-05	S96 MOD OF CONSENT
						ID532-05	122 SELF CARE UNITS PLUS
						I1245-02	SEPP 5 RETIREMENT VILLAGE
						D153/93	2 LOT SD
27	40	MacRae, John	1	244682	2.031	010.2011.000000457.001	DEMOLITION OF DWELLING
						S98-03	Septic
						C1557-99	D
						C1557-99	D
28	60	MacRae, John	2	244682	2.023	010.2011.000000676.001	D
						010.2011.000000458.001	DEMOLITION OF DWELLING
29	80	Jarrett, Colin (Northern Territory)	3	244682	2.021	NIL	NIL
30	85	Arlei, Juan & Amalia	191	618071	2.023	B141/95	G
						B986/84	D + G
31	95	Lynch, Leonie	14	730970	2.000	S508/50	Septic
						B843/93	CP
						B90/91	AWNING
						B140/88	D
						B499/87	D
						D44/88	D
						D58/88	D
						D9/88	G
						B995/87	G
32	101	Hurtak, Joe & Sheron	15	730970	2.000	B232/87	D
						B821/88	SH
33	100	Pace, Tony (tenant in)	4	244682	2.023	C1447/98	G
						D49-05	TREE CLEARING
						C781-99	EXTENSIONS
34	109	Mladin, Mate Smilja	16	730970	2.000	B698/88	D + DO
						D286/89	DO
35	110	Fletcher, Scott & Robyn	5	244682	2.023	S208/89	Septic
						B260/89	D
						C778-06	ADDITIONS TO BUILDING
						C240-03	G
						D115/89	D
36	115	Simons, Gordon & Anna	17	746882	2.000	B619/91	G
						B1181/88	D
						C275-08	2 STOREY EXTENSION
						C628-05	IGP
						D473/88	D
						D253/88	D
37	130	Williams, Heather	20	776161	1.802	B320/95	IGP
						B348/91	AG GLASSHOUSE
						B588/89	GAMES ROOM D
						B629/88	D
						ID487-06	BOUNDARY ADJUST +2 LOT SD
						D333/88	D
						B659/87	D
38	135	Solomon, Richard	18	746882	2.000	S490/50	Septic
						B233/93	SH
						D199/87	D
						B667/87	SH
39	139	MacGregor, Stuart & Jo	19	746882	2.002	B297/94	P
						S535/50	Septic
						C1273-99	G
						D338/87	D
						B852/87	D
40	150	Flegg, Bill & Gaye	21	776161	3.978	B745/89	IGP
						B659/87	D
41	155	Potter, Craig				?	?
						?	?
						?	?
						?	?
				35.055	ha		
		Glenanne Place					
42	5	Farr, Gary & Terry	1	245495	2.676	B943/90	IGP
						B736/90	G
						B482/88	ST 271/88
						D188/88	D
43	10	Olegario Family (contact Jaime)	8	245495	2.167	S289/90	SEptic
						S130/90	BA 296/90

						B296/90	ST 130/90
						S38/90	BA 98/90
						B98/90	D
						C496-04	OUT BUILDING
						C1282-99	P
						D160-99	DO
						D66/90	D
44	15	Dexter & Duck, Ms & Mr	2	245495	2.119	B567/95	G
						B100/93	P
						S303/50	Septic
						B539/90	P
						B948/88	D
						D378/88	D
45	16	Carlin, Peter & Kerry	7	245495	2.378	B631/95	G
						C1197-99	EXTENSIONS
46	20	Case, Bob & & Lee	6	245495	2.299	B820/89	CONVERSION OF G TO RUMPUS R
						B442/84	CP
						B388/83	SH
						C208-01	P
						C1357-99	G
						B859/81	P
						B669/71	D
47	25	Ellery, Maxwell & Janice	3	245495	2.109	B1211/88	SH
						B329/83	D
						C1192-01	EXTENSIONS
48	30	Mine Subsident Board, Darren Bullock	5	245495	2.142	B486/90	DO
						B435/85	EXTENSIONS
						D242/90	EXTENSIONS
						B816/87	P
						B358/80	D
49	35	Summerhayse, Chanelle	4	245495	2.434	B881/81	IGP
						B216/80	D

				11.639	ha	C13-08	DEMOLISH HOUSE AND ERECT NEW
						C604-05	G + CP
		Tickle Drive					
50	5	Cameron, Lawrence & Christine	22	245153	0.4046	C13-08	DEMOLISH HOUSE AND ERECT NEW
						C604-05	G + CP
51	9	Archer, Ross & Debra	211	716676	2.000	D1502/98	HOME OFFICE
						B193/97	SH
						B663/96	IGP
						B621/94	D
						D260/94	D
52	19	Sell, Barbara	210	716676	11.080	NIL	NIL
53	25	Deeth, Wayne & Lyn	202	850429	10.770	C502-05	SH
						B1/95	DOUBLE G
						B192/82	D
						D201/95	D
						D71/95	2 LOT SD
54	35	Deeth, Wayne & Lyn	201	850429	2.000	B409/95	D
						S175/95	BA 409/95 SPRAY IRRIGATION
						B1/95	DOUBLE G
						B192/82	D
						D201/95	D
						D71/95	2 LOT SD
55	30	Munzenrieder & Munzenrieder	192	618071	3.188	B844/90	P
						B545/83	D
56	45	Dymond, Alan & Mavis	101	613474	16.000	NIL	NIL
57	60	Dymond, Alan & Mavis	3	606962	2.575	B518/94	SH
						B1470/88	G
						010 2010.0000000827.001	SH
						D284/87	D
						B702/87	D
58	55	Hawke, Bernard & Leonie	102	613474	0.3800	B773/97	IGP
						B543/90	ADDITION OF VERANDAH/PATIO
						S432/89	Septic
						B636/89	D
						D316/89	D
59	59	Dymond, Alan & Mavis	103	613474	0.3600	S186-03	Septic
						C638-03	D + IGWATERTANKS
						C638-03	D + IGWATERTANKS
60	65	Goodchild, Pat & Hilde	104	613474	16.000	NIL	NIL
61	70	Cronin, Mike & Margaret	2	920876	7.647	B234/92	SH
						CDC27-04	RAINWATER TANK
				72.405	ha		
		Rita Street					
62	69	Touma, Joe & Palamara, Vivian	13	245153	5.515	B866/91	SH
						B293/83	G
						B205/86	P
63	77	Martin, Peter & Heather	14	245153	2.023	D398/93	MARKET GARDEN
						D303/92	TEN IGLOOS
						B447/84	ADDITION
						B461/80	G
64	85	Boustani, Zafer	15	245153	2.023	B832/90	7 IGLOOS
						B167/90	4 IGLOOS
						B1271/88	GLASS HOUSES
						B524/79	D
						B693/81	ST
						B968/81	AWNING
						B711/80	G
65	95	Brown, Malcom & Wood, Leonie	16	245153	2.023	B689/92	P
						B459/89	G
						C827-07	SH
66	105	Wagner, Rob & Cathy	17	245153	2.023	B670/94	ADDITION TO DWELLING
						B834/91	P
						B347/83	D
						B263/86	P
67	115	Milosevic, Drago & Barbara	18	245153	2.023	B684/81	G
						B424/80	BBQ AREA
						B424/82	D
				39.277	ha		
		Bell Street - no interest					
68	5	Healy, Richard & Margaret	141	751270	0.9712	B456/85	D
						010 2012.000000039.001	CARPORT TO GARAGE
						010 2012.000000039.001	ALTERNATION TO DWELLING
69	15	Brown, Gary & Heather	140	751270	1.011	B40/95	IGP
						B1184/88	G
						C749-04	DEMOLISH 2 CHIMNEYS
				1.011	ha		
		Dennis Street					
70	15	Nock, Norma	142	751270	1.009	B474/97	G
						B435/97	NON-HABITABLE ENCLOSURE
						B473/95	D

						S200/95	BA 473/95 SPRAY IRRIGATION
						D271/95	D
71	25	Muzevic, Mario & Rhonda	153	751270	1.224	C610-04	AWNING
						S65-01	Septic
						C308-02	D
						C308-02	D
						S65-01	Septic
						CDC335-01	G
72	35	Said, Joe & Patricia	156	751270	1.019	B778/94	D
				3.252	ha	S335/94	BA 778/94
						D323/94	D
		Jarvis Street					
73	15	Grice, Trevor & Sue	154	751270	1.266	B705/94	D
						S309/94	BA 705/94
						C304-04	G
						D281/94	D
	(road)	Grice, Trevor & Sue	100	1030976	0.2044	NIL	NIL
				1.470	ha		
		Denmead Street					
74	3	Coenan, Kristine	A	365658	0.7942	B788/96	EXTENSIONS
						S160/90	CONVERSION
						B788-96	S96 MODIFICATION
75	9	Schultz, Norm & Nenda	D	365658	2.274	S571/50	Septic
						B266/87	D
						010.2011.0000000260.001	Septic
						010.2009.0000000435.002	S96 MODIFICATION
						010.2009.0000000435.001	DEMOLISH EXISTING HOUSE
76	15	Maljevac, Nada	1	734881	2.000	B201/90	D
						S94/90	BA 201/90
						D121/90	D + SH
77	25	Ledbrook, Ray & Maree	2	734881	1.730	D320/88	D
						CDC1272-01	P
78	35	Burnus, Stan & Eileen	C	365658	2.874	B56/83	D
						C505-01	ADDITIONS TO BUILDING
79	30	Kaiser, Martin	143	751270	1.484	B880/96	P
						S154/89	Septic
						B1364/88	D
						010.2012.0000000168.001	Connect to Sewer
						C80-99	G
						D559/88	D
						018.2011.0000000103.001	2 X SH
80	40	Smith, Ian & Marilyn	155	751270	1.388	B574/94	D
						S229/94	Septic
						D312/94	CLEARANCE OF TREES
						D248/94	D
81	41	Agius, Anthony	158	751270	1.290	S282-00	Septic
82	60	Pye, Ray & Veronica	173	751270 C3655-2041	2.029	B273/83	P
						B136/82	D
				15.069	ha		
		Leonard Street - no interest					
83	Lot 157	Shepherd, Geof, Barry & Deborah	157	751270	1.464	NIL	NIL
84	25	Feigler, Anthony, Jonathon & Elfrieda	169	751270	1.651	NIL	NIL
85	5	Culhane, Danielle & Potts, Robert	170	751270	1.846	C1582/98	D
				4.961	ha		
		Thirlmere Way					
86	195	Mitchell, Russell (Camden)	172	751270	1.646	NIL	NIL
87	235	Smith, Colin & Viv	167	751270 C3902-2041	3.645	B436/89	
				8.788	ha	B123/84	G
						B452/83	CP
						010.2011.0000000120.001	AWNING
						B83/87	ADDITIONS
						B909/86	PATIO
						B972/80	D
						B1113/82	PATIO

Abbreviations:

ASC = APPROVED BY WOLLONDILLY SHIRE COUNCIL SUBJECT TO CONDITIONS.

D = DWELLING

P = POOL

IGP = IN GROUND POOL

G = GARAGE

DE = DWELLING AND EXTENSIONS

SD = SUBDIVISION

SH = SHED

ST = STABLE

P = PERGOLA

CP = CARPORT

D0 = DUAL OCCUPANCY

APPENDIX 4

Appendix 4: Historic Property Search

Record No.	Street No.	Owner	Lot No.	DP No.	Land Area (ha)	Transfer Date	Last Transfer	Transfer Date	Second Last Transfer
	York								
1		Godfrey, Fay Maree	31	253459	2.066	30/04/1979	RTW Baker (Bus driver)	12/09/1977	
	Hilton Park Road								
2	1	Murray-Leslie, Nicholas	13	11938	0.0275	11/12/1968			
3	4	McCormack, Lawrence & Erica	31	793108	0.1795	24/11/2003	Wj and LJ Potter	11/09/1992	T and I Kirmanen
4	10	Bowden, Mrs Yvonne	1	11938	4.148	18/11/1982	HC Bowden	24/02/1957	HE Bowden
5	15	Gatt, William (Bill) & Martin	32	793108	1.723	22/12/2003	GR and SA Grant	20/07/1999	MM Kennedy
6	20	Touma, Joseph (Earlwood)	5	11938	3.173	15/02/2006	GJ Cord and RG Lufman	19/08/2005	WJ Cord
7	25	Crawford, Andrew	2	556946	2.084	17/03/1994	BM and L Maronese	11/05/1988	
8	35	Portelli & Portelli	11	792784	1.311	29/11/2006	PA and F Kilmister		
9	45	Anderson, Andrew & Christine	10	792784	2.110	6/05/2002	WF and CA Ferrari	27/01/1995	LJ and AM Steel
10	49	Wells, Peter & Stucki, Robyn	13	716677	2.070	13/03/2001	BD and MA Lowe	18/01/1989	NG, CS and AB Miller
11	50	Roser, Peter & Jackie	41	786808	2.000	31/12/1982	PJH and JA Roser	16/10/1979	PJH Roser and JA Collett
12	55	Thompson, William & Marjorie	12	716677	2.000	28/06/1988	Miller Family	9/06/1964	
13	65	Dench, Mark & Christina	11	716677	2.492	8/03/1988	PW Morris and BJ Walsh	3/03/1986	NG, CS and AB Miller
14	70	Cook, Wayne & Jeanette	42	786808	1.550	14/11/1996	PJH and JA Roser	30/03/1989	PJH Roser and JA Collett
15	74	Blount, Michael	32	614455	2.023	13/02/2007	MK and K Blount	8/05/1991	
16	75	Anderson, Tom	10	11938	3.387	23/02/1988	RG and J Burton	24/10/1985	MD (medical practioner) and CM Matthews
17	80	Stalling, Geof & Lyn	31	614455	2.071	15/10/1987	GF and LF Stalling	14/09/1981	AM and N Hickey
18	84	Duncan, Brian & Christine	21	806833	2.003	29/01/1991	G Robinson	17/06/1988	M Bell (Maintenance Supervisor and J Freeman)
19	85	Jolliffe, David & Julie	11	11938	2.831	9/08/1983	DE (driver) and M Willoughby		
20	90	Pescud, David & Sanders, Deborah	20	806833	1.845	20/10/2003	J Masuch	20/10/2003	KAE Abrams
21	95	Webb, Mark	1	599811	2.831	25/03/2004	MR Webb and AJ Cockburn	4/03/1998	PJ and GM Cassidy
22	99	Colburn, Denise (& Geoff)	2	599811	1.197	30/01/2006			
23	100	McPhee, Michael	3	599811	10.810	?			
				55.932	ha				
	Brundah Road								
24	1	Planfirst Projects P/L	1	709428	2.023	24/04/2002	DJ and DR Barry	1/05/1985	HW Davies (Miner)
25	2	Davies, Neil & Christine	2	709428	2.083	26/04/2012	NH (Horse Trainer) and CM Davies	30/10/1985	HW Davies (Miner)
26	3	Davies, Muriel	3	709428	3.054	30/11/2011	MA Davies	7/01/1985	HW and MA Davies
27	40	MacRae, John	1	244682	2.031	11/07/1989	JP (Salesman) and PA Macrae	17/01/1975	Bower Properties Pty Limited
28	60	MacRae, John	2	244682	2.023	11/07/1989	JP (Salesman) and PA Macrae	17/01/1975	Bower Properties Pty Limited
29	80	Jarrett, Colin (Northern Territory)	3	244682	2.021	17/12/1980	BG and EM Greaves (administration officer) and WM and ME Wallace		Bower Properties Pty Limited
30	85	Arlie, Juan & Amalie	191	618071	2.023	6/03/2001	KW and CI Wilson	23/09/1981	
31	95	Lynch, Leonie	14	730970	2.000	5/08/2009	PJ Van Klooster and S McCourt	9/04/2002	PJS George and F White

32	101	Hurtak, Joe & Sheror	15	730970	2.000	10/03/1987	Miller Family	9/06/1964	AG Miller
33	100	Pace, Tony (tenant in	4	244682	2.023	18/05/2004	DJ and AJ Hamwell	21/12/1998	RL and J Darling
34	109	Mladin, Mate Smilje	16	730970	2.000	1/07/1988	Miller Family	9/06/1964	
35	110	Fletcher, Scott & Robyr	5	244682	2.023	30/04/2002	A Marcon (labourer)	30/04/2002	RG McGuire (self employed) and EM Murray
36	115	Simons, Gordon & Anne	17	746882	2.000	16/04/2002	JI and S Szepesi	21/09/1987	NG, CS and AB Miller
37	130	Williams, Heather	20	776161	1.802	9/08/1988	IJC and HN Williams	28/10/1986	WF and GR Flegg
38	135	Solomon, Richard	18	746882	2.000	9/09/1987	RR Solomon (Dentist) and JA Hardinge	27/08/1987	NG, CS and AB Miller
39	139	MacGregor, Stuart & Jo	19	746882	2.002	9/06/1964	Miller Family	2/07/1951	AG Miller
40	150	Flegg, Bill & Gaye	21	776161	3.978	28/10/1986	VC and CA Icedale	7/02/1984	
41	155	Potter, Craig							
				35.055	ha				
		Glenanne Place							
42	5	Farr, Gary & Terry	1	245495	2.676	21/04/1998	DL Newland (machinist)		
43	10	Olegario Family (contact Jaime	8	245495	2.167	11/02/2004	GD & RA Medley	21/07/1989	BF and PD Cramsie
44	15	Dexter & Duck, Ms & Mi	2	245495	2.119	3/10/2006	CS and JP Dean	23/09/1992	JM & JM Anderson
45	16	Carlin, Peter & Kerry	7	245495	2.378	21/06/1978	SE Wilson		
46	20	Case, Bob & Lee	6	245495	2.299	10/04/1979	Families Warren, Allison and Warren as joint tenants.	22/10/1975	RJ & LC Case
47	25	Ellery, Maxwell & Janice	3	245495	2.109	11/03/1999	BR and RK Madden	31/12/1985	Millbeck Properties Pty Ltd
48	30	Mine Subsident Board, Darren Bullock	5	245495	2.142	19/11/2008	DP & LY Dargan	19/05/2008	BJ Graham & JC Hutchinson
49	35	Summerhayse, Chanelle	4	245495	2.434	6/07/2004	S Jakucs & CM Boots	5/10/2000	RF and J McCarthy

				11.639	ha				
		Tickle Drive							
50	5	Cameron, Lawrence & Christine	22	245153	0.4046	20/07/2004	CG and ML Gunther	1/08/1978	RJ and IG West
51	9	Archer, Ross & Debra	211	716676	2.000	15/12/1995	JM and MR Archer	1/12/1993	R and DA Archer
52	19	Sell, Barbara	210	716676	11.080	12/07/2006	T (coal miner) and BJ Sell	6/08/1980	LJ (police constable) and JM Roberts
53	25	Deeth, Wayne & Lyn	202	850429	10.770	24/08/1982	WD Deeth (School teacher) and LE Dun (physiotherapist)	7/05/1979	AJ (builder) and MD Brown
54	35	Deeth, Wayne & Lyn	201	850429	2.000	24/08/1982	WD Deeth (School teacher) and LE Dun (physiotherapist)	7/05/1979	AJ (builder) and MD Brown
55	30	Munzenrieder & Munzenrieder	192	618071	3.188	5/01/2009	NJ and D Hayter	12/07/2004	
56	45	Dymond, Alan & Mavis	101	613474	16.000	?			
57	60	Dymond, Alan & Mavis	3	606962	2.575	?			
58	55	Hawke, Bernard & Leonie	102	613474	0.3800	11/02/2003	PJ Dymond		
59	59	Dymond, Alan & Mavis	103	613474	0.3600	24/09/1986	AJ and MJ Dymond		
60	65	Goodchild, Pat & Hilde	104	613474	16.000	9/05/1984	AJ and MJ Dymond		
61	70	Cronin, Mike & Margaret	2	920876	7.647	21/12/1973	EP Jamieson		
				72.405	ha				
		Rita Street							
62	69	Touma, Joe & Palamara, Vivia	13	245153	5.515	10/11/2003	HS and LG Szczerbanik	10/02/1989	
63	77	Marlin, Peter & Heather	14	245153	2.023	7/04/1977	HJ Cucis	16/09/1976	
64	85	Boustani, Zafar	15	245153	2.023	23/04/2012	G Safi, HM and ZM Boustani	26/09/1990	
65	95	Brown, Malcom & Wood, Leonie	16	245153	2.023	4/08/1988	BD (electrician) and BV Roberts	1/11/1976	
66	105	Wagner, Rob & Cathy	17	245153	2.023	28/04/1986	P Telac	30/10/1980	OA (radio announcer) and HO Delaney
67	115	Milosevic, Drago & Barbara	18	245153	2.023	14/09/1979	G Matheson	30/01/1974	
				39.277	ha				
		Bell Street - no interest							
68	5	Healy, Richard & Margaret	141	751270	0.9712	22/09/2011	DW and AJ Wakeling	12/11/1993	
69	15	Brown, Gary & Heather	140	751270	1.011	13/04/1988	MHG and MK Fennell	8/02/1985	
				1.011	ha				
		Dennis Street							
70	15	Nock, Norma	142	751270	1.009	29/11/1988	WT (travelling showman) and NM Nock	15/07/1985	
71	25	Muzevic, Mario & Rhonda	153	751270	1.224	22/06/2000	BJ Toovey	19/07/1993	BJ Toovey and BV Shearer
72	35	Said, Joe & Patricia	156	751270	1.019	28/01/1994	BV Shearer	30/03/1993	BJ Toovey and BV Shearer
				3.252	ha				
		Jarvis Street							
73	15	Grice, Trevor & Sue	154	751270	1.266	10/06/1993	TG and SE Grice and BJ Toovey and BV Shearer		
	(road)	Grice, Trevor & Sue	100	1030976	0.2044				
				1.470	ha				
		Denmead Street							
74	3	Coenan, Kristine	A	365658	0.7942	27/07/2006	GG and KA Coenen	27/01/1994	GR and DM Johnston
75	9	Schultz, Norm & Nerida	D	365658	2.274	6/02/1984	NH Davies	2/12/1980	Burns Philip Trustee Company Limited
76	15	Maljevac, Nad	1	734881	2.000	11/03/1994	JZ and N Maljevac	9/10/1986	AL, JM and BR Hand
77	25	Ledbrook, Ray & Maree	2	734881	1.730	7/09/1988	M Serretti (restaurateur)	9/02/1988	BA and M Allison

[illegible]

APPENDIX 5

Plate 1

Storage shed-disused. Carries old fuel and gas drums and building materials. Support timbers painted with creosote preservative.



Plate 2

Old fuel drums, car body parts and assorted waste on creek bank.



Plate 3

Limited quantity of old car parts in drainage line. Stockpile of shale (imported?) in background and now grown over.



Plate 4

*Abandoned vehicle in drainage
line.*

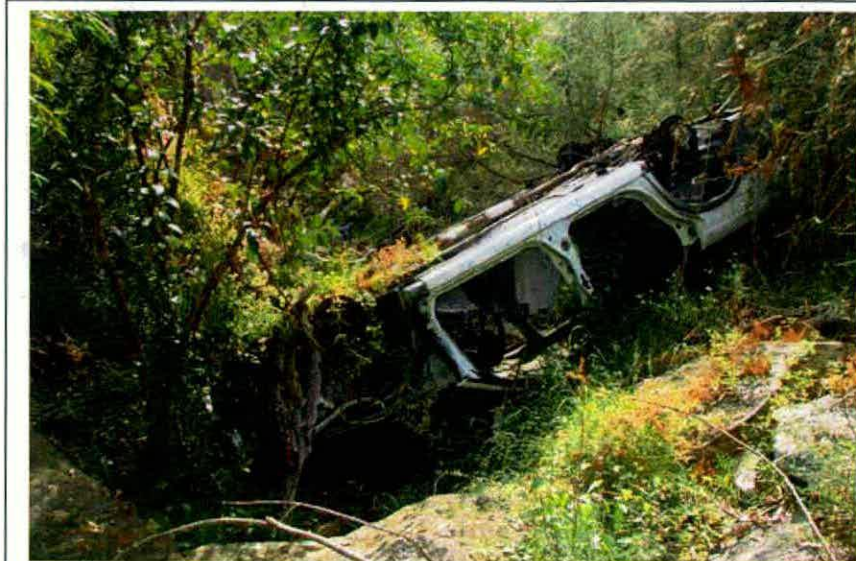


Plate 5

*Typical stockpile of household
and farm waste ready for
disposal or burning.*



Plate 6

*Cattle loading ramp - often
associated with other mustering
yards.*

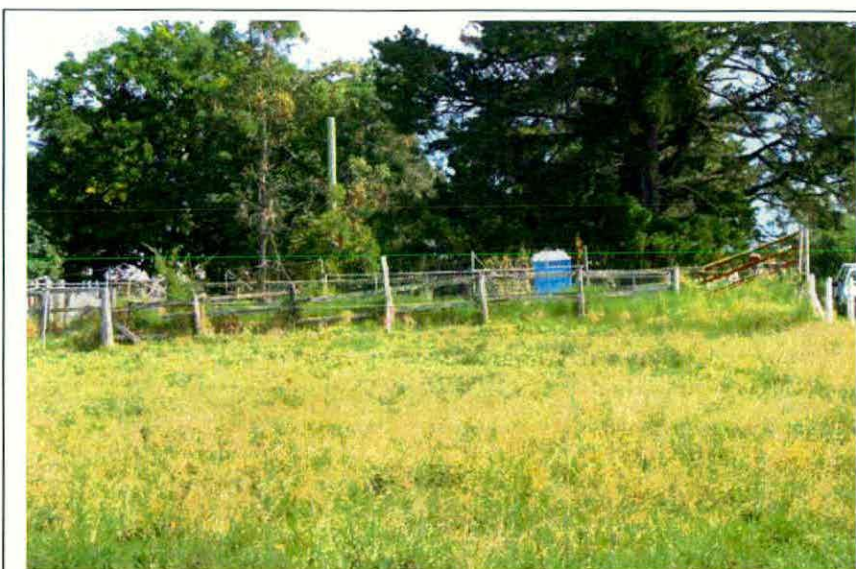


Plate 7

Disused poultry shed now used for storage of old farm equipment.



Plate 8

Disused poultry shed constructed from corrugated steel and fibro (base of wall) sheeting.



Plate 9

Work shed and office/storage constructed from fibro sheeting (LHS) and corrugated iron (RHS).

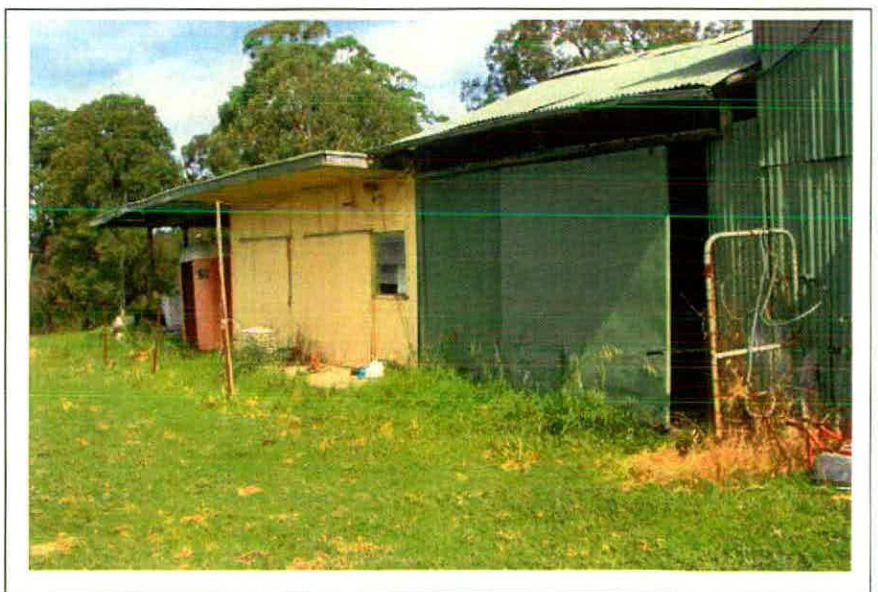


Plate 10

Work area for truck maintenance operations. Host to various items of machinery, fuel drums and assorted waste.



Plate 11

Stockpiles of imported bitumen road gravel



Plate 12

Intensive hydroponic industry.



Plate 13

Another example of an old farm shed constructed from timber and corrugated iron preserved for current storage use. Stores typically fuel, fertiliser and farm machinery and equipment.



Plate 14

Small scale sawdust generation enterprise. Stockpiles of sawdust, and associated machinery – some discarded.



Plate 15

Old style farm sheds – these being constructed almost wholly of corrugated fibro sheeting.

