

# *Supplementary Aboriginal Heritage Assessment*

FOR A PROPOSED WIND FARM

AT

BLACK SPRINGS

*Job Reference No.: 23219*  
OCTOBER 2006

**Prepared for:**  
Wind Corporation Australia Limited  
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Job Reference 23219 – October 2006



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PROJECT: SUPPLEMENTARY ABORIGINAL HERITAGE ASSESSMENT – PROPERTY DETAILS	
CLIENT:	WIND CORPORATION AUSTRALIA
OUR REF	23219
DATE:	OCTOBER 2006
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## EXECUTIVE SUMMARY

Wind Corporation Australia has proposed the construction of wind farm at Black Springs, near Oberon. A Draft Heritage Assessment was prepared initially by Environmental Resource Management (ERM) in 2005 for a 33 turbine wind farm covering four properties.

A review of the project has led to a revised proposal for 9 turbines on two properties. In 2006 Harper Somers O'Sullivan (HSO) assumed control of the project and the reporting process. This Heritage Report supplements and updates the Draft Heritage Assessment produced by ERM, addresses changes to the proposal and provides final recommendations.

The area proposed for Black Springs Wind Farm is covered largely by pasture grasses with development restricted to tracks, land clearing and modification of drainage lines for the construction of dams.

No Aboriginal cultural heritage sites *or* historic sites were located during the HSO archaeological survey. The previous survey conducted by ERM located a number of sites, only one of which is in proximity to the revised proposal. This site will not be affected by development.

It is considered there are no archaeological constraints associated with the proposed development. However it must be noted that if during the course of construction work Aboriginal cultural material is found, work should cease immediately and the Department of Conservation and Pejar Local Aboriginal Land Council (PLALC) notified. Activity should only recommence when appropriate and approved management provisions are in place.





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# 1 INTRODUCTION

Harper Somers O'Sullivan (HSO) have been commissioned to prepare an Environmental Assessment under Part 3A of the *Environmental Planning and Assessment Act 1979* for Wind Corporation Australia Limited for a proposed Wind Farm at Black Springs near Oberon in New South Wales.

In relation to heritage issues the majority of the survey work and subsequent report has previously been dealt with by Environmental Resource Management Australia (ERM) in June 2005. Subsequent alterations to the size and layout of the Black Springs Wind Farm have resulted in a requirement by HSO to finalise the work of ERM and to conduct an additional survey on land not previously considered affected.

The ERM Heritage Assessment (June 2005) has covered all background data required by the Department of Environment and Conservation (DEC) and the NSW Heritage Office with regard heritage surveys for Aboriginal and post-contact sites respectively. Refer to Attachment 1.

This Supplementary Aboriginal Heritage Assessment supplements and finalises the work of ERM and will:

- describe and detail the changes made to the proposal for the Black Springs Wind Farm;
- report on the results of the additional survey conducted by HSO and described above;
- provide Tables for the surveys conducted by both ERM and HSO; and
- provide final recommendations.

## 1.1 Authorship

The ERM Report was written by archaeologist Tudur Davies with document review by ERM Principal Archaeologist, Neville Baker.

This Supplementary Report is produced by Laraine Nelson, Archaeologist for HSO.

## 1.2 Alterations to the Proposed Wind Farm

The original proposal for the Black Springs Wind Farm was for 33 towers or turbines with the following properties surveyed; Mount Bathurst, Daisybank, Acqualoria (the family name Mozetti is used in the ERM Report) Winton Park and Fernlee. Refer to Figure 1-1.

The new proposal is for nine towers with the properties affected limited to Daisybank and Acqualoria. Refer to Figure 1-2.

## 1.3 Development Impacts

Black Springs Wind Farm will be the same type as described in the ERM (June 2005) Report and HSO Environmental Assessment (2006) with the same construction process. The alteration is to the number of towers (now nine not 33) and the area and properties affected. In brief:

- Each tower will be a maximum height of 110m with a footprint of 4.5m in diameter. Overall construction will affect an area of 16m X 16m.

- Temporary tracks of 4m to 5m in width will be required during the construction phase.
- Trenches will be required for the laying of tower connecting cables. These will approx. 1.5m in width and 0.5m to 0.75m in depth.
- Construction of a substation and facilities building on Daisybank will cover 30m X 60m and 10m X 15m respectively.
- Negligible tree clearance will be necessary.

## **1.4 Scope of Assessment**

ERM 2005 (12.4) covered the criteria required for Indigenous and non-Indigenous heritage assessment. Refer to Attachment 1.

## **1.5 Partnership**

ERM 2005 (12.7), on advice from DEC, worked in partnership with PLALC during the original surveys and during the reporting process.

HSO continued the partnership liaising with Delise Freeman, Coordinator PLALC and conducting fieldwork with Justin Boney.

## **1.6 Legislative Context**

It is incumbent on any land manager to adhere to legislative requirements that protect indigenous cultural heritage in NSW. The relevant legislation is:

### NSW National Parks and Wildlife Act 1974, Amendment 2001 (NPW Act).

Section 90. *A person must not destroy, deface, damage or desecrate, or cause or permit the destruction, defacement, damage or desecration of, an Aboriginal object or Aboriginal place.* The NPW Act provides statutory protection for all Aboriginal relics (not being a handicraft made for sale) with penalties levied for breaches of the Act.

Aboriginal Places (that may or may not contain archaeological material) are given protection under Section 84 of the NPW Act. This is a place that, *in the opinion of the Minister, is or was of special significance with respect to Aboriginal culture, to be an Aboriginal place for the purposes of this Act.*

### Environmental Planning and Assessment Act 1979 (EP&A Act)

The Act regulates a system of environmental planning and assessment for New South Wales. Land use planning requires that environmental impacts are considered including the impact on cultural heritage and specifically Aboriginal heritage. Within the EP&A Act Parts III; IV; V relate to Aboriginal heritage.

Part III: regulates the preparation of planning policies and plans; Part IV: governs the manner in which consent authorities determine development applications and outlines those that require an environmental impact statement; Part V: Under this State government agencies that act as determining authorities for activities conducted by that agency or by authority from the agency are regulated. The National Parks and Wildlife Service is a Part V authority under the EP&A Act.

In brief, the NPW Act provides protection for Aboriginal objects or places while the EP&A Act ensures that Aboriginal cultural heritage is properly assessed in land use planning and development.

Other legislation of relevance to Aboriginal cultural heritage in NSW include: NSW Heritage Act (1977) and NSW Local Government Act and at the Federal level: Aboriginal and Torres Strait Islander Heritage Protection Act (1984) and Australian Heritage Commission Act (1975).

#### Heritage Act 1977

This Act provides the legislative framework for protecting the heritage of NSW. The Act is administered by the NSW Heritage Office. The Office maintains the State Heritage Register (State Significant Items) and the State Heritage Inventory (Items listed on statutory lists in NSW). It is a requirement under the Act that a Permit issued by the NSW Heritage Office is required for any activity that may disturb a site or a potential site.



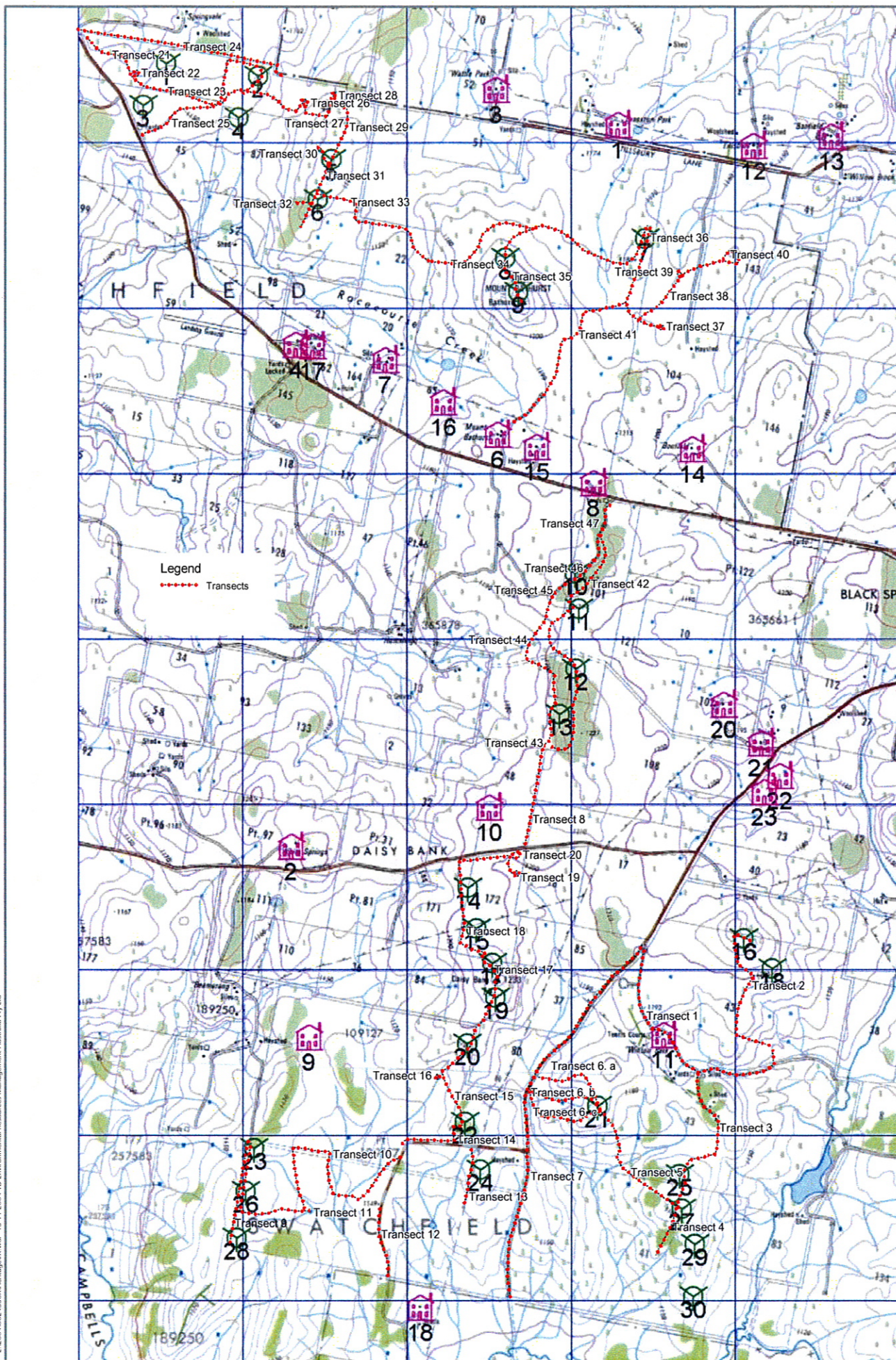


Figure 4

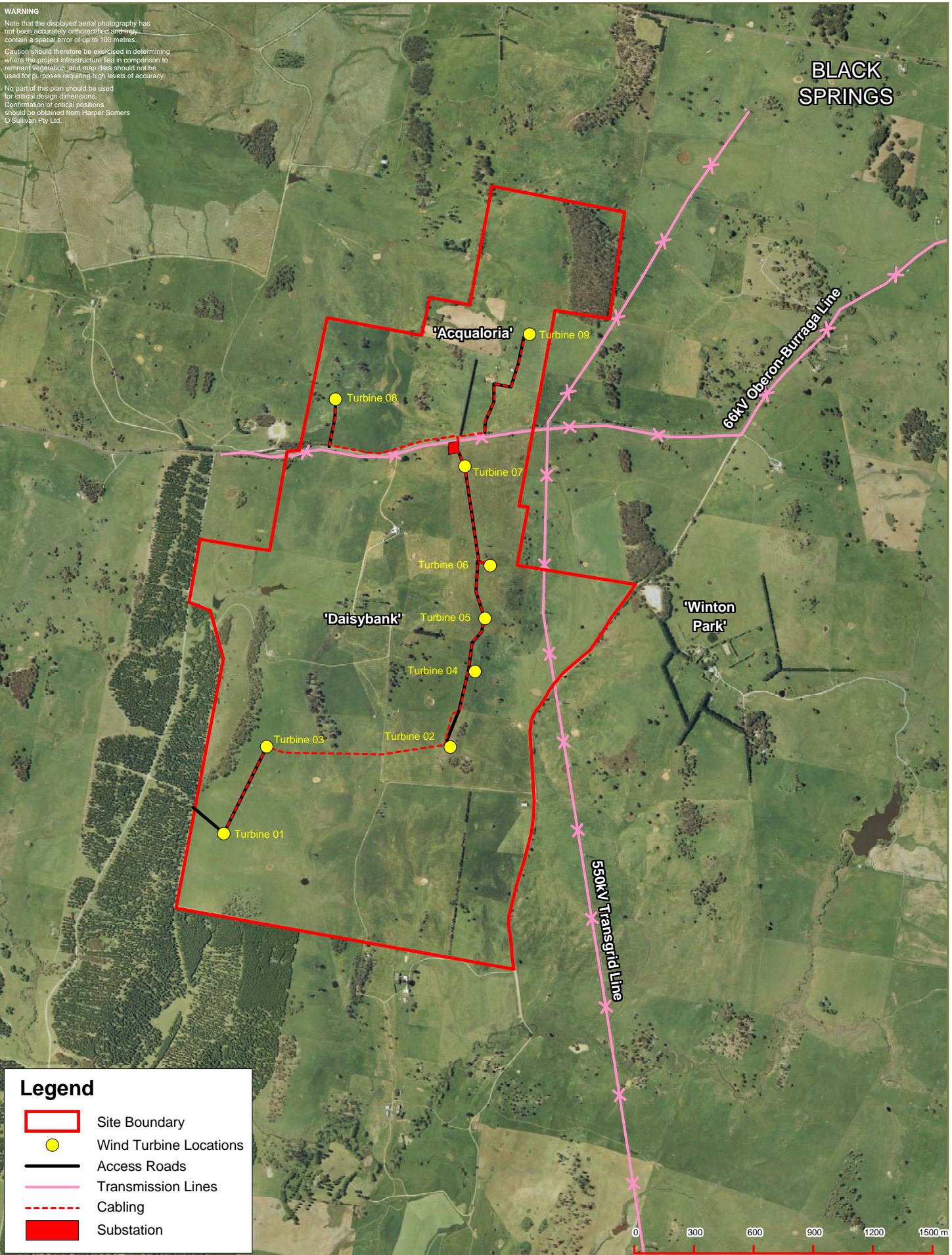
Location of Transects Surveyed During Fieldwork

Amendment to SEPP 59



# WARNING

Note that the displayed aerial photography has not been accurately orthorectified and may contain a spatial error of up to 100 metres. Caution should therefore be exercised in determining where the project infrastructure lies in comparison to remnant vegetation, and map data should not be used for purposes requiring high levels of accuracy. No part of this plan should be used for critical design dimensions. Confirmation of critical positions should be obtained from Harper Somers O'Sullivan Pty Ltd.



## Legend

- Site Boundary
- Wind Turbine Locations
- Access Roads
- Transmission Lines
- Cabling
- Substation



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AMENDMENT	DATE	TYPE
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**SCALE:** 1: 25000 at A4 Size  
**DATE:** 15/08/2006  
**DATUM:** AMG Zone 55 (AGD 66)  
**CONTOUR INTERVAL:**  
**DESIGNED:** P. HILLIER  
**APPROVED:** T. LAMBERT

**ABORIGINAL HERITAGE ASSESSMENT**  
**BLACK SPRINGS WIND FARM, OBERON LGA**

**FIGURE 1-2**

## PROJECT LAYOUT

**LAYOUT REF:** J:\JOBS\23k23219 - Black Springs\ Drafting\Mapinfo\23219-FIG 1-2 PROJECT LAYOUT-B-A4

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**23219**

**PAGE 5**



## **2 ENVIRONMENTAL CONTEXT**

Refer to Attachment 1 - ERM 2005 (12.8 – 12.12)

## **3 HISTORICAL HERITAGE CONTEXT**

Refer to Attachment 1 - ERM 2005 (12.13 – 12.17)

## **4 ABORIGINAL HERITAGE CONTEXT**

Refer to Attachment 1 - ERM 2005 (12.18 – 12.21)

## **5 FIELD SURVEY**

For the initial survey conducted by ERM see Attachment 1 (12.22 – 12.25).

The alteration to the original Wind Farm proposal required an additional area be surveyed by HSO in conjunction with PLALC. This was conducted on 19 October 2006 by Laraine Nelson (Archaeologist, HSO) and Justin Boney (Sites Officer, PLALC).

### ***5.1 Fieldwork Methodology***

To ensure consistency in both surveying and reporting the methodology of ERM was adopted by HSO for the supplementary survey.

### ***5.2 Survey***

The HSO archaeological survey focussed on the limited areas of good visibility. The majority of the site is covered by dense pasture grasses with exposures limited to tracks and areas of scant grass cover. The survey was largely conducted on foot.

In Transect 1 the distance was covered by vehicle with stops in areas with visibility. Along the road and tracks introduced road base provided some background noise. Any areas that provided ground visibility were examined. Refer to Figure 5.1 - Transects conducted by ERM and Figure 5.2 – Transects conducted by HSO.

### ***5.3 Fieldwork Results***

The survey conducted by ERM (2005) located seven sites, one isolated find, five artefact scatters and a chert quarry site. The archaeological sensitive area of Mount Bathurst, identified by both PLALC and ERM will not be affected by development. With the exception of Black Springs 5, all located archaeological sites are in areas not affected by the revised Wind Farm proposal. Black Springs 5, with eleven quartz artefacts consisting of one core and ten flakes, was in the banks of an artificially created small dam. The Report author concludes that the area is highly disturbed and that the artefacts have most likely been relocated within the site.

See Attachment 1 - ERM Report (June 2005) Annex D

The HSO survey did not locate any artefacts this may be a result of the limited area of exposures available for examination or that the area was not favoured for repeated use or habitation. Refer to Figure 5.3 - Transect notes – Surveys conducted by ERM

2005 and HSO 2006 and Figure 5.4 - Effective Coverage – ERM 2005 and HSO 2006.

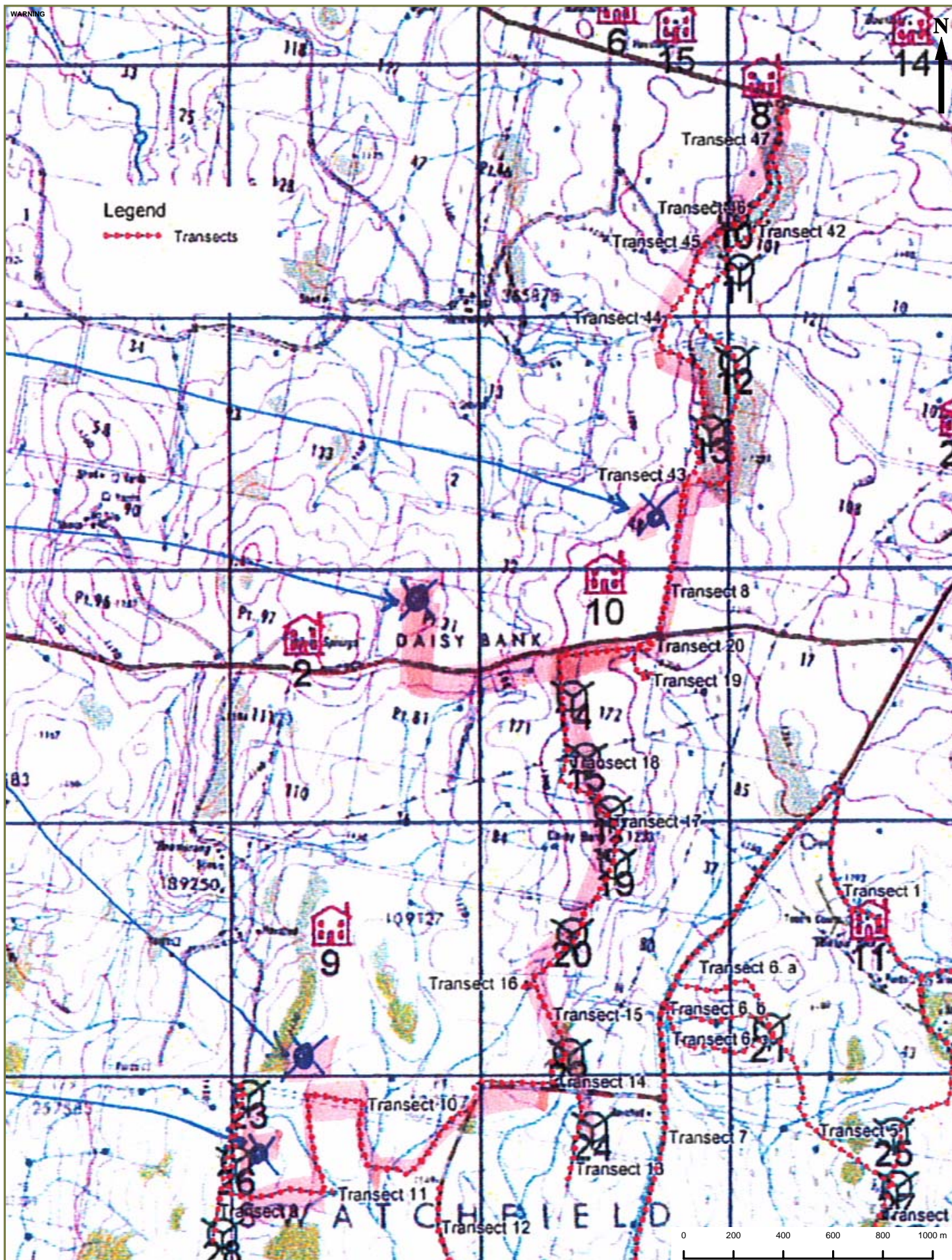
## **5.4 Significance Assessment**

Black Springs 5, the only site located within the revised Wind Farm area, was assessed as having little research potential. The following is an extract from the ERM 2005 Report (12.27.5).

*This site is highly disturbed and therefore has little research potential. It does not represent a rare site type for the region. It thus is given a low rating of scientific significance.*

The statement is supported by this report.





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AMENDMENT		
A	DATE	TYPE
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SCALE: 1: 20000 at A4 Size  
DATE: 8/11/2006  
DATUM: AMG Zone 55 (AGD 66)  
CONTOUR INTERVAL:  
DESIGNED: ERM AUST

WIND CORPORATION AUSTRALIA LTD  
SUPPLEMENTARY ABORIGINAL HERITAGE REPORT

FIGURE 5-1

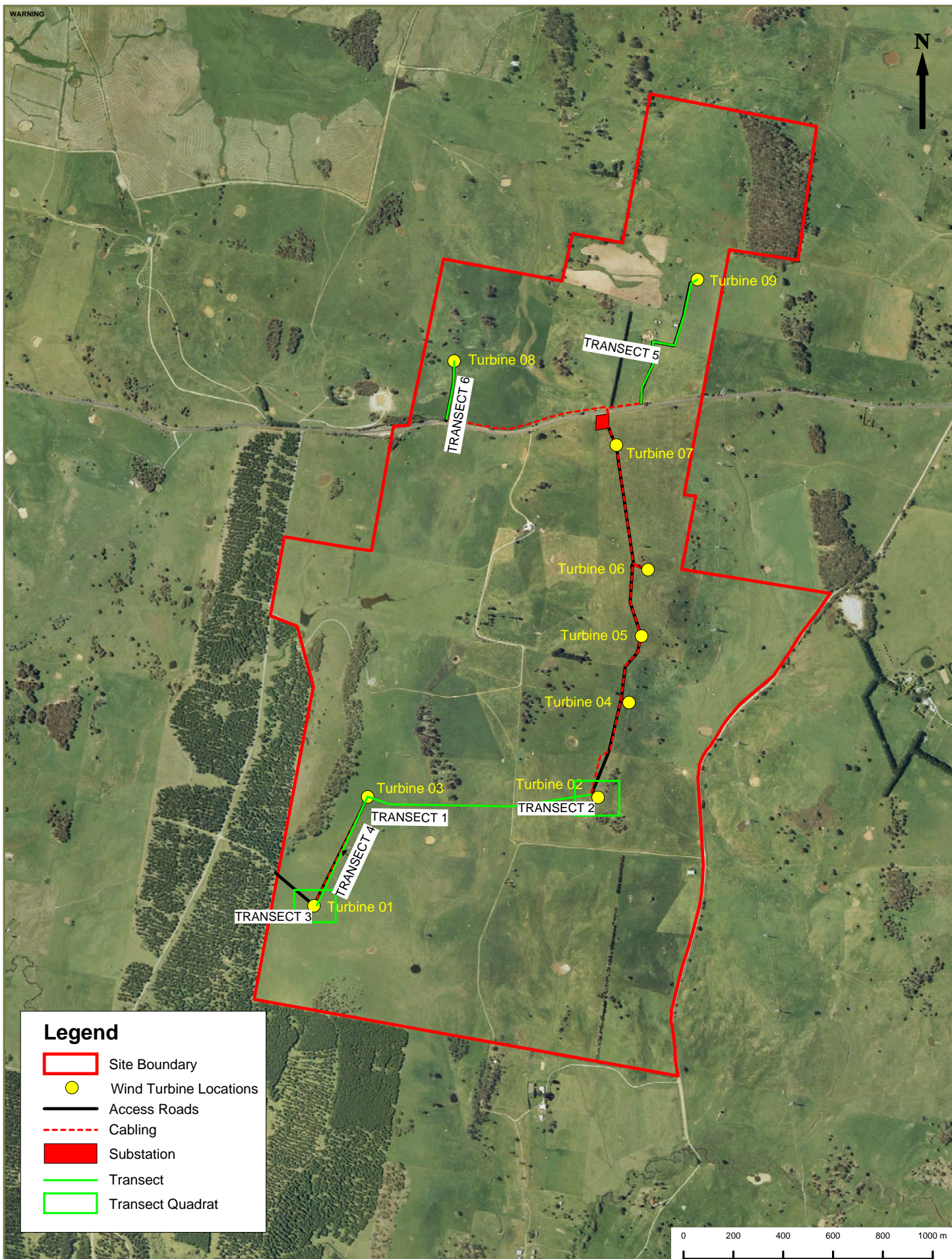
ERM Aboriginal Heritage Assessment Transects

LAYOUT REF:  
J:\JOBS\23219 - Black Springs\Drawings\MapInfo\Arch\23219 Figure 5-1 A-A4.wor

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PAGE 8







**Table 5-1 Transect Notes - Surveys Conducted by ERM (2005) and HSO**

*Note: Transect 8-20 from ERM (2005) / Transect A-F results of HSO Survey*

<b>Transect</b>	<b>Landform</b>	<b>Description</b>	<b>Soil</b>	<b>Notes</b>
<b>8*</b>	Flat to very gentle simple Slope – facing slope	Transect along eastern field boundary of Acqualoria	Red humic clay	Limited exposure present along the fenceline of the paddock
<b>9*</b>	Very gentle undulating slope	Transect along the track running north south along the western boundary at south of the Daisybank, close to wind towers 23,26,28	Dark orange brown clay loam	Track was walked due to lack of visibility within paddocks to the east. Majority of track introduced gravels. Patches of Exposure present along the side of the track and on a small stretch at northern end of the transect.
<b>10*</b>	Gently undulating slopes	Within paddock containing wind towers 23, 26, 28. covering the area to the east from the towers towards wind tower 24.	Dark orange brown clay loam	Quartz fragments found in transect – none worked
<b>11*</b>	Open depression	Site of a water pool encountered on transect 10	Dark orange brown clay loam	High disturbance of the area from grading activities and construction of banks for the water pool
<b>12*</b>	Gently undulating slopes	Segment of the track running north-south into Daisybank from Swatchfield	Orange brown clay loam	Minor quantities of introduced gravels present along track
<b>13*</b>	Gently undulating slopes	Within paddock along ridge crest for the proposed location of wind tower 24	Unknown lack of soil exposure	
<b>14*</b>	Gently undulating slopes	Paddocks and forested area leading to and adjacent the proposed location of wind tower 22.	Orange clay	Very little exposure was present at base of trees
<b>15*</b>	Moderate- gently undulating slopes	Transects along the crests, slopes and depressions in between wind towers 19, 20,22.	Unknown lack of soil exposure	
<b>16*</b>	Open depression	Site of water pool encountered in transect 15	Orange brown clay	High disturbance in the area from grading activities and construction of the banks of the water pool
<b>17*</b>	Open depression and simple slope – north facing	Proposed location of wind tower 17 and adjacent areas	Unknown – lack of soil exposure	

<b>A</b>	Low slope	Proposed cable route between revised Towers 2 and 3.	On track – compacted fine grey soils and gravel.	Dense pasture grass. Track examined – introduced gravels. Quartz no evidence of working.
<b>B</b>	Crest	Site of proposed Tower 2	Unknown – lack of soil exposure	Dense pasture grass. Exposures of basalt.
<b>C</b>	High slope and crest	Site of proposed Tower 1	Orange brown clay	Dense pasture grass. Small eroded exposure. Some basalt exposures.
<b>D</b>	Low slope	Cable route and site of proposed Tower 3	Unknown – lack of soil exposure	Dense pasture grass. Some basalt exposures.
<b>E</b>	Mid slope	Cable route and site of proposed Tower 9	Light orange brown clay	Dense pasture grass. Small dam – exposed areas heavily disturbed by stock. Some basalt exposures - quantity of rocks had been collected into piles. Areas of track examined - introduced gravels.
<b>F</b>	Slope to crest	Cable route and site of proposed Tower 8	Unknown – lack of soil exposure	Dense pasture grass. Some basalt exposures - quantity of rocks had been collected into piles.
<b>18*</b>	Simple slopes - north facing	Paddock at north of Daisybank covering in between the proposed location for the substation and towers 14,15,17.	Unknown – lack of soil exposure	



**Table 5-2 Effective Coverage - Surveys Conducted by ERM (2005) and HSO**

*Note: Transect 8 to 20 extract from - ERM 2005 / Transect A to F - results of HSO Survey*

<b>Transect</b>	<b>Landform</b>	<b>Length (m)</b>	<b>Width (m)</b>	<b>Area (m²)</b>	<b>Visibility</b>	<b>Exposure</b>	<b>Visible area (m²)</b>	<b>Area available for detection (m²)</b>	<b>% effective coverage</b>
<b>8</b>	Flat to very gentle simple slope – south facing slope	596	6	3576	2%	10%	71.52	7.2	0.2%
<b>9</b>	Very gentle undulating slope	657	9	5913	10%	20%	591.3	118.3	2.0%
<b>10</b>	Gently undulating slopes	2245	6	13470	<1%	30%	<134.7	<40.4	<0.3%
<b>11</b>	Open depression	34	6	204	90%	50%	183.6	91.8	45.0%
<b>12</b>	Gently undulating slopes	440	5	2200	40%	20%	880	176.0	8.0%
<b>13</b>	Gently undulating slopes	350	10	3500	0%	0%	0	0.0	0%
<b>14</b>	Gently undulating slopes	555	35	19425	<1%	0%	<194.25	0.0	0%
<b>15</b>	Moderate- gently undulating slopes	947	0	0	0%	0%	0	0.0	***
<b>16</b>	Open depression	70	6	420	70%	40%	294	117.6	28.0%
<b>17</b>	Open depression and simple slope – north facing	185	0	0	0%	50%	0	0.0	***
<b>18</b>	Simple slopes - north facing	1109	6	6654	0%	0%	0	0.0	0%
<b>19</b>	Open depression	96	6	576	50%	30%	288	86.4	15.0%
<b>20</b>	crest	60	60	3600	0%	0%	0	0.0	0%
<b>A</b>	Low slope	990	4	3960	<1%	90%	<39.6	<35.64	<0.9%
<b>B</b>	Crest	40	4	160	0%	0%	0	0	0
<b>C</b>	High slope and crest	40	4	160	<1%	90%	<16.0	<14.4	<9%
<b>D</b>	Low slope	480	4	1920	0%	0%	0	0	0
<b>E</b>	Mid slope	550	4	2200	2%	90%	44	39.6	1.8%
<b>F</b>	Slope to crest	220	4	880	0%	0%	0	0	0





## 6 DISCUSSION

The type of archaeological site most likely to be found would be either open artefact scatters or isolated finds. The location proposed for the Wind Farm has no obvious features that would set it aside as being a desirable area for repeated or consistent habitation. It is noted in Aboriginal Heritage Context (See Attachment 1 - ERM 2005 12.18 -12.20) that there is debate about the extent of Aboriginal use of the area prior to European settlement largely due to the poor weather conditions and lack of suitable resources.

A key factor in Aboriginal habitation is access to water. Brayshaw & Dallas supported Pearson (See Attachment 1 - ERM 2005 12.19) who through research found that camping sites were on average approximately 98 metres away from creek beds. This was supported by the surveys conducted by ERM 2005 where the preferred landscape for habitation was found to be on elevated ground overlooking drainage lines. It would appear that Black Springs 5 represents a transient episode.

The proposed wind farm will be located on ridge crests and in areas highly exposed to the elements, areas not conducive to repeated or long term habitation. Therefore the probability of the significant sites in the area is unlikely. It is noted that the quarry at Mount Bathurst while on an exposed area is the result of the location of quality stone manufacturing material, chert.

## 7 RECOMMENDATIONS

The management recommendations that stem from this study are based on the legislation designed to address the impact of development on sites of cultural significance.

The following points are made:

- No Aboriginal heritage sites were located during the supplementary survey of the subject area. The only site in the vicinity located in the ERM 2005 survey, *Black Springs 5*, will not be impacted on during the construction therefore a section 90 permit under the NPWS Act is not required;
- It should be noted that dense pastures grass covered much of the area and there is a possibility that sites, particularly Aboriginal ones, could be obscured;
- It is considered there are no impediments, with regard Indigenous or non-Indigenous heritage, to the proposed Black Springs Wind Farm; *however*
- If during the course of construction work Aboriginal cultural material is found work should cease immediately and the Department of Conservation and Pejar Local Aboriginal Land Council notified. Activity should only recommence when appropriate and approved management provisions are in place.

## 8 REFERENCES

ERM (2005) *Black Springs Windfarm: Heritage Assessment*. June 2005

HSO (2006) *Black Springs Windfarm: Environmental Assessment*. November 2006

## **APPENDIX A      ERM      (2005)      Black      Springs Windfarm: Heritage Assessment.**



# **ERM Draft Report**

## **Heritage Assessment**

**For a proposed wind farm  
at Black Springs, NSW**

## 12 *HERITAGE*

### 12.1 *INTRODUCTION*

This chapter contains the assessment of indigenous and non-indigenous heritage for the Black Springs wind farm development for Wind Corporation Australia.

#### 12.1.1 *Scope Of Work*

This investigation of the Indigenous and Non-Indigenous Heritage includes:

- a search of relevant state and federal heritage registers and broad bibliographic review;
- fieldwork to physically assess the impacts of project locations;
- predictive modelling specific to the project; and
- provide a strategic impact assessment and recommendation of mitigation measures.

#### 12.1.2 *Authorship*

This report was written by ERM archaeologist Tudur Davies. The technical review of this document was undertaken by ERM's principal archaeologist, Neville Baker.

#### 12.1.3 *Limitations*

Due to heavy grass cover over the majority of the study area, visibility to detect archaeological remains was severely affected.

### 12.2 *ABORIGINAL CONSULTATION*

Relevant Aboriginal groups for the study area were identified through Allan Hutchins at the Department of Environment and Conservation, who indicated that the Pejar Local Aboriginal Land Council (PLALC) should be consulted for the project.

Initial contact with the PLALC was made on the 27<sup>th</sup> of November 2004 with their field coordinator Delise Freeman. The PLALC were sent a map showing the location of the study area and were asked about any cultural issues ERM should be aware of in the assessment of the area.

The PLALC were represented in the field by Pat Little and Patrick Little.

ERM were contacted by Delise Freeman on the 9<sup>th</sup> of March 2005 indicating that Mount Bathurst had cultural significance due to its association with an Aboriginal tribal leader.

### 12.3 ENVIRONMENTAL SETTING

This section is a brief summary of the environmental setting of the study area in relevance to heritage issues.

#### 12.3.1 *Topography & Drainage*

The study area is characterised by rolling hills and gently rising ridges separated by shallow valleys with several creeks (up to 3<sup>rd</sup> order – Strahler model). All the creeks within the study area ultimately drain into the Campbells River.

The entire study area is at a high elevation, and is very exposed to the wind. Prominent points within this landscape include Daisybank Mountain and Mount Bathurst.

#### 12.3.2 *Geology & Soils*

The underlying bedrock of the study area is a mixture of volcanic bedrocks belonging to the Cabonne Group<sup>1</sup> and Canzoic units<sup>2</sup> (Bathurst 1:250000 geology series map [sheet S155-8]). Many of the open paddocks contain outcrops of stones of varying size as well as some outcrops of bedrock. This is a common feature visible on the majority of the ridge crests within the study area. Other geological features observed in the field included large chunks of quartz, which were found in the Daisybank, Winton Park and Mount Bathurst properties.

All soil exposures examined in the field were a mix of humic clayey loam and clayey sand, pale orange to red/brown in colour. These are common soil types associated with volcanic geology.

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<sup>1</sup> volcanic sandstone, minor breccia, conglomerate, chert, siltstone, mafic volcanic sandstone.

<sup>2</sup> pyroxene olivine basalt, plagioclase basalt, alkali basalt, trachybasalt, and trachyandesite.



### 12.3.3 *Vegetation*

Pastoral farming activities has removed a large quantity of trees from the study area. As such, the majority of the study area is grassed with only a small number of areas with native tree growth.

### 12.3.4 *Land Use And Disturbance*

Several swellings and several minor structures agricultural purposes have been built within the study area. The majority of the study area is under pastoral use and has been cleared of trees (see discussion above).

Areas where sparse tree cover is observed are also likely to have been cleared to some extent after the subdivision of paddocks (parish maps of the area indicate that this occurs before 1885). However, many of the eucalypt species examined in the field in all areas have hollows. Hollows take at least 50 years to form; this indicates that disturbance from pastoral land use in these areas are relatively much less than the open paddocks.

Water pools have been created at within many of the dry creek beds of the study area. Artificial banks have been raised around these pools, and the ground surrounding these areas are heavily scuffed, having been prone to frequent visit by cattle and sheep.

Two main roads and several minor access tracks cross the study area. The majority of the access tracks within the study area also have introduced gravels covering their surfaces.

## 12.4 *HISTORICAL HERITAGE CONTEXT*

### 12.4.1 *Historical Register Searches and Parish map Review*

A search of relevant heritage databases was conducted to establish the presence of historical heritage items within the study area, these included:

- the Register of the National Estate (RNE) (searched on the 27<sup>th</sup> of October 2004);
- the State Heritage Register and Inventory (NSW Heritage Office) (searched on the 27<sup>th</sup> of October 2004);
- the Oberon Local Environmental Plan (LEP) 1998; and
- the National Trust of Australia Jubilee Register (Revised Edition, updated to June 1998);

No heritage items were identified within the study area itself. Two heritage items were identified in the locality, from which the wind towers of the proposed development may be seen.

These items are the Roman Catholic Cemetery at Black Springs and the Lone Grave at Springvale<sup>3</sup>. No statements of significance were found for these items.

#### 12.4.2 *Parish Map Review*

Historic parish maps from 1885, 1899, 1932 and 1948 for the parish of Swatchfield were examined online on the Department of Lands website.

Roads and field boundaries on these maps are consistent with those shown on the Mount David and Burruga topographic maps. One feature of note on the 1899 and 1915 parish map is marked as "explored railway line".

Ken Williams from the New South Wales Railway Resource centre was contacted to gain further information concerning this structure. He indicates that during the construction of the Tarana-Oberon branch line, several route proposals were put forwards. This feature on the parish map may be one of these explored routes for this line.

#### 12.5 *PREDICTIVE MODEL*

Background research undertaken for historical heritage of the study area enables the creation of a predictive model for possible heritage items within the study area. Possible heritage items include:

- remains of fence lines and property boundaries dating to the original subdivision of land;
- housing, or evidence for past housing, such as foundation stones or deliberate planting of exotic plants/trees;
- rubbish dumping;
- remains of old roads, tracks or access pathways; and
- railway remains, this may include such features as the railway embankment, bridges or railway tracks.

#### 12.6 *ABORIGINAL HERITAGE CONTEXT*

In order to evaluate the study area's potential for Aboriginal sites, consideration should be made of regional and local site patterning. This

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<sup>3</sup> These items were identified in the Oberon LEP, Jubilee register and the RNE. The exact location of the lone grave could not be established.

chapter contains a review of past research and examination of locally identified sites to form the basis of a site prediction model for the study area.

### 12.6.1 *Regional Context*

Archaeological research, especially excavation work has been very limited in the region. Only seven reports were found in the Department of Environment and Conservation's (DEC) library for the region. Summaries of these reports can be found in *Table C1, Annex C*.

Pearson's PhD on settlement patterns in the Upper Macquarie River region is the most comprehensive work on site patterning in the region (1981 cited in Lance & Truscott 1983, Barber 1992, Brayshaw & Dallas 1993, Kelton 2000). Pearson's research indicates that proximity to water source is not the only factor determining the presence of occupation sites. Other factors include:

- cold air and ground moisture drainage;
- wind chill;
- summer breezes;
- level ground;
- adequate fuel;
- a leeward aspect; and
- strategic vantage positions.

Brayshaw and Dallas (1993) elaborate that the banks of creeks themselves are not ideal locations for open sites, cold air drainage makes the banks of creeks unsavoury locations for camping. This is supported by research work by Pearson, whose sites were found on average to be situated c.98 m away from water sources and elevated c.9 m above the water (cited in Brayshaw & Dallas 1993).

There is varying opinion on the extent of Aboriginal activity throughout the region. Parson's view (cited in Barber 1992) is that the Portland and Oberon plateau regions contained less sites than adjacent regions due to unfavourable weather conditions and possibly limited food availability. Dallas and Brayshaw (1993) support this view; they indicate that the small size of previously identified sites in the region is indicative of small groups of people perhaps including single families moving through the landscape (Brayshaw & Dallas 1993: 71). Lance and Truscott (1987) however, indicate that the lack of recorded sites in the region to date is more likely due to heavy grass cover. They suggest in fact, that the region is likely to be archaeologically very rich as artefacts are commonly found where ground exposures are present.



Stone axe quarry sites have also been found on some of the prominent ridges of the region. These axe quarry sites are reliant on the presence of outcrops of metamorphic bedrocks suitable for working. The development of these sites as quarries "depended purely on the recognition by Aborigines of an outcrop of stone with desirable working qualities, in a reasonably accessible location" (Pearson 1981 cited in Baker 1987).

## 12.6.2 *Local Context*

To identify potential impacts and establish local site distribution, a search of the Aboriginal Heritage Information Management System (AHIMS) was performed on the 28th of October 2004. The search was performed of an area 5km surrounding the study area (742000-758000E, 6242000-626000N AMG).

Five sites were identified in the search, all of which are artefact scatters identified by Helen Brayshaw in 1991 for a transmission line for a survey route that came within the current study area. None of these sites are located within the study area itself. Unfortunately, no detail of the specific route examined by Brayshaw is given in her report. The location of the sites identified are mapped in *Figure 12.1*. A summary of the sites' content can be found in *Table 12.1*.

**Table 12.1** *Summary of Previously identified sites in the locality*

Site No	Site Name	Site type	Landform	Exposure size	Number of artefacts
44-6-75	Boiler Creek 1	Artefact scatter	sloping creek bank	5x2 m	7
44-6-76	Boiler Creek 2	Artefact scatter	slope	20x15 m	17
44-6-77	Campbells River	Artefact scatter	knoll	1x1 m	2
44-6-78	Black Springs	Artefact scatter	low spur	8x2 m	9
44-6-79	Daisy Bank Trig	Artefact scatter	slope	c.20 m <sup>2</sup>	10

Consultation with the local landowners indicates that further Aboriginal artefacts have been found within the study area. Full details of these finds are given in the results section of this report.

### 12.6.3

#### *Predictive Model*

The following section provides a summary description of site types that possibly exist within the study area and provides a predictive statement on the likelihood of finding such sites. Site types are presented in the order in which they are most likely to be affected by the development

##### *Open Stone Artefact Scatters*

Open stone artefact scatters consist of more than one stone artefact. Activities associated with this site type include stone tool production, hunting and gathering or domestic tasks associated with campsites.

These site types are unlikely to be affected by the construction of wind towers, the hillcrests and ridges are unlikely locations for camping due to the exposure to the elements at these locations. The trenches in between these locations may however, cross artefact scatters, as they will have to cross the valleys in between tower locations. Past research indicates that favourable locations for open stone artefact scatters include the flat, elevated landforms in close proximity to water sources.

##### *Isolated Finds*

Isolated finds refer to a single artefact. These artefacts may have been dropped or discarded by its owner once it was of no use. This site type can also be indicative of further sub-surface archaeological deposits.

These site types can be found anywhere within the landscape, they are however, more likely to occur within contexts with the same favourable characteristics for open stone artefact scatter sites.

##### *Axe Quarries*

Axe quarries in the region rely on the presence of outcrops of metamorphic bedrock. Features commonly found associated with these sites are pits, anvils, hatchet blanks and fine flaking debitage.

Many of the ridgelines of the study area contain outcrops of bedrock and are not overtly inaccessible. Any localised metamorphic bedrock may once have been utilised in the past by Aboriginal peoples.

##### *Scarred Tree*

It is known that the wood and bark of trees have been used for a variety of purposes, such as carrying implements, shields or canoes. The removal of this raw material from a tree produces a "scar".

The identification of a scar associated with Aboriginal custom as opposed to natural scarring can be difficult. The scar should be of a certain size and shape to be identifiable with its product; the tree itself should also be mature in age, from a time Aboriginal people were still actively living in the area.

The majority of the study area has been cleared of vegetation in historic times and is unlikely to contain scarred trees. However, there are locations within the study area that do contain mature trees. They may well have been used as a resource in the past by Aboriginal peoples.

#### *Stone Arrangements*

Stone arrangements displayed in formal patterns are known to have ceremonial significance. They can be found on open hilltops or plateaux (Brayshaw & Dallas 1993). Examples of this site type have been found to the north of the study area nearer towards Oberon, many of which have been damaged or destroyed by agricultural practices.

Sites of this nature are unlikely to have survived within the study area due to agricultural practices.

#### *Rockshelter*

Rockshelters require natural overhanging outcrops of bedrock suitable for shelter. Other features commonly associated with rockshelter sites are artwork, engravings, middens or burials.

These sites are unlikely to be affected by the development due to a lack of local exposures of suitable overhanging bedrock.

#### *Axe Grinding Grooves*

Usually found near water, these narrow elongated marks are found on sandstone where they have been used for sharpening stone axes. There is potential for this site type where suitable outcrops of sandstone bedrock may be found at some of the creek beds or near the banks of the creeks.

#### *Burials*

Aboriginal communities strongly associate burial sites with a connection to country and are opposed to disturbance of burials or their associated sites.

General considerations for the presence of burial sites are the suitability of sub surface deposits for digging purposes. Clay deposits throughout the study area as observed in the field would indicate that soil deposits would be too hard for the presence of burials within impact areas.



When the fieldwork for this assessment was undertaken, the exact location of the development impacts was yet to be finalised.

Fieldwork targeted the areas initially proposed for placement of wind towers and the possible routes of access roads and trenches that would connect these locations. Due to a lack of visible exposures within the study area at impact areas, additional areas where visibility for detecting archaeological remains were more favourable were also examined.

Vehicle transects were undertaken to establish the presence of exposures suitable for inspection on foot, this technique was also used to look for potential scarred trees. All soil exposures and outcrops of bedrock were examined on foot.

The route of transects within the study area are mapped in *Figure 12.2*.

Transect records made note of:

- the percentage of the area of bare ground visible for the detection of artefacts;
- the percentage of the deposit exposed from the visible ground available for detection of artefacts;
- the characteristics of any visible soil exposures;
- landform and class of slope (as defined by McDonald et al 1990); and
- disturbance to any possible archaeology observed within the area.



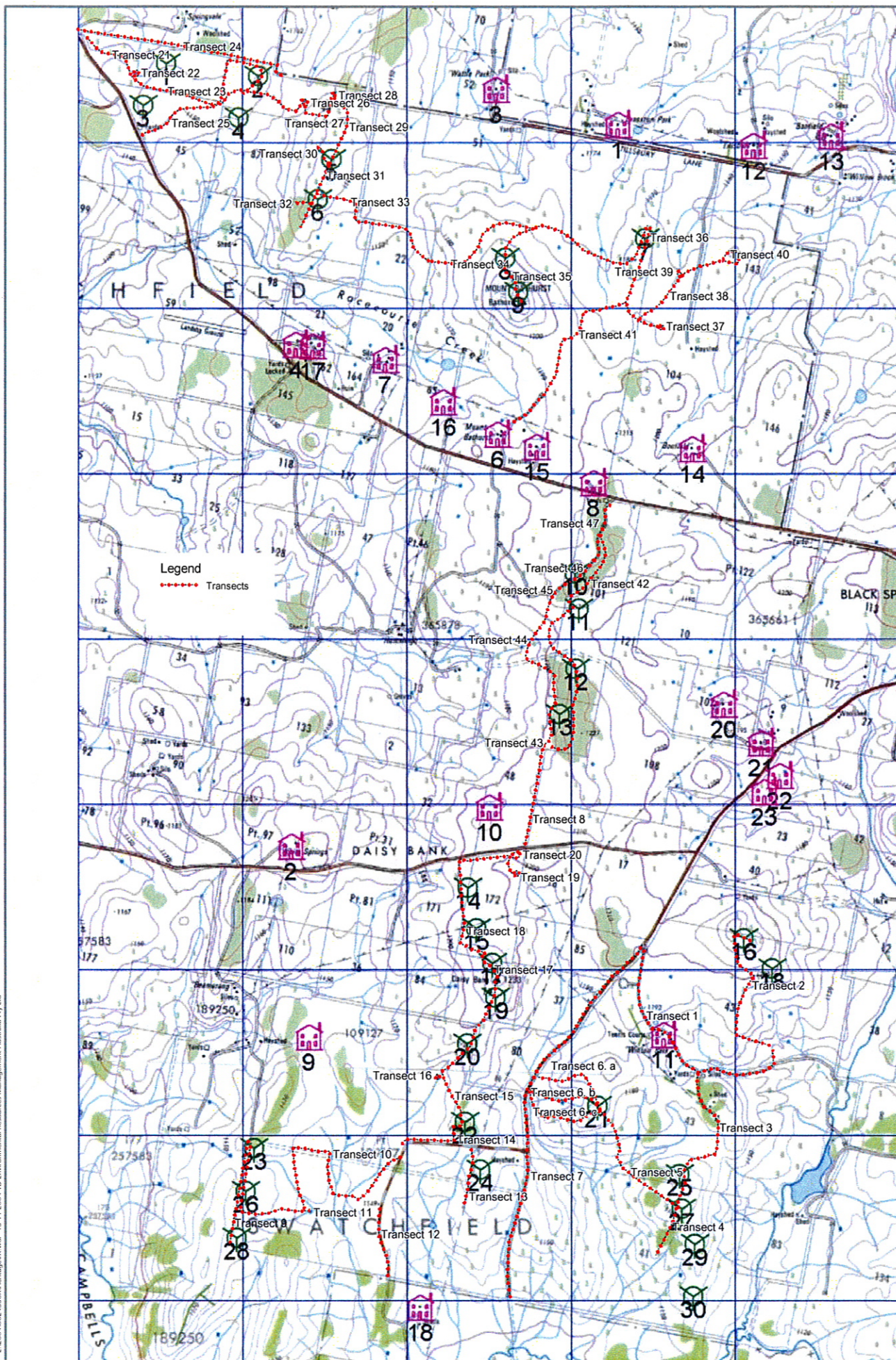
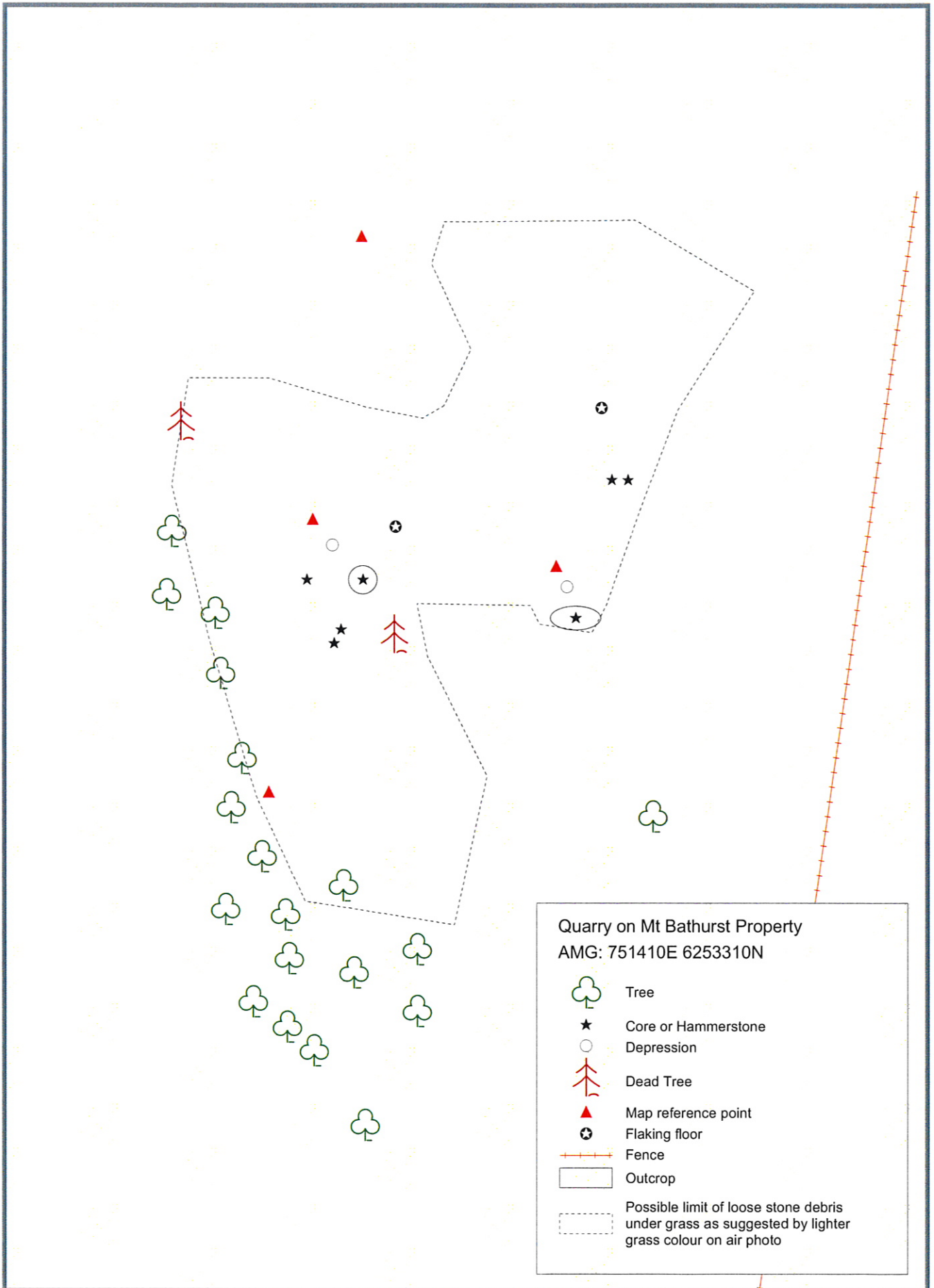


Figure 4

Location of Transects Surveyed During Fieldwork

Amendment to SEPP 59





20 0 20 40  
 Metres

Figure #

**Grey Chert Quarry**  
**on Mt Bathurst Property**

Black Springs Wind Farm