



**Cultural Landscape & Visual Assessment**  
for  
Proposed Sand and Soil Extraction – Lot 32 DP 635271 –  
Macarthur Road, Spring Farm



*Prepared by*  
Chris Betteridge, **MUSEcape** Pty Ltd

*for*  
Pascoe Planning Solutions  
on behalf of M. Collins and Sons (Contractors) Pty Ltd

**Revised Final, 28 June 2011**

**MUSEcape** Pty Ltd A.B.N. 18 053 849 979      42 BOTANY STREET RANDWICK NSW 2031  
T E L. (02) 9314 6642      F A X. (02) 9398 7086      E-MAIL. [musecape@accsoft.com.au](mailto:musecape@accsoft.com.au)  
M O B I L E: 0419 238 996      M O B I L E: 0419 011 347  
ooOoo  
SPECIALISTS IN THE IDENTIFICATION, ASSESSMENT, MANAGEMENT & INTERPRETATION OF CULTURAL  
HERITAGE

## Table of Contents

|                                                                         |    |
|-------------------------------------------------------------------------|----|
| Executive Summary .....                                                 | 3  |
| 1.0 Introduction .....                                                  | 8  |
| 1.1 Background.....                                                     | 8  |
| 1.2 Purpose of this report.....                                         | 8  |
| 1.3 Authorship & Acknowledgments .....                                  | 9  |
| 1.4 Methodology .....                                                   | 10 |
| 1.5 Limitations.....                                                    | 10 |
| 1.6 Disclaimer .....                                                    | 10 |
| 2.0 Landscape character.....                                            | 11 |
| 2.1 Environmental context .....                                         | 11 |
| 2.2 Topography, soils, vegetation and land uses.....                    | 12 |
| 2.3 Landscape Character.....                                            | 13 |
| 2.3.1 Camden Scenic and Cultural Landscapes Study .....                 | 13 |
| 2.3.2 Camden Council Development Control Plan 2011 .....                | 16 |
| 2.4 Listed Heritage Items .....                                         | 18 |
| 2.4.1 Thurn's Cottage.....                                              | 19 |
| 2.4.2 Galvin's Cottage .....                                            | 19 |
| 2.4.3 Belvedere .....                                                   | 20 |
| 2.5 Potential Heritage Items.....                                       | 20 |
| 3.0 Visual analysis .....                                               | 21 |
| 3.1 Visual exposure .....                                               | 21 |
| 3.2 Views from Macarthur Bridge on the Camden Bypass .....              | 21 |
| 3.3 View from Galvin's Cottage ('Nesbitt').....                         | 30 |
| 3.4 View from Thurn's Cottage .....                                     | 30 |
| 3.5 View from Macarthur Road .....                                      | 31 |
| 3.6 View from River Road, Elderslie .....                               | 31 |
| 3.7 View from Feld Avenue, Elderslie .....                              | 32 |
| 3.8 Views from Potential Heritage Items .....                           | 32 |
| 3.9 Proposal details .....                                              | 32 |
| 3.10 Visual absorption capacity .....                                   | 33 |
| 3.11 Site visibility .....                                              | 34 |
| 4.0 Conclusions and recommendations .....                               | 34 |
| 4.1 Conclusions .....                                                   | 34 |
| 4.2 Recommended Mitigative Measures.....                                | 36 |
| 4.2.1 Proposed Extraction Staging Plan.....                             | 36 |
| 4.2.2 Enhanced Visual Screening .....                                   | 36 |
| 4.2.3 Staged retention of existing screening south of site .....        | 36 |
| 4.2.4 Staged retention of vegetation on areas not being extracted ..... | 36 |
| 4.2.5 Long-term landscaping and rehabilitation.....                     | 37 |
| 4.2.6 Plant and equipment .....                                         | 37 |
| 4.2.7 Fencing .....                                                     | 37 |
| 5.0 References.....                                                     | 37 |

## Executive Summary

### Introduction and report objectives

M J Collins and Sons (Contractors) Pty Ltd (the 'Proponent') currently operate a comprehensive sand and soil extraction and product blending activity on Lot 22 DP 833317 and supporting infrastructure on Lot 1 DP587631, Macarthur Road, Spring Farm within the regionally significant resource of the Elderslie Sand and Soil Deposits. This operation, involving approval for the extraction of 850,000 cubic metres of sand and soil, was given development consent by the NSW Department of Planning on 13 October 1988 pursuant to a Section 101 Direction applying at the time and consent was subsequently amended, most recently on 22 May 2009.

On the fringe / margin of the Elderslie Sand and Soil Deposits<sup>1</sup> and adjoining the above site to its north is Lot 32, DP635271, an area of 17 hectares, part of which (the subject site) is estimated to contain approximately 400,000 cubic metres of sand and soil. The proponent is exploring prospects of economically expanding opportunities for supply of sand, soil and blended products for the construction and landscaping markets by utilising the plant and equipment and haulage routes already in place for Lot 22 and extending the operation into part of Lot 32, whilst using the supporting infrastructure on Lot1, DP 587631.

Whilst the sand and soil deposit on Lot 32 is significant and economically important, the potential for future extraction of the resource is dependent on a number of environmental, site and planning constraints, including visual and landscape amenity issues.

Pascoe Planning Solutions, on behalf of M Collins and Sons, are coordinating a team of consultants assembled to address the Director General (DG) Requirements issued by the Department of Planning for a proposal to modify the existing consent for extraction under Section 75W of the Environmental Planning and Assessment (EPA) Act 1979 ('The Proposal'). The DG's Requirements include, inter alia, 'Visual' as a key issue to be addressed in the Environmental Impact Assessment (EIA) for the proposal.

Pascoe Planning Solutions have engaged **MUSEcape** Pty Ltd to provide specialist advice on cultural landscape and visual amenity issues as one of the baseline studies to be incorporated in the EIA. This report attempts to provide an objective assessment of what is currently visible at the site, what changes to the landscape are likely to result from the proposal and what constraints and opportunities would be placed on the location and design of this development. The report advances strategies to mitigate potential adverse impacts.

---

<sup>1</sup> *Sydney's Extractive Industry Regional Environmental Study* 1984, p.81

It should be noted that the existing environmental management provisions for Lot 22 will extend to the proposal, subject to verification by new studies, including a requirement that the long-term scenic landscape of the proposal site will be returned to “a landscape characterised by broad acre agricultural imagery”. The exact nature of the extraction operation will depend on the final approach taken by the Proponent but certain assumptions can be made about the likely impacts on the cultural landscape and visual amenity of the proposed extraction site.

Furthermore, it is noted that this report comments on visual impacts by first differentiating them based on short-term and long-term impacts. For the purposes of this report short-term impacts are defined as during the extraction and rehabilitation period, concluding in 2019, and long-term impacts defined as the period of time after the completion of extraction and rehabilitation.

### **Landscape and views into the site**

The landscape of the proposed extraction site is characterised by the alluvial floodplain of the Nepean River, with a strip of heavily weed-infested remnant riparian vegetation along the eastern bank of the river adjoining the site on its western side and another strip of heavily weed-infested remnant riparian vegetation along an anabanch<sup>2</sup> of the river adjoining the site on its eastern side. Towards the southern edge of the proposed extraction site is a high voltage transmission line, with a planted screen of native trees and shrubs along the boundary between Lots 32 and 22. To the immediate west of the proposed extraction site is the long concrete bridge that carries the Camden Bypass over the Nepean River floodplain and the river. The proposed extraction site is generally flat and is currently planted with lucerne for hay production but from the 1970s until recently was planted with Chardonnay grape vines. A vineyard remains on floodplain land east of the anabanch.

The main views into the site from the public domain are from the Camden Bypass with some restricted distant views from parts of Macarthur Road to the east of the site. There are also restricted distant views of the site from private properties along Macarthur Road south of the Camden Bypass which include two properties listed as local heritage items on the schedule to Camden Local Environmental Plan (LEP) 2010. The listed items are the house and curtilage of No.176 Macarthur Road (Lot 4, DP 542867), known locally as ‘Thurn’s Cottage’ and the house and curtilage of No.196 Macarthur Road (Lot 1, DP 625278), known locally as ‘Nesbitt’ or ‘Galvin’s Cottage’. Further distant, to the north of the proposed extraction site, is the property ‘Belvedere’, (Lot 2, DP 606159), the address of which is 40 River Road, Elderslie but the house fronts Macarthur Road. There are also significant views and two potential heritage items identified in Camden DCP 2011 that are in the vicinity of the proposed extraction site.

---

<sup>2</sup> Macquarie Dictionary (4<sup>th</sup> edition, 2005) defines an anabanch as ‘a branch of a river which leaves the main stream and enters it again further on. [shortened form of *ana(stomosing) branch*]’.

## **Report conclusions**

With regard to short-term impacts, i.e. during the extraction and rehabilitation periods, this report concludes that there will be substantial changes in the appearance of the extraction site during those periods. These changes will include alterations in contrast between the surfaces of the extraction site and adjoining vegetation, increased activity on site compared with that at present and a reduction in the ground level of the site compared with its present level.

Perceptions by passers-by of the impacts posed by those changes in the local landscape due to the execution of the proposal will vary depending on many factors including their previous experience of the site and its context, the frequency and duration of their exposures to the impacts and their attitudes to extractive resource development. They may be aware that extraction operations are occurring on a site where none exist at the present time but for many people, particularly local residents and regular commuters, their perceptions with regard to visual impacts are likely to be moderated by the knowledge that there are already turf farming operations on adjoining land, that there have been similar extractive operations nearby (including on adjacent land to the south) and that there are and have been extensive roadworks on the F5 Freeway and other roads in the area for many years.

The visual impact as viewed from the public domain will be greatest for travellers on the Macarthur Bridge, a concrete structure of 26 spans approximately 1.12 kilometres long, which carries the Camden Bypass<sup>3</sup> over the Nepean River and part of its alluvial floodplain, particularly those on the west-bound (i.e. towards Camden) lane of the bridge and to a lesser degree to those on the east-bound (i.e. towards Sydney) lane of the bridge. However, for all travellers on the Bypass the length of time to which they will be exposed to the visual impact will only be approximately 20 seconds per crossing of the bridge at the current speed limit of 80 kilometres per hour. This estimate is based on the fact that the extraction site is largely visible from the bridge only between the strips of remnant riparian vegetation along the anabranch creek and the eastern bank of the Nepean River for travellers looking over the site towards the south. Even with glimpses into the site through gaps in the vegetation along the anabranch, the maximum exposure to west-bound travellers at 80kph would be approximately 35 seconds.

Drivers and passengers in lower motor vehicles such as cars and motor bikes will have their view of the extraction operations considerably restricted by the concrete barrier on the southern side of the bridge and the two tubular safety rails on top of the barrier. Drivers and passengers in taller vehicles such as trucks and buses will have a less restricted view of the extractive operations since they are more likely to be able to see over the bridge barriers into the site. Travellers on the east-bound lane and pedestrians on the footpath which runs along the northern side of the bridge will have their view of the extraction site further restricted by their greater distance from the southern edge of the bridge. There is relatively little pedestrian traffic on the bridge at

---

<sup>3</sup> The Camden Bypass, constructed 1971-73, was originally designed to carry Hume Hwy traffic on a flood-free alignment around Camden. In turn it was bypassed in December 1980 by the F5 Freeway section between Campbelltown and Yerrinbool.

present due to its considerable length and the fact that it does not provide a convenient connection between major residential areas. It is likely that it is mainly used by residents walking or jogging between the eastern part of Camden and the southern part of Elderslie.

There will be no physical impacts on any listed or potential heritage items or their curtilages in the vicinity of the proposed extraction site. Negative impacts posed by the proposal on visual and landscape amenity for properties in Macarthur Road, including the listed heritage items Thurn's Cottage and Galvin's Cottage and the potential items at 170 and 172 Macarthur Road, are likely to be very low, attenuated by the increased viewing distance and screening vegetation in the properties and / or along the anabranch creek. Negative impacts on views from private properties and the public domain in River Road, Feld Avenue and Thurn Place, Elderslie, including the listed heritage item 'Belvedere' are likely to be negligible or non-existent due to the increased viewing distance and the intervening floodplain and Macarthur Bridge.

Long-term (post extraction and rehabilitation) visual impacts are considered to be low and within the limits of acceptable change for the cultural landscape as the extraction proposal proposes to return the main visual elements of the existing landscape by rehabilitation of riparian corridors associated with the anabranch creek and the Nepean River with local provenance vegetation and retaining open agricultural land use on a site currently devoted to that use. There will be an ongoing but minor visual impact arising from the fact that the power poles for the transmission line will sit on small rises with battered slopes instead of sitting on flat ground as they do at present.

### **Mitigation of visual impacts**

Because the major viewing points in the public domain are elevated well above the proposed extraction site, it is considered that it would not be possible to screen the area with planting that would have a significant effect in reducing visual impact within the projected lifespan of the operation. Maturity of any effective screen planting on the northern side of the site would be likely to exceed the extraction phase.

The extent of potential visual and landscape amenity impacts arising from the proposal will depend on a number of factors including the final nature and staging of the extractive operation, the extent of actual extraction, the size, nature and exterior finishes of plant and equipment, including stockpiles of material, the extent of vegetation clearing and new landscaping, and other changes such as increased human activity on site and vehicle movements to and from the site. These impacts can be substantially reduced by the range of mitigative measures recommended in this report which include:

- 1) Implementation of the proposed Staging Plan, prepared by Harvest Scientific Services, which will limit the extent of visual impact at any one time.

- 2) Enhancement of the visual screening provided by riparian vegetation along the anabranh creek by supplementary planting in that corridor with native species of local provenance to fill in any gaps that permit restricted views into the extraction site from the westbound lane of the Camden Bypass from points east of the anabranh.
- 3) As much as possible of the existing screening vegetation along the southern boundary of the extraction site should be retained as long as practical while extractive operations are being carried out east of the Nepean River. This will provide some visual relief in the background, helping to draw the eye of the traveller on the bridge to a point beyond the extractive operation.
- 4) Where practical, the riparian corridors associated with the eastern high bank of the Nepean River and the anabranh creek should be cleared of invasive species and revegetated in accordance with the recommendations in relevant ecological reports, with any requirements of Camden Council and relevant NSW Government agencies and in accordance with a detailed landscape plan.
- 5) External finishes of any structures, plant and equipment should be visually recessive and any fences should be simple in design, with a high degree of transparency.

## **1.0 Introduction**

### **1.1 Background**

M J Collins and Sons (the 'Proponent') currently operate a comprehensive sand and soil extraction and product blending activity on Lot 22 DP 833317, and supporting infrastructure on Lot 1 DP587631, Macarthur Road, Spring Farm within the regionally significant resource of the Elderslie Sand and Soil Deposits. This operation, involving approval for the extraction of 850,000 cubic metres of sand and soil, was given development consent by the NSW Department of Planning on 13 October 1988 pursuant to a Section 101 Direction applying at the time and consent was subsequently amended, most recently on 22 May 2009.

On the fringe / margin of the Elderslie Sand and Soil Deposits and adjoining the above site to its north is Lot 32, DP635271, an area of 17 hectares, part of which (the subject site) is estimated to contain approximately 400,000 cubic metres of sand and soil. The proponent is exploring prospects of economically expanding opportunities for supply of sand, soil and blended products for the construction and landscaping markets by utilising the plant and equipment and haulage routes already in place for Lot 22 and extending the operation into part of Lot 32, whilst using the supporting infrastructure on Lot 1, DP 587631.

Whilst the sand and soil deposit on Lot 32 is significant and economically important, the potential for future extraction of the resource is dependent on a number of environmental, site and planning constraints, including visual and landscape amenity issues.

Pascoe Planning Solutions, on behalf of M Collins and Sons, are coordinating a team of consultants assembled to address the Director General (DG) Requirements issued by the Department of Planning for a proposal to modify the existing consent for extraction under Section 75W of the Environmental Planning and Assessment (EPA) Act 1979 ('The Proposal'). The DG's Requirements include, inter alia, 'Visual' as a key issue to be addressed in the Environmental Impact Assessment (EIA) for the proposal.

### **1.2 Purpose of this report**

Pascoe Planning Solutions have engaged **MUSEcape** Pty Ltd to provide specialist advice on cultural landscape and visual amenity issues as one of the baseline studies to be incorporated in the EIA. This report attempts to provide an objective assessment of what is currently visible at the site, what changes to the landscape are likely to result from the proposal and what constraints and opportunities would be placed on the location and design of this development. The report advances strategies to mitigate potential adverse impacts.

It should be noted that the existing environmental management provisions for Lot 22 will extend to the proposal, subject to verification by new studies,

including a requirement that the long-term scenic landscape of the proposal site will be returned to “a landscape characterised by broad acre agricultural imagery”. The exact nature of the extraction operation will depend on the final approach taken by the Proponent but certain assumptions can be made about the likely impacts on the cultural landscape and visual amenity of the proposed extraction site.

Furthermore, it is noted that this report comments on visual impacts by first differentiating them based on short-term and long-term impacts. For the purposes of this report short-term impacts are defined as during the extraction and rehabilitation period, concluding in 2019, and long-term impacts defined as the period of time after the completion of extraction and rehabilitation.

From visual impact and aesthetic points of view, constraints and opportunities applying to the proposal include, but are not necessarily limited to the following:

- Existing natural landscape character, including topographic features and vegetation cover;
- Cultural landscape issues including values and / or impacts derived from previous human intervention in the local environment;
- Visual exposure of the subject land, including views inwards from public viewing points, views within the subject land and views outwards from the proposed extraction area;
- Potential impacts on aesthetic and historic cultural landscape heritage values.
- Proposal design including extraction sites, spoil dumps, processing area, plant and equipment, roads, landscaping.

This report attempts to provide an objective assessment of what is currently visible, what the presence of the proposal would be and what constraints and opportunities would be placed on the location and design of the proposal.

Furthermore, it is noted that this report comments on visual impacts by first differentiating them based on short-term and long-term impacts. For the purposes of this report short-term impacts are defined as during the extraction and rehabilitation period (i.e. ~8 - 10 years) and long-term impacts defined as the period of time after the completion of extraction and rehabilitation.

### **1.3 Authorship & Acknowledgments**

This report has been prepared by Chris Betteridge, BSc (Sydney), MSc (Leicester), AMA (London), M. ICOMOS, Director of **MUSEscape** Pty Ltd, specialists in the identification, assessment, management and interpretation of natural and cultural landscapes.

The author would like to thank the following for their kind assistance in the preparation of this report:

Matt Collins and Judy Hennings, M Collins & Sons (Contractors) Pty Ltd;  
Graham Pascoe, Pascoe Planning Solutions;  
Jim Cupitt, Harvest Scientific Services;  
Peter Stricker, Anthony Smith-White and Margaret Smith-White, Actinotus Environmental Consultants;  
Michael Bridgeman, Transport and Urban Planning;  
Anne Bickford, Archaeology and Heritage Pty Ltd;  
Dr Sandra Wallace, Artefact Heritage Services;  
Nick Bruszewski, Christina Heather and Lisa Howard, Camden Council;  
John Wrigley and Peter Mylrea, Camden Historical Society.

## **1.4 Methodology**

The methodology employed for this report involved the following:

- Review of relevant documents relating to the visual and landscape character of the subject land and recent similar developments;
- Consultation with relevant stakeholders;
- Site investigations on 10 February, 15 March, 23 March and 31 March 2011 and photographic recording of relevant views;
- Review of recent aerial photography and other baseline consultant studies;
- Identification of landscape and visual characteristics of the proposal site and its environmental context;
- Analysis of visibility of the proposed facility from the public domain and visual absorption capacity for the proposal;
- Assessment of potential landscape and visual impacts of the proposal; and
- Recommendations to mitigate any negative visual impacts.

## **1.5 Limitations**

This report is based on analysis of relevant documentary material provided by the client and other documents pertinent to the project. Site investigations were limited to ground-based studies, although recent aerial photography was also analysed.

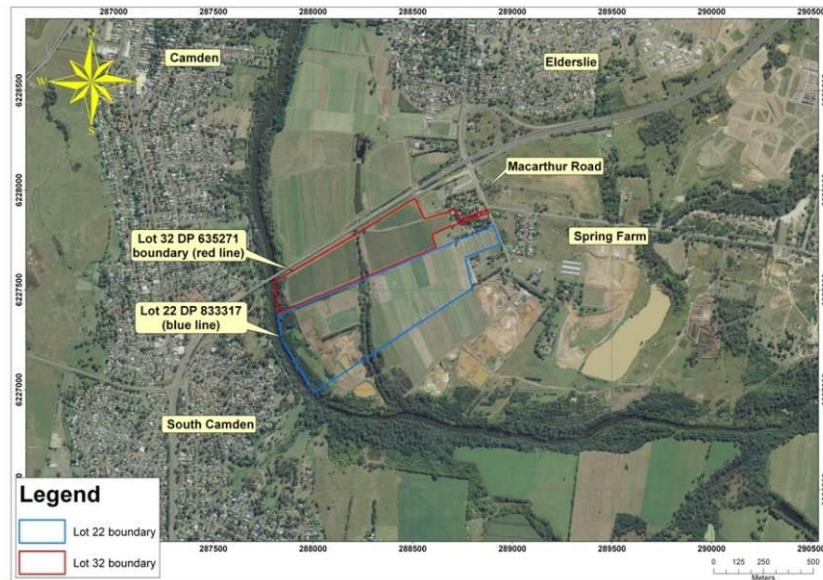
## **1.6 Disclaimer**

This document may only be used for the purpose for which it was commissioned and in accordance with the contract between **MUSEcape** Pty Ltd (the consultant) and Pascoe Planning Services on behalf of M Collins and Sons (Contractors) Pty Ltd (the client). The scope of services was defined in consultation with the client, by time and budgetary constraints imposed by the client, and the availability of reports and other data on the site. Changes to available information, legislation and schedules are made on an ongoing basis and readers should obtain up-to-date information. **MUSEcape** Pty Ltd accepts no liability or responsibility whatsoever for or in respect of any use of or reliance upon this report and its supporting material by any third party. Information provided is not intended to be a substitute for site specific assessment or legal advice in relation to any matter. Unauthorised use of this report in any form is prohibited.

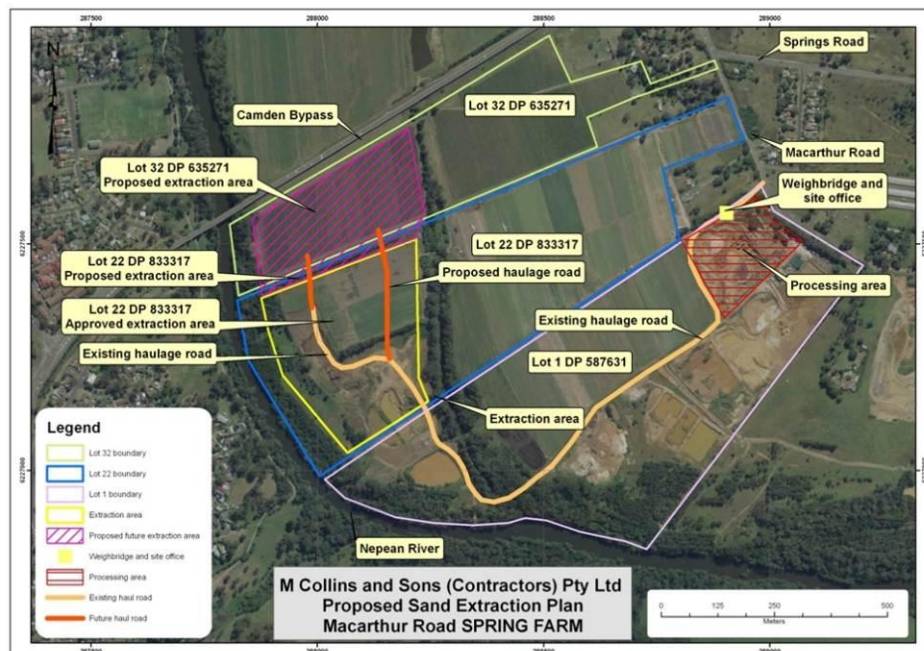
## 2.0 Landscape character

### 2.1 Environmental context

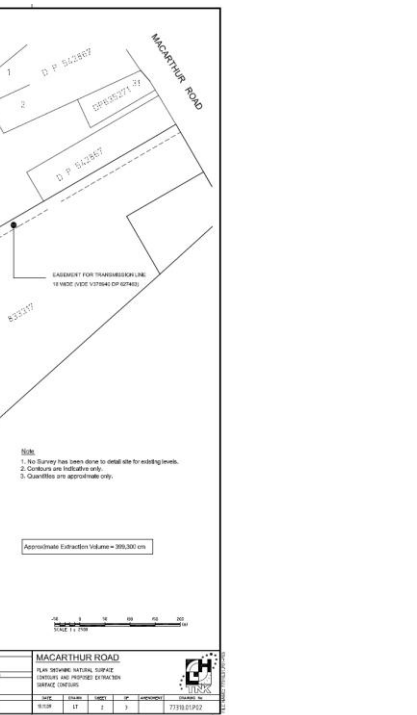
The deposit is within the Camden Local Government Area (LGA), which is in the south-western part of the Sydney Metropolitan Region (**Figure 1**).



**Figure 1** Map showing the location of Lots 32 and 22 in the environmental context of Camden, Elderslie and Spring Farm. (Source: Harvest Scientific Services from Google Maps)



**Figure 2** Map showing the proposed extraction site in its local context, shown hatched mauve against the colour aerial photograph. (Source: Harvest Scientific Services)



extraction contours.

## References

ark Soil Landscape  
Quaternary floodplain  
Creek. These are  
but ranging to 10 %  
reddish brown sandy  
site are Quaternary  
ed from weathering  
grey-brown medium  
imitations are listed  
high soil erosion

part of the site, with  
argins and a mix of  
along the anabranch  
extraction site, past  
market gardening



**Figure 4** View of proposed extraction site from southern carriageway of Macarthur Bridge, showing irrigated pasture, with road corridor in foreground and riparian corridor of Nepean River in background. (Photo: Chris Betteridge, 7 April 2011)

The landscape within this Grouping in the area adjoining the deposit to the south has been heavily modified by extractive resource operations, notably M Collins & Sons existing extraction on Lot 22. To the north of the proposed extraction site, on the other side of the concrete bridge, is agricultural land currently devoted to cattle grazing. The anabranck creek has been significantly altered in this area, with the drainage line excavated to form a canal and original riparian vegetation removed.



**Figure 5** Panorama from Macarthur Bridge over land to north of proposed extraction site showing modified anabranck creek and grazing land, with riparian corridor of Nepean River in background. (Photo: Chris Betteridge, 7 April 2011)

## **2.3 Landscape Character**

### **2.3.1 Camden Scenic and Cultural Landscapes Study**

The landscapes of the Camden LGA were assessed in the 'Camden Scenic and Cultural Landscapes Study' prepared for Camden Council by Lambcon Associates Pty Ltd in 1998. Seventeen landscape units were identified in the LGA and within these a series of landscape character types was identified.

Each type was assessed for its scenic and cultural heritage significance and the overall significance of each landscape unit was determined. The proposed extraction site falls within the 'Spring Farm – Belgenny' landscape unit, the scenic and cultural heritage significance was assessed to be at a State level.

However, it should be noted that the Spring Farm – Belgenny Landscape Unit includes Belgenny Farm, a cultural landscape in NSW Government ownership and protected by its listing on the State Heritage Register. The level of significance for Belgenny is much higher than for Spring Farm, which does however include two historic cottages and their curtilages listed in the heritage schedule of Camden LEP 2010 and significant views identified in the DCP.

The Lambcon Study identified 'Visual corridors and routes' including Camden Bypass as a major road. On page 18 of the Study the following statement is made:

*'The [Camden] bypass provides little visual contact with the landscape, being either in cut or bordered by berms or other barriers over most of its length. In general the visual experience is low. In one section there are valuable views over Elderslie and toward William Howe Reserve which should be acknowledged and protected. The bypass also provides one of the few expansive views of the Nepean River floodplain from the Macarthur Bridge, but this is not an inviting or a safe viewing place for walkers.'*

While there is a footpath on the northern side of the Macarthur Bridge, there is no pedestrian access along the southern side, closest to the proposed extraction site.

The Lambcon study makes recommendations for each of the landscape character units identified in the report. Those made for the Spring Farm – Belgenny unit are reproduced below.

| Landscape unit         | Scenic and cultural landscape issues                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Spring Farm – Belgenny | Retain rural visual character.<br>Conserve visual access to curtilages of heritage properties (Spring Farm, Belgenny Farm, Camden Park Estate).<br>Ensure no development encroaches into curtilages or highly visible slopes.<br>Maintain visual access and rural character of views to William Howe Reserve – Mt Annan.<br>Adopt landscape design and plantings more appropriate to the heritage significance of properties. |

**Figure 6** Extract from Table 4.1 of Lambcon Study, showing scenic and cultural landscape issues related to the Spring Farm – Belgenny Farm landscape unit. (Source: Lambcon Associates Pty Ltd 1998, p.41)

While there will be some change to the rural landscape character of the area in which the proposal site is located, the post-extraction landscape will again be rural, albeit with an altered topography. None of the listed curtilages of heritage properties will be affected. Plantings proposed during rehabilitation of the riparian corridors of the anabranch creek and the Nepean River will be more appropriate than the degraded plant communities currently there.

The Lambcon study also identifies 'Extraction Sites' as one of the 17 landscape character types. The typical characteristics of the type are shown in the table below. Lot 22 currently being extracted would fit this type and Lot 32 would fit it once extraction commences.

| <b>Landform</b>        | <b>Alluvial river terraces</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Land cover:            | Cleared agricultural land on productive soils: grassy, open landscapes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Cultural landscape:    | Small holdings settlement pattern with variable lot sizes. Intensive agriculture and irrigated pasture land. Built elements include residences, farm buildings, stables and yards.                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Water form:            | Dominated by the proximity of the river and topography of the floodplain.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Landscape character:   | A rural landscape transformed into a simplified and alien appearance.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Scenic quality issues: | Post extraction is characterised by topographic changes, derelict sites, weed invasion and erosion.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Absorption capacity:   | Moderate because of the low visual access to the areas.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Visual sensitivity:    | Moderate to high. These areas have high visibility because of cleared land but limited visual access.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Detracting elements:   | Loss of landscape character and destruction of the visual evidence of the small holdings settlement pattern in areas such as Spring Farm.                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Things to encourage:   | <ul style="list-style-type: none"> <li>• Conservation of remnants of the historic landscape and settlement pattern, including plantings, fence lines, etc.</li> <li>• Archaeological assessment of sites before extraction is permitted.</li> <li>• Rehabilitation of sites following extraction.</li> <li>• Viable, productive and sustainable uses to be found for extracted areas.</li> <li>• Siting of residences to take advantage of site conditions.</li> <li>• Treatment of the street frontage of new developments which may include screening vegetation but which preserves sight lines.</li> </ul> |
| Things to discourage:  | Increase in the visual impacts and presence of this development type.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Significance:          | NA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

**Figure 7** Characteristics of 'Extraction Sites'. (Source: Lambcon Associates Pty Ltd 1998, p.54)

It should be noted that the Lambcon Study was prepared in 1998. Since that time there have been considerable improvements in post-extraction rehabilitation techniques, particularly on sites extracted by the Proponent. River bank stabilisation works have been carried out and areas previously heavily infested with exotic invasive species have been rehabilitated with locally sourced native species, resulting in enhanced plant communities and wildlife habitats.

Archaeological assessment of the proposed extraction site for material evidence of both indigenous and non-indigenous occupation has been carried out as part of the current environmental assessment process.

While the current rural landscape of the proposal site will be altered, the post-extraction landscape will be neither 'alien' nor 'derelict'. Rehabilitation will result in improved vegetation along the anabranch creek and the Nepean River high bank and the extracted site will have a viable, productive and sustainable agricultural use. Admittedly the topography will change, as it has in all the similar local extracted areas, but the visual impacts of this change must be weighed against the public benefits of the extractive resource and the rehabilitation of a currently degraded riparian corridor.

### 2.3.2 Camden Council Development Control Plan 2011

The landscape and visual qualities of the Spring Farm area were assessed by consultants Godden Mackay Logan Pty Ltd in their 2002 Heritage Assessment as part of the studies for the Spring Farm Urban Release Area. The findings and recommendations of the latter study are incorporated in Camden Council Development Control Plan (DCP) 2011, adopted on 8 February 2011. Table B5 in the DCP identifies 'Potential heritage items – Cultural and Visual Landscapes' in the area, including several in the Spring Farm area as shown in the extract below.

| Suburb                                                      | Item Name          | Address                         | View Description                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------|--------------------|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Spring Farm, Camden, Camden South, and Ellis Lane, Cobbitty | Cultural Landscape | Flood Plains along Nepean River | <b>Camden flood plain pastoral landscape</b>                                                                                                                                                                                                                                                                          |
| Spring Farm                                                 | Cultural Landscape |                                 | Views from Belgenny Farm to the Spring Farm release area, between St Johns Church and Camden Park Estate and Mount Annan<br><b>Views from Macarthur Road to Galvin Cottage, its immediate garden setting, alluvial flats and eastern ridgeline.</b>                                                                   |
| Spring Farm                                                 | Cultural Landscape |                                 | <ul style="list-style-type: none"> <li>• Views from within the Spring Farm Release area to the Blue Mountains and Razorback Range.</li> <li>• Views from William Howe Reserve, across Jacks Gully and the Spring Farm release area.</li> <li>• <b>Views from Camden By-pass across the alluvial flats.</b></li> </ul> |

| Suburb      | Item Name              | Address                                     | View Description                         |
|-------------|------------------------|---------------------------------------------|------------------------------------------|
| Spring Farm | Cultural Landscape     | Vicinity of Macarthur Road                  | <b>Macarthur Road cultural landscape</b> |
| Spring Farm | Special Character Area | Vicinity of Ettlesdale Road                 | Ettlesdale Road special character area   |
| Spring Farm | Cultural Landscapes    | Vicinity of Nepean River and Camden By-pass | <b>Vineyard and turf farming areas</b>   |

**Figure 8** Extract from Table B5 in Camden DCP 2011

Those views considered likely to be potentially affected by the proposed extraction are shown bold in the table above.

Clause B3.1.5 of the DCP applies to all potential heritage places listed in Table B5 and Figure B9 or in the vicinity of these places. It has the following objectives:

1. Conserve, protect, enhance and interpret Camden's unique Cultural and Visual Landscapes.
2. Promote the importance of broader Cultural and Visual landscapes and an awareness of the impact that individual developments can have on these.
3. Promote view sharing of the Cultural and Visual Landscapes where appropriate.

Relevant controls include:

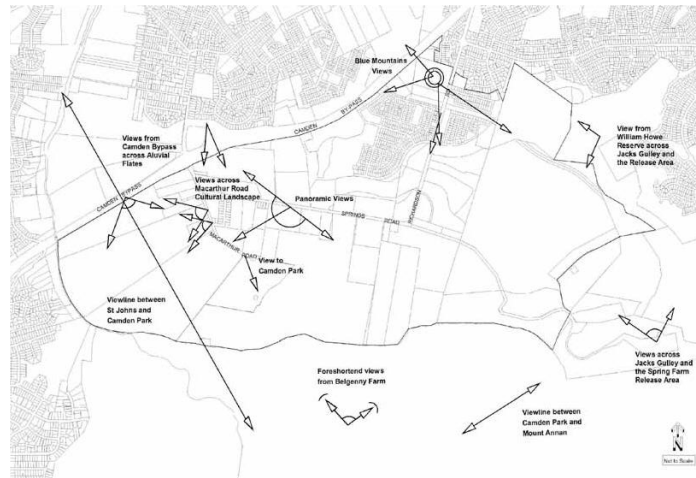
1. Development should optimise the preservation and interpretation of the identified significant Cultural and Visual Landscapes.
2. Curtilages for heritage items established in Conservation Management Plans shall be preserved
3. Avenue plantings and building alignments shall reinforce view corridors where appropriate.

The Proposal will result in changes to a small part of the Camden flood plain pastoral landscape but these changes will be ameliorated post-extraction by rehabilitation of riparian vegetation and a return to a viable agricultural land use.

Views from Macarthur Road to Galvin's Cottage, its immediate garden setting, alluvial flats and eastern ridgeline will be largely unaffected by the Proposal. Views to the Proposal site from the western side of Galvin's Cottage and its curtilage will be screened by existing vegetation along the anabranch creek and further restricted by enhancement of that vegetation.

Views from the Camden Bypass across the alluvial flats south of the Macarthur Bridge will be affected by the Proposal but the visual impacts will be limited by the relatively short periods during which viewers will be exposed to the extractive operations and by the visual restrictions imposed on the majority of travellers by the design of the bridge.

While vineyard and turf farming activities currently take place on sites adjacent to the proposed extraction site, there is no guarantee that these land uses will continue as they are subject to market forces. However, it is likely that they will continue, at least in the short term.



**Figure 9** Copy of Figure B9 'Spring Farm Cultural and Visual Landscapes' from Camden Council DCP 2011, showing significant views, including those from the Camden Bypass across the alluvial flats of the Nepean floodplain.

## 2.4 Listed Heritage Items

There are three local items of the environmental heritage, as listed on Schedule 5, Camden Local Environmental Plan 2010 that are in the vicinity of the proposed extraction area and from which views to the proposal site were investigated. These items are:

- House and curtilage of No.176 Macarthur Road (Lot 4, DP 542867), known locally as 'Thurn's Cottage';
- House and curtilage of No.196 Macarthur Road (Lot 1, DP 625278), known locally as 'Nesbitt' or 'Galvin's Cottage';
- 'Belvedere', 40 River Road, Elderslie (Lot 2, DP 606159).



**Figure 10** Heritage Map – Sheet HER 009, Camden LEP 2010, showing the three listed items of local significance in the vicinity of the proposed extraction site. There will be no physical impact of extraction on these properties and negligible visual impact.

### 2.4.1 Thurn's Cottage



**Figure 11** Western elevation of Thurn's Cottage. (Photo 6790, Chris Betteridge, 7 June 2011)

### 2.4.2 Galvin's Cottage

**Figure 12** Telephoto image of Galvin's Cottage, as viewed from the Macarthur Bridge east of the proposed extraction site, with the vineyard in the foreground. (Photo 5941, Chris Betteridge, 15 March 2011)



### 2.4.3 Belvedere



'Belvedere'

**Figure 13** Aerial photograph of Nepean River floodplain north of the proposed extraction site, showing part of Elderslie and the property 'Belvedere', the house of which has frontage to Macarthur Road. (Source: Google Maps).

## 2.5 Potential Heritage Items

Camden DCP 2011 identifies 170 and 172 Macarthur Road, in the vicinity of the proposed extraction site, as potential heritage items. Shown below is an extract of Table B4 Potential Heritage Items – Built Environment.

|             |                                                               |                    |                     |
|-------------|---------------------------------------------------------------|--------------------|---------------------|
| Spring Farm | House, garden and curtilage                                   | 170 Macarthur Road | Lot 31<br>DP 635271 |
| Spring Farm | Outbuildings and curtilage associated with 170 Macarthur Road | 172 Macarthur Road | Lot 32<br>DP 635271 |

**Figure 14** Extract from Camden DCP 2011 Table B4 Potential Heritage Items – Built Environment.



**Figure 15** Heritage Map – Sheet HER 009, Camden LEP 2010, showing the three listed items of local significance in the vicinity of the proposed extraction site and the two potential heritage items identified in Camden DCP 2011. There will be no physical impact of extraction on these properties and negligible visual impact.

## **3.0 Visual analysis**

### **3.1 *Visual exposure***

Important in the assessment of the potential visual and landscape amenity impacts of the proposal is determination of visual exposure or visibility and the perception of the proposal from viewing points in the public domain – the extent to which the area may be visible from surrounding public areas and significant private viewing points, the likely number of viewers, the period of the view, view distance and context of the view.

Distance has a strong influence on visibility because the proportion of the total view frame occupied by the proposal will decrease with distance. In addition, atmospheric influences such as dense cloud cover, haze or fog tend to reduce the level of contrast between development disturbances and the landscape in which it is located, thus reducing the level of visibility.

The proposal will be mainly visible from the Camden Bypass with some restricted distant views from parts of Macarthur Road to the east of the site. There are also restricted distant views of the site from private properties along Macarthur Road south of the Camden Bypass, which include two properties listed as local heritage items on the schedule to Camden Local Environmental Plan (LEP) 2010. These listed items are the house and curtilage of No.176 Macarthur Road (Lot 4, DP 542867), known locally as 'Thurn's Cottage' and the house and curtilage of No.196 Macarthur Road (Lot 1, DP 625278), known locally as 'Nesbitt' or 'Galvin's Cottage'. To the north of Thurn's Cottage are two potential heritage items identified in Camden DCP 2011, namely 172 and 170 Macarthur Road and the views of the site from these two properties are similarly restricted by intervening vegetation and attenuated by distance.

There are potential distant glimpses of the proposal site, seen across the Nepean River floodplain and under the Macarthur Bridge, from private properties and the public domain in River Road, Feld Avenue and Thurn Place, Elderslie. While one property, listed on the LEP heritage schedule as 'Belvedere', 40 River Road, (Lot 2, DP 606159) Elderslie, has an address in River Road, its house is on Macarthur Road.

### **3.2 *Views from Macarthur Bridge on the Camden Bypass***

There are sequential views from the Macarthur Bridge into the site between the strips of vegetation along the anabranch creek (east) and the Nepean River's eastern bank (west).



**Figure 16** View west along the roadway of the Macarthur Bridge on the Camden Bypass. Once west-bound travellers reach the sign at left of centre, just past the vegetation screen, they gain views over the Nepean River floodplain, into an area currently planted with grape vines (see Fig.11 below). (Photo 6388: C Betteridge, 7 April 2004).



**Figure 17** View west along the roadway of the Macarthur Bridge on the Camden Bypass showing the eastern part of Lot 32 currently planted with grape vines. The vegetation left of centre is along the anabranck creek. There are glimpses into the proposed extraction site through gaps in this vegetation. These glimpses could be blocked by screen plantings along the anabranck corridor. (Photo 6391: C Betteridge, 7 April 2011).



**Figure 18** View further west along the roadway of the Macarthur Bridge on the Camden Bypass than that in Fig. 11, showing a glimpse into the proposed extraction site through a gap in the anabanch corridor vegetation. This glimpse could be blocked by screen plantings up to the southern edge of the bridge. (Photo 6407: C Betteridge, 7 April 2011).



**Figure 19** View further west along the roadway of the Macarthur Bridge on the Camden Bypass than that in Fig. 12, showing the view into the proposed extraction site that might be experienced by a traveller in a truck or higher vehicle. (Photo 6409: C Betteridge, 7 April 2011).



**Figure 20** View from the same viewing point as that in Fig. 13, showing the view into the proposed extraction site that might be experienced by a traveller in a car, with some restriction on the view imposed by the guard rails on the bridge. (Photo 6410: C Betteridge, 7 April 2011).



**Figure 21** View from a point approximately mid-way along the proposed extraction site that might be experienced by a traveller in a car, with some restriction on the view imposed by the guard rails on the bridge. (Photo 6417: C Betteridge, 7 April 2011).



**Figure 22** As for Fig.15 but showing the view from a more elevated position that might be experienced by a traveller in a truck or higher vehicle. (Photo 6418: C Betteridge, 7 April 2011).



**Figure 23** View from a point closer to the Nepean River riparian corridor showing the view into the proposed extraction site that might be experienced by a traveller in a truck or higher vehicle. (Photo 6420: C Betteridge, 7 April 2011).



**Figure 24** As for Fig.17 but showing the view from a less elevated position that might be experienced by a traveller in a car or lower vehicle. (Photo 6421: C Betteridge, 7 April 2011).



**Figure 25** View looking east along the Macarthur Bridge from a point level with the riparian corridor of the Nepean River, showing the view of the proposed extraction site that might be experienced by a traveller in a car or lower vehicle. (Photo 6428: Chris Betteridge, 7 April 2011).



**Figure 26** View looking east along the Macarthur Bridge from a point approximately half way along the proposed extraction site showing the view into the site that might be experienced by a traveller in a truck or higher vehicle. (Photo 6437: Chris Betteridge, 7 April 2011).



**Figure 27** The view looking east along the Macarthur Bridge from a point approximately half way along the proposed extraction site showing the view into the site that might be experienced by a traveller in a car or lower vehicle. (Photo 6438: Chris Betteridge, 7 April 2011).



**Figure 28** *The view looking east along the Macarthur Bridge from a point close to the anabranck creek showing the view into the site that might be experienced by a traveller in a car or lower vehicle. (Photo 6448: Chris Betteridge, 7 April 2011).*



**Figure 29** *The view looking east along the Macarthur Bridge from a point close to the anabranck creek showing the view into the site that might be experienced by a traveller in a truck or higher vehicle. (Photo 6449: Chris Betteridge, 7 April 2011).*



**Figure 30** View from Macarthur Bridge east of the anabranck creek, showing the row of properties with frontages to Macarthur Road including Galvin's Cottage ('Nesbitt'), the dwelling with red roof at right of centre. (Photo 6460: Chris Betteridge, 7 April 2011).



**Figure 31** View from Macarthur Bridge looking south across the vineyard on the eastern part of Lot 32 towards existing turf farming operations on Lot 22, with the stockpiles of extracted material in Collins' existing processing area visible in the distance (left of centre). (Photo 6469: Chris Betteridge, 7 April 2011).

### **3.3 View from Galvin's Cottage ('Nesbitt')**



**Figure 32** View towards the proposed extraction site from the front (western) fence of Galvin's Cottage ('Nesbitt'). The proposed extraction site is screened from view from this location by vegetation along the anabranh creek. (Photo 6376: Chris Betteridge, 31 March 2011).

### **3.4 View from Thurn's Cottage**



**Figure 33** View towards the proposed extraction site from the front (western) fence of Thurn's Cottage. The proposed extraction site is screened from view from this location by vegetation along the anabranh creek. The view from the house is further restricted by the building and trees at right. (Photo 6791: Chris Betteridge, 7 June 2011).

### **3.5 View from Macarthur Road**



**Figure 34** View towards the proposed extraction site from Macarthur Road frontage of Lot 22. The proposed extraction site is screened from view from this location by vegetation along the anabranck creek. (Photo 6370: Chris Betteridge, 31 March 2011).

### **3.6 View from River Road, Elderslie**



**Figure 35** Distant view from southern end of River Road, Elderslie across the Nepean River floodplain towards the proposed extraction site, with the northern side of the Macarthur Bridge just visible at centre. (Photo 6814, Chris Betteridge, 7 June 2011)

### **3.7 View from Feld Avenue, Elderslie**



**Figure 36** Distant view from intersection of Hynes Place and Feld Avenue, Elderslie towards the proposed extraction site, with a glimpse of the Macarthur Bridge visible to right of street sign. (Photo 6821, Chris Betteridge, 7 June 2011)

### **3.8 Views from Potential Heritage Items**

The potential heritage items identified in Camden DCP 2011, namely 170 and 172 Macarthur Road, are located between Thurn's Cottage and the Camden Bypass. The views of the proposed extraction site from these properties will vary depending on the location of the viewer but will be screened by the vegetation along the anabranch creek and attenuated by distance.

### **3.9 Proposal details**

It is proposed to extract incrementally approximately 400,000 cubic metres from the western part of Lot 32 by open pit methods and to reinstate progressively a final landform which blends with the approved post-extractive landform for the adjoining extraction area to the south, on Lot 22. Such landform is to be self draining to the adjoining property and ultimately to the Nepean River. The proposed extraction area extends from the anabranch to the high riverbank of the Nepean. Importantly, it is not proposed to remove vegetation or material from the river frontage, with a 40 metre setback being observed.

An appropriate setback is to be maintained to the elevated Camden Bypass. Appropriate geotechnical investigations and flood modelling have been undertaken to ensure appropriate environmental outcomes and retention of infrastructure integrity. Furthermore, the power poles supporting the transmission line along the southern edge of the extraction area will be

maintained in situ, with appropriate access provision retained / facilitated. The site will be progressively rehabilitated for extensive agricultural pursuits similar to the adjoining parcel. All materials will be removed by plant and equipment and haulage routes over the adjoining parcel to the south and the same environmental management principles applying to that site will be implemented / observed. The proposed extraction will not adversely impact future residential development which is identified as a later stage of the Spring Farm Urban Release Area, with development being restricted to the Macarthur Road frontage which is significantly removed from the proposed extraction area and principal haulage route. Further, the Proposal will not adversely impact existing residential development across the Nepean River or the amenity of the cycleway on the western side of the river. The extraction area will, however, be exposed to users of the elevated Camden Bypass, with greatest impact on travellers in higher seating vehicles such as trucks and buses. Maturity of any effective screen planting is likely to exceed the extraction phase.

### **3.10 Visual absorption capacity**

Visual absorption capacity is an estimation of the ability of a particular area of landscape to absorb development without creating a significant change in visual character or a reduction in scenic quality of the area. The capacity of an area to absorb development visually is primarily dependent on landform, vegetation and the location and nature of existing development. Generally, flat or gently undulating open forest or woodland has a higher capacity to visually absorb development than open heathland or swamp or heavily undulating topography with cleared ridges and slopes.

A major factor influencing visual absorption capacity is the level of visual contrast between the proposed development and the existing elements of the landscape in which it is to be located. If, for example, a visually prominent development already exists, then the capacity of that area to visually absorb an additional development is higher than a similar section of land that has no similar development but has a natural undeveloped visual character.

The site for the proposed extraction currently has an enclosed area of open pasture, with a planted vegetation screen along its southern boundary and dense vegetation along the anabranch creek to the east and along the riparian corridor of the Nepean River to the west. The northern boundary, below the elevated Camden Bypass, has low-growing pasture species and agricultural weeds. The only structures within the deposit area are an elevated flood recording device close to the high bank of the Nepean River and an electricity transmission line along the southern side of the site.

The site would have limited capacity to absorb additional development of the scale of the proposal without changes to the way it is perceived from the major public viewing point on the Camden Bypass.

Given the generally flat topography and the short distance from elevated public viewing points on the Macarthur Bridge, the visual absorption capacity for the proposal is considered to be low. This is partly offset by the fact that

there is already turf farming activity on adjoining land, at times involving exposure of bare soil, human activity and the presence of plant and equipment. Also, the processing area or 'quarry' for M Collins and Sons is visible from the bridge, with stockpiles of soil and sand of various shades of brown, seen against the foreground vegetation cover of lucerne or grape vines.

### **3.11 Site visibility**

The proposed extraction site is visible to varying degrees from the Macarthur Bridge on the Camden Bypass, from parts of the low density residential areas on Macarthur Road, Spring Farm and from the low-lying areas of the floodplain north of the Macarthur Bridge, with some restricted distant views and glimpses from a few residential areas in the western part of Elderslie.

The proposed extractive operations will be visible to west-bound travellers on the Macarthur Bridge for about 20 seconds at 80 kilometres per hour, representing a distance of approximately 444 metres. Without additional screening vegetation along the anabranch creek, west-bound travellers on the bridge will also have restricted glimpses into the site for an initial 15 seconds, or a distance of approximately 333 metres, when approaching the site from the east. East-bound travellers on the bridge moving at the speed limit of 80 kilometres per hour will only be visually exposed to the extractive operations for 20 seconds or 444 metres when travelling across the bridge.

Visibility of the site from listed and potential heritage items in Macarthur Road, Spring Farm and River Road, Elderslie and from areas in the public domain other than the Macarthur Bridge is negligible or considerably reduced by distance and/or intervening vegetation.

## **4.0 Conclusions and recommendations**

### **4.1 Conclusions**

With regard to short-term impacts, i.e. during the extraction and rehabilitation periods, this report concludes that there will be substantial changes in the appearance of the extraction site during those periods. These changes will include alterations in contrast between the surfaces of the extraction site and adjoining vegetation, increased activity on site compared with that at present and a reduction in the ground level of the site compared with its present level.

Perceptions by passers-by of the impacts posed by those changes in the local landscape due to the execution of the proposal will vary depending on many factors including their previous experience of the site and its context, the frequency and duration of their exposures to the impacts and their attitudes to extractive resource development. They may be aware that extraction operations are occurring on a site where none exist at the present time but for many people, particularly local residents and regular commuters, their perceptions with regard to visual impacts are likely to be moderated by the knowledge that there are already turf farming operations on adjoining land, that there have been similar extractive operations nearby (including on

adjacent land to the south) and that there are and have been extensive roadworks on the F5 Freeway and other roads in the area for many years.

The visual impact as viewed from the public domain will be greatest for travellers on the Macarthur Bridge (which carries the Camden Bypass over the Nepean River and part of its alluvial floodplain), particularly those on the west-bound (i.e. towards Camden) lane of the bridge and to a lesser degree to those on the east-bound (i.e. towards Sydney) lane of the bridge. However, for all travellers on the Bypass the length of time to which they will be exposed to the visual impact will only be approximately 20 seconds per crossing of the bridge at the current speed limit of 80 kilometres per hour. This estimate is based on the fact that the extraction site is largely visible from the bridge only between the strips of remnant riparian vegetation along the anabranck creek and the eastern bank of the Nepean River for travellers looking over the site towards the south. Even with glimpses into the site through gaps in the vegetation along the anabranck, the maximum exposure to west-bound travellers at 80kph would be approximately only 35 seconds.

Drivers and passengers in lower motor vehicles such as cars and motor bikes will have their view of the extraction operations considerably restricted by the concrete barrier on the southern side of the bridge and the two tubular safety rails on top of the barrier. Drivers and passengers in taller vehicles such as trucks and buses will have a less restricted view of the extractive operations since they are more likely to be able to see over the bridge barriers into the site. Travellers on the east-bound lane and pedestrians on the footpath which runs along the northern side of the bridge will have their view of the extraction site further restricted by their greater distance from the southern edge of the bridge. There is relatively little pedestrian traffic on the bridge at present due to its considerable length and the fact that it does not provide a convenient connection between major residential areas. It is likely that it is mainly used by residents walking or jogging between the eastern part of Camden and the southern part of Elderslie.

There will be no physical impacts on any listed or potential heritage items or their curtilages in the vicinity of the proposed extraction site. Negative impacts posed by the proposal on visual and landscape amenity for properties in Macarthur Road are likely to be very low, attenuated by the increased viewing distance and screening vegetation in the properties and / or along the anabranck creek. Negative impacts on views from private properties and the public domain in River Road, Feld Avenue and Thurn Place, Elderslie are likely to be negligible or non-existent due to the increased viewing distance and the intervening floodplain and Macarthur Bridge.

Long-term (post extraction and rehabilitation) visual impacts are considered to be low and within the limits of acceptable change for the cultural landscape as the extraction proposal proposes to return the main visual elements of the existing landscape by rehabilitation of riparian corridors associated with the anabranck creek and the Nepean River with local provenance vegetation and retaining open agricultural land use on a site currently devoted to that use. There will be an ongoing but minor visual impact arising from the fact that the

power poles for the transmission line will sit on small rises with battered slopes instead of sitting on flat ground as they do at present.

## **4.2 Recommended Mitigative Measures**

Because the major viewing points in the public domain are elevated well above the proposed extraction site, it is considered that it would not be possible to screen the area with planting that would have a significant effect in reducing visual impact within the projected lifespan of the operation. Maturity of any effective screen planting on the northern side of the site would be likely to exceed the extraction phase.

The extent of potential visual and landscape amenity impacts arising from the proposal will depend on a number of factors including the final nature and staging of the extractive operation, the extent of actual extraction, the size, nature and exterior finishes of plant and equipment, including stockpiles of material, the extent of vegetation clearing and new landscaping, and other changes such as increased human activity on site and vehicle movements to and from the site. These impacts can be substantially reduced by the range of mitigative measures recommended in this report which include:

### **4.2.1 Proposed Extraction Staging Plan**

A proposed Staging Plan for extractive operations, prepared by Harvest Scientific Services, will limit the extent of visual impact at any one time.

### **4.2.2 Enhanced Visual Screening**

Enhancement of the visual screening provided by riparian vegetation along the anabranck creek should be achieved by supplementary planting in that corridor with native species of local provenance to fill in any gaps that permit restricted views into the extraction site from the westbound lane of the Camden Bypass from points east of the anabranck. This planting should be carried out prior to extractive operations commencing so that maximum screening benefit can be achieved.

### **4.2.3 Staged retention of existing screening south of site**

As much as possible of the existing screening vegetation along the southern boundary of the extraction site should be retained for as long as practical while extractive operations are being carried out east of the Nepean River. This will provide some visual relief in the background, helping to draw the eye of the traveller on the bridge to a point beyond the extractive operation.

### **4.2.4 Staged retention of vegetation on areas not being extracted**

Vegetation cover on those parts of the proposed extraction site not being extracted should be retained for as long as possible to reduce the extent of the area that shows a major contrast to adjoining vegetated areas.

#### **4.2.5 Long-term landscaping and rehabilitation**

Where practical, the riparian corridors associated with the eastern high bank of the Nepean River and the anabranch creek should be cleared of invasive species and revegetated in accordance with the recommendations in relevant ecological reports and with any requirements of Camden Council and relevant NSW Government agencies.

Landscape plans should include detailed specifications for species selection, planting and maintenance to achieve desired mature dimensions and requirements for weed control. The species selected for these areas should as close as possible reflect the local provenance vegetation that would have occurred in these areas prior to European settlement.

#### **4.2.6 Plant and equipment**

Plant and equipment on the site should be kept to a minimum and wherever possible external finishes to plant and equipment should be chosen to minimise visual impact.

#### **4.2.7 Fencing**

Any fences necessary during the extraction and rehabilitation phases, particularly those visible from the public domain, should be simple in design, with a high degree of transparency. They should also provide for necessary security and be appropriate for the setting.

### **5.0 References**

Anon c1950s, 'The Parish of Camden',

Benson D, Howell J 1990, *Taken for Granted: The Bushland of Sydney & its Suburbs*, Royal Botanic Gardens Sydney, Sydney.

Bickford, Anne 2011, 'Report on European Heritage – Non-Aboriginal Archaeological Assessment Report. Lot 32 DP 635271 Macarthur Road Elderslie NSW', consultant report prepared by Archaeology & Heritage for Pascoe Planning Solutions on behalf of M Collins and Sons (Contractors) Pty Ltd, June 2011.

Breckwoldt, Roland 1978, *Scenic Landscapes: Guidelines for their Protection*, National Trust of Australia (NSW), Sydney.

Burnett, Brian, Nixon, Richard & Wrigley, John 2005, *Place Names of the Camden Area*, Camden Historical Society and the Camden Area Family History Society, Camden.

Camden Council 1975, 'Report to the Town Planning Committee meeting 1 September 1975: Galvin's Cottage, Portion 17, Macarthur Road, Elderslie, Owner: A G Nesbitt)

Camden Council 2006, Camden Development Control Plan 2006 Heritage, the Council, Camden.

Camden Council 2010, *Camden Local Environmental Plan 2010*, The Council, Camden.

Camden Council 2011, Camden Development Control Plan 2011 Heritage, The Council, Camden.

Harvest Scientific Services Pty Ltd 2010, 'Landscape Management Plan for Spring Farm Sand and Soil Extraction (Continuation of existing operations) 186 Macarthur Road, Spring Farm', a consultant report prepared for M Collins and Sons (Contractors) Pty Ltd.

Hazelton, P A & Tille, P J 1990, *Soil Landscapes of the Wollongong – Port Hacking 1:100 000 Sheet*. Soil Conservation Service of NSW, Sydney.

Heritage Office, NSW Department of Urban Affairs and Planning 1996, *Heritage Curtilages*, DUAP, Sydney.

Keith, David 2004, *Ocean Shores to Desert Dunes: The Native Vegetation of New South Wales and the ACT*. Sydney, NSW Department of Environment and Conservation.

Lambcon Associates Pty Ltd 1998, *Camden Scenic & Cultural Landscapes Study*, February, 1998.

Lambcon & Associates Pty Ltd 1990, *Macarthur South Landscape, Urban Design, Heritage and Open Space Study*.

Landscape Assessment Committee of the National Trust of Australia (NSW) 1989, *Landscape Assessment Manual of Practice*, The National Trust, Sydney.

McClelland, Linda Flint, Keller, J Timothy, Keller, Genevieve P & Melnick, Robert Z 1995, 'Guidelines for Evaluating and Documenting Rural Historic Landscapes', *National Register [of Historic Places] Bulletin No.30*, US Department of the Interior, National Park Service, np.

Nesbitt, Adrian 2010, 'Summer: A renovation with conviction', *Sydney Morning Herald* 11 January 2010.

New South Wales Department of Environment & Planning 1981, *Technical Bulletin 14: Guidelines for Site landscaping of Commercial and Industrial Developments*.

New South Wales Department of Environment & Planning 1984, *Sydney's Extractive Industry Regional Environmental Study*, DEP, Sydney.

New South Wales Government 1992, *The NSW State Rivers and Estuaries Policy*, NSW Government, Sydney.

New South Wales Government 1992, *The NSW Sand and Gravel Extraction Policy for Non Tidal Rivers: A component of the NSW State Rivers and Estuaries policy*, NSW Government, Sydney.

Oliveri, Rita 2010, 'Back then: Thurn was a vinedresser and pioneer of Elderslie', *The District Reporter*, Monday 15 February 2010.

Ramsay, Juliet & Paraskevopoulos (ed.) 1993, *More than meets the eye: Identifying and Assessing Aesthetic Value, Report of the Aesthetic Value Workshop held at the University of Melbourne on 27 October 1993, 1993 Technical Workshop series No.7*, Australian Heritage Commission, Canberra.

Wallace, Sandra 2011, 'Proposed sand / soil extraction site, Macarthur Rd, Spring Farm Aboriginal Archaeological Assessment', consultant report prepared by Artefact Heritage Services for Pascoe Planning Solutions on behalf of M Collins and Sons (Contractors) Pty Ltd, June 2011.