Douglas Partners
Geotechnics / Environment / Groundwater

Integrated Practical Solutions

Report on
Preliminary Site Investigation (Contamination)

Redevelopment of Cessnock Correctional Centre
Lindsay Street, Cessnock

Prepared for
NBRS & Partners Pty Ltd

Project 81986.00
July 2016

Douglas Partners
Geotechnics / Environment / Groundwater

Document History

Document details

Project No.	81986.00	Document No.	R.002.Rev0
Document title	Report on Preliminary Site Investigation (Contamination) Redevelopment of Cessnock Correctional Centre		
Site address	Lindsay Street, Cessnock		
Report prepared for	NBRS & Partners Pty Ltd		
File name	81986.00.R.002.Rev0.docx		

Document status and review

Status	Prepared by	Reviewed by	Date issued
Revision 0	Michael Gawn	Stephen Jones	6 July 2016

Distribution of copies

Status	Electronic	Paper	Issued to
Revision 0	1	-	Brett Shearson, NBRS and Partners Pty Ltd

The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

	Signature	Date
Author		6 July 2016
Reviewer		6 July 2016

Douglas Partners Pty Ltd
ABN 75 053 980 117
www.douglaspartners.com.au
15 Callistemon Close
Warabrook NSW 2304
PO Box 324
Hunter Region Mail Centre NSW 2310
Phone (02) 4960 9600
Fax (02) 4960 9601

Executive Summary

This report presents the results of a preliminary site investigation (PSI) for contamination undertaken for the proposed redevelopment of the existing Cessnock Correctional Centre, located at Lindsay Street, Cessnock. The area of assessment covered five distinct development areas within the correctional centre site, which is located in Lot 3 in DP 76202.

The assessment comprised a brief desktop review of site history, site inspection by a senior engineer and preparation of this report.

The assessment has been undertaken with reference to the National Environment Protection (Assessment of Site Contamination) Measure 1999 amended 2013 (NEPC 2013) and the State Environmental Planning Policy No 55 – Remediation of Land.

The results of the historical aerial photo review have identified that the main potential for contamination at the site is from possible importation of filling, storage of demountable buildings and demolition of previous buildings on the site.

On the basis of the desktop review, available site history information and observations made during the site inspection, the sources of potential contamination for the site appear to be limited to the following:

- Importation of filling to the site, or excavation and placement of material won from site to form the near-level terraces and the detention pond embankments of Area 1, together with the surface water diversion bunds in Area 2. Some filling may also be present within Area 3 which may have been placed during the construction of the existing pavements.
- Possible application of herbicides and pesticides during weed control and associated with the former land use (viticulture); and
- The storage of demountable buildings on the site appears to have occurred in Areas 1, 2, 3 and 5; and
- Several buildings appear to have been demolished in Area 3.

Although there were no visual or olfactory signs of gross contamination (i.e. no obvious staining or odour) observed on site or within the test bores undertaken for the concurrent geotechnical investigation, the presence of fill materials and the previous land usage (storage of demountable buildings and viticulture) indicated that contamination may be present at the site. It is noted that while a concurrent geotechnical investigation has been undertaken at the site, no sampling and testing for chemical contaminants was conducted for this PSI, apart from limited testing for asbestos.

The presence or absence of contamination can only be confirmed by further investigation including environmental sampling and chemical testing. It is, however, considered that the areas of potential contamination identified, once remediated, will be suitable for the proposed land use.

Further targeted contamination assessment, including intrusive investigation within the identified areas of environmental concern together with testing for likely contaminants should be undertaken to assess the possible presence and extent of contamination and requirements for remediation, particularly for asbestos and herbicides. Site remediation (if required) should be conducted in accordance with a site specific remediation action plan (RAP), if required.

Douglas Partners
Geotechnics | Environment | Groundwater

Table of Contents

Report on Preliminary Site Investigation (Contamination)
Redevelopment of Cessnock Correctional Centre
Lindsay Street, Cessnock

1. Introduction

This report presents the results of a preliminary site investigation (PSI) for contamination undertaken for the proposed redevelopment of the existing Cessnock Correctional Centre, located at Lindsay Street, Cessnock. The assessment was commissioned in an email dated 12 July 2016 by Brett Shearson of NBRS & Partners Pty Ltd, acting on behalf of NSW Department of Justice and was undertaken in accordance with Douglas Partners' proposal NCL160276 dated 11 April 2016 .

For the purposes of the assessment, the client supplied DP with a number of drawings showing the conceptual plans for the redevelopment.

In summary, the proposed development comprises the extension of both the existing maximum and minimum security facilities and relocation of the existing admin building and staff car park at the Cessnock Correctional Centre, as follows:

- **Area 1:** Additional 280 bed minimum security facility and ancillary supporting infrastructure on the vacant land to the south of the existing centre; and
- **Area 2:** Additional 320 bed maximum security facility and ancillary supporting infrastructure on the land west of the existing centre;
- **Area 3:** Construction of a new staff amenities building, admin building and car park to the south of the existing maximum security facility;
- **Area 4:** Construction of approximately 250 m of new access road connecting the proposed car park to the existing Alunga Ave, and;
- **Area 5:** Construction of a new max industries building within the proposed maximum security area.

The assessment comprised the following:

- A brief desktop review of site history;
- Site inspection on 25 May 2016 by a senior engineer from DP; and
- Preparation of this report which presents the findings of the assessment.

The assessment has been undertaken with reference to the National Environment Protection (Assessment of Site Contamination) Measure 1999 amended 2013 (NEPC 2013) [Ref 1] and the State Environmental Planning Policy No 55 – Remediation of Land (Ref 2).

DP has undertaken a concurrent geotechnical investigation for the proposed redevelopment, the results of which have been presented in a separate report (Ref 3).

Relevant results from the subsurface investigation associated with the geotechnical investigation have been included in this report.

2. Site Description

Cessnock Correctional Centre is situated at the northern end of Lindsay Street, Cessnock. Investigations took place to the west and south of the existing correctional centre (Refer Drawing 1 attached). The development areas are located within Lot 3 in DP 76202 (refer Figure 1 below).

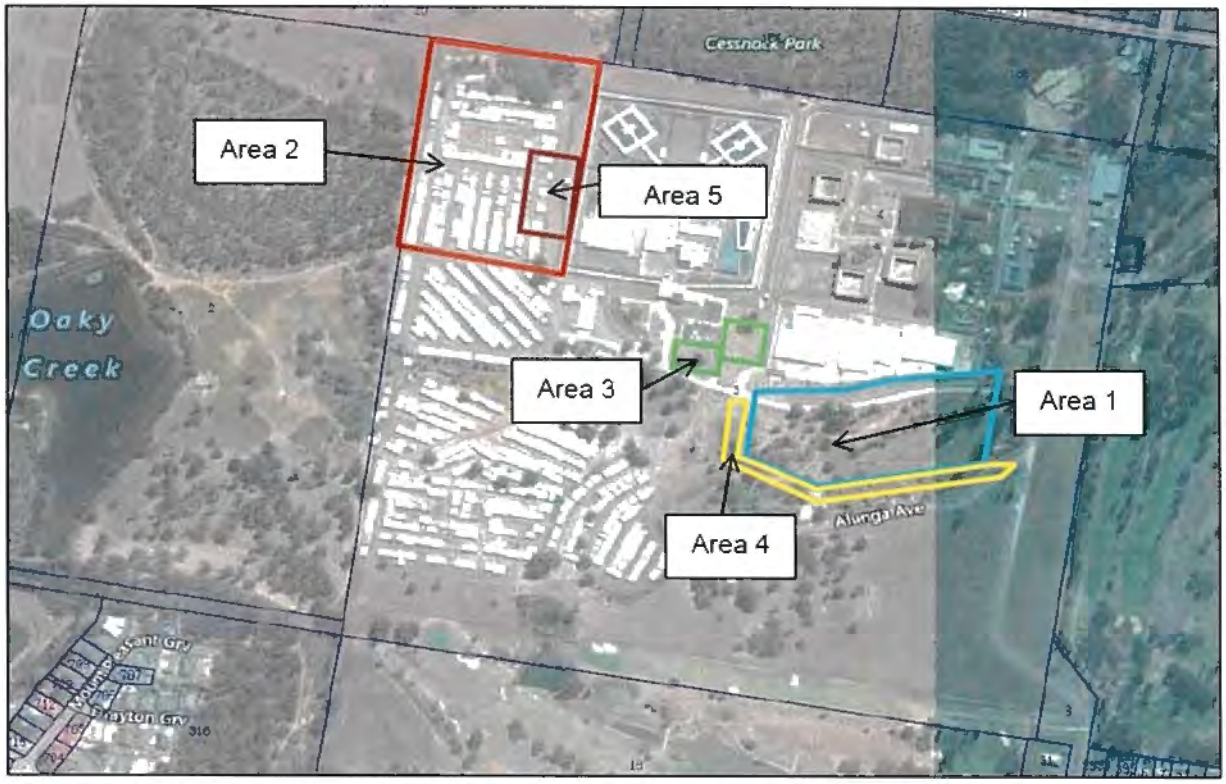


Figure 1: Aerial image of site with cadastre

A brief site description of the area for each area of development is presented in Sections 2.1 to 2.5 below.

2.1 Area 1 – 280 Bed Minimum Security

The proposed 280 bed minimum security unit will be constructed south of the existing correctional centre between the existing industries buildings to the north and existing residential housing on Alunga Avenue, as shown in Figure 2 and Figure 3.

Figure 2: Area 1 - Facing north towards existing Industries Buildings

Figure 3: Area 1 – Facing south-west towards residential housing on Alunga Avenue

2.2 Area 2 – 320 Bed Maximum Security

The proposed 320 bed maximum security unit will be constructed to the west of the existing correctional centre, as shown in Figure 4. This area is bounded by the existing maximum security unit to the east, a cluster of demountable buildings to the south and security fencing to the north and west. The site slopes fall to the north and west at about 3 - 5°.

Figure 4: Area 2 – Facing north-east towards existing correctional

2.3 Area 3 – Staff amenities building, admin building and car park

The proposed staff amenities building, admin building and car park will be constructed immediately south of the existing maximum security entrance, adjacent to the existing staff and visitor car park areas (refer Figure 5).

Figure 5: Area 3 – Facing west towards existing visitor car park

The site slopes typically fall at about 3° to the east in the grassed areas and approximately 1° to the east in car park areas. The surface slopes increase to between 10° to 20° along the northern and eastern boundaries of the area (refer Figure 6).

Figure 6: Area 3 – Facing north along increased site slopes

2.4 Area 4 – Access Road

Details on the exact alignment of the road have not been provided to DP at the time of preparation. It has been assumed that the road will connect the intersection of Alunga Avenue and the main access road to the proposed car parking area. It is likely, therefore that the road will pass to the south of the new minimum security unit and then continue north along the western boundary of the minimum security unit.

This possible alignment passes through areas typically grass covered with scattered trees (refer Figure 3).

2.5 Area 5 – Max industries building

The max industries building will be located within Area 2.

3. Regional Geology and Acid Sulfate Soil Mapping

Reference to the Newcastle Coalfield Regional Geology 1:100 000 Sheet indicated that the site is underlain by the Farley Formation within the Dalwood Group. The Farley Formation typically comprises silty sandstone with siltstone, mudstone, shale, conglomerate and basalt also present.

Reference to the acid sulfate soil mapping for the area indicates that the five development areas are within areas of no known occurrence of acid sulfate soils.

4. Hydrogeology

The site is located on a broad hill, with the regional groundwater flow direction believed to be locally to the south-east (within Areas 1, 3 and 4) towards a tributary of Black Creek and to the south-west and north-west (Areas 2 and 5) towards Oaky Creek.

Figure 7: Aerial image of site and surrounding areas with 2 m contours and mapped watercourses

An on-line records search of groundwater wells registered with the NSW Office of Water did not indicated any groundwater wells within the site or within the area surrounding the site.

5. Site History

5.1 Extent of Site History Review

The brief site history review comprised the following:

- Discussion with personnel familiar with the site;
- Search for historical title deeds;
- Review of historical aerial photos; and
- Searches with the NSW Environmental Protection Authority (EPA).

Details are presented in Sections 5.2 to 5.5.

5.2 Discussion with Site Personnel

During the site inspection by a senior engineer from DP discussion was undertaken with the prison officer in charge of the western area of the site (Areas 2 and 5). The following information was provided in relation to the site:

- The western area of the site has been used for the storage of demountable buildings (refer Figure 7);
- The demountable buildings were only stored on the site with no demolition or repair work undertaken on them while they were stored. A separate area within the correctional centre, located within the existing minimum security unit, was identified as being where refurbishment and handling of asbestos products occurred;
- Some cut and fill operations have been undertaken during development of the site, particularly in Area 2; and
- Spraying of weeds is periodically undertaken across the site;

5.3 Historical Title Search

A historic title deeds search was carried out by Scott Ashwood Pty Ltd, the results of which are provided in Appendix B and summarised in Table 1 below.

Table 1: Historic Title Search Results – Lot 3 in DP 76202

Date of Acquisition and Term Held	Registered Proprietor(s) and Occupations Where Available
27.07.1926 (1926 to 1935)	Joseph Pius Doyle (Gentleman) Paul Love (Vigneron)
16.12.1935 (1935 to 1938)	Paul Love (Vigneron)
12.05.1938 (1938 to 1962)	Ernest Alexander Leggett (Butcher)
17.10.1962 (1962 to 1989)	Minister for Public Works
21.09.1989 (1989 to date)	# Minister for Corrective Services

Notes to Table 1

# Denotes current property owner

Two leases were identified by the search, as follows:

- 24.08.2010 (AF 387565) to Cessnock Golf Club Limited, of part – expires 31.12.2019
- 24.08.2010 (AF 387564) to Cessnock Golf Club Limited, of part – expires 31.12.2019

5.4 Review of Historical Aerial Photos

The historical aerial photos reviewed for the assessment are presented in Table 2 together with the main observations.

Table 2: Historical Aerial Photo Review

Year of Photo	Scale (Colour)	Main Observations		
		Area 1 and 4	Areas 2 and 5	Area 3
1952	1:40 000 (B & W)	No development visible on the site, which is open paddocks. Main access road and Alunga Avenue not visible. Surrounding land is predominantly undeveloped.	No development visible on the site, which is open paddocks.	No development visible on the site, which appears to be open paddocks. An unsealed track appears too visible crossing through this area.
1975	1:40,000 (B & W)	Similar to 1952 aerial photo and the site remains undeveloped. Alunga Avenue and main access road are visible. Houses visible along Alunga Avenue. The main gaol buildings are visible to the west, although three large buildings immediately north of Area 1 are not visible.	The site remains undeveloped with the exception of a number of unsealed tracks passing through the site. A number of prominent trees visible in same position as modern day.	Similar to 1952 photo, however some cleared ground possibly associated with the batter slope down to the modern day minimum security unit is visible. Several unsealed tracks pass adjacent and through the area.
1980	1:25,000 (B & W)	Similar to 1975 aerial photo.	Similar to 1975 photo, however, development of the modern day maximum security unit is visible to the east. A large cleared area visible in the north-eastern corner.	Similar to 1975 photo, however, development of the modern day maximum security unit is visible to the north.
1996	1:25,000 (Colour)	One or two buildings, believed to be demountable buildings appear to be stored within the northern section of Area 1. The drainage swale/bund which is present in Area 1 is visible.	Numerous buildings, believed to be demountable buildings appear to be stored within the area. A number of unsealed access tracks cross through the area.	Several buildings which appear to be of permanent construction are present in the area along with a number of demountable buildings
2005 Google Earth	Not to scale (Colour)	Similar to 1996 aerial photo.	More demountable buildings are present in the area, arranged in regular grids. A sedimentation basin is visible in the north-western corner.	Similar to 1996 photo. Several demountables have been removed and it appears that some sealed pavements are present.
2007 Google Earth	Not to scale (Colour)	Similar to 2005 photo, although demountables have been removed. More demountables are still present further to the north, beyond Area 1	Similar to 2005 photo.	Similar to 2005 photo.
Nov 2010 Google Earth	Not to scale (Colour)	Similar to 2007 Google Earth image although construction of three large buildings to north well underway.	Similar to 2007 Google Earth image.	Similar to 2007 Google Earth image, although construction of present day maximum security unit to north has commenced.
2012 Google Earth	Not to scale (Colour)	Similar to 2010 Google Earth image but three large buildings in present day minimum security unit complete along with sealed access road on western boundary of Area 1.	Similar to Nov 2010 Google Earth image.	Existing sealed car park present along with gate house and entry to maximum security unit.

It is noted that data obtained from aerial photos was limited due to the relatively small scale and poor resolutions.

The results of the historical aerial photo review have identified that the main potential for contamination at the site is from possible importation of filling, storage of demountable buildings and demolition of previous buildings on the site.

5.5 NSW EPA Search

A review of the NSW EPA public registers indicated the following:

- The site is not on the NSW EPA Contaminated Land Management Register;
- The site is not on the list of contaminated sites notified to NSW EPA; and
- Neither the site nor any nearby sites are on the Protection of the Environment Operations Act list for licences, notices etc.

5.6 Geotechnical Investigation

The concurrent geotechnical investigation included the drilling of bores across the development areas as shown on Drawing 1 in Appendix D. The locations of bores from previous investigations are also shown on Drawing 1. The bores were drilled to depths ranging from 0.4 m to 6 m. Conditions encountered in the bores included some near surface filling underlain by residual clay soils and shallow sandstone bedrock. Reference should be made to the geotechnical report (Ref 3) for borehole logs.

Where encountered, the filling was generally clayey silt, silty clay or silty sand, which appear to have been sourced from excavations elsewhere on the site during creation of near-level terraces (particularly in Area 1). No anthropogenic inclusions were noted within the filling encountered in the bores.

6. Site Condition

A site inspection was undertaken on the 25 May 2016 by a senior engineer from DP. The approximate location of the photos shown in Figure 2 to Figure 6 in Section 2 and Figure 8 to Figure 10 below are shown on Drawing 2, with the relevant figure numbers as outlined in this report noted on the drawing.

The main features and observations made of the site during the inspection are as follows:

Area 1 – 280 Bed Minimum Security

- The area is typically grass covered with scattered trees. An existing concrete access road passes in an east/west direction through the northern portion of the proposed development site;
- The site slopes generally fall to the south-east at about 3 - 5°;
- Several swales and bunds are present generally aligned north-east to south-west across the site and appear to act as surface drainage diversions (refer Figure 8);

Figure 8: Drainage swale and bund in Area 1

Area 2 – 320 Bed Maximum Security

- At the time of the investigation, the site mostly exposed soil filling at the surface with occasional grassy patches.
- A number of near-level terraces are present across the area which appear to have been formed to allow placement of the previously stored demountable buildings (refer Figure 9). Concrete and cement block footing piers and other building materials associated with the demountable buildings previously stored within this area were scattered across the site, as shown in Figure 9.

Figure 9: Area 2 – Demountable building piers and filling terraces

Area 3 – Staff amenities building, admin building and car park

- The area was generally grassed areas with some scattered trees. The existing car parking areas were asphalt sealed with a combination of asphalt and concrete access roads.

- An outcrop of rock, comprising weathered siltstone and sandstone, was present toward the south-eastern extent of Area 3 (refer Figure 10).

Figure 10: Area 3 – Rock outcrop towards south-east boundary of Area 3

Area 4 – Access Road

- The possible access road alignment passes along the southern and western perimeter of Area 1 through areas typically grass covered with scattered trees (refer Figure 3).

Area 5 – Max industries Building

- The max industries building will lie close to the eastern boundary of Area 2, within an area which contains surficial filling, predominantly gravelly or sandy clay associated with the near-level terraces which are present through Area 1.

7. Potential Contamination

On the basis of the desktop review, available site history information and observations made during the site inspection, the sources of potential contamination for the site appear to be limited to the following:

- Importation of filling to the site, or excavation and placement of material won from site to form the near-level terraces and the detention pond embankments of Area 1, together with the surface water diversion bunds in Area 2. Some filling may also be present within Area 3 which may have been placed during the construction of the existing pavements. Fill materials which may have been imported to site may contain a range of contaminants included TRH, BTEX, PAH, OCP, OPP, PCB and asbestos depending on the source; and

- Possible application of herbicides and pesticides during weed control and associated with the former land use (viticulture). Potential contaminants would include Pesticides, Herbicides, metals, TRH, Grease and Oil.
- The storage of demountable buildings on the site appears to have occurred in Areas 1, 2, 3 and 5. Depending on the activities and amount of disturbance to the demountables, there is a risk of asbestos in the near surface soils in these areas; and
- Several buildings appear to have be demolished in Area 3, which may have contained asbestos.

8. Preliminary Conceptual Site Model

A preliminary Conceptual Site Model (CSM) has been prepared for the investigation area with reference to the National Environment Protection (Assessment of Site Contamination) Measure 1999 amended 2013 (NEPC 2013) Schedule B2 (Ref 1). The CSM identifies potential contaminant sources and contaminants of concern, contaminant release mechanisms, exposure pathways and potential receptors. It should be noted that this preliminary conceptual site model will need to be revised following subsurface investigation. The preliminary CSM is presented in Table 3 below.

Table 3: Preliminary Conceptual Site Model

Known and Potential Primary Sources	Potential For Contamination and Area Affected	Primary Release Mechanism	Secondary Release Mechanism	Potential Impacted Media	Contaminants of Concern	Exposure Pathway	Potential Receptors	
							Current	Future
Importation of filling for construction of near-level platforms, pond embankment and drainage bunds	Low	Placement of filling on site	Long-term leaching of contaminants via runoff, rain water infiltration / percolation	Soil, groundwater, surface water	TRH, PAH, BTEX, PCB, OCP, OPP, Metals, Asbestos	Dermal contact, inhalation (dust), ingestion	Site workers consultants trespassers, vegetation, surface water	Earthworks employees, remediation contractors, visitors and inmates, vegetation, trespasser
Pesticides/Herbicides used during weed control and viticulture	Low	Spills and leaks from use or storage	Long-term leaching of contaminants via runoff, rain water infiltration / percolation	Soil, groundwater, surface water	Pesticides, Herbicides metals, TRH, Grease / Oil			
Storage of demountables / demolition of previous buildings	Low to Moderate	Poor demolition practices	Repair / Maintenances of buildings and/or demountable buildings	Soil	Asbestos			

Notes to Table 3:

Heavy metals = Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel and Zinc
TPH = Total Petroleum Hydrocarbons, BTEX = Benzene, Toluene, Ethyl Benzene and Xylene
PAH = Polyaromatic Hydrocarbons, PCB = Polychlorinated Biphenyls
OCP = Organochlorine Pesticides, OPP = Organophophorus Pesticides

9. Laboratory Testing

Limited testing for the presence of asbestos in soil was undertaken to partly address the identified contaminate of concern associated with the storage of demountable buildings on site and the demolition of previous buildings. Laboratory testing was undertaken by Envirolab Services, a National Association of Testing Authorities Australia (NATA) registered laboratory. Analytical Methods used are shown on the laboratory sheets in Appendix C.

Detailed results are provided in Appendix C and summarised in Table 4.

Table 4: Results of Asbestos in Soil Testing

Bore	Area	Depth (m)	Description	Result
301	Area 2	Surface	Clay filling	No asbestos detected
302			Clay filling	No asbestos detected
303			Brown clay topsoil	No asbestos detected
306	Area 1		Brown silty clay	No asbestos detected
307			Brown silty sand filling	No asbestos detected
308	Area 3		Brown silty gravel filling	No asbestos detected
309			Brown silty sand filling	No asbestos detected
310			Brown silty sand filling	No asbestos detected

10. Conclusions

The results of the preliminary site investigation (contamination) for the proposed redevelopment of the Cessnock Correctional Centre indicate the following:

- Possible application of herbicides and pesticides during weed control and associated with the former land use (viticulture), with potential contaminants including, pesticides, herbicides metals, TRH, grease and oil;
- Previous storage of demountable buildings (Areas 1, 2, 3 and 5) along with demolition of previous buildings (Area 3), which may have resulting in asbestos being deposited on the soil surface. Preliminary and limited testing of surface soils within Areas 1 to 3 did not detect the presence of asbestos fibres;
- Possible importation of filling, or excavation and placement of site won materials associated with the near level terraces in Area 2, the detention basin (now filled in) in Area 2 and the drainage bunds in Area 1. Filling may also be present in Area 3. The filling may contain potential contamination such as asbestos containing material, TRH, PAH, BTEX, PCB, OCP, OPP and Metals.

Although there were no visual or olfactory signs of gross contamination (i.e. no obvious staining or odour) observed on site or within the test bores undertaken for the concurrent geotechnical investigation, the presence of fill materials and the previous land usage (storage of demountable buildings and viticulture) indicated that contamination may be present at the site. It is noted that while a concurrent geotechnical investigation has been undertaken at the site, no sampling and testing for chemical contaminants was conducted for this PSI, apart from limited testing for asbestos.

The presence or absence of contamination can only be confirmed by further investigation including environmental sampling and chemical testing.

It is, however, considered that the areas of potential contamination identified, once remediated, will be suitable for the proposed land use.

Further targeted contamination assessment, including intrusive investigation within the identified areas of environmental concern together with testing for likely contaminants should be undertaken to assess the possible presence and extent of contamination and requirements for remediation, particularly for asbestos and herbicides.

Site remediation (if required) should be conducted in accordance with a site specific remediation action plan (RAP), if required.

11. References

1. National Environmental Protection Council (NEPC), "National Environmental Protection (Assessment of Site Contamination) Measures", 1999 (amended 2013).
2. NSW Department of Environment and Planning, State Environment Planning Policy No 55 – Remediation of Land, under the Environmental Planning and Assessment Act 1979, amended 2014.
3. Douglas Partners Pty Ltd "Report on Geotechnical Investigation, Re-Development of Correctional Centre, Lindsay Street, Cessnock", Project 81986, Report No 1, dated July 2016

12. Limitations

Douglas Partners (DP) has prepared this report for this project at the Cessnock Correctional Centre in accordance with DP's proposal NCL160276 dated 11 April 2016 and acceptance received from NBRS and Partners Pty Ltd dated 12 July 2016. The work was carried out under DP's Conditions of Engagement. This report is provided for the exclusive use of NBRS and Partners Pty Ltd and the NSW Department of Justice for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after DP's field testing has been completed.

DP's advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by DP in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

This report has been produced with reference to the National Environmental Protection (Assessment of Site Contamination) Measure 1999 (ASC NEPM 1999) and amendments made in 2013.

The contents of this report do not constitute formal design components such as are required, by the Health and Safety Legislation and Regulations, to be included in a Safety Report specifying the hazards likely to be encountered during construction and the controls required to mitigate risk. This design process requires risk assessment to be undertaken, with such assessment being dependent upon factors relating to likelihood of occurrence and consequences of damage to property and to life. This, in turn, requires project data and analysis presently beyond the knowledge and project role respectively of DP.

Douglas Partners Pty Ltd

Appendix A

About This Report

About this Report

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

Appendix B

Historical Title Deed Search

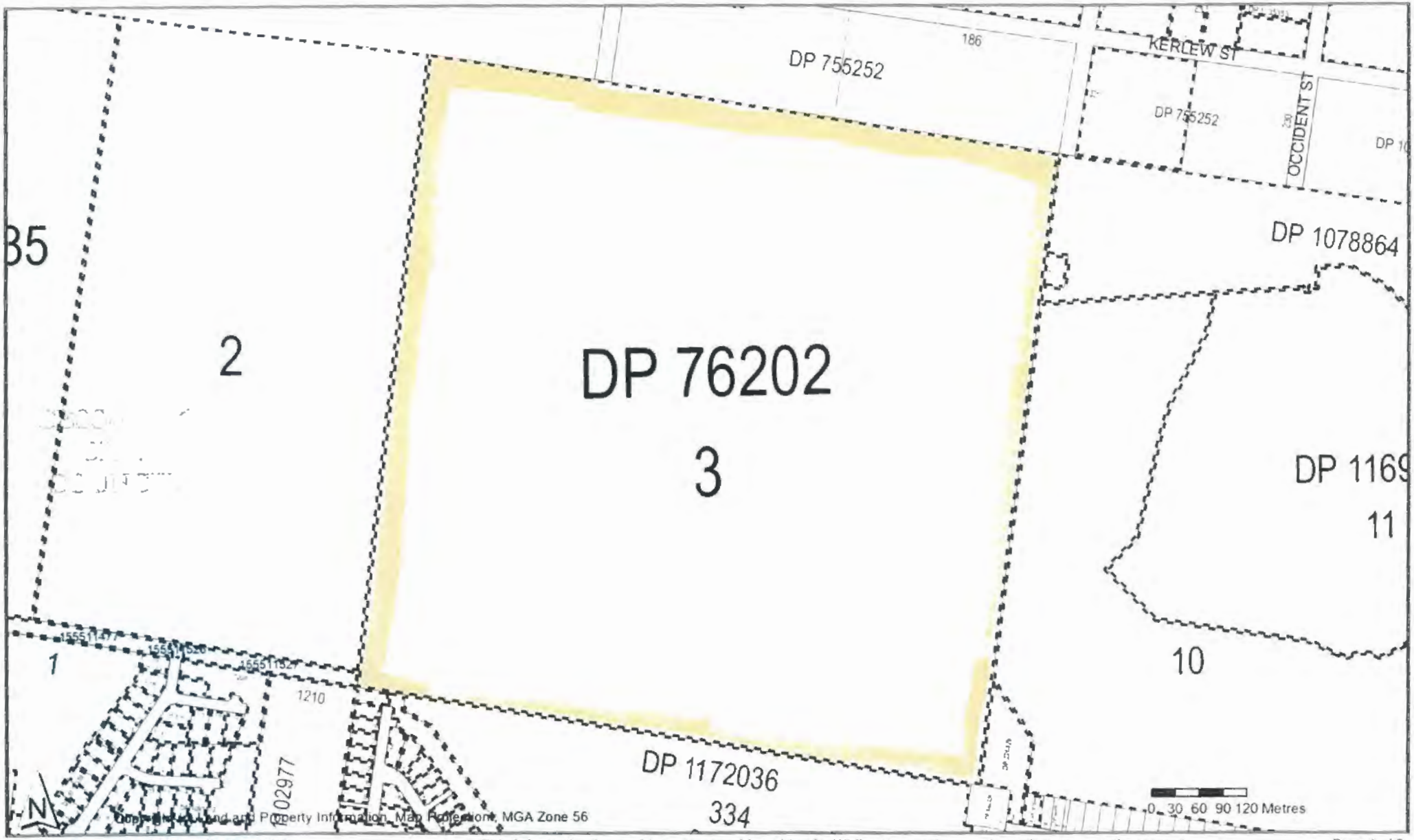
Land Property Information

Cadastral Records Enquiry Report

Ref : surv:scm-grolm

Requested Parcel : Lot 3 DP 76202 **Identified Parcel** : Lot 3 DP 76202

Locality : CESSNOCK **LGA** : CESSNOCK **Parish** : POKOLBIN **County** : NORTHUMBERLAND



LINKS	METRES
91.4	18.387
100	20.117
106	21.324
424.5	85.396
428.6	86.221
572.5	115.169
653	131.363
677	136.191
699.3	140.677
702	141.220
784	157.716
802	161.337
975	196.139
988	198.754
1004.5	202.073
1099.7	221.224
1150	231.343
1274	256.288
1426.4	286.946
1435	288.676
1444	290.487
1466.6	295.033
1807.2	363.551
1975	397.307
1998.3	401.994
2065	415.412
2072	416.820
2184.7	439.492
2606	524.244
3209	645.548
4059	816.541

AC RO P	HA
78 1 -	31.67
78 1 .20	31.67
78 1 28	31.78
158 1 .2	64.04
158 1 20	64.09
316 - .06	127.5
315 - 6	127.5
2560 - -	1036

DP 76202 CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

EDP 76202

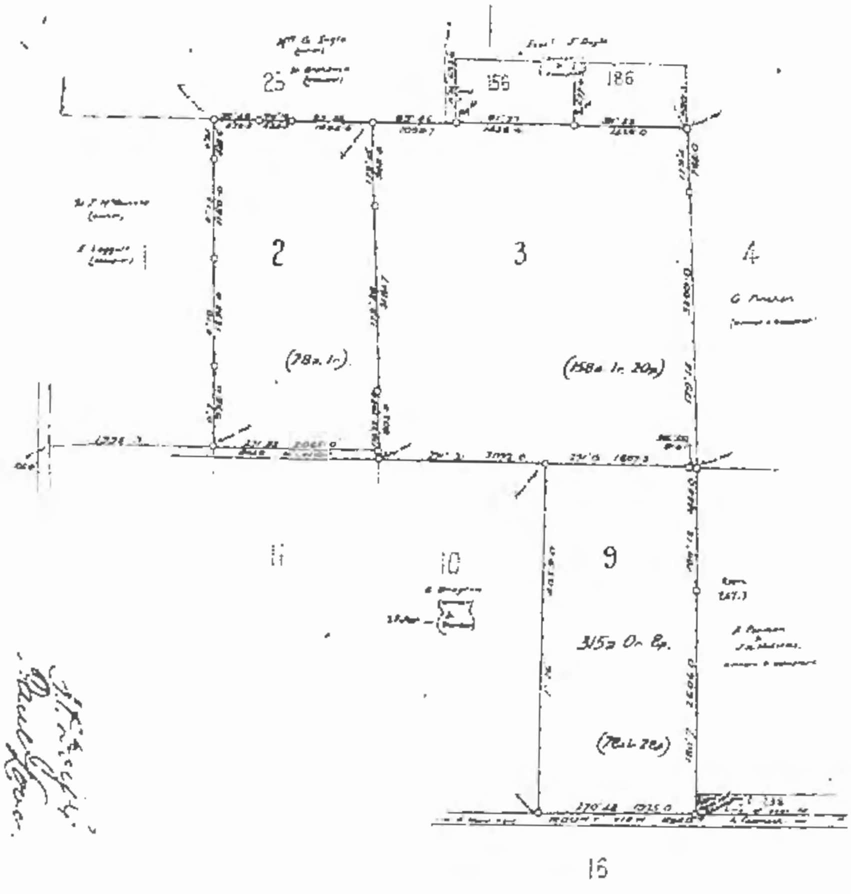
Municipality of
Shire of Cessnock
P.A. 26202

PLAN

Of Lots 2,3,&9 of part of D.Campbell's 2560 acres Grant

PARISH OF POKOLBIN | COUNTY OF NORTHUMBERLAND

Scale 10 Chains to an inch



Subscribed and declared before me at Sydney this ... day of August A.D. 192_

Datum line of Azimuth A.B

I, Bruce Richard Davies, Under Secretary for Lands and Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this day.

29th January, 1982

AMENDMENTS AND/OR ADDITIONS NOTED ON PLAN IN REGISTRAR GENERAL'S OFFICE.

[redacted]

TIFICATE OF TITLE

PERTY ACT, 1900, as amended.

10557183

NEW SOUTH WALES

Vol. 10557 Fol. 183

Appln. No.26202

Prior Title Vol.4962 Fol. 79

Edition issued 22-5-1967

AS K606175

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Witness

Registrar General.

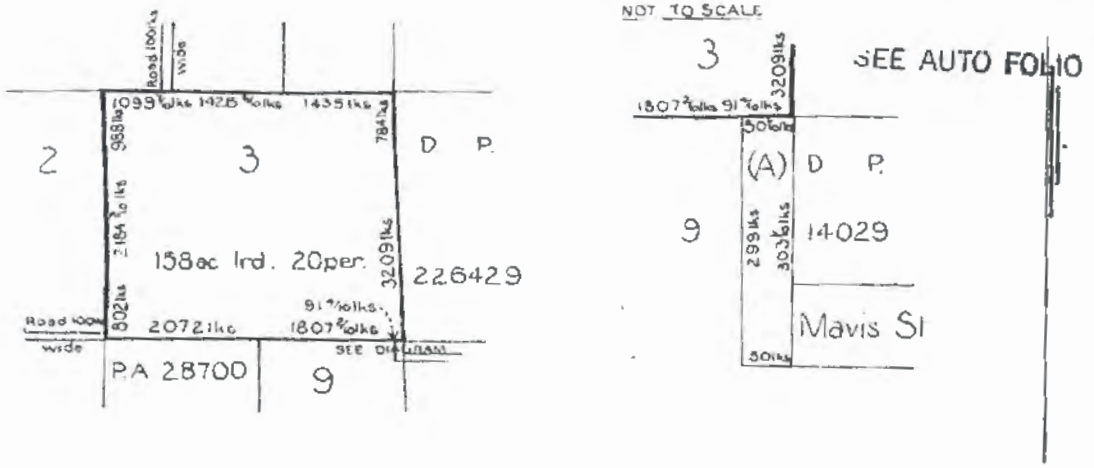
Vol. 10557 Fol. 183 (Page 1)

CANCELLED

PLAN SHOWING LOCATION OF LAND

DIAGRAM

NOT TO SCALE



K606175

Scale. 20 chains to one inch

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 3 in plan lodged with Primary Application No.26202 (Filed as F.P.76202) in the City of Greater Cessnock Parish of Pokolbin and County of Northumberland being part of Portion 261 granted to David Campbell on 29-10-1834. EXCEPTING THEREOUT all mines of coal and other minerals excepted by Conveyance dated 6-7-1918 Registered Book 1134 No.252 and the minerals specified in Section 141 of the Public Works Act, 1912.

FIRST SCHEDULE (continued overleaf)

THE MINISTER FOR PUBLIC WORKS

SECOND SCHEDULE (continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
2. Rights to mine the coal and other minerals affecting the land within described as set out in Conveyance dated 6-7-1918 Registered Book 1134 No.252.
3. Right of Way created by Transfer No.0660662 appurtenant to the land above described affecting the piece of land designated (A) in the plan heron.

Registrar General

...17 V.C.N. Blight, Government Printer

Vol. 10557 Fol 183

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar-General

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar-General	CANCELLATION		
			CANCELLED SEE AUTO FOLIO					

...ON THIS SEAL OF THE REGISTRAR-GENERAL ARE CANCELLED

(Page 2 of 2 pages)

Historical Title

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
---
1 5/2016 8:07PM

FOLIO: 3/76202

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 10557 FOL 183

Recorded	Number	Type of Instrument	C.T. Issue
21/8/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
24/10/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
21/9/1989	Y501119	TRANSFER	EDITION 1
21/3/1991	Z566452	DEPARTMENTAL DEALING	
21/11/2002	9112849	REQUEST	
26/4/2005	DP1078864	DEPOSITED PLAN	
16/2/2006	DP1070474	DEPOSITED PLAN	
24/5/2007	AC897441	REJECTED - LEASE	
14/5/2009	AE670136	CAVEAT	
24/8/2009	AE549958	REJECTED - LEASE	
24/8/2010	AF387565	LEASE	
24/8/2010	AF387564	LEASE	EDITION 2
20/2/2012	DP1173188	DEPOSITED PLAN	

*** END OF SEARCH ***

cessnock PRINTED ON 17/5/2016

HP 13
1985

STAMP DUTY [redacted]

RECEIVED 21 AUG 1989 12-10

Y501119

Crown Instrument not liable to Stamp Duty
or payment of Registration or other fees.
Public Works Department
per [signature]

TRANSFER

REAL PROPERTY ACT, 1900

T CB 1 of 1 X
$ Nil

D

	Torrens Title Reference	If Part Only, Delete Whole and Give Details	Location
DESCRIPTION OF LAND Note (a)	See Annexure	~~Whole~~ Excluding lots 4,5&6 in D.P.31498 of C.T. Volume 7076 Folio 99.	See Annexure

TRANSFEROR Note (b)

Minister for Public Works

ESTATE Note (c)

(the abovenamed TRANSFEROR) hereby acknowledges receipt of the consideration of $ 1.00 and transfers an estate in fee simple in the land above described to the TRANSFEREE

TRANSFEREE Note (d)

Minister for Corrective Services

OFFICE USE ONLY: OVER

TENANCY Note (e)

as joint tenants/tenants in common

PRIOR ENCUMBRANCES Note (f)

subject to the following PRIOR ENCUMBRANCES 1
2 3

DATE

We hereby certify this dealing to be correct for the purposes of the Real Property Act, 1900

EXECUTION Note (g)

Signed in my presence by the transferor who is personally known to me

[signature] J.P.
Signature of Witness

DENIS JAMES THOMSON
Name of Witness (BLOCK LETTERS)

PROPERTY OFFICER
Address and occupation of Witness
DEPT PUBLIC WORKS, SYDNEY

[signature]
Signature of Transferor

Note (g)

Signed in my presence by the transferee who is personally known to me

[signature]
Signature of Witness

517

ROBYN MOORE
Name of Witness (BLOCK LETTERS)

EXECUTIVE OFFICER
Address and occupation of Witness
DEPT CORRECTIVE SERVICES, SYDNEY

[signature]
Signature of Transferee

TO BE COMPLETED BY LODGING PARTY Notes (h) and (i)

LODGED BY

Box 993Y [redacted] Legal Officer
Public Works Dept.
State Office Block
Phillip Street
Sydney. 2000

Delivery Box Number

LOCATION OF DOCUMENTS		
CT	OTHER	
		Herewith.
		In L T O with
		Produced by

OFFICE USE ONLY

Checked	Passed	REGISTERED 19	Secondary Directions	
Signed RMZ	Extra Fee	21 SEP 1989	Delivery Directions	OVER

main and complete 19/9/89.

RP 13
1985

INSTRUCTIONS FOR COMPLETION

This dealing should be marked by the Commissioner of Stamp Duties before lodgment by hand at the Land Titles Office.

Typewriting and handwriting should be clear, legible and in permanent dense black or dark blue non-copying ink.

Alterations are not to be made by erasure; the words rejected are to be ruled through and initialled by the parties to the dealing in the left hand margin.

If the space provided is insufficient, additional sheets of the same size and quality of paper and having the same margins as this form should be used. Each additional sheet must be identified as an annexure and signed by the parties and the attesting witnesses.

If it is intended to create easements, covenants, &c., use forms RP13A, RP13B, RP13C as appropriate.

Rule up all blanks.

The following instructions relate to the SIDE NOTES on the form.

(a) Description of land.
- (i) TORRENS TITLE REFERENCE – For a manual reference insert the Volume and Folio (e.g. Vol. 8514 Fol. 126) – For a computer folio insert the folio identifier (e.g. 12/701974).
- (ii) PART/WHOLE – If part only of the land in the folio of the Register is being transferred, delete the word "WHOLE" and insert the lot and plan number, portion, &c. See also sections 327 and 327AA of the Local Government Act, 1919.
- (iii) LOCATION – Insert the locality shown on the Certificate of Title/Crown Grant, e.g., at Chullora. If the locality is not shown, insert the Parish and County, e.g., Ph. Lismore Co. Rous.

(b) Show the full name of the transferor(s).

(c) If the estate being transferred is a lesser estate than an estate in fee simple, delete "fee simple" and insert appropriate estate.

(d) Show the full name, address and occupation or description of the transferee(s).

(e) Delete if only one transferee. If more than one transferee, delete either "joint tenants" or "tenants in common", and, if the transferees hold as tenants in common, state the shares in which they hold.

(f) In the memorandum of prior encumbrances, state only the registered number of any mortgage, lease, charge or writ to which this dealing is subject.

(g) Execution.

GENERALLY
- (i) Should there be insufficient space for the execution of this dealing, use an annexure sheet.
- (ii) The certificate of correctness under the Real Property Act, 1900, must be signed by all parties to the transfer, each party to execute the dealing in the presence of an adult witness, not being a party to the dealing, to whom he/she is personally known.
  The solicitor for the transferee may sign the certificate on behalf of the transferee, the solicitor's name (not that of his/her firm) to be typewritten or printed adjacent to the signature. Any person falsely or negligently certifying is liable to the penalties provided by section 117 of the Real Property Act, 1900.

ATTORNEY
- (iii) If the transfer is executed by an attorney for the transferor/transferee pursuant to a registered power of attorney, the form of attestation must set out the full name of the attorney, and the form of execution must indicate the source of his/her authority, e.g. "AB by his attorney (or receiver or delegate as the case may be) XY pursuant to power of attorney registered Book No."

AUTHORITY
- (iv) If the transfer is executed pursuant to an authority (other than specified in (iii)), the form of execution must indicate the statutory, judicial or other authority pursuant to which the transfer has been executed.

CORPORATION
- (v) If the transfer is executed by a corporation under seal, the form of execution should include a statement that the seal has been properly affixed, e.g. in accordance with the Articles of Association of the corporation. Each person attesting the affixing of the seal must state his/her position (e.g., director, secretary) in the corporation.

(h) Insert the name, postal address, Document Exchange reference, telephone number, and delivery box number of the lodging party.

(i) The lodging party is to complete the LOCATION OF DOCUMENTS panel. Place a tick in the appropriate box to indicate the whereabouts of the Certificate of Title. List, in an abbreviated form, other documents lodged, e.g., stat. dec. for statutory declaration, pble for probate, L/A for letters of administration, &c.

OFFICE USE ONLY

L.O. 1341

FIRST SCHEDULE DIRECTIONS

(A) FOLIO IDENTIFIER	(B) DIRECTION	(C) NAME
7076 - 99	PROP	MINISTER FOR CORRECTIVE SERVICES AS REGARDS LOTS 1-3 AND 7-11 IN DP 31498
4758 - 63 9973 - 102 3/76202 3/226429 1/939901	S	
4758 - 63	ON	LAND DESCRIPTION STAMP
7076 - 99	ON	NOTICE OF RESUMPTION J67275 (N.O.P)
	CT	9934

SECOND SCHEDULE AND OTHER DIRECTIONS

(D) FOLIO IDENTIFIER	(E) DIRECTION	(F) NOTFN TYPE	(G) DEALING NUMBER	(H) DETAILS

Annexure for Title Reference

68

Minister for Public Works

To

Minister for Corrective Services

Title Reference		Location
Volume	Folio	
7076	99 ✓	Quarry & Oxley Rd., Berrima
4758	63 ✓	Lindsay Street, Cessnock
10557	183 ✓ ~~3/7620~~	Lindsay Street, Cessnock
14872	200 ✓ ~~3/226929~~	Lindsay Street, Cessnock
9973	102 ✓	Lindsay Street, Cessnock
F.I.	1/939901 ✓	Lindsay Street, Cessnock

Witness:

Signature of Transferor:

Witness:

Signature of Transferee:

Title Search

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 3/76202

SEARCH DATE	TIME	EDITION NO	DATE
17 5/2016	8:07 PM	2	24/8/2010

LAND

LOT 3 IN DEPOSITED PLAN 76202
LOCAL GOVERNMENT AREA CESSNOCK
PARISH OF POKOLBIN COUNTY OF NORTHUMBERLAND
TITLE DIAGRAM DP76202

FIRST SCHEDULE

MINISTER FOR CORRECTIVE SERVICES (DD 2566452)

SECOND SCHEDULE (8 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 LAND EXCLUDES MINERALS (S.141 PUBLIC WORKS ACT, 1912)
3 BK 1134 NO 252 LAND EXCLUDES MINERALS AND IS SUBJECT TO RIGHTS TO MINE
4 DP1078864 EASEMENT FOR WATER SUPPLY OVER EXISTING LINE OF PIPES APPURTENANT TO THE LAND ABOVE DESCRIBED
5 DP1078864 EASEMENT TO DRAIN SEWAGE OVER EXISTING LINE OF PIPES APPURTENANT TO THE LAND ABOVE DESCRIBED
* 6 AE670136 CAVEAT BY ENERGY AUSTRALIA
* AF387565 CAVEATOR CONSENTED
* AF387564 CAVEATOR CONSENTED
7 AF387565 LEASE TO CESSNOCK GOLF CLUB LIMITED OF THE PART SHOWN HATCHED IN PLAN WITH AF387565. EXPIRES: 31/12/2014.
8 AF387564 LEASE TO CESSNOCK GOLF CLUB LIMITED OF THE PART SHOWN HATCHED IN PLAN WITH AF387564. EXPIRES: 31/12/2019.

NOTATIONS

DP1070474 NOTE: PLAN OF PROPOSED EASEMENT FOR ELECTRICITY PURPOSES 15 METRES WIDE AND VARIABLE WIDTH
DP1173188 NOTE: PLAN OF PROPOSED EASEMENT FOR ELECTRICITY AND OTHER PURPOSES 15 WIDE.
UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

Appendix C

Results of Laboratory Testing

12 Ashley Street, Chatswood, NSW 2067
tel +61 2 9910 6200
email sydney@envirolab.com.au
envirolab.com.au
Envirolab Services Pty Ltd - Sydney | ABN 37 112 535 645

CERTIFICATE OF ANALYSIS **147956**

Client:
Douglas Partners Newcastle
Box 324 Hunter Region Mail Centre
Newcastle
NSW 2310

Attention: Michael Gawn

Sample log in details:

Your Reference:	**81986.00, Geotechnical Assessment**	
No. of samples:	8 Soils	
Date samples received / completed instructions received	06/06/16	/ 06/06/16

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	14/06/16	/ 9/06/16
Date of Preliminary Report:	Not Issued	

NATA accreditation number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

Asbestos ID - soils						
Our Reference	UNITS	147956-1	147956-2	147956-3	147956-4	147956-5
Your Reference	---------- -	BH301	BH302	BH303	BH306	BH307
Type of sample	----------	Soil	Soil	Soil	Soil	Soil
Date analysed	-	9/06/2016	9/06/2016	9/06/2016	9 06 2016	9 06 2016
Sample mass tested	g	Approx 70g	Approx 65g	Approx. 65g	Approx 55g	Approx 55g
Sample Description	-	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0 1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0 1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0 1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0 1g kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils				
Our Reference	UNITS	147956-6	147956-7	147956-8
Your Reference	---------- -	BH308	BH309	BH310
Type of sample	----------	Soil	Soil	Soil
Date analysed	-	9/06/2016	9/06/2016	9/06/2016
Sample mass tested	g	Approx 95g	Approx. 75g	Approx. 70g
Sample Description	-	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0 1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0 1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004

Report Comments:

Asbestos ID was analysed by Approved Identifier: Paul Ching
Asbestos ID was authorised by Approved Signatory: Paul Ching

INS: Insufficient sample for this test
NR: Test not required
<: Less than
PQL: Practical Quantitation Limit
RPD: Relative Percent Difference
>: Greater than
NT: Not tested
NA: Test not required
LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

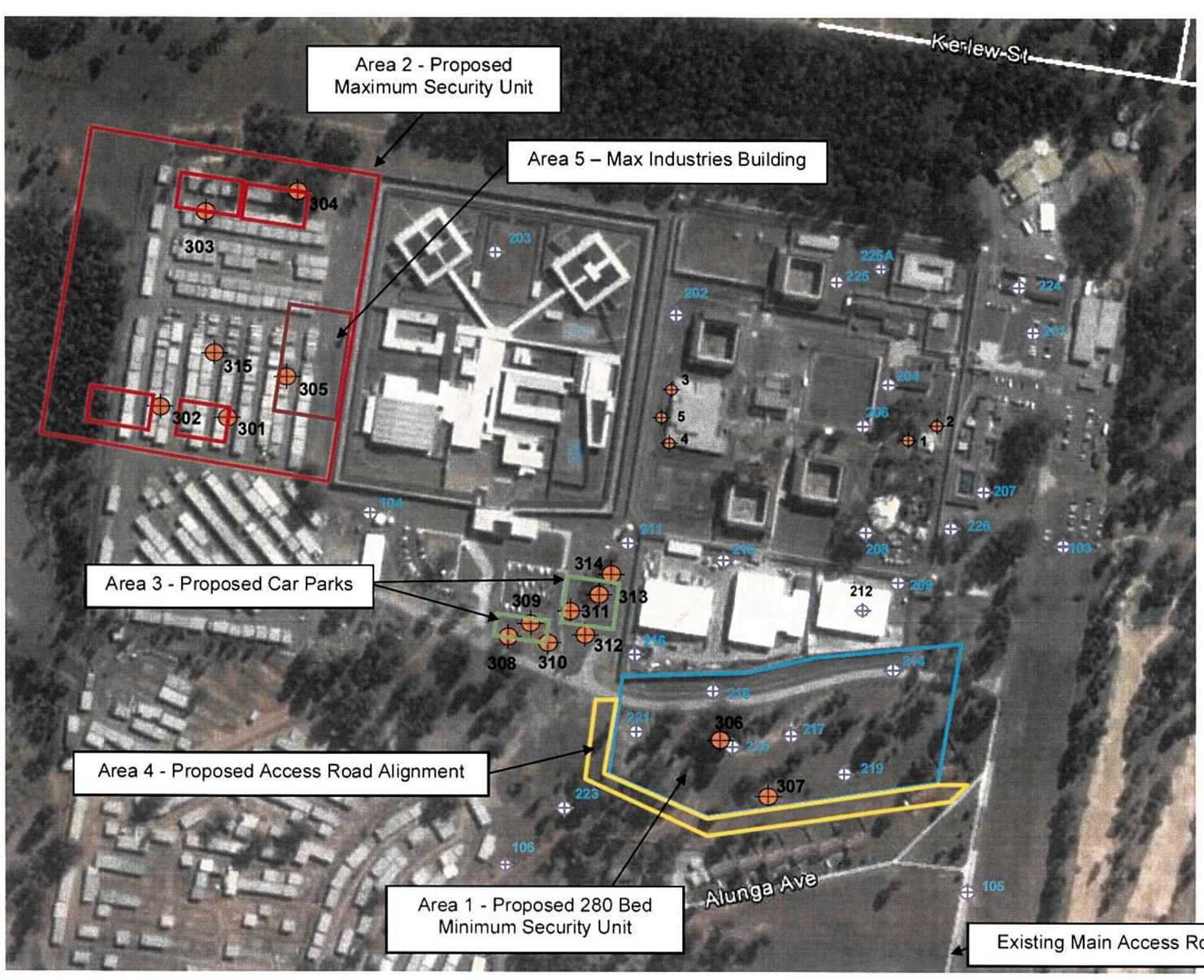
In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Appendix D

Drawing 1 – Test Location Plan
Drawing 2 – Identified Areas of Environmental Concern



Locality of Site

Notes:

1. Drawing adapted from plan provided by the client

0 40 200 400

~ 1:4000 @ A3

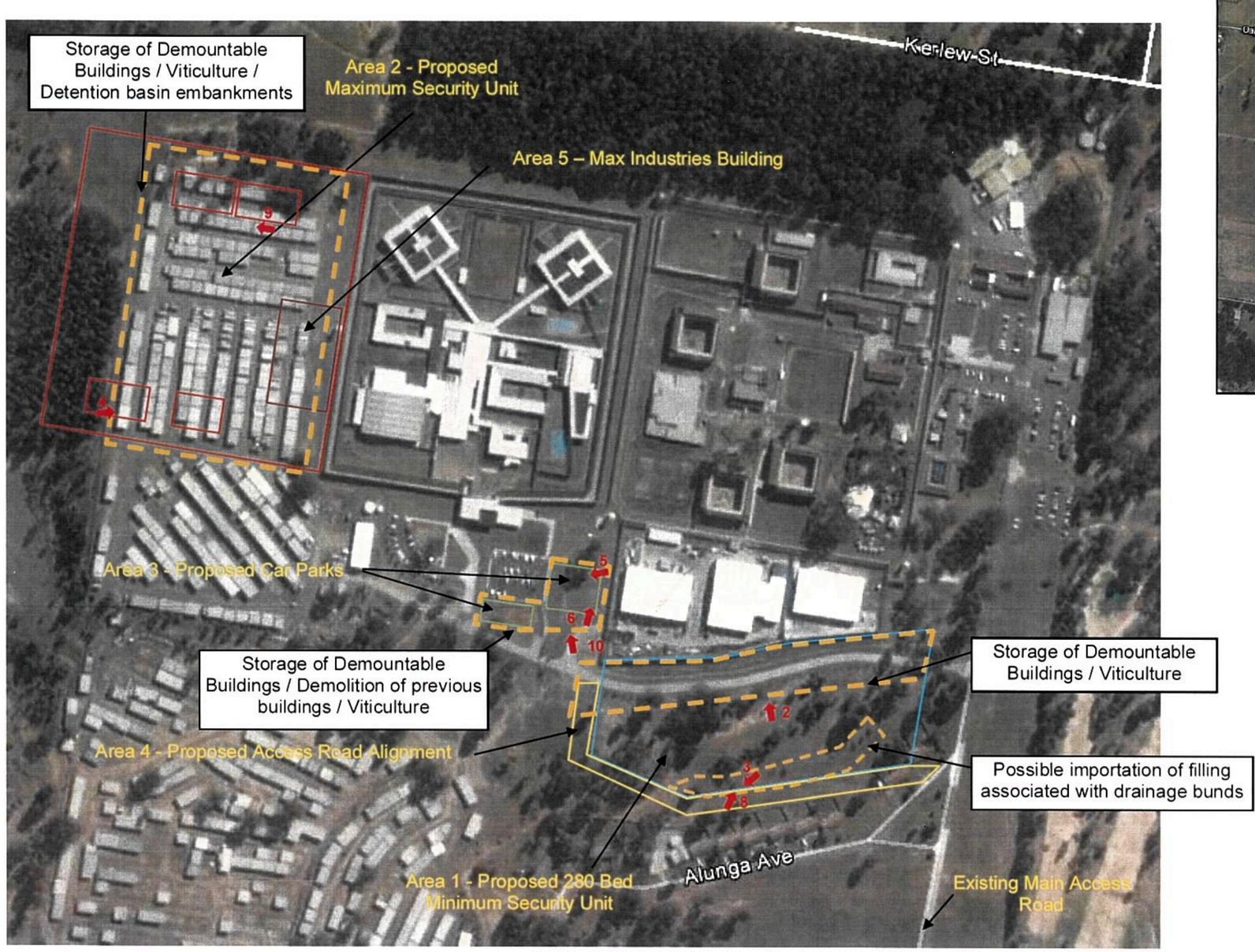
Legend:

- Approximate Test Bore Locations (previous investigation)
- Approximate Test Bore Locations (previous investigation)
- Approximate Test Bore Locations (current investigation)

Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT:	NBRS Architecture	TITLE:	**Test Location Plan**
OFFICE:	Newcastle	DRAWN BY:	MPG	**Correctional Facility Upgrade**
SCALE:	1:4000@A3 (approx.)	DATE:	11.05.2016	**Cessnock**

PROJECT No:	81986.00
DRAWING No:	1
REVISION:	0



Locality of Site

N

Notes:

1. Drawing adapted from plan provided by the client

0 40 200 400

~ 1:4000 @ A3

Legend:

- Area of Environmental Concern
- Direction and number of photo (figure in report)

Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT:	NBRS Architecture		
OFFICE:	Newcastle	DRAWN BY:	MPG
SCALE:	1:4000@A3 (approx.)	DATE:	30.06.2016

TITLE: **Areas of Environmental Concern**
Correctional Facility Upgrade
Cessnock

PROJECT No:	81986.00
DRAWING No:	2
REVISION:	0