MOOREBANK INTERMODAL COMPANY

Moorebank Intermodal Terminal Project Environmental Impact Statement

Volume 5b

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PARSONS BRINCKERHOFF

Technical Paper 5
Environmental Site Assessment (Phase 2) – Appendix C - F

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Phase 1 ESA – Northern Rail Access Option

Moorebank Intermodal Company

Phase 1 Environmental Site Assessment, Moorebank Intermodal Terminal

Northern Rail Access Option

11 May 2014

PARSONS BRINCKERHOFF
A BALFOUR BEATTY COMPANY

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Abbreviations

ACM	asbestos containing materials
AHD	Australian Height Datum
ASS	acid sulfate soils
DNSDC	Defence National Support and Distribution Centre
EPA	Environment Protection Authority
EPL	Environmental Protection Licence
ESA	environmental site assessment
GWS	Glenfield Waste Services
ha	hectares
IMT	Intermodal Terminal
m	metres
MIC	Moorebank Intermodal Company
m BGL	metres below ground level
m BTOC	metres below top of casing
PASS	potential acid sulfate soils
SSFL	Southern Sydney Freight Line
SME	School of Military Engineering
SWL	standing water level

Executive summary

Introduction

Parsons Brinckerhoff Pty Ltd (Parsons Brinckerhoff) was commissioned by Moorebank Intermodal Company (MIC) to undertake a site walkover of an area of open space along the western bank of the Georges River, Casula NSW identified as part of Lot 10 in DP881265 (the site). The walkover was undertaken to augment the Phase 1 environmental site assessment (ESA) that was prepared by Parsons Brinckerhoff in October 2012.

Purpose and scope

The Phase 1 ESA was completed to assess the potential contamination issues at the site with the purpose of evaluating the feasibility of the site for the future proposed use as the Moorebank Intermodal Terminal (IMT). The Moorebank IMT Project (the Project) includes a rail link connecting the site to the Southern Sydney Freight Line (SSFL) and road entry and exit points from Moorebank Avenue. At the time of preparing this Phase 1 ESA, three separate rail access options are being considered, which are:

- northern rail access option — with rail access from the north-western corner of the Moorebank IMT site, passing through the former Casula Powerhouse Golf Course (which is currently owned by Liverpool City Council (LCC)) and crossing the Georges River and floodplain;
- central rail access option — with rail access from the centre of the western boundary of the Moorebank IMT site, passing through Commonwealth land on the western bank of the Georges River (also referred to as the 'hourglass land'); and
- southern rail access option — rail access from the south-western corner of the Moorebank IMT site, passing through the Glenfield Landfill site (owned by Glenfield Waste Services (GWS)) and crossing the Georges River and floodplain.

The site subject to this Phase 1 ESA is known as the northern rail access option. The Moorebank IMT site and the other rail access options are the subject of separate ESA reports.

The scope of works for the Phase 1 ESA comprised a desktop review including identification of the site, a review of aerial photographs, historical land titles, council records, local geology, hydrology and hydrogeology, a site walkover (undertaken 5 May 2014) and preparation of a Phase 1 ESA report. No previous reports pertaining to the environmental condition of the land are known.

Site description

The site is owned by Liverpool City Council comprising a triangular area of open space along the western bank of the Georges River covering an area of approximately 12.4 ha. The area that would be impacted by the construction footprint of the northern rail access option is approximately 10.5 ha based on the concept design. The site surface is undulating with a terrace along the eastern edge which slopes steeply towards the Georges River. The site is underlain by alluvial sands, silts and clays overlying shale of the Wianamatta Group and Hawkesbury Sandstone. The Georges River flows to the north along the eastern boundary of the site. The M5 South Western Motorway extends east to west to the north of the site and a Glenfield Waste Services (landfill) is located immediately to the south of the site. Immediately west of the site is the recently completed Powerhouse Road and the SSFL beyond, both extend in a north and south direction along the western boundary of the site.

Based on local topography, it is considered that the inferred groundwater flow beneath the site would be towards the north-east in the direction of the Georges River. Based on a review of aerial photographs, the site was undeveloped from the 1930s up to the 1950s when it was developed into a golf course. Based on observations made during the site walkover, the site is currently publically accessible open space with cycle and walking tracks. Mounds and depressions exist across the site, likely to be associated with regrading of the site to develop the Powerhouse Road and former use of the site as a golf course. Fill (such as concrete, road base, geotextile, ballast material etc.) was observed across some of the site surface but there were no obvious visual or olfactory indications of significant contamination present (such as staining, odours, dumped material or vegetation stress). Two stormwater drains extending from the Powerhouse Road were observed along the western boundary of the site and a water retention pond was present at the southern end of the site, however, this area is likely to be outside of the design footprint of the northern rail access option. Land use surrounding the site has evolved from vacant bushland to residential, commercial and industrial uses since the 1970s until the present day.

Findings and recommendations

Based on the review of available information, it is considered that there is limited potential for contamination to exist. There is the potential for buried waste and tipped waste (potentially including asbestos containing materials) and imported fill to be present and potential impacts from dispersed aerial deposition of contaminants from the roadway and former Casula power station and deposition of potential contaminant via stormwater drainage from the adjacent road. Due to the landfill located to the south and the inferred north-easterly groundwater flow direction, there may also be the potential for contamination from offsite to have migrated beneath the site through groundwater flow.

It is recommended that at subsequent project approval stages (under the NSW *Environmental Planning and Assessment Act 1979*) an intrusive soil and groundwater investigation be undertaken to gather site specific data on soil and groundwater quality within the design footprint of the proposed northern rail access option so that remediation requirements can be evaluated (if required) prior to development of the site.

1. Introduction

Parsons Brinckerhoff Pty Ltd (Parsons Brinckerhoff) was commissioned by Moorebank Intermodal Company (MIC) to undertake a site walkover of an area of open space along the western bank of the Georges River, Casula NSW identified as part of Lot 10 in DP881265 (the site). The walkover was undertaken to augment the Phase 1 environmental site assessment (ESA) that was prepared by Parsons Brinckerhoff in October 2012. The site location is presented in section 8 Figure 1.

The site, which covers approximately 12.4ha, is being considered as one of three potential options for the construction of a rail link to connect the proposed Moorebank Intermodal Terminal (IMT) site to the Southern Sydney Freight Line (SSFL) and road entry and exit points from Moorebank Avenue. At the time of preparing this Phase 1 ESA, three separate rail access options are being considered, which are:

- northern rail access option — with rail access from the north-western corner of the Moorebank IMT site, passing through the former Casula Powerhouse Golf Course (which is currently owned by Liverpool City Council (LCC)) and crossing the Georges River and floodplain;
- central rail access option — with rail access from the centre of the western boundary of the Moorebank IMT site, passing through Commonwealth land on the western bank of the Georges River (also referred to as the 'hourglass land'); and
- southern rail access option — rail access from the south-western corner of the Moorebank IMT site, passing through the Glenfield Landfill site (owned by Glenfield Waste Services (GWS)) and crossing the Georges River and floodplain.

The site subject to this Phase 1 ESA is known as the northern rail access option, presented in Figure 2 section 8. The area that would be impacted by the construction footprint of the northern rail access option is approximately 10.5 ha based on the concept design. The Moorebank IMT site and the other rail access options are the subject of separate ESA reports.

The Phase 1 ESA was completed by Parsons Brinckerhoff in October 2012 in order to assess the potential for contamination to exist at the site with the purpose of evaluating the feasibility of the northern rail access option. A review of available site information was undertaken to evaluate the environmental setting and potential contamination concerns at the site. This included a review of regional and local geological and hydrological information including topographic maps, geological maps, registered groundwater bore records, relevant public records and council records. In May 2014 a site walkover was undertaken in order to augment the desktop study by establishing if any identifiable contaminant sources or visual or olfactory indicators of existing contamination were present at the site.

1.1 Objectives

The objectives of the Phase 1 ESA were to:

- assess the site history and historical uses of the site and surrounding land uses;
- undertake a site walkover to identify areas of potential environmental concern;
- assess the potential for any contamination identified to impact human health or environmental receptors relative to the proposed land use and the potential exposure pathways; and
- provide recommendations for additional works/site assessment.

1.2 Scope of works

The scope of works for the Phase 1 ESA comprised:

- desktop review including:
  - identification of the site, including location of surrounding infrastructure, area, boundaries and title descriptions;
  - a review of aerial photographs;
  - a review of historical land titles;
  - a review of council records (Section 149 certificates);
  - a review of the local geology, hydrology and hydrogeology;
- a site walkover (5 May 2014); and
- preparation of a Phase 1 ESA report.

2. Site setting

2.1 Location

The site comprises a strip of land along the western bank of the Georges River which is located approximately 30 km south-west of Sydney, between Liverpool and Campbelltown. The site is located to the west of the School of Military Engineering (SME) at Moorebank and to the south of the M5 South Western Motorway. The coordinates for the arbitrary central point of the site are easting 307537 and northing 6242151.

The site covers an area of approximately 12.4 ha comprising public open space used for recreational purposes with grassland, trees, footpaths and a cycleway. The area that would be impacted by the construction footprint of the northern rail access option is approximately 10.5 ha based on the concept design. The site can be accessed all along the western boundary from the newly constructed Powerhouse Road which runs north to south. The SSFL runs north to south on the western side Powerhouse Road (refer to Figure 1 section 8).

2.2 Surrounding land uses

The land use surrounding the site consists of:

- north – M5 South Western Motorway and industrial, commercial and residential land beyond;
- east – SME, Moorebank Avenue and the Defence National Storage and Distribution Centre (DNSDC) beyond;
- south – former quarry and current Glenfield Waste Services (GWS) landfill and waste transfer station, a decommissioned diesel fuelled power station (now the Casula Powerhouse Arts Centre), the Casula railway station and residential properties beyond; and
- west – Powerhouse Road and the Main South/Cumberland Rail Line and the SSFL and residential properties of Casula and the Hume Highway beyond.

The Environmental Protection Licence (EPL) for the adjacent GWS landfill is held by L.A. Kennett Enterprises Pty Ltd trading as Glenfield Waste Disposal. The EPL (Number 4614) stipulates that the landfill is permitted to accept non putrescible general solid waste and waste tyres and permitted activities are non-thermal treatment of general waste, waste storage, waste disposal by application to land, crushing, grinding or separating and land-based extractive activity. The depth of the waste landfilled including capping and any other material placed above the cap must not exceed 30 metres.

The decommissioned power station was built in 1953 and fuelled by oil and coal. The power station was decommissioned in 1976 and remained disused until 1994 when it was redeveloped as a multi-arts facility. No details are known of the decommissioning.

The site and surrounding features are shown in Figure 3, section 8.

2.3 Physical setting

2.3.1 Regional and local geology

The Department of Mineral Resources Penrith 1:100,000 geological series sheet 9030 showed that the underlying geology comprises silts, sands and clays from quaternary fluvial deposition underlain by tertiary clayey sand and clay. The alluvial deposits overlay shales of the Wianamatta group which are typically black to dark grey shales and laminates from the Triassic period.

2.3.2 Topography and hydrology

A review of topographical data provided by the Department of Lands Spatial Information Exchange showed that the site lies at an approximate elevation of 10 m Australian Height Datum (AHD). Based on the local topography, it is considered that surface water is likely to flow across the site to the north and north-east towards the Georges River.

Part of the land is affected by flood inundation and therefore flood related development controls are applicable. Development of the project site has been planned around existing regional flooding constraints which are in line with the NSW Flood Prone Land policy as outlined in the NSW Floodplain Development Manual (DIPNR 2005). Technical Paper 6 – *Surface water assessment* prepared by Parsons Brinckerhoff (June 2014) identified that the impacts from the project on regional flooding are relatively minor and do not significantly affect the existing flood risk associated with the Georges River and its floodplain.

2.3.3 Acid sulfate soils

Acid sulfate soils (ASS) are acidic soil horizons or layers resulting from the aeration of soil materials that are rich in iron sulfides, primarily pyrite (FeS_2). They are likely to be present in marine and estuarine sediments of the recent (Holocene) geological age, soils usually not more than 5 m above mean sea level and in marine or estuarine settings.

Landform elements in which the geomorphic processes have been suitable for the formation of ASS have been classed as having a ‘high probability of occurrence’. These landforms include sediments of estuaries, rivers, creeks and lakes. Where environments have not generally been suitable for ASS formation, or where ASS is highly localised or sporadic, they have been classed as having a ‘low probability of occurrence’. In general, landforms above 10 m AHD are classed as having no known occurrence of ASS.

A review of the ASS risk maps from the online CSIRO Australian Soil Resource Information System showed a low probability of ASS across the site. However, based on previous site investigation (Parsons Brinckerhoff 2011) potential ASS is known to exist to the immediate south east of the site on the eastern side of the Georges River.

2.3.4 Regional and local hydrogeology

Groundwater is likely to be present in the alluvium and shale. Alluvial deposits occur in valleys, creeks and river beds in the region. The alluvial deposits are generally shallow, discontinuous and relatively permeable and are likely to be responsive to rainfall and stream flow. The shallow alluvium is likely to be hydraulically connected to the Georges River. Groundwater from within the alluvium is likely to sustain groundwater dependent ecosystems. Locally groundwater flow is likely to be towards the Georges River.

In contrast, groundwater within the shale is likely to be characterised by more saline conditions. Regionally, the shale generally has a low hydraulic conductivity and thus behaves as an aquitard, restricting groundwater flow into the underlying Hawkesbury Sandstone unit. Locally, groundwater is likely to flow along the interface of the shale and alluvium following the gradient of the shale. During previous works undertaken on the adjacent site (Parsons Brinckerhoff 2011), shallow groundwater was encountered within the alluvium at a minimum depth of 5.2 m below ground level (m BGL).

2.3.5 Groundwater database search

A search of the NSW Office of Water licensed borehole register showed that 13 registered bores are present within a 1 km radius of the site. A summary is provided in Table 2.1.

Table 2.1 Groundwater database search results summary

Bore ID	Authorised purpose	Approximate distance (m) and direction	Date installed	SWL (m BTOC)	Total depth (m)
GW109798	Monitoring	250 south	Jan-2007	Unknown	29.8
GW109802	Monitoring	100 west	Jan-2007	Unknown	10.0
GW110390	Monitoring	200 north-east	Sep-2005	7.2	9
GW110391	Monitoring	200 north-east	Sep-2005	7.5	8.7
GW110392	Monitoring	200 north-east	Sep-2005	7.3	8.5
GW110393	Monitoring	200 north-east	Sep-2005	7.8	9
GW110394	Monitoring	200 north-east	Sep-2005	9.4	10
GW110395	Monitoring	200 north-east	Sep-2005	6.8	8.5
GW110386	Monitoring	200 north-east	Sep-2005	6	8.5
GW110387	Monitoring	200 north-east	Sep-2005	8	10
GW110388	Monitoring	200 north-east	Sep-2005	7.6	10
GW110389	Monitoring	200 north-east	Sep-2005	7.9	10
GW016829	Domestic	900 north-east	Feb-1958	3.6	5.4

Source: NSW Natural Resource Atlas

m BTOC: metres below top of casing
SWL: standing water level

The majority of the bores identified are monitoring bores associated with ABB Transmissions Pty Ltd located north of the site on the eastern side of the Georges River and Glenfield Waste Services located to the south of the site on the western side of the Georges River. Bore search information is provided in Appendix A for reference and a map showing the registered borehole locations is provided in Figure 4 section 8.

2.4 Site walkover

The site was inspected by Parsons Brinckerhoff environmental scientists on 5 May 2014. The following observations were noted:

- The site was grass covered with trees and shrubs with more dense vegetation on the eastern boundary of the site along the bank of the Georges River.
- A concrete cycleway/footpath traverses the site from north to south (terminating at the Casula Powerhouse) adjacent with the bank of the Georges River along the eastern boundary.
- The site is unfenced with access along the western boundary from Powerhouse Road. A chain wire panel fence (considered likely to be associated with the former golf course) was present in the central area of the site. This fence was in good condition.
- The northern area of the site was low lying with signage indicating that this area was prone to flooding in periods of heavy rain.
- Some mounds and depressions did exist at the site. These were generally covered with vegetation suggesting they were well established. No obvious evidence of dumping/fly tipping of wastes was observed.
- The site appears to have been recently graded from the newly constructed Powerhouse Road gently sloping downwards towards the Georges River. Grass cover in this area was sparse with fill material scattered over the surface including concrete, ballast like stones, road base material within a sandy clay matrix. Fragments of brick, geotextile (silt fence) and plastic fragments were also observed across the site surface.
- Two stormwater drains, which appeared to provide drainage outflow of stormwater from the up gradient Powerhouse Road and SSFL were situated present along the side of the site. These comprised of a concrete outflow pipe with sandstone blocks.
- No monitoring or abstraction wells were observed to be present at the site.
- Stormwater retention ponds were present in the southern portion of the site although these are situated outside of the proposed northern rail access option footprint.
- There were no visible impacts observed that may be indicative of contamination such as surface staining, discolouration or retarded or stressed vegetation.

Photographs taken during the site walkover are provided in Appendix B.

3. Site history

3.1 Land titles search

Historical land title information for Lot 10 in DP881265 has been summarised in Table 3.1.

Table 3.1 Titles search summary

Dates	Ownership Details
1972–Present	the Council of the City of Liverpool
1969–1971	Birnleigh Investments Pty Limited
1969	John Hitter (Sydney) Pty Limited
1952–1969	Liverpool Golf Club Limited
1945–1955	leased to John Gillick Marsden and Jack Jones hotelkeepers and Charles Clark, orchardist
1943–1952	Thomas Ashcroft, electrical engineer and John Edward Kidd, Company Director
1939–1945	leased to Francis Augustine Crowe, grazier
1938–1943	Thomas Ashcroft, electrical engineer/trustee and Geoffrey William Andrew, engineer/trustee
1923–1938	Leslie James Ashcroft, master butcher
1910–1923	Edward James Ashcroft, butcher

Title search documentation (held by the NSW Land and Property Information) is provided in Appendix C.

3.2 Section 149 (2) and (5) planning certificate information

Section 149 (2) and (5) planning certificates were acquired from the Liverpool City Council. A review of this information showed that the site is subject to the following local, regional and development plans:

- Liverpool Local Environment Plan 2008;
- Liverpool Development Control Plan 2008 (as amended); and
- Greater Metropolitan Regional Environment Plan No. 2- Georges River Catchment.

Relevant information has been summarised in Table 3.2.

Table 3.2 S149 search summary

Subject	Detail
Zoning	RE1 Public Recreation SP2 Infrastructure, Classified Road.
Critical habitat	No
Conservation area	No

Subject	Detail
Environmental heritage	Yes. An item of the Environmental Heritage is situated on the land comprising two railway viaducts, located on Woodbrook Road, Casula associated with the SSFL. These viaducts are items of local significance (as per Schedule 5 – Environmental Heritage under Liverpool Local Environmental Plan (LEP) 2008). It is not considered that the proposed development or potential contamination would have a detrimental effect to the heritage items identified.
Mine subsidence	No
Coastal Protection Act 1979	No
Bushfire prone land	Yes
Flood related controls	Yes. The property is affected by flood inundation and therefore the controls applying to all forms of development contained with the Liverpool Local Environmental Plan 2008 and Development Control Plan 2008 apply to this property. Based on the concept design, flood liable land has been designated for a conservation area has been purposefully avoided for construction.
Tree preservation provisions	Yes. The land is subject to a tree preservation provision under the Liverpool LEP 2008.
Notices	No
Environmentally significant land	Yes. The subject property is identified as containing environmentally significant land under Division 2 General provisions of the Liverpool LEP 2008.
Archeological management plan	No
Unhealthy building land proclamation	No
Matters arising to the *Contaminated Land Management Act 2009*	No
Contaminated land	No

Source: Liverpool City Council S149 Records

A copy of the Section 149 certificate is provided in Appendix D.

3.3 NSW EPA online notice records database search

An online search of the NSW EPA Contaminated Land Records Database returned no notice records for the site. An online search of the NSW EPA Contaminated Land Records Database returned no notice records for the Project site. One site was identified within a 5km radius the central alignment study area that was subject to notice.

Nine records (eight former and one current) were returned for ABB Transmissions Pty Ltd (ABB) located on Bapaume Road to the north on the eastern side of the Georges River to the north of the main Moorebank IMT Site Area. Notices have been issued under Section 35 of the *Environmentally Hazardous Chemicals (EHC) Act 1985*. The notices dated between 1990 and 2013 detailed that the premises are reasonably believed to be affected by chemical contamination including polychlorinated biphenyl (PCB) compounds. The site is subject to an ongoing maintenance order associated with PCB contamination. Based on the geographical location in relation to the Phase 1 study area and separation by the Georges River, it is not considered that ABB constitutes an offsite source of contamination to the central alignment area.

A copy of the management order is in Appendix E for reference.

3.4 Dangerous goods

A WorkCover search was not undertaken for the site as a letter of authority from the landowner (Liverpool City Council) could not be obtained.

3.5 Aerial photographs

Available historical aerial photographs dating back to 1930 were reviewed to assess any major changes to the site and surrounding areas over time. No available aerial photos have been identified prior to 1930. The main features noted for the site and surrounding areas in each of the photographs are summarised in Table 3.3. Aerial photographs are provided in Appendix F.

Table 3.3 Aerial photograph review summary

Year	Site features and surrounding areas
Current	No significant change from previous record except vegetation appears to be less tended, likely due to the fact that the land is no longer utilised and maintained as a golf course. Extensive excavated areas visible on GWS landfill area to the south.
1994	No significant change on the site from 1986.
1986	Vegetation has become better established at the site but the general appearance of a golf course remains (including the apparent ponds and fairways). Increased residential development to the west (Casula).
1978	No significant change on the site from the previous description. Increased residential development to the west (Casula).
1970	It appears that the vegetation is sparse across the majority of the site with some darker circular and linear areas visible (thought to be ponds, fairways and greens associated with the golf course).
1965	It appears that the vegetation has been removed across the majority of the site with some circular areas visible (thought to be ponds). Some quarrying activity is visible in the GWS area to the south of the site, while there is vacant land with increased residential development beyond.
1961	Vacant land with appearance of a pond in the north of the site and some ground disturbance in the central area of the site. Initial stages of residential land use can be seen in the surrounding areas with road networks developing beyond. The Liverpool to Holsworthy Rail line is visible. A number of surface water ponds/tributaries are also noted on the western bank of the Georges River, thought to be associated with the development of the golf course.
1930	Sparsely vegetated farmland. The current Glenfield Waste Services (GWS) landfill appears to be farmland.

Source: Historical aerial photographs can be obtained from NSW Land and Property Information.

3.6 Historical land use summary

3.6.1 Site

From the historical land use records reviewed, it appears the site has generally been used as farmland from the 1930s to 1950s, and then it was used for recreational purpose as a golf course until the mid-1990s. More recently a cycleway and footpath has been constructed in a north-south direction on the eastern side of the site and Powerhouse Road has been constructed along the western boundary between the site and the SSFL providing access to Casula Powerhouse. The site is now public open space.

3.6.2 Surroundings

Residential and industrial developments have gradually increased in the area since the 1970s with transport infrastructure increasing with the construction of the M5 Motorway to the north, the East Hills Rail Line to the south-west and the SSFL to the east. Areas surrounding the site can be generally characterised by industrial and residential land uses.

3.7 Reliance on source information

Historical information has been obtained from government held land use records and is considered reliable. Identified data gaps in information include the following:

- interpretation of low resolution aerial images; and
- WorkCover Dangerous Goods records were not obtained/reviewed.

Notwithstanding the data gaps identified above, Parsons Brinckerhoff considers that the information reviewed as part of this Phase 1 ESA is reliable and is adequate to inform the conclusions and recommendations presented in this report.

4. Potential for contamination

4.1 Conceptual site model

The conceptual site model (CSM) has been developed based on the available information to outline the potential sources of impacts, transport mechanisms and receptors based on the site setting including surrounding land uses. For a potential risk to be present, a source, a receptor (human or environmental) and a pathway between the source and receptor must be present for a complete exposure pathway to exist. The CSM is summarised in Table 4.1.

Table 4.1 Conceptual site model

CSM inputs	Factors (contaminants of potential concern)
Potential sources	Residual contamination in surface soils affected by historical aerial contaminants dispersed from adjacent site uses (roadway, railway) (including but not limited to petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, xylene (BTEX), heavy metals and polycyclic aromatic hdyrocarbons (PAH))
	Residual contamination in surface soils due to the application of fertilizers and pesticides used historically in golf course maintenance (including but not limited to organochlorine and organophosphorous pesticides and herbicides)
	Residual contamination associated with the former diesel fuelled power station (TPH,BTEX and PAH)
	Buried fill and soils (potentially contaminated with asbestos containing materials (ACM))
	Imported fill used in grading of the former golf course and recently constructed Powerhouse Road (including but not limited to TPH, PAH, heavy metals and asbestos)
	Stormwater, surface waters and sediments in existing retention ponds
	Residual soils that may have the potential to be acid generating if exposed (PASS)
	Leachate and contaminated groundwater from adjacent landfill (including but not limited to TPH, BTEX, PAHs, heavy metals, polychlorinated biphenyl (PCBs), ammonia, nitrogen and dissolved methane)
	The potential for the presence of landfill gas (including methane, carbon dioxide and hydrogen sulfide) associated with the adjacent landfill
Potential pathways	Direct contact with contaminated surface soils (dermal contact, ingestion and inhalation
	Migration of airborne dust during ground disturbance of surface soils impacted by contamination
	Leaching and migration of contaminants from surface soils vertically into underlying groundwater systems and migration/seepage including lateral migration of contaminated water through preferential pathways such as drainage lines or geological features
	Direct contact with surface water or groundwater via pumping to other areas of the site or abstraction of potentially impacted groundwater from the identified registered bores
Potential receptors	Landfill gas migration from adjacent land via soil or groundwater
	Current and future site users and utility/construction personnel involved in ground disturbance activities
	Offsite receptors if contaminants become airborne in dust and particulates
	Groundwater beneath the site and potential down gradient users of abstracted groundwater for domestic use
	Leaching and migration of contaminants from surface soils to surface waters on and adjacent to the site

CSM inputs	Factors (contaminants of potential concern)
	Terrestrial ecosystems
	Items of Environmental Heritage situated at the site

If contamination were to exist in the subsurface, the key exposure pathways would likely be via direct contact with soils, surface water or groundwater (dermal contact, ingestion and inhalation) by construction/utility workers, site users and through the migration of airborne dust to offsite receptors and uptake via dermal contact, ingestion and inhalation.

4.2 Potential offsite sources of contamination

Two potentially polluting operations have been identified in the near vicinity of the site

- ABB Transmissions Pty Ltd (ABB) is located to the north-east of the site on the eastern bank of the Georges River. ABB are involved in the manufacture of electrical and electronic equipment such as switch gear and transformers. An online search of the NSW EPA Contaminated Land Record database returned nine records (eight inactive and one current) for ABB Power Transmissions Pty Ltd facility under the *Environmentally Hazardous Chemical Act, 1985*. Notices detailed that chemical wastes, including polychlorinated biphenyl (PCB) contamination was considered to be present at the premises.
- Glenfield Waste Services (GWS) is an active landfill and waste transfer facility located to the south and hydraulically up gradient of the site. The landfill has the potential to cause contamination that may affect the site should impacted groundwater (if any) have migrated from the landfill. The potential for the presence of landfill gas beneath the site associated with the adjacent landfill is considered to be low based on the nature of the landfill which is only licensed to accept non-putrescible materials and the distance of the landfill from the site.

5. Conclusions and recommendations

The Phase 1 ESA comprising a desktop study and site walkover was completed to assess the potential contamination issues with the purpose of evaluating the feasibility of the site for the future proposed use as the Moorebank IMT. The Project includes a rail link connecting the proposed Moorebank IMT to the SSFL.

At the time of preparing this Phase 1 ESA, three separate rail access options were being considered. The site subject to this Phase 1 ESA is known as the northern rail access option with rail access from the north-western corner of the Moorebank IMT site, passing through the former Casula Powerhouse Golf Course and crossing the Georges River and floodplain.

The scope of works for the Phase 1 ESA comprised a desktop review including identification of the site, a review of aerial photographs, historical land titles, council records, local geology, hydrology and hydrogeology, a site walkover (undertaken 5 May 2014) and preparation of a Phase 1 ESA report. No previous reports pertaining to the environmental condition of the land are known.

The site is owned by Liverpool City Council and is currently public open space. The site covers an area of approximately 12.4 ha and is undulating with sparse to moderate vegetation cover. The area that would be impacted by the construction footprint of the northern rail access option is approximately 10.5 ha based on the concept design. The site is underlain by alluvial sands, silts and clays overlying shale and sandstone. The inferred groundwater flow direction is considered likely to be towards the north-east in the direction of the Georges River which flows to the north along eastern boundary of the site. Based on a review of aerial photographs, it appears that the site has generally been used as farmland from the 1930s to 1950s when it was then developed for recreational use as a public golf course until the mid-1990s.

Based on the review of available information for the site and the site walkover, it is considered that there is limited potential for contamination to exist. However, there is the potential for buried waste and tipped waste (potentially including ACMs) and imported fill to be present and for adjacent site uses, to have impacted the condition of the land, with contaminants of concern including, but not limited to TPH, PAH, PCBs, heavy metals and asbestos). There may also be contaminant impacts associated with the stormwater outflows located along the western side of the site and the water retention pond located in the southern area of the site (although these areas are likely to be outside of the northern rail access option construction footprint based on the current concept design). Due to the previous use of the site as a public golf course, there may also be the potential for contaminants associated with the application of fertilizers and pesticides used in golf course maintenance.

Due to the landfill located to the south (GWS) and the inferred north-easterly groundwater flow direction, there may also be the potential contamination from offsite to have migrated onsite through groundwater flow including landfill leachate and/or or landfill gases (methane, carbon dioxide and hydrogen sulfide). Should landfill gases be present beneath the site, there is a potential risk of exposure to hazardous gases via inhalation and the potential for explosive atmospheres to be generated. Migration of potential contamination associated with the EPA public notice records listed for ABB is considered less likely to impact the study site due to the Georges River which flows between the two areas of land.

If contamination were to exist in the subsurface, the key exposure pathways would likely be via direct contact with soils, surface water or groundwater (dermal contact, ingestion and inhalation) by construction/utility workers, site users and future land users and through the migration of airborne dust to on and offsite receptors and uptake via dermal contact, ingestion and inhalation. It is considered that these exposure pathways can be adequately managed by implementing good health and safety practices during any future works to avoid contact with potentially contaminated soils and groundwater.

It is recommended that at subsequent project approval stages (under the NSW *Environmental Planning and Assessment Act 1979*), a targeted intrusive soil investigation be undertaken in order to gather data on soil and groundwater quality so that management and/or remediation options can be evaluated (if required) prior to any development of the site. Such an investigation may also serve to gather additional information on the geotechnical suitability of the subsurface for the proposed development as required.

6. Limitations

Scope of services

This environmental site assessment report (the report) has been prepared in accordance with the scope of services set out in the contract, or as otherwise agreed, between the client and Parsons Brinckerhoff (scope of services). In some circumstances the scope of services may have been limited by a range of factors such as time, budget, access and/or site disturbance constraints.

Reliance on data

In preparing the report, Parsons Brinckerhoff has relied upon data, surveys, analyses, designs, plans and other information provided by the client and other individuals and organisations, most of which are referred to in the report (the data). Except as otherwise stated in the report, Parsons Brinckerhoff has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report (conclusions) are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. Parsons Brinckerhoff will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to Parsons Brinckerhoff.

Environmental conclusions

In accordance with the scope of services, Parsons Brinckerhoff has relied upon the data and has not conducted any environmental field monitoring or testing in the preparation of the report. The conclusions are based upon the data and visual observations and are therefore merely indicative of the environmental condition of the site at the time of preparing the report, including the presence or otherwise of contaminants or emissions.

Within the limitations imposed by the scope of services, the assessment of the site and preparation of this report have been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care ordinarily exercised by reputable environmental consultants under similar circumstances. No other warranty, expressed or implied, is made.

Report for benefit of client

The report has been prepared for the benefit of the client (MIC) and no other party. Parsons Brinckerhoff assumes no responsibility and will not be liable to any other person or organisation for or in relation to any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report (including without limitation matters arising from any negligent act or omission of Parsons Brinckerhoff or for any loss or damage suffered by any other party in relying upon the matters dealt with or conclusions expressed in the report). Other parties should not rely upon the report or the accuracy or completeness of any conclusions and should make their own enquiries and obtain independent advice in relation to such matters.

Other limitations

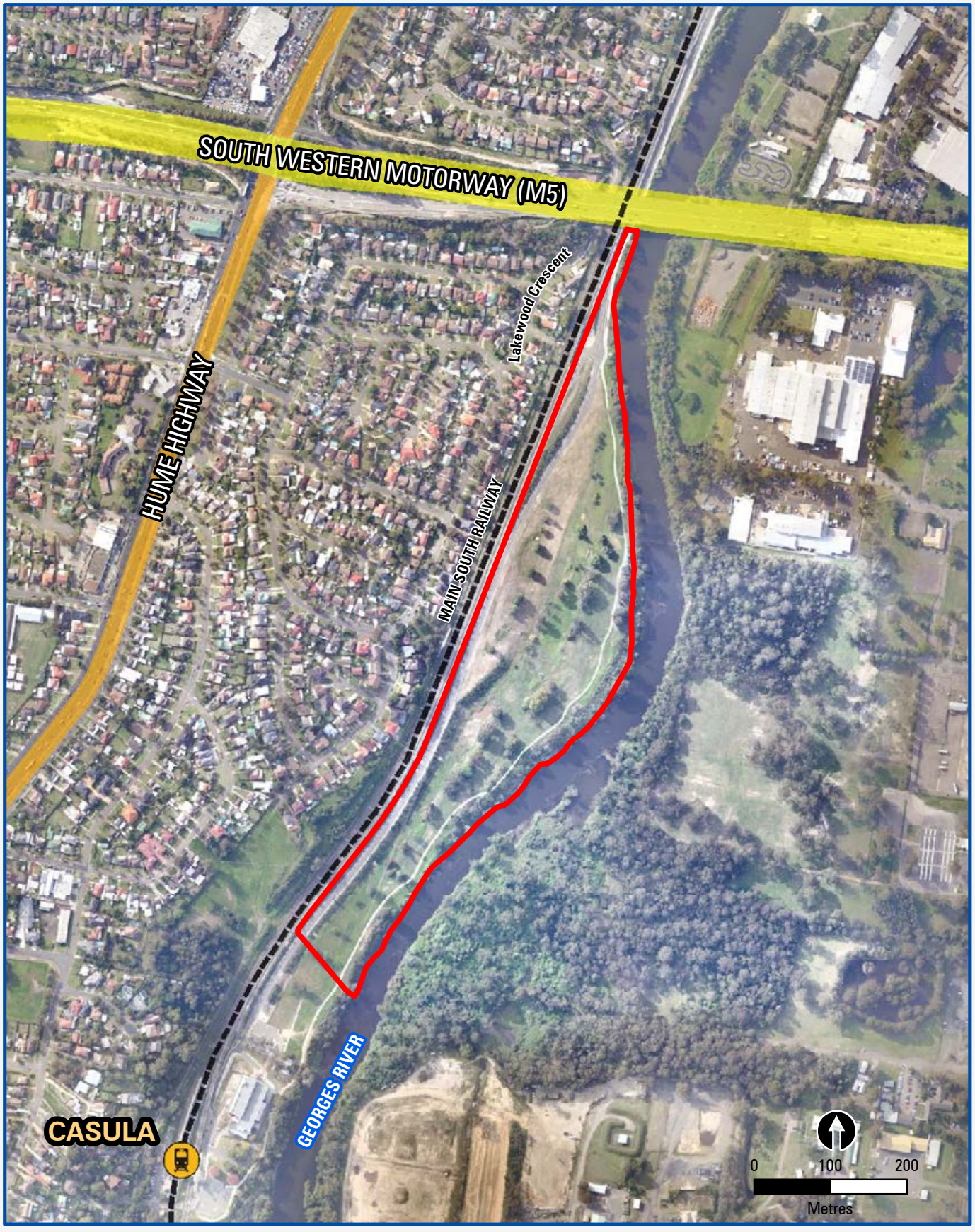
Parsons Brinckerhoff will not be liable to update or revise the report to take into account any events, emergent circumstances or facts occurring or becoming apparent after the date of the report.

The scope of services did not include any assessment of the title to nor ownership of the properties, buildings and structures referred to in the report, nor the application or interpretation of laws in the jurisdiction in which those properties, buildings and structures are located.

7. References

- ANZECC (1992) Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites.
- Department of Lands Spatial Information Exchange – http://gsp.maps.nsw.gov.au.
- Department of Land and Water Conservation (1998) – Guidelines for the use of acid sulfate soils risk maps (2nd Edition) - March 1998.
- Department of Mineral Resources (1991), Penrith 1:100,000 Geological Series Sheet 9030.
- NSW EPA Contaminated Land Records Database - http://www.environment.nsw.gov.au/prclmapp/searchregister.aspx.
- NSW Land and Property Information – http://www.lpi.nsw.gov.au/.
- NSW Natural Resource Atlas – http://www.nratlas.nsw.gov.au.
- Parsons Brinckerhoff (2014), Moorebank Intermodal Terminal Surface Water Assessment (Reference 2103829E-TPT-REP-003 RevA).

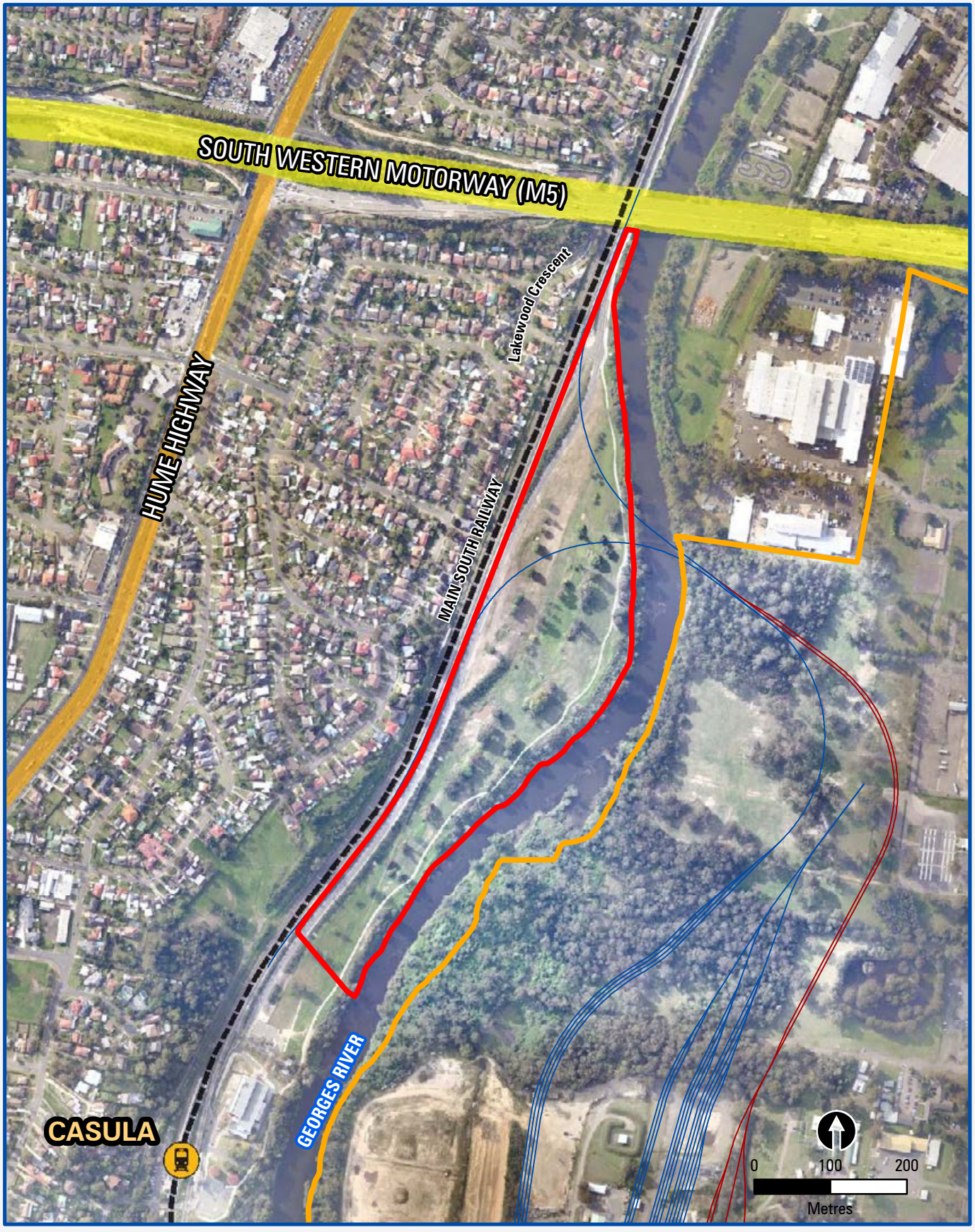
8. Figures



Rail line & station

Study area

Figure 1: Site location



Rail line & station

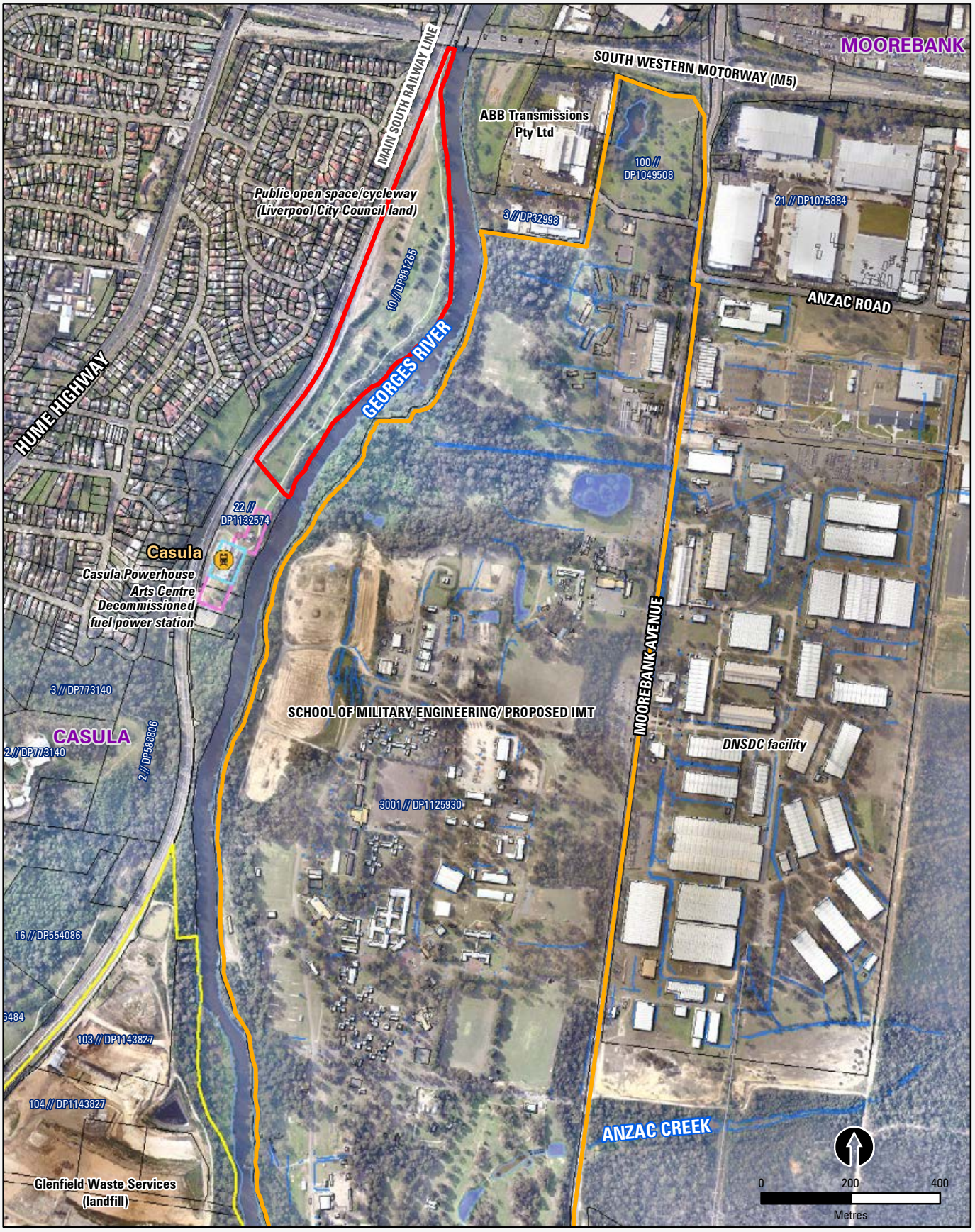
Proposed Interstate rail tracks

Proposed IMEX rail tracks

Study area

IMT site boundary

Figure 2: Northern rail alignment option

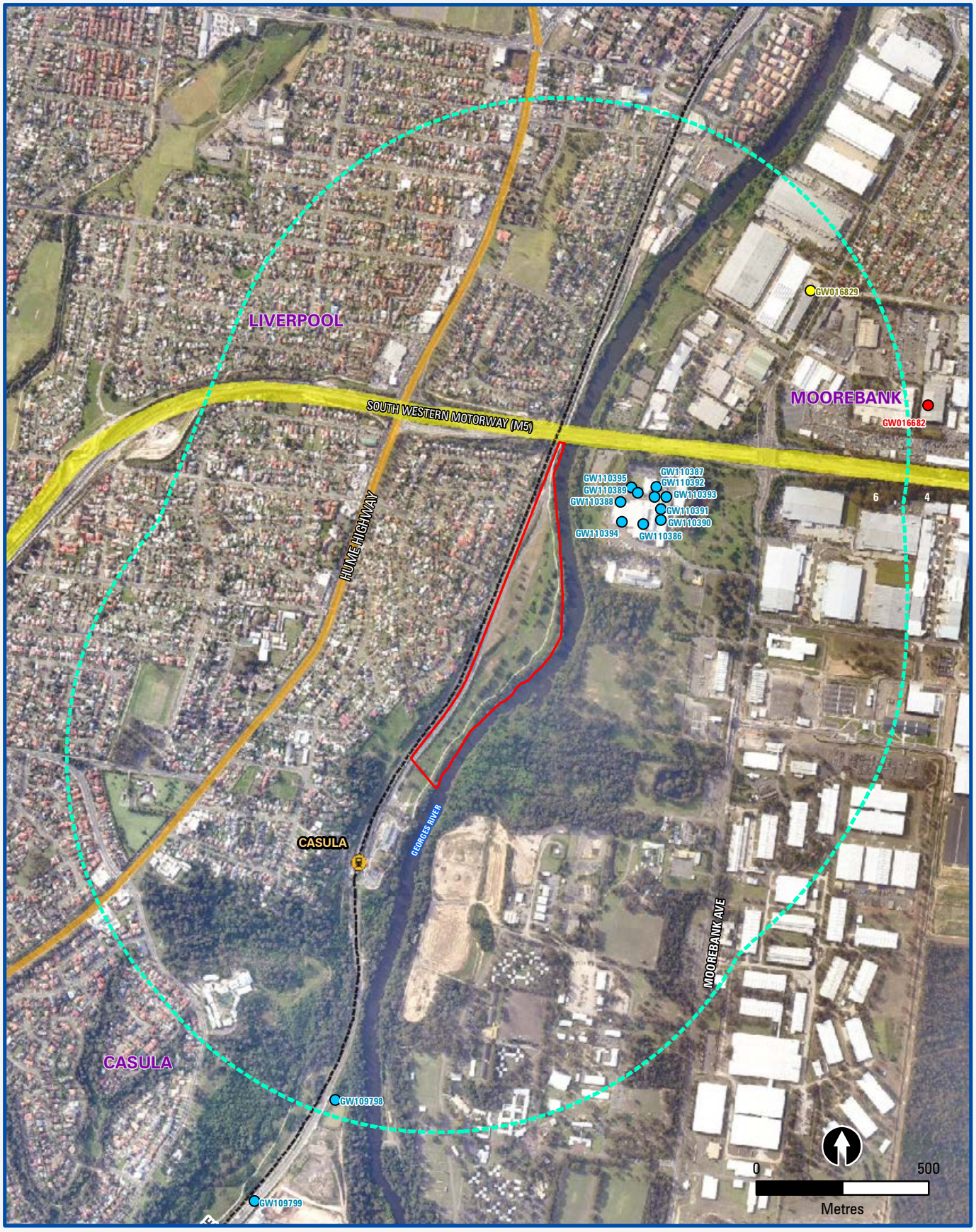


Aerial Source: © 2014 NearMap // **Report: EarthTech - Stage 2 Environmental Investigation Moorebank, Sydney, NSW (2006).

\\Apsydfil03\proj\KPMG_Australia\2103829A_Moorebank_Intermodal_Terminal\10_GIS\Projects\ESRI\2103829A_GIS_F098_A4.mxd // MitchellEm // 9/07/2014

- Study area
- Moorebank IMT main site
- Casula Powerhouse Arts Centre
- Decommissioned fuel power station
- Extent of landfill
- Rail line
- Structures
- Stromwater drainage
- Water features / reticulation

Figure 3: Site setting and surrounding features



Study area

1km radius

Registered Monitoring Wells

Domestic

Monitoring wells

Waste disposal

Figure 4: Registered boreholes

Appendix A

Registered groundwater bore search information

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, October 11, 2010

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW109798

Works Details (top)

GROUNDWATER NUMBER	GW109798
LIC-NUM	10BL601720
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	MONITORING BORE
WORK-TYPE	Bore
WORK-STATUS	
CONSTRUCTION-METHOD	Auger - Solid Flight
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2007-01-29
FINAL-DEPTH (metres)	29.80
DRILLED-DEPTH (metres)	29.80
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	GLENFIELD WASTE DISPOSALS
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6240724.00
EASTING	306970.00
LATITUDE	33 57' 23"
LONGITUDE	150 54' 40"
GS-MAP	

AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	MINTO
PORTION-LOT-DP	22//230435

Licensed (top)

COUNTY	CUMBERLAND
PARISH	MINTO
PORTION-LOT-DP	22 230435

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	10.00	100			Auger - Solid Flight
1		Hole	Hole	10.00	29.80	100			Auger - Solid Flight
1	1	Casing	P.V.C.	-0.70	23.80	50			Screwed
1	1	Opening	Screen	23.80	29.80	50			PVC; Screwed
1		Annulus	Waterworn/Rounded	0.00	0.00				Graded; GS: 2-5mm

Water Bearing Zones (top)

no details

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	3.50	3.50	SANDY CLAY, BROWN,FINE TO MEDIUM GRAINED		
3.50	9.00	5.50	SANDY CLAY,LIGHT GREY,DRY TO MOIST		
9.00	10.00	1.00	SILTY SAND,WET BROWN,DARK GREY,COURSE GRAINED		
10.00	20.50	10.50	SHALE,DARK GREY,MEDIUM STRENGTH,TRACE CLAY		

20.50	22.50	2.00	SHALE.LAMINATED SANDSTONE,DARK GREY
22.50	29.80	7.30	SANDSTONE,LIGHT GREY,MEDIUM GRAINED

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, October 11, 2010

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW110390

Works Details (top)

GROUNDWATER NUMBER	GW110390
LIC-NUM	10BL165522
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	MONITORING BORE
WORK-TYPE	Well
WORK-STATUS	
CONSTRUCTION-METHOD	Auger - Solid Flight
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2005-09-06
FINAL-DEPTH (metres)	9.00
DRILLED-DEPTH (metres)	9.00
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	A B B AUSTRALIA
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	7.20
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6242487.00
EASTING	307849.00
LATITUDE	33 56' 26"
LONGITUDE	150 55' 15"
GS-MAP	

AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	HOLSWORTHY
PORTION-LOT-DP	2//32998

Licensed (top)

COUNTY	CUMBERLAND
PARISH	HOLSWORTHY
PORTION-LOT-DP	2 32998

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	9.00	125			Auger - Solid Flight
1	1	Casing	PVC Class 18	0.00	5.90	63			Screwed; Seated on Bottom
1	1	Opening	Screen	5.90	8.90	63			PVC Class 18; A: .4mm; Screwed
1		Annulus	Waterworn/Rounded	0.00	0.00				Graded; GS: 1-2mm

Water Bearing Zones (top)

FROM-DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC	S-W-L	D-D-L	YIELD	TEST-HOLE-DEPTH (metres)	DURATION	SALINITY
7.20	9.00	1.80		7.20					

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	0.70	0.70	FILL,SANDY SILT		
0.70	1.30	0.60	FILL,SANDY CLAY		
1.30	3.50	2.20	SANDY CLAY,RED BROWN		
3.50	4.50	1.00	CLAYEY SAND,FINE/M/GRAINED		

4.50	9.00	4.50	SANDY CLAY,GREY,L/BROWN MOTTLING.

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, October 11, 2010

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW110391

Works Details (top)

GROUNDWATER NUMBER	GW110391
LIC-NUM	10BL165522
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	MONITORING BORE
WORK-TYPE	Well
WORK-STATUS	
CONSTRUCTION-METHOD	Auger - Solid Flight
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2005-09-05
FINAL-DEPTH (metres)	8.70
DRILLED-DEPTH (metres)	8.70
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	A B B AUSTRALIA
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	7.50
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6242439.00
EASTING	307916.00
LATITUDE	33 56' 28"
LONGITUDE	150 55' 18"
GS-MAP	

AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	HOLSWORTHY
PORTION-LOT-DP	2//32998

Licensed (top)

COUNTY	CUMBERLAND
PARISH	HOLSWORTHY
PORTION-LOT-DP	2 32998

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	8.70	125			Auger - Solid Flight
1	1	Casing	PVC Class 18	0.00	4.70	63			Screwed; Seated
1	1	Opening	Screen	5.70	8.70	63			PVC Class 18; A: .4mm; Screwed
1		Annulus	Waterworn/Rounded	0.00	0.00				Graded; GS: 1-2mm

Water Bearing Zones (top)

FROM-DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC	S-W-L	D-D-L	YIELD	TEST-HOLE-DEPTH (metres)	DURATION	SALINITY
7.20	8.70	1.50		7.50					

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	0.30	0.30	FILL,GRAVELLY SILT		
0.30	2.50	2.20	SAND,FINE,RED/BROWN		
2.50	3.50	1.00	SANDY CLAY,RED/BROWN		
3.50	4.40	0.90	SILTY SAND,LIGHT BROWN		
4.40	8.70	4.30	SAND,FINE,M/GRAINED,RED/BROWN		

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, October 11, 2010

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW110392

Works Details (top)

GROUNDWATER NUMBER	GW110392
LIC-NUM	10BL165522
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	MONITORING BORE
WORK-TYPE	Well
WORK-STATUS	
CONSTRUCTION-METHOD	Auger - Solid Flight
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2005-09-05
FINAL-DEPTH (metres)	8.50
DRILLED-DEPTH (metres)	8.50
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	A B B AUSTRALIA
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	7.25
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6242504.00
EASTING	307902.00
LATITUDE	33 56' 26"
LONGITUDE	150 55' 17"
GS-MAP	

AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	HOLSWORTHY
PORTION-LOT-DP	2//32998

Licensed (top)

COUNTY	CUMBERLAND
PARISH	HOLSWORTHY
PORTION-LOT-DP	2 32998

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	8.50	125			Auger - Solid Flight
1	1	Casing	PVC Class 18	0.00	5.50	63			Screwed; Seated on Bottom
1	1	Opening	Screen	5.50	8.50	63			PVC Class 18; A: .4mm; Screwed
1		Annulus	Waterworn/Rounded	0.00	0.00				Graded; GS: 1-2mm

Water Bearing Zones (top)

FROM-DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC	S-W-L	D-D-L	YIELD	TEST-HOLE-DEPTH (metres)	DURATION	SALINITY
7.00	8.50	1.50		7.25					

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	1.00	1.00	FILL,SAND,BROWN,DRY		
1.00	3.50	2.50	CLAYEY SAND,FINE TO MEDIUM GRAINED		
3.50	5.00	1.50	CLAY, RED/BROWN,FINE GRAINED SAND		
5.00	5.50	0.50	GRADING INTO SANDY CLAY,SOFT,DRY		

5.50	8.50	3.00	INCREASED SAND,RED/BROWN,MOIST,WET

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, October 11, 2010

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW110393

Works Details (top)

GROUNDWATER NUMBER	GW110393
LIC-NUM	10BL165522
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	MONITORING BORE
WORK-TYPE	Well
WORK-STATUS	
CONSTRUCTION-METHOD	Auger - Solid Flight
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2005-09-05
FINAL-DEPTH (metres)	9.00
DRILLED-DEPTH (metres)	9.00
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	A B B AUSTRALIA
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	7.80
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6242475.00
EASTING	307931.00
LATITUDE	33 56' 26"
LONGITUDE	150 55' 18"
GS-MAP	

AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	HOLSWORTHY
PORTION-LOT-DP	2//32998

Licensed (top)

COUNTY	CUMBERLAND
PARISH	HOLSWORTHY
PORTION-LOT-DP	2 32998

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	9.00	125			Auger - Solid Flight
1	1	Casing	PVC Class 18	0.00	6.00	63			Screwed; Seated on Bottom
1	1	Opening	Screen	6.00	9.00	63			PVC Class 18; A: .4mm; Screwed
1		Annulus	Waterworn/Rounded	0.00	0.00				Graded; GS: 1-2mm

Water Bearing Zones (top)

FROM-DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC	S-W-L	D-D-L	YIELD	TEST-HOLE-DEPTH (metres)	DURATION	SALINITY
7.60	9.00	1.40		7.80					

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	0.30	0.30	FILL,SANDY GRAVEL		
0.30	2.50	2.20	SAND, FINE MEDIUM GRAINED		
2.50	3.40	0.90	SANDY CLAY,BROWN,SAND MOIST,SOFT		
3.40	4.50	1.10	CLAYEY SAND,FINE GRAINED		

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, October 11, 2010

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW110394

Works Details (top)

GROUNDWATER NUMBER	GW110394
LIC-NUM	10BL165522
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	MONITORING BORE
WORK-TYPE	Well
WORK-STATUS	
CONSTRUCTION-METHOD	Auger - Solid Flight
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2005-09-06
FINAL-DEPTH (metres)	10.00
DRILLED-DEPTH (metres)	10.00
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	A B B AUSTRALIA
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	9.40
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6242402.00
EASTING	307802.00
LATITUDE	33 56' 29"
LONGITUDE	150 55' 13"
GS-MAP	

AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	HOLSWORTHY
PORTION-LOT-DP	2//32998

Licensed (top)

COUNTY	CUMBERLAND
PARISH	HOLSWORTHY
PORTION-LOT-DP	2 32998

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	10.00	125			Auger - Solid Flight
1	1	Casing	PVC Class 18	0.00	6.60	63			Screwed; Seated on Bottom
1	1	Opening	Screen	6.60	9.60	63			PVC Class 18; A: .4mm; Screwed
1		Annulus	Waterworn/Rounded	0.00	0.00				Graded; GS: 1-2mm

Water Bearing Zones (top)

FROM-DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC	S-W-L	D-D-L	YIELD	TEST-HOLE-DEPTH (metres)	DURATION	SALINITY
9.00	10.00	1.00		9.40					

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	0.05	0.05	ASPHALT		
0.05	0.20	0.15	CONCRETE		
0.20	0.70	0.50	FILL,SAND,RED/BROWN		

4.50	6.50	2.00	SANDY CLAY,FINE GRAINED SAND
6.50	9.00	2.50	CLAYEY SAND,FINE MEDIUM GRAINED

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, October 11, 2010

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW110395

Works Details (top)

GROUNDWATER NUMBER	GW110395
LIC-NUM	10BL165522
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	MONITORING BORE
WORK-TYPE	Well
WORK-STATUS	
CONSTRUCTION-METHOD	Auger - Solid Flight
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2005-09-07
FINAL-DEPTH (metres)	8.50
DRILLED-DEPTH (metres)	8.50
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	A B B AUSTRALIA
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	6.80
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6242502.00
EASTING	307830.00
LATITUDE	33 56' 26"
LONGITUDE	150 55' 14"
GS-MAP	

AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	HOLSWORTHY
PORTION-LOT-DP	2//32998

Licensed (top)

COUNTY	CUMBERLAND
PARISH	HOLSWORTHY
PORTION-LOT-DP	2 32998

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	8.50	125			Auger - Solid Flight
1	1	Casing	PVC Class 18	0.00	5.20	63			Screwed; Seated on Bottom
1	1	Opening	Screen	5.20	8.20	63			PVC Class 18; A: .4mm; Screwed
1		Annulus	Waterworn/Rounded	0.00	0.00				Graded; GS: 1-2mm

Water Bearing Zones (top)

no details

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	0.90	0.90	FILL, GRAVELLY SAND		
0.90	1.50	0.60	SANDY CLAY L/PLASTICITY,RED/BROWN		
1.50	2.30	0.80	GRADING INTO CLAYEY SAND		
2.30	8.50	6.20	SAND,F/M/GRAINED,RED/BROWN/CLAY		

0.70	1.50	0.80	SILTY SAND,RED BROWN,SILT AND CLAY
1.50	4.00	2.50	GRADING INTO SAND,RED BROWN
4.00	6.50	2.50	SANDY CLAY, LOW PLASTICITY,STIFF,SOFT
6.50	10.00	3.50	CLAYEY SAND,FINE,TO MEDIUM GRAINED,RED,LOOSE

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, October 11, 2010

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW110386

Works Details (top)

GROUNDWATER NUMBER	GW110386
LIC-NUM	10BL165522
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	MONITORING BORE
WORK-TYPE	Well
WORK-STATUS	
CONSTRUCTION-METHOD	Auger - Solid Flight
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2005-09-06
FINAL-DEPTH (metres)	8.50
DRILLED-DEPTH (metres)	8.50
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	A B B AUSTRALIA
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	6.00
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6242396.00
EASTING	307864.00
LATITUDE	33 56' 29"
LONGITUDE	150 55' 16"
GS-MAP	

AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	HOLSWORTHY
PORTION-LOT-DP	2//32998

Licensed (top)

COUNTY	CUMBERLAND
PARISH	HOLSWORTHY
PORTION-LOT-DP	2 32998

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	8.50	125			
1	1	Casing	PVC Class 18	0.00	5.20	63			Seated on Bottom
1	1	Opening	Screen	5.20	8.30	63			PVC Class 18; A: .4mm; Packer
1		Annulus	Waterworn/Rounded	0.00	0.00				Graded; GS: 1-2mm

Water Bearing Zones (top)

FROM-DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC	S-W-L	D-D-L	YIELD	TEST-HOLE-DEPTH (metres)	DURATION	SALINITY
6.00	8.50	2.50		6.00					

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	0.50	0.50	FILL,GRAVELLY SAND		
0.50	4.10	3.60	SANDY CLAY,BROWN,FINE GRAINED		
4.10	6.50	2.40	SANDY CLAY,GREY,FINE GRAINED SAND		
6.50	8.50	2.00	CLAYEY SAND,FINE GRAINED,L/BROWN		

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, October 11, 2010

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW110387

Works Details (top)

GROUNDWATER NUMBER	GW110387
LIC-NUM	10BL165522
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	MONITORING BORE
WORK-TYPE	Well
WORK-STATUS	
CONSTRUCTION-METHOD	Auger - Solid Flight
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2005-09-07
FINAL-DEPTH (metres)	10.00
DRILLED-DEPTH (metres)	10.00
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	A B B AUSTRALIA
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	8.00
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6242475.00
EASTING	307897.00
LATITUDE	33 56' 26"
LONGITUDE	150 55' 17"
GS-MAP	

AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	HOLSWORTHY
PORTION-LOT-DP	2//32998

Licensed (top)

COUNTY	CUMBERLAND
PARISH	HOLSWORTHY
PORTION-LOT-DP	2 32998

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	10.00	125			Auger - Solid Flight
1	1	Casing	PVC Class 18	0.00	7.00	63			Screwed; Seated on Bottom
1	1	Opening	Screen	7.00	10.00	63			PVC Class 18; A: .4mm; Screwed
1		Annulus	Waterworn/Rounded	0.00	0.00				Graded; GS: 1-2mm

Water Bearing Zones (top)

FROM-DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC	S-W-L	D-D-L	YIELD	TEST-HOLE-DEPTH (metres)	DURATION	SALINITY
8.00	10.00	2.00		8.00					

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	0.20	0.20	ASPHALT		
0.20	0.90	0.70	FILL.SAND,BROWN,FINE,DRY,LOOSE		
0.90	1.90	1.00	CLAYEY SAND,FINE,M/GRAINED,L/BROWN		

1.90	3.30	1.40	CLAY,MODERATE PLASTICITY
3.30	4.80	1.50	SANDY CLAY, LOW PLASTICITY
4.80	7.00	2.20	SAND,FINE MEDIUM GRAINED,BROWN
7.00	8.80	1.80	CLAYEY SAND,FINE GRAINED,BROWN
8.80	10.00	1.20	SAND,FINE MEDIUM GRAINED,GREY,SOME CLAY

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, October 11, 2010

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW110388

Works Details (top)

GROUNDWATER NUMBER	GW110388
LIC-NUM	10BL165522
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	MONITORING BORE
WORK-TYPE	Well
WORK-STATUS	
CONSTRUCTION-METHOD	Auger - Solid Flight
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2005-09-07
FINAL-DEPTH (metres)	10.00
DRILLED-DEPTH (metres)	
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	A B B AUSTRALIA
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	7.60
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6242460.00
EASTING	307799.00
LATITUDE	33 56' 27"
LONGITUDE	150 55' 13"
GS-MAP	

AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	HOLSWORTHY
PORTION-LOT-DP	2//32998

Licensed (top)

COUNTY	CUMBERLAND
PARISH	HOLSWORTHY
PORTION-LOT-DP	2 32998

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	10.00	125			Auger - Solid Flight
1	1	Casing	PVC Class 18	0.00	6.50	63			Screwed; Seated on Bottom
1	1	Opening	Screen	6.50	9.50	63			PVC Class 18; A: .4mm; Screwed

Water Bearing Zones (top)

FROM-DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC	S-W-L	D-D-L	YIELD	TEST-HOLE-DEPTH (metres)	DURATION	SALINITY
7.60	10.00	2.40		7.60					

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	0.10	0.10	ASPHALT		
0.10	0.30	0.20	FILL,SANDY GRAVEL		
0.30	0.80	0.50	FILL,SANDY SILT		
0.80	2.20	1.40	FILL,GRAVELLY SAND		
2.20	5.40	3.20	CLAYEY SAND		
5.40	6.60	1.20	SAND,FINE-MEDIUM GRAINED		
6.60	8.00	1.40	CLAYEY SAND,MEDIUM GRAINED		

8.00	10.00	2.00	SAND,MEDIUM GRAINED,BROWN,LOOSE

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, October 11, 2010

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW110389

Works Details (top)

GROUNDWATER NUMBER	GW110389
LIC-NUM	10BL165522
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	MONITORING BORE
WORK-TYPE	Well
WORK-STATUS	
CONSTRUCTION-METHOD	Auger - Solid Flight
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2005-09-06
FINAL-DEPTH (metres)	10.00
DRILLED-DEPTH (metres)	10.00
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	A B B AUSTRALIA
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	7.90
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6242407.00
EASTING	307916.00
LATITUDE	33 56' 29"
LONGITUDE	150 55' 18"
GS-MAP	

AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	HOLSWORTHY
PORTION-LOT-DP	2//32998

Licensed (top)

COUNTY	CUMBERLAND
PARISH	HOLSWORTHY
PORTION-LOT-DP	2 32998

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	10.00	125			Auger - Solid Flight
1	1	Casing	PVC Class 18	0.00	6.90	63			Screwed; Seated on Bottom
1	1	Opening	Screen	6.90	9.90	63			PVC Class 18; A: .4mm; Screwed
1		Annulus	Waterworn/Rounded	0.00	0.00				Graded; GS: 1-2mm; Q: 33m³

Water Bearing Zones (top)

FROM-DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC	S-W-L	D-D-L	YIELD	TEST-HOLE-DEPTH (metres)	DURATION	SALINITY
7.70	10.00	2.30		7.90					

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	0.10	0.10	ASPHALT		
0.10	0.20	0.10	FILL,GRAVEL		

0.20	0.70	0.50	FILL CLAYEY SAND
0.70	1.30	0.60	FILL,GRAVELLY CLAYEY
1.30	2.40	1.10	CLAY,MODERATE, TO HIGH PLASTICITY
2.40	5.40	3.00	SANDY CLAY,FINE GRAINED SAND
5.40	6.50	1.10	CLAYEY SAND,L/BROWN,GREY MOTTLING
6.50	10.00	3.50	GRADING INTO SAND,M/GRAINED,RED BROWN

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, October 11, 2010

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW016829

Works Details (top)

GROUNDWATER NUMBER	GW016829
LIC-NUM	10BL007470
AUTHORISED-PURPOSES	DOMESTIC
INTENDED-PURPOSES	GENERAL USE
WORK-TYPE	Well
WORK-STATUS	(Unknown)
CONSTRUCTION-METHOD	(Unknown)
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	1958-02-01
FINAL-DEPTH (metres)	5.40
DRILLED-DEPTH (metres)	0.00
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	N/A
GWMA	603 - SYDNEY BASIN
GW-ZONE	-
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	213 - SYDNEY COAST - GEORGES RIVER
AREA-DISTRICT	
CMA-MAP	9030-2S
GRID-ZONE	56/1
SCALE	1:25,000
ELEVATION	
ELEVATION-SOURCE	(Unknown)
NORTHING	6243074.00
EASTING	308350.00
LATITUDE	33 56' 7"
LONGITUDE	150 55' 35"
GS-MAP	0056D4

AMG-ZONE	56
COORD-SOURCE	GD.,ACC.MAP
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	HOLSWORTHY
PORTION-LOT-DP	58

Licensed (top)

COUNTY	CUMBERLAND
PARISH	HOLSWORTHY
PORTION-LOT-DP	A 752034

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1	1	Casing	Concrete Cylnder	-0.90	-0.90	2006			(Unknown)

Water Bearing Zones (top)

FROM-DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC	S-W-L	D-D-L	YIELD	TEST-HOLE-DEPTH (metres)	DURATION	SALINITY
4.20	5.40	1.20	(Unknown)	3.60		2.27			(Unknown)

Drillers Log (top)

no details

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Friday, May 16, 2014

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW109802

Works Details (top)

GROUNDWATER NUMBER	GW109802
LIC-NUM	10BL601720
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	MONITORING BORE
WORK-TYPE	Bore
WORK-STATUS	
CONSTRUCTION-METHOD	Auger - Solid Flight
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2007-01-29
FINAL-DEPTH (metres)	10.00
DRILLED-DEPTH (metres)	10.00
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	GLENFIELD WASTE DISPOSALS
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6240725.00
EASTING	306967.00
LATITUDE	33 57' 23"
LONGITUDE	150 54' 39"
GS-MAP	

AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	MINTO
PORTION-LOT-DP	22//230435

Licensed (top)

COUNTY	CUMBERLAND
PARISH	MINTO
PORTION-LOT-DP	22 230435

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	10.00	100			Auger - Solid Flight
1	1	Casing	P.V.C.	-0.60	6.00	50			Screwed
1	1	Opening	Screen	6.00	10.00	50			PVC; Screwed
1		Annulus	Waterworn/Rounded	0.00	0.00				Graded; GS: 2-5mm; Q: 4000m³

Water Bearing Zones (top)

no details

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	3.50	3.50	SANDY CLAY,BROWN,FINE TO MEDIUM GRAINED,TRACE CLAY,DRY		
3.50	9.00	5.50	SANDY CLAY,LIGHT GREY,DRY TO MOIST		
9.00	10.00	1.00	SILTY SAND,WET,BROWN,DARK GREY		

Appendix B

Site photographs

Appendix B: Site photographs

Photograph 1: View east from cycleway towards the Georges River taken near the northern boundary of the Casula Powerhouse.

Photograph 2: View west from cycleway towards Powerhouse Road taken at the northern boundary of the Casula Powerhouse.

Appendix B: Site photographs

Photograph 3: View north west from cycleway towards southern rail line take near the northern boundary of the site.

Photograph 4: View south towards Casula Powerhouse taken near the southern boundary of the site (central footpath)

Appendix B: Site photographs

Photograph 5: Ballast mound near central footpath.

Photograph 6: Geotextile/silt fence identified along the central footpath in the central area of the site.

Appendix B: Site photographs

Photograph 7: Recently graded surface adjacent to Powerhouse Road (grass has not yet become established).

Photograph 8: Stormwater drain adjacent to Powerhouse Road.

Appendix B: Site photographs

Photograph 9: View east from Powerhouse Road at the southern end of site, steep embankment leading to retention ponds.

Photograph 10: View north east from Powerhouse Road at the southern end of site, steep embankment and water retention ponds.

Appendix B: Site photographs

Photograph 11: Existing fence in the central area of the site.

Photograph 12: Fill mound in the central area of the site adjacent to the cycle way.

Appendix B: Site photographs

Photograph 13 View north from the central area showing undulating topography (mounds and depressions).

Photograph 14 View west from the central area showing recently graded soils and Powerhouse Road beyond.

Appendix C

Land titles

ADVANCE LEGAL SEARCH PTY LIMITED

(ACN 077 067 068)
ABN 49 077 067 068

PO Box 149
Yagoona NSW 2199

Telephone: +612 9754 1590
Mobile: 0412 169 809
Facsimile: +612 9754 1364
Email: alsearch@optusnet.com.au

28th October 2010

PARSONS BRINCKERHOFF AUSTRALIA PTY LIMITED
GPO Box 5394,
SYDNEY NSW 2001

Attention: Lisa Warwick

RE: **Land Off, Georges River,**
Liverpool / Moorebank

Current Search

Folio Identifier 10/881265 (title attached)
DP 881265 (plan attached)
Dated 23rd October 2010
Registered Proprietor:
THE COUNCIL OF THE CITY OF LIVERPOOL

Title Tree
Lot 10 DP 881265

Folio Identifier 10/881265

Folio Identifier 3/746078

Folio Identifier 1002/550917

Certificate of Title Volume 11746 Folio 151

Certificate of Title Volume 11636 Folio 137

Certificate of Title Volume 11575 Folio 134

Certificate of Title Volume 10444 Folio 10

Certificate of Title Volume 10027 Folios 44 & 45

Certificate of Title Volume 4207 Folio 212

Certificate of Title Volume 2047 Folio 210

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Summary of Proprietors
Lot 10 DP 881265

Year	Proprietor
	(Lot 10 DP 881265)
1999 – todate	The Council of the City of Liverpool
	(Lot 3 DP 746078)
1993 – 1999	The Council of the City of Liverpool
	(Lot 1002 DP 550917)
1988 – 1993	The Council of the City of Liverpool
	(Lot 1002 DP 550917 – CTVol 11746 Fol 151)
1972 – 1988	The Council of the City of Liverpool
	(Lot 187 DP 241158 – CTVol 11636 Fol 137)
1971 – 1972	Birnleigh Investments Pty Limited
	(Lot 11 DP 547546 – CTVol 11575 Fol 134)
1971 – 1971	Birnleigh Investments Pty Limited
	(Lot 3 DP 229794 – CTVol 10444 Fol 10)
1969 – 1971	Birnleigh Investments Pty Limited
1969 – 1969	John Hitter (Sydney) Pty Limited
1966 – 1969	Liverpool Golf Club Limited
	(Lots 1 & 2 DP 515035 – CTVol 10027 Fol's 44 & 45)
1965 – 1966	Liverpool Golf Club Limited
	(Part Portion 270 Parish St Luke – Area 226 Acres 3 Roods 34 ¾ Perches – CTVol 4207 Fol 212)
1952 – 1965	Liverpool Golf Club Limited
(1945 – 1955)	*(lease to John Gillick Marsden and Jack Jones hotelkeepers and Charles Clark, orchardist)*
1943 – 1952	Thomas Ashcroft, electrical engineer John Edward Kidd, company director
(1939 – 1945)	*(lease to Francis Augustine Crowe, grazier)*
1938 – 1943	Thomas Ashcroft, electrical engineer / trustee Geoffrey William Andrew, engineer / trustee
1928 – 1938	Leslie James Ashcroft, master butcher
	(Part Portion 270 Parish St Luke and other lands – Area 383 Acres 0 Roods 34 ¾ Perches – CTVol 2047 Fol 210)
1923 – 1928	Leslie James Ashcroft, master butcher
1910 – 1923	Edward James Ashcroft, butcher

****

PLAN FORM 2

Plan Drawing only to appear in this space

* FICE USE ONLY

Signatures, seals and statements of intention to dedicate public roads or to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants.

EXECUTED FOR THE ROADS AND TRAFFIC AUTHORITY, N.S.W. BY ITS DELEGATE PAUL GREGORY PURSLANT TO DELEGATIONS BOOK 4508 NO.809 AND BOOK 4117 NO.182.

MANAGER, PROPERTY ASSETS

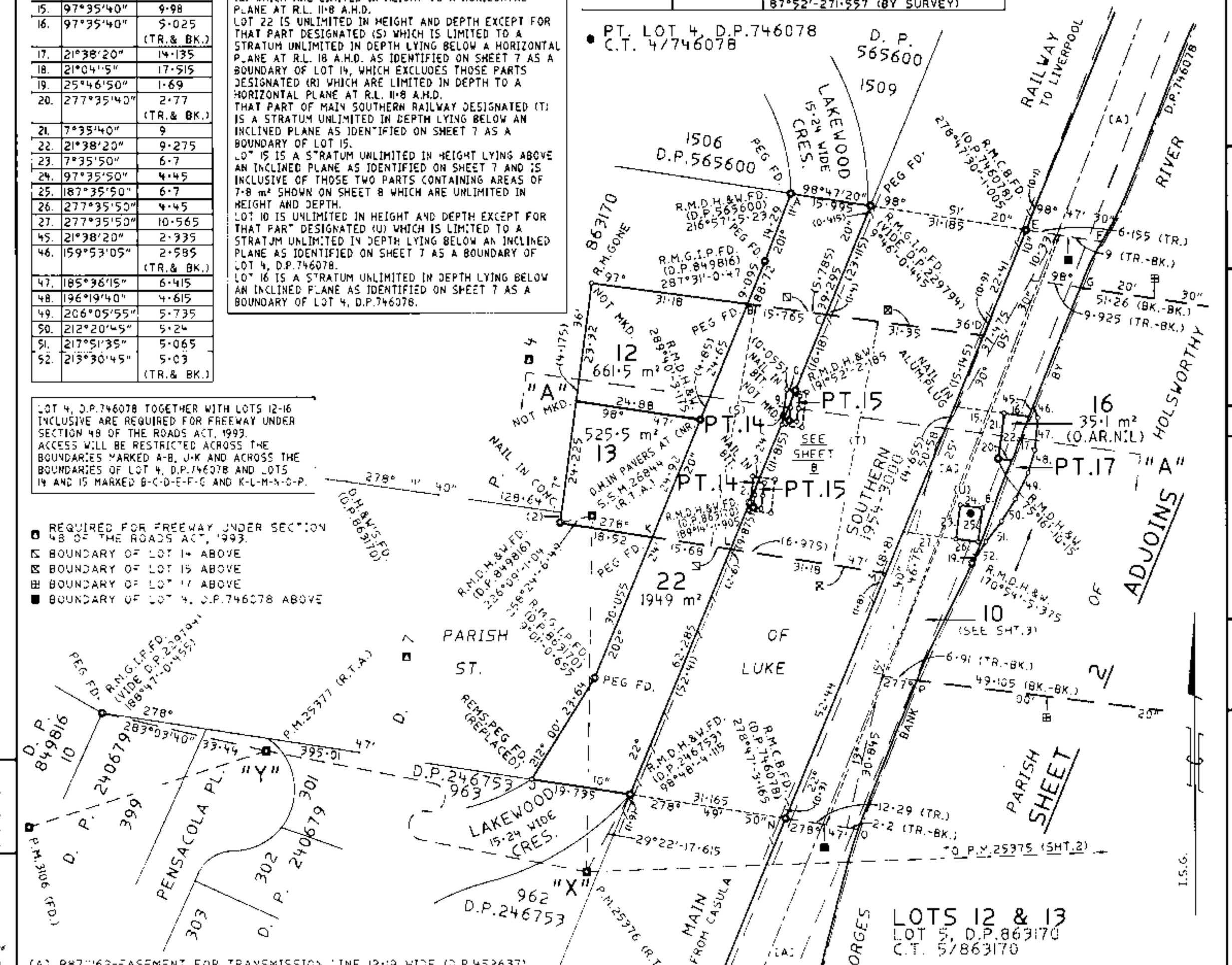
LINE	BEARING	DISTANCE
2.	7°18'	5·19
3.	97°18'	1·4
9.	7°35'40"	6·44
10.	97°35'40"	1·7
15.	97°35'40"	9·98
16.	97°35'40"	5·025 (TR.& BK.)
17.	21°38'20"	14·135
18.	21°04'5"	17·515
19.	25°46'50"	1·69
20.	277°35'40"	2·77 (TR.& BK.)
21.	7°35'40"	9
22.	21°38'20"	9·275
23.	7°35'50"	6·7
24.	97°35'50"	4·45
25.	187°35'50"	6·7
26.	277°35'50"	4·45
27.	277°35'50"	10·565
45.	21°38'20"	2·335
46.	159°53'05"	2·585 (TR.& BK.)
47.	185°36'15"	6·415
48.	196°19'40"	4·615
49.	206°05'55"	5·735
50.	212°20'45"	5·24
51.	217°51'35"	5·065
52.	213°30'45"	5·03 (TR.& BK.)

LOT 14 IS A STRATUM UNLIMITED IN HEIGHT LYING ABOVE A HORIZONTAL PLANE AS IDENTIFIED ON SHEET 7 AND IS INCLUSIVE OF THOSE PARTS CONTAINING AREAS OF 3·6 m² AND 5·5 m² SHOWN ON SHEET 8 WHICH ARE UNLIMITED IN HEIGHT AND DEPTH EXCEPT FOR THOSE PARTS DESIGNATED (G) WHICH ARE LIMITED IN HEIGHT TO A HORIZONTAL PLANE AT R.L. 11·8 A.H.D.
LOT 22 IS UNLIMITED IN HEIGHT AND DEPTH EXCEPT FOR THAT PART DESIGNATED (S) WHICH IS LIMITED TO A STRATUM UNLIMITED IN DEPTH LYING BELOW A HORIZONTAL PLANE AT R.L. 18 A.H.D. AS IDENTIFIED ON SHEET 7 AS A BOUNDARY OF LOT 14, WHICH EXCLUDES THOSE PARTS DESIGNATED (R) WHICH ARE LIMITED IN DEPTH TO A HORIZONTAL PLANE AT R.L. 11·8 A.H.D.
THAT PART OF MAIN SOUTHERN RAILWAY DESIGNATED (T) IS A STRATUM UNLIMITED IN DEPTH LYING BELOW AN INCLINED PLANE AS IDENTIFIED ON SHEET 7 AS A BOUNDARY OF LOT 15.
LOT 15 IS A STRATUM UNLIMITED IN HEIGHT LYING ABOVE AN INCLINED PLANE AS IDENTIFIED ON SHEET 7 AND IS INCLUSIVE OF THOSE TWO PARTS CONTAINING AREAS OF 7·8 m² SHOWN ON SHEET 8 WHICH ARE UNLIMITED IN HEIGHT AND DEPTH.
LOT 10 IS UNLIMITED IN HEIGHT AND DEPTH EXCEPT FOR THAT PART DESIGNATED (U) WHICH IS LIMITED TO A STRATUM UNLIMITED IN DEPTH LYING BELOW AN INCLINED PLANE AS IDENTIFIED ON SHEET 7 AS A BOUNDARY OF LOT 4, D.P.746078.
LOT 16 IS A STRATUM UNLIMITED IN DEPTH LYING BELOW AN INCLINED PLANE AS IDENTIFIED ON SHEET 7 AS A BOUNDARY OF LOT 4, D.P.746078.

CONTROL MARK TRAVERSE		
FROM	TO	CONNECTION
P.M.25977	P.M.3106	252°16'20"-106·97 (BY I.S.G.GRND.) 252°16'20"-106·964 (BY SURVEY)
P.M.25976	S.S.M.26844	0°57'25"-70·34 (BY SURVEY)
P.M.25976	P.M.25975	87°51'41"-271·573 (BY I.S.G.GRND.) 87°52'-271·557 (BY SURVEY)

LOT 4, D.P.746078 TOGETHER WITH LOTS 12-16 INCLUSIVE ARE REQUIRED FOR FREEWAY UNDER SECTION 48 OF THE ROADS ACT, 1993.
ACCESS WILL BE RESTRICTED ACROSS THE BOUNDARIES MARKED A-B, J-K AND ACROSS THE BOUNDARIES OF LOT 4, D.P.746078 AND LOTS 14 AND 15 MARKED B-C-D-E-F-G AND K-L-M-N-O-P.

- REQUIRED FOR FREEWAY UNDER SECTION 48 OF THE ROADS ACT, 1993.
- BOUNDARY OF LOT 14 ABOVE
- BOUNDARY OF LOT 15 ABOVE
- BOUNDARY OF LOT 17 ABOVE
- BOUNDARY OF LOT 4, D.P.746078 ABOVE



(A) R870'62-EASEMENT FOR TRANSMISSION LINE 12·19 WIDE (D.P.452637)

SURVEYORS (PRACTICE) REGULATION 1996 : CLAUSE 32 (2)					
MARK	I.S.G. CO-ORDINATES EASTING	NORTHING	ZONE	ACC.	R.L.
P.M.3106	291 826·016	6243 101·196	56	2	33·334
P.M.25377	291 927·901	6243 199·766	56	2	32·720
P.M.25376	292 296·576	6243 062·62	56	2	3·238
COMBINED SEA LEVEL AND SCALE FACTOR 0·99994					
SOURCE: I.S.G. COORDINATES ADOPTED FROM L.I.C. ON 20-1-1998					

DATUM LINE "X"-"Y"
P.M.25376 - P.M.25377
280°55'21"-375·5 (BY I.S.G.GRND.)
280°55'21"-375·51 (BY SURVEY)

Crown Lands Office Approval

PLAN APPROVED ..... Authorised Officer

Land District .....

Paper No. .....

Field Book ..... pages .....

Council Certificate

I hereby certify that -

(a) the requirements of the Local Government Act, 1993 (other than the requirements for the registration of plans), and

*(b) the requirements of * Part 3 Division 2 of the Water Board Act 1987, or * Part 5 Division 2 of the Hunter Water Board (Corporatisation) Act 1991

have been complied with by the applicant in relation to the proposed * ..... set out herein

Subdivision No. .....

Date .....

(Signature) ..... General Manager

Council File No .....

* This part of certificate to be deleted where the application is only for a consolidated lot or the opening of a new road or where the land is to be subdivided is wholly outside the areas of operations of the Water Board and the Hunter Water Corporation Ltd.

* Insert "new road", "subdivision" or "consolidated lot"

† Delete if inapplicable

DP 881265

Registered: 15-12-1998

C.A.:

Title System: TORRENS

Purpose: ROAD ACT 1993

Ref.Map: U 9137-13,14,12,41

Last Plan: DP 863170, DP849816

PLAN OF LAND TO BE ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993.

Lengths are in metres. Reduction Ratio 1:600

L.G.A.: LIVERPOOL CITY

Suburb: MOOREBANK

Parish: ST. LUKE & HOLSWORTHY

County: CUMBERLAND

This is sheet 1 of my plan in 8 sheets. (Delete if inapplicable).

I, LEIGH J FINLAY

of SMR ENGINEERS PTY LTD

a surveyor registered under the Surveyors Act 1929, hereby certify that the survey represented in this plan is accurate, has been made in accordance with the Surveyors Practice Regulation 1996 and was completed on :

7TH MAY, 1998.

Signature : .....

Surveyor registered under the Surveyors Act 1929

Datum Line : "X"-"Y"

Zone : SUB-RB4N

R.T.A. F.BK. NOS.: 6005 259 FP 0041/273

Plans used in preparation of survey / ~~compilation~~

"NOT WITHIN A P.S.A."

TWF

PANEL FOR USE ONLY for statements of intention to dedicate public roads or to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants.

LOT 4, D.P.746078; LOT 6, D.P.771470 TOGETHER WITH LOTS 12-21 INCLUSIVE ARE REQUIRED FOR FREEWAY UNDER SECTION 48 OF THE ROADS ACT, 1993.
ACCESS WILL BE RESTRICTED ACROSS THE BOUNDARIES MARKED A-B & J-K AND ACROSS THE BOUNDARIES OF LOT 4, D.P.746078; LOT 6, D.P.771470 & LOTS 14, 5 & 17 MARKED B-C-D-E-F-G-H-I AND K-L-M-N-O-P-Q-R.
LOT 22 IS TO BE DEDICATED AS PUBLIC ROAD UNDER SECTION 9 OF THE ROADS ACT, 1993.
LOTS 14 & 22 SUPERSEDE LOTS 6 & 12, D.P.863170.

APPROVED:

24.06.'98

GENERAL MANAGER, GEOMATICS
R.T.A. TECHNOLOGY
ROADS AND TRAFFIC AUTHORITY

DP 881265

SURVEYOR'S REFERENCE: SP2014 CHECKLIST

WARNING : CREASING OR FOLDING WILL LEAD TO REJECTION

R.T.A. FILE : F5/259.1690 R.T.A. PLAN: 6005 259 55 0365

PLAN FORM 3 — To be used in conjunction with Plan Form 2 — WARNING : CREASING OR FOLDING WILL LEAD TO REJECTION — * OFFICE USE ONLY

THAT PART OF GEORGES RIVER DESIGNATED (V) IS A STRATUM UNLIMITED IN DEPTH LYING BELOW AN INCLINED PLANE AS IDENTIFIED ON SHEET 7 AS A BOUNDARY OF LOT 17.
LOT 17 IS A STRATUM UNLIMITED IN HEIGHT LYING ABOVE AN INCLINED PLANE AS IDENTIFIED ON SHEET 7 AND IS INCLUSIVE OF THAT PART CONTAINING AN AREA OF 81·1 m² WHICH IS UNLIMITED IN HEIGHT AND DEPTH.
LOT 11 IS UNLIMITED IN HEIGHT AND DEPTH EXCEPT FOR THAT PART DESIGNATED (W) WHICH IS LIMITED TO A STRATUM UNLIMITED IN DEPTH LYING BELOW AN INCLINED PLANE AS IDENTIFIED ON SHEET 7 AS A BOUNDARY OF LOT 6, D.P.771470.
LOTS 18-21 INCLUSIVE ARE STRATUM UNLIMITED IN DEPTH LYING BELOW AN INCLINED PLANE AS IDENTIFIED ON SHEET 7 AS A BOUNDARY OF LOT 6, D.P.771470.

LOT 6, D.P.771470 TOGETHER WITH LOTS 17-21 INCLUSIVE ARE REQUIRED FOR FREEWAY UNDER SECTION 48 OF THE ROADS ACT, 1993.
ACCESS WILL BE RESTRICTED ACROSS THE BOUNDARIES OF LOT 6, D.P.771470 AND LOT 17 MARKED G-H-I & P-Q-R.

[CC] PROPOSED EASEMENT TO DRAIN WATER 3 WIDE AND VARIABLE WIDTH IS A STRATUM LIMITED IN HEIGHT TO AN INCLINED PLANE AS IDENTIFIED ON SHEET 7 AS A BOUNDARY OF LOT 6, D.P.771470 AND IS UNLIMITED IN DEPTH.

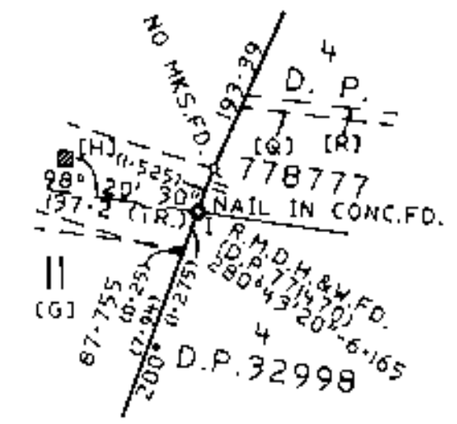
[A] R870162-EASEMENT FOR TRANSMISSION LINE 2·19 WIDE (D.P.452637) -T692593
[G] I999595-EASEMENT TO DRAIN WATER 8 WIDE (D.P.771470)
[H] H19058-EASEMENT TO DRAIN STORMWATER AND PUMP WATER 3·05 WIDE (D.P.402615)
[Q] EASEMENT TO PUMP SEWAGE 3·6 WIDE (D.P.637579)
[R] EASEMENT TO DRAIN WATER 4 WIDE (D.P.778777)

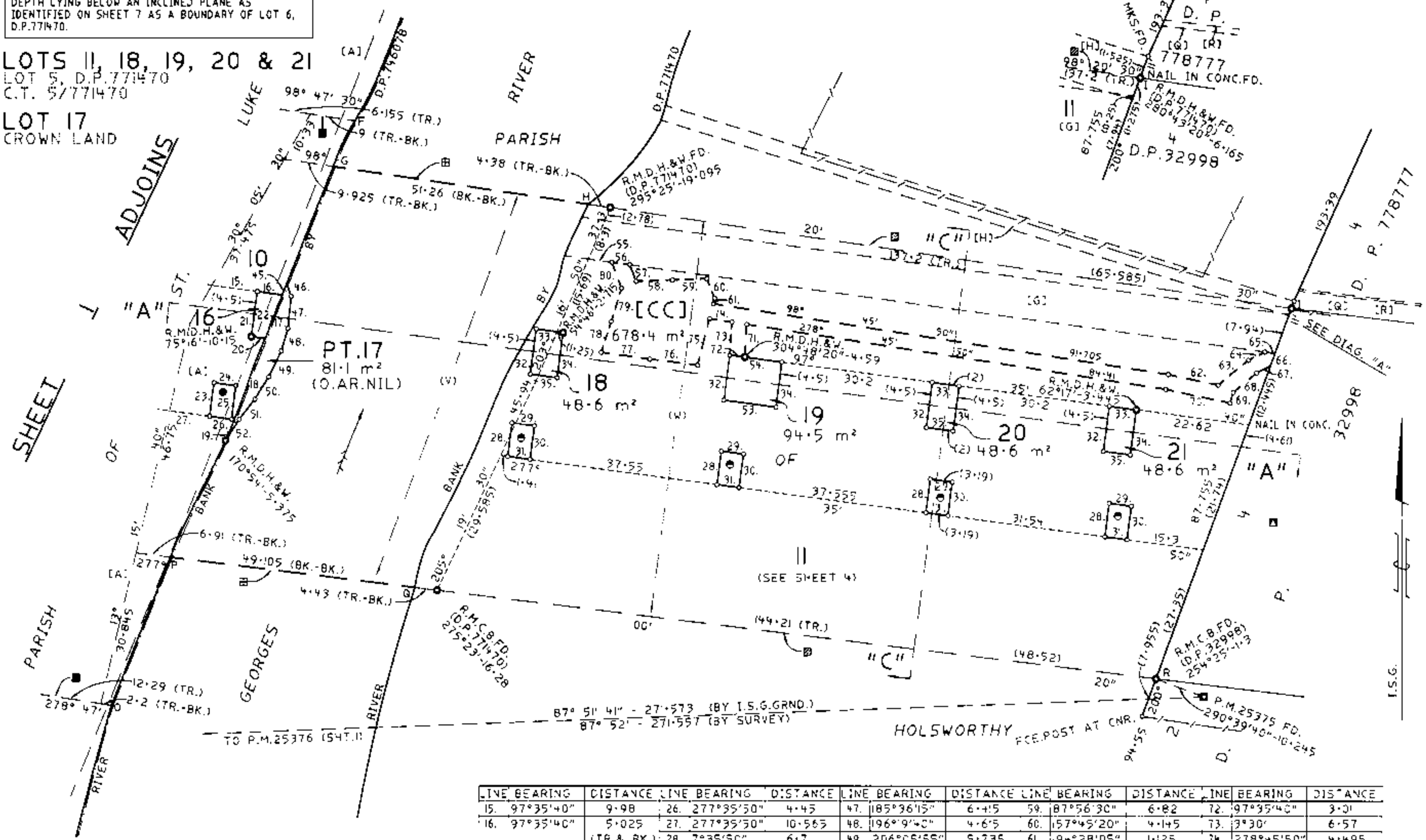
LOTS 11, 18, 19, 20 & 21
LOT 5, D.P.771470
C.T. 5/771470

LOT 17
CROWN LAND

ADJOINS

DIAGRAM "A"
(REDUCTION RATIO 1:200)





LINE	BEARING	DISTANCE	LINE	BEARING	DISTANCE	LINE	BEARING	DISTANCE	LINE	BEARING	DISTANCE	LINE	BEARING	DISTANCE
15.	97°35'40"	9·98	26.	277°35'50"	4·45	47.	185°36'15"	6·415	59.	87°56'30"	6·82	72.	97°35'40"	3·01
16.	97°35'40"	5·025	27.	277°35'50"	10·565	48.	196°9'40"	4·65	60.	157°45'20"	4·145	73.	3°30'	6·57
		(TR.& BK.)	28.	7°35'50"	6·7	49.	206°05'55"	5·735	61.	19°28'05"	1·125	74.	278°45'50"	4·495
17.	21°38'20"	14·135	29.	97°35'50"	4·45	50.	212°20'45"	5·24	62.	101°57'55"	10·17	75.	194°28'05"	9·555
18.	21°04'15"	17·515	30.	187°35'50"	6·7	51.	217°51'35"	5·065	63.	50°30'	7·745	76.	277°2'	9·565
19.	25°46'50"	1·69	31.	277°35'50"	4·45	52.	239°30'45"	5·03	64.	63°07'30"	3·68	77.	277°56'20"	9·825
20.	277°35'40"	2·77	32.	7°35'40"	9			(TR.& BK.)	65.	97°44'40"	2·085	78.	8°09'55"	6·435
		(TR.& BK.)	33.	97°35'40"	5·4	53.	277°35'40"	10·5	66.	200° "	2·665	79.	7°10'15"	6·9
2.	7°35'40"	9	34.	187°35'40"	9	54.	97°35'40"	10·5	67.	243°07'30"	3·115	80.	339°25'20"	5·455
22.	21°38'20"	9·275	35.	277°35'40"	5·4	55.	97°44'40"	4·765	68.	230°30'	6·05			
23.	7°35'50"	6·7	45.	21°38'20"	2·335	56.	97°44'40"	3·625	69.	196°33'	2·205			
24.	97°35'50"	4·45	46.	159°53'05"	2·585	57.	159°25'25"	3·525	70.	281°57'55"	13·105			
25.	187°35'50"	6·7			(TR.& BK.)	58.	87°55'	7·305	71.	183°30'	6·51			

- PT. LOT 4, D.P.746078 C.T. 4/746078
- PT. LOT 6, D.P.771470 C.T. 6/771470
- REQUIRED FOR FREEWAY UNDER SECTION 48 OF THE ROADS ACT, 993.
- BOUNDARY OF LOT 17 ABOVE
- BOUNDARY OF LOT 4, D.P.746078 ABOVE
- BOUNDARY OF LOT 6, D.P.771470 ABOVE

DP 881265

Registered: LS 1·12·1998

This is sheet 2 of my plan in 8 sheets
dated 7TH MAY, 1998.

Signature:
Surveyor registered under Surveyors Act, 1929.

This is sheet of the plan of sheets covered by my certificate No. of

General Manager

L.G.A.: LIVERPOOL CITY
Suburb: MOOREBANK
Parish: HOLSWORTHY
County: CUMBERLAND

For use where space is insufficient in any panel on Plan Form 2.

Lengths are in metres. Reduction Ratio 1:600

Plan Drawing only to appear in this space

R.T.A. FILE : F5/259.1690

R.T.A. PLAN : 6005 259 SS 0365

PLAN FORM 3 — To be used in conjunction with Plan Form 2 — WARNING : CREASING OR FOLDING WILL LEAD TO REJECTION — ◆OFFICE USE ONLY

LOT 10 IS UNLIMITED IN HEIGHT AND DEPTH EXCEPT FOR THAT PART DESIGNATED (U) WHICH IS LIMITED TO A STRATUM UNLIMITED IN DEPTH LYING BELOW AN INCLINED PLANE AS IDENTIFIED ON SHEET 7 AS A BOUNDARY OF LOT 4, D.P.746078.

LOT 4, D.P.746078 TOGETHER WITH LOT 16 ARE REQUIRED FOR FREEWAY UNDER SECTION 48 OF THE ROADS ACT, 1993.
ACCESS WILL BE RESTRICTED ACROSS THE BOUNDARIES OF LOT 4, D.P.746078 MARKED D-E-F-G & M-N-O-F.

LINE	DISTANCE
36.	4·45
37.	6·7
38.	2·77
39.	9
40.	5·025

◇ LOT 16
◇ PT. LOT 17
● PT. LOT 4, D.P.746078
◪ PT. POR. 270
■ BOUNDARY OF LOT 4, D.P.746078 ABOVE
⊠ BOUNDARY OF LOT 15 ABOVE
⊞ BOUNDARY OF LOT 17 ABOVE

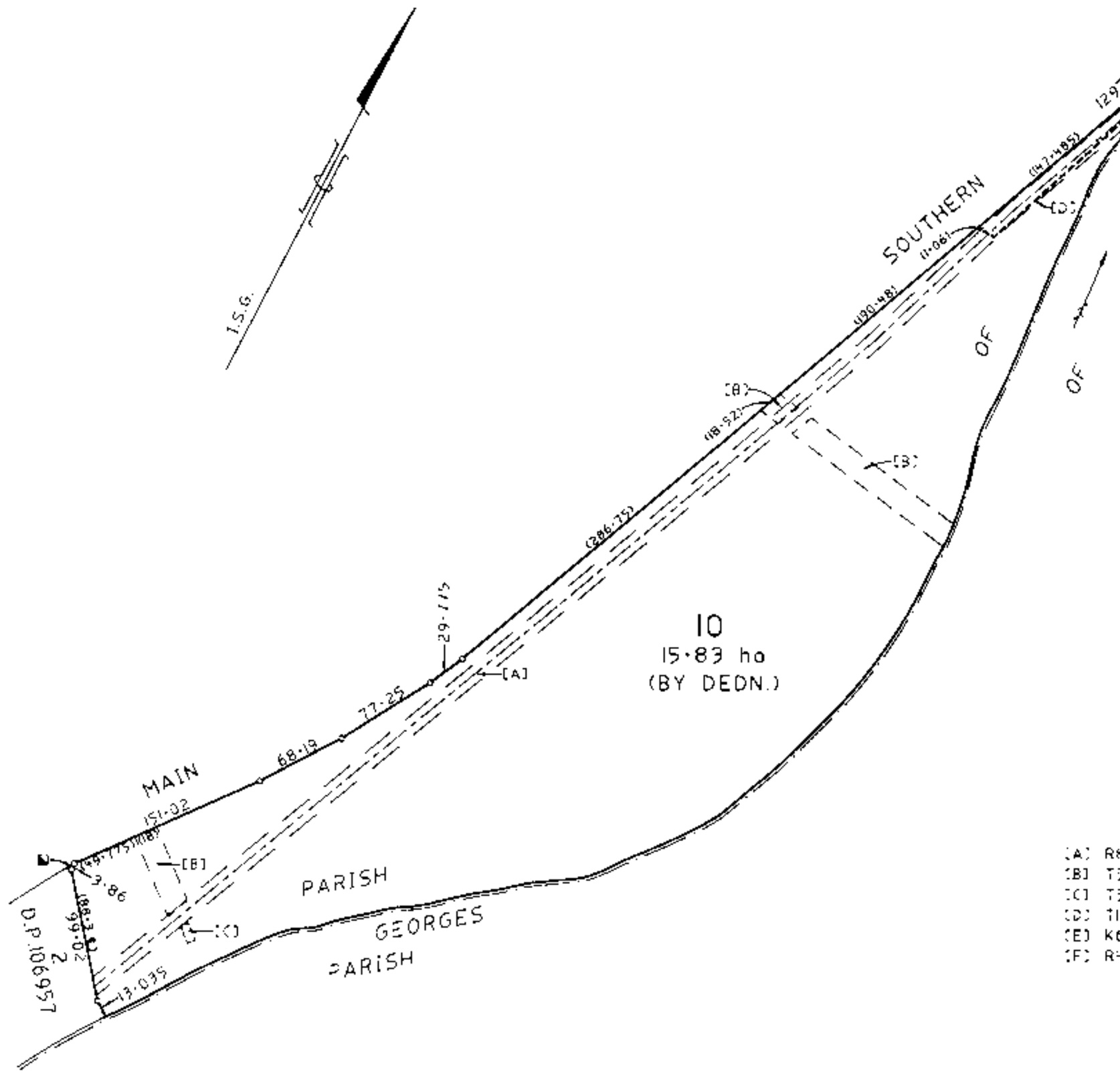
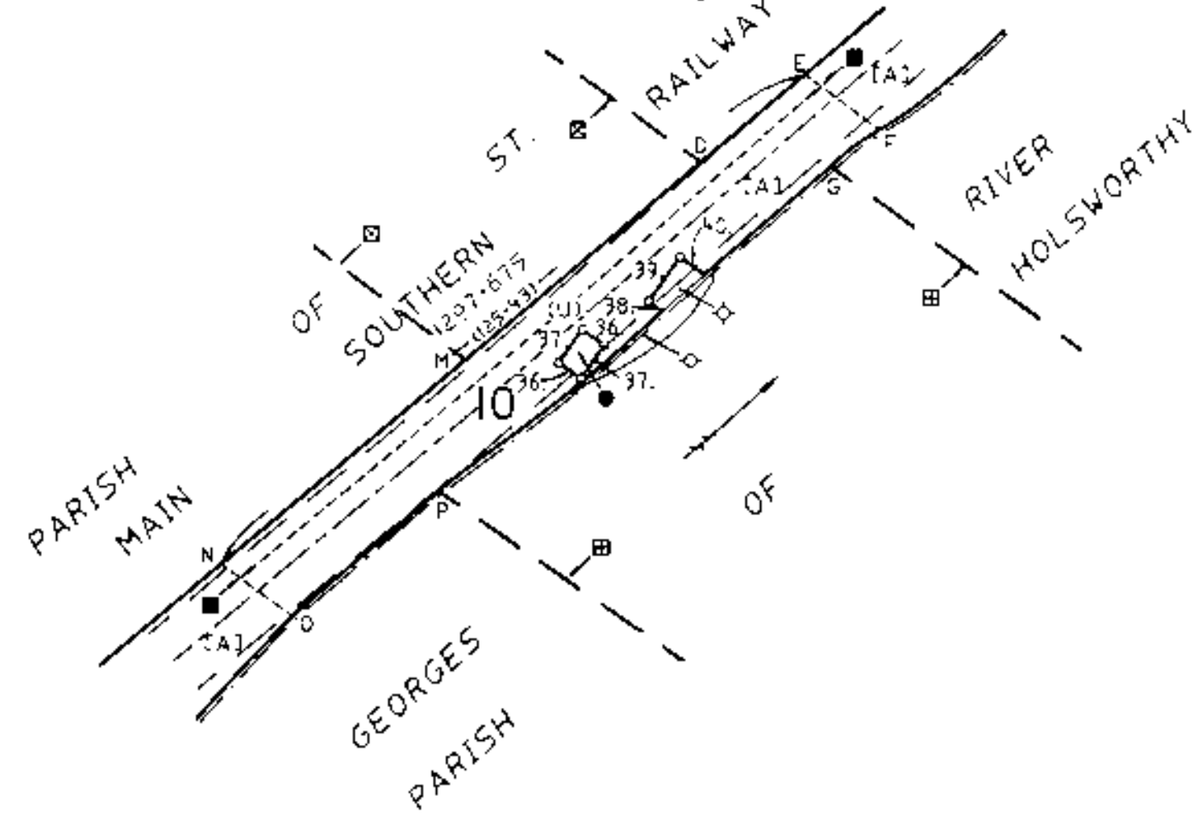


DIAGRAM "B"
(REDUCTION RATIO 1:1000)



[A] R870162-EASEMENT FOR TRANSMISSION LINE 2·9 WIDE (D.P.452637)
[B] T519163-EASEMENT FOR TRANSMISSION LINE 18 WIDE (D.P.627467)
[C] T519163-EASEMENT FOR TRANSMISSION LINE 6 WIDE (D.P.627467)
[D] T160533-EASEMENT FOR UNDERGROUND MAINS WIDE (D.P.617586)
[E] K603741-EASEMENT FOR ELECTRICITY SUPPLY 18·29 WIDE (~~B.P.272376~~) (DP 550917)
[F] R44237-EASEMENT FOR TRANSMISSION LINE 2·9 WIDE (D.P.452252)

DP 881265

Registered: LS 1-12-1998

This is sheet 3 of my plan in 8 sheets
dated 7TH MAY, 1998.

Signature:
Surveyor registered under Surveyors Act, 1929.

This is sheet of the plan of
sheets covered by my certificate No.
of

General Manager

L.G.A.: LIVERPOOL CITY
Suburb: MOOREBANK
Parish: ST. LUKE
County: CUMBERLAND

For use where space is insufficient in any panel on Plan Form 2.

Lengths are in metres. Reduction Ratio 1:3000

Plan Drawing only to appear in this space

R.T.A. FILE : F5/259.1690 — R.T.A. PLAN :6005 259 SS 0365

PLAN FORM 3 — To be used in conjunction with Plan Form 2 — WARNING : CREASING OR FOLDING WILL LEAD TO REJECTION — * OFFICE USE ONLY

[CC] PROPOSED EASEMENT TO DRAIN WATER 3 WIDE AND VARIABLE WIDTH IS A STRATUM LIMITED IN HEIGHT TO AN INCLINED PLANE AS IDENTIFIED ON SHEET 7 AS A BOUNDARY OF LOT 6, D.P.771470 AND IS UNLIMITED IN DEPTH.

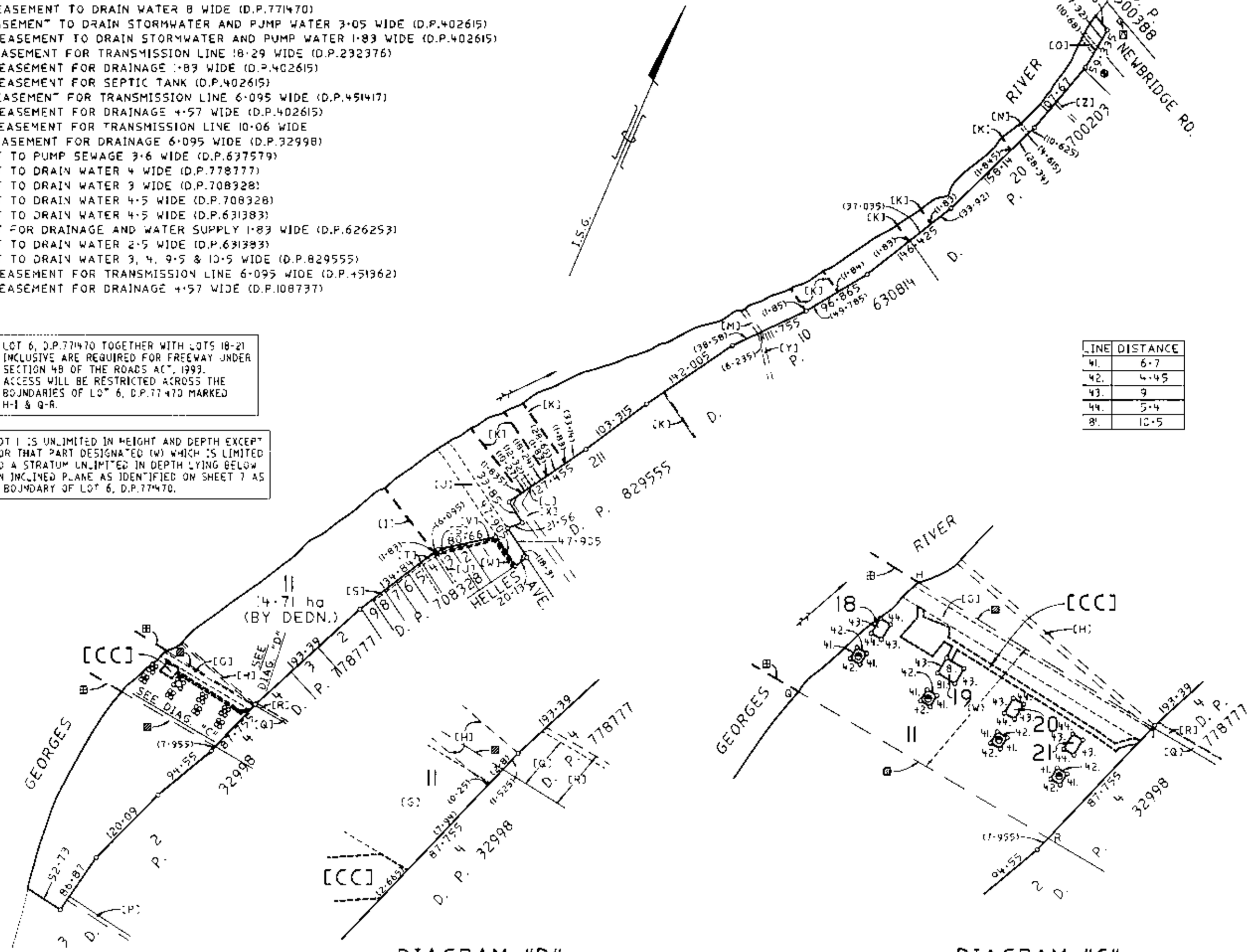
- [G] I999595-EASEMENT TO DRAIN WATER 8 WIDE (D.P.771470)
- [H] HI9058-EASEMENT TO DRAIN STORMWATER AND PUMP WATER 3·05 WIDE (D.P.402615)
- [I] G808322-EASEMENT TO DRAIN STORMWATER AND PUMP WATER 1·83 WIDE (D.P.402615)
- [J] L961776-EASEMENT FOR TRANSMISSION LINE 18·29 WIDE (D.P.232376)
- [K] G783636-EASEMENT FOR DRAINAGE 1·83 WIDE (D.P.402615)
- [L] G783636-EASEMENT FOR SEPTIC TANK (D.P.402615)
- [M] Q654813-EASEMENT FOR TRANSMISSION LINE 6·095 WIDE (D.P.451417)
- [N] G783636-EASEMENT FOR DRAINAGE 4·57 WIDE (D.P.402615)
- [O] F245709-EASEMENT FOR TRANSMISSION LINE 10·06 WIDE
- [P] K293148-EASEMENT FOR DRAINAGE 6·095 WIDE (D.P.32998)
- [Q] EASEMENT TO PUMP SEWAGE 3·6 WIDE (D.P.637579)
- [R] EASEMENT TO DRAIN WATER 4 WIDE (D.P.778777)
- [S] EASEMENT TO DRAIN WATER 3 WIDE (D.P.708328)
- [T] EASEMENT TO DRAIN WATER 4·5 WIDE (D.P.708328)
- [U] EASEMENT TO DRAIN WATER 4·5 WIDE (D.P.631383)
- [V] EASEMENT FOR DRAINAGE AND WATER SUPPLY 1·83 WIDE (D.P.626253)
- [W] EASEMENT TO DRAIN WATER 2·5 WIDE (D.P.631383)
- [X] EASEMENT TO DRAIN WATER 3, 4, 9·5 & 10·5 WIDE (D.P.829555)
- [Y] Q609872-EASEMENT FOR TRANSMISSION LINE 6·095 WIDE (D.P.451362)
- [Z] G783636-EASEMENT FOR DRAINAGE 4·57 WIDE (D.P.108737)

LOT 6, D.P.771470 TOGETHER WITH LOTS 18-21 INCLUSIVE ARE REQUIRED FOR FREEWAY UNDER SECTION 48 OF THE ROADS ACT, 1993. ACCESS WILL BE RESTRICTED ACROSS THE BOUNDARIES OF LOT 6, D.P.771470 MARKED H-I & Q-R.

LOT 1 IS UNLIMITED IN HEIGHT AND DEPTH EXCEPT FOR THAT PART DESIGNATED (W) WHICH IS LIMITED TO A STRATUM UNLIMITED IN DEPTH LYING BELOW AN INCLINED PLANE AS IDENTIFIED ON SHEET 7 AS A BOUNDARY OF LOT 6, D.P.771470.

⊞ BOUNDARY OF LOT 17 ABOVE
▨ BOUNDARY OF LOT 6, D.P.771470 ABOVE
▨ LOT 1, D.P.870435
● LOT 12, D.P.630814
● PT. LOT 6, D.P.771470

LINE	DISTANCE
41.	6·7
42.	4·45
43.	9
44.	5·4
81.	10·5



Lengths are in metres. Reduction Ratio 1:1000

Plan Drawing only to appear in this space

R.T.A. FILE : 15/259.1690

R.T.A. PLAN : 6005 259 SS 0965

DP 881265 *

Registered: 15-12-1998

This is sheet 4 of my plan in 8 sheets
dated 7TH MAY, 1998.

Signature: .....
Surveyor registered under Surveying Act, 1929.

This is sheet of the plan of sheets covered by my certificate No. of

.....
General Manager

L.G.A.: LIVERPOOL CITY
Suburb: MOOREBANK
Parish: HOLSWORTHY
County: CUMBERLAND

For use where space is insufficient in any panel on Plan Form 2.

PLAN FORM 3

To be used in conjunction with Plan Form 2

WARNING : CREASING OR FOLDING WILL LEAD TO REJECTION

*OFFICE USE ONLY

DP 881265

Registered: LS 1-12-1998

This is sheet 5 of my plan in 8 sheets dated 7TH MAY, 1998

Signature: ..... Surveyor registered under Surveyors Act, 1929.

This is sheet of the plan of sheets covered by my certificate No. of

General Manager

L.G.A.: LIVERPOOL CITY

Suburb: MOOREBANK

Parish: ST. LUKE & HOLSWORTHY

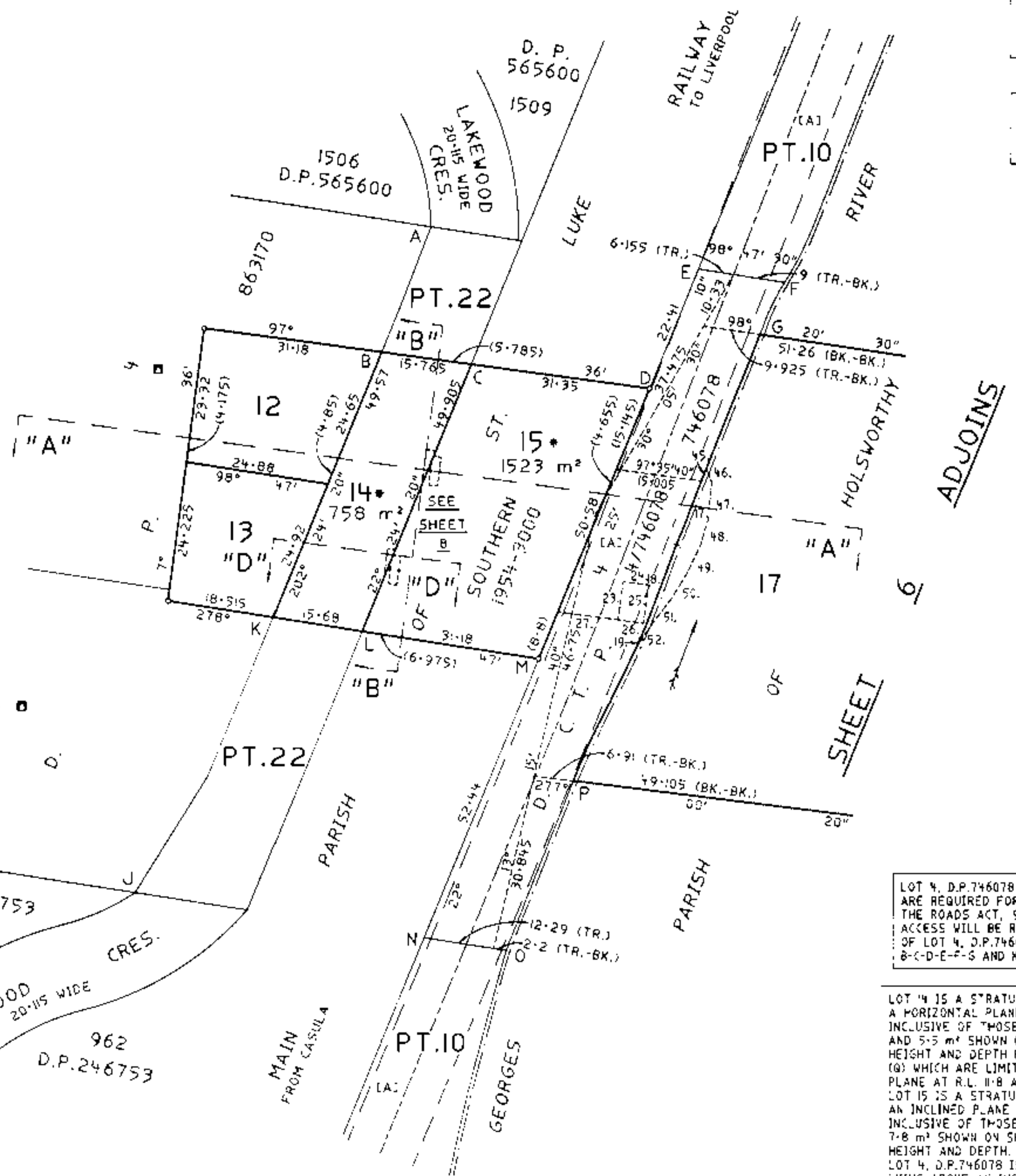
County: CUMBERLAND

For use where space is insufficient in any panel on Plan Form 2.

LINE	BEARING	DISTANCE
17.	21°38'20"	14·135
18.	21°04'15"	17·515
19.	25°46'50"	1·69
23.	7°35'50"	6·7
24.	97°35'50"	4·45
25.	187°35'50"	6·7
26.	277°35'50"	4·45
27.	277°35'50"	10·565
45.	21°38'20"	2·335
46.	159°53'05"	2·585 (TR.& BK.)
47.	185°36'15"	6·415
48.	196°19'40"	4·615
49.	206°05'55"	5·735
50.	212°20'45"	5·24
51.	217°51'35"	5·065
52.	213°30'45"	5·03 (TR.& BK.)

*NOTE
THE AREA OF LOT 14 INCLUDES THE 2 AREAS OF 9·6 m² AND 5·5 m² SHOWN ON SHEET 8.

*NOTE
THE AREA OF LOT 15 INCLUDES THE 2 AREAS OF 7·8 m² SHOWN ON SHEET 8.



LOT 15
1954-3000
GOV.GAZ.OF 1-5-1857 FOL.1016

■ REQUIRED FOR FREEWAY UNDER SECTION 48 OF THE ROADS ACT, 1993.

[A] R870162-EASEMENT FOR TRANSMISSION LINE 12·19 WIDE (D.P.452637)

LOT 4, D.P.746078 TOGETHER WITH LOTS 12-15 INCL. ARE REQUIRED FOR FREEWAY UNDER SECTION 48 OF THE ROADS ACT, 993.
ACCESS WILL BE RESTRICTED ACROSS THE BOUNDARIES OF LOT 4, D.P.746078 AND LOTS 14 AND 15 MARKED B-C-D-E-F-S AND K-L-M-N-O-P.

LOT 14 IS A STRATUM UNLIMITED IN HEIGHT LYING ABOVE A HORIZONTAL PLANE AS IDENTIFIED ON SHEET 7 AND IS INCLUSIVE OF THOSE PARTS CONTAINING AREAS OF 9·6 m² AND 5·5 m² SHOWN ON SHEET 8 WHICH ARE UNLIMITED IN HEIGHT AND DEPTH EXCEPT FOR THOSE PARTS DESIGNATED (Q) WHICH ARE LIMITED IN HEIGHT TO A HORIZONTAL PLANE AT R.L. 11·8 A.H.D.
LOT 15 IS A STRATUM UNLIMITED IN HEIGHT LYING ABOVE AN INCLINED PLANE AS IDENTIFIED ON SHEET 7 AND IS INCLUSIVE OF THOSE 2 PARTS CONTAINING AREAS OF 7·8 m² SHOWN ON SHEET 8 WHICH ARE UNLIMITED IN HEIGHT AND DEPTH.
LOT 4, D.P.746078 IS A STRATUM UNLIMITED IN HEIGHT LYING ABOVE AN INCLINED PLANE AS IDENTIFIED ON SHEET 7 AND INCLUSIVE OF THAT PART SHOWN ON SHEET 8 WHICH IS UNLIMITED IN HEIGHT AND DEPTH BUT EXCLUSIVE OF LOT 16.

Lengths are in metres. Reduction Ratio 1:600

Plan Drawing only to appear in this space

R.T.A. FILE : F5/259.1690

R.T.A. PLAN :6005 259 SS 0365

Req:R641114 /Doc:DP 0881265 P /Rev:02-Dec-1998 /Sts:OK.OK /Prt:25-Sep-2006 14:27 /Pgs:ALL /Seq:5 of 8
Ref:ALSP /Src:M

PLAN FORM 3 To be used in conjunction with Plan Form 2

WARNING : CREASING OR FOLDING WILL LEAD TO REJECTION

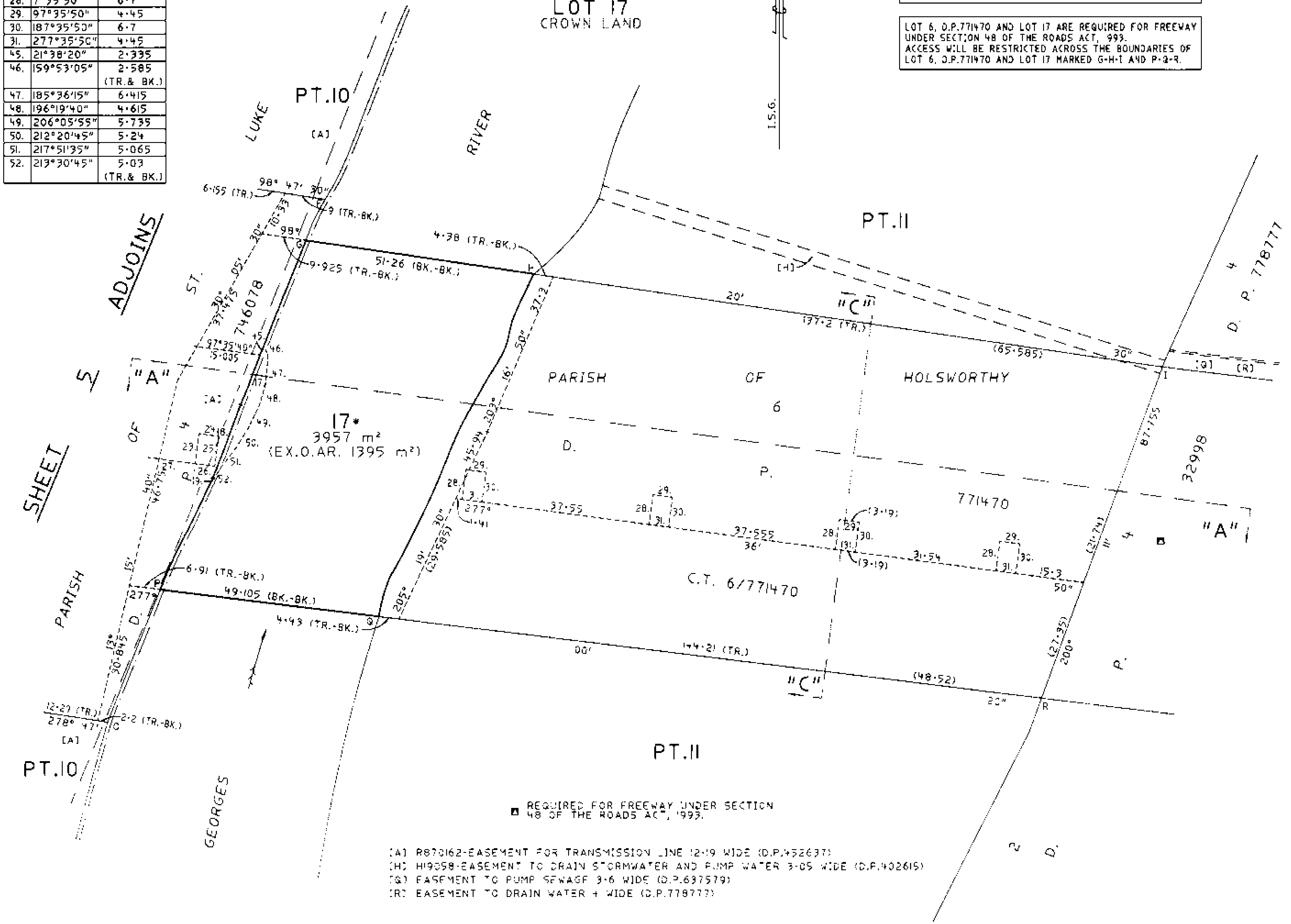
• OFFICE USE ONLY

LINE	BEARING	DISTANCE
17.	21°38'20"	14·135
18.	21°04'15"	17·515
19.	25°46'50"	1·69
23.	7°35'50"	6·7
24.	97°35'50"	4·45
25.	187°35'50"	6·7
26.	277°35'50"	4·45
27.	277°35'50"	10·565
28.	7°35'50"	6·7
29.	97°35'50"	4·45
30.	187°35'50"	6·7
31.	277°35'50"	4·45
45.	21°38'20"	2·335
46.	159°53'05"	2·585 (TR.& BK.)
47.	185°36'15"	6·415
48.	196°19'40"	4·615
49.	206°05'55"	5·735
50.	212°20'45"	5·24
51.	217°51'35"	5·065
52.	213°30'45"	5·03 (TR.& BK.)

• NOTE
THE AREA OF LOT 17 INCLUDES THE AREA OF 81·1 m² SHOWN ON SHEET 2.

LOT 6, D.P.771470 IS A STRATUM UNLIMITED IN HEIGHT LYING ABOVE AN INCLINED PLANE AS IDENTIFIED ON SHEET 7 AND INCLUSIVE OF THOSE 4 PARTS SHOWN ON SHEET 2 WHICH ARE UNLIMITED IN HEIGHT AND DEPTH BUT EXCLUSIVE OF LOTS 18, 19, 20 AND 21.
LOT 17 IS A STRATUM UNLIMITED IN HEIGHT LYING ABOVE AN INCLINED PLANE AS IDENTIFIED ON SHEET 7 AND IS INCLUSIVE OF THAT PART CONTAINING AN AREA OF 81·1 m² SHOWN ON SHEET 2 WHICH IS UNLIMITED IN HEIGHT AND DEPTH.

LOT 6, D.P.771470 AND LOT 17 ARE REQUIRED FOR FREEWAY UNDER SECTION 48 OF THE ROADS ACT, 1993.
ACCESS WILL BE RESTRICTED ACROSS THE BOUNDARIES OF LOT 6, D.P.771470 AND LOT 17 MARKED G-H-I AND P-Q-R.



■ REQUIRED FOR FREEWAY UNDER SECTION 48 OF THE ROADS ACT, 1993.

[A] R870162-EASEMENT FOR TRANSMISSION LINE 12·19 WIDE (D.P.452637)
[H] H19058-EASEMENT TO DRAIN STORMWATER AND PUMP WATER 3·05 WIDE (D.P.402615)
[Q] EASEMENT TO PUMP SEWAGE 3·6 WIDE (D.P.637579)
[R] EASEMENT TO DRAIN WATER + WIDE (D.P.778777)

DP 881265

Registered: LS 1·12·1998

This is sheet 6 of my plan in 8 sheets dated 7TH MAY, 1998.

Signature .... Surveyor registered under Surveyors Act, 1929.

This is sheet of the plan of sheets covered by my certificate No. of

General Manager

L.G.A.: LIVERPOOL CITY
Suburb: MOOREBANK
Parish: ST. LUKE & HOLSWORTHY
County: CUMBERLAND

For use where space is insufficient in any panel on Plan Form 2.

Lengths are in metres. Reduction Ratio 1:600

Plan Drawing only to appear in this space

R.T.A. FILE : FS/259/690

R.T.A. PLAN :6005 259 SS 0365

PLAN FORM 3 — To be used in conjunction with Plan Form 2 — WARNING : CREASING OR FOLDING WILL LEAD TO REJECTION — *OFFICE USE ONLY

DP 881265

Registered: LS 1-12-1998

This is sheet 7 of my plan in 8 sheets dated 7TH MAY, 1998.

Signature: ..... Surveyor registered under Surveyors Act, 1929.

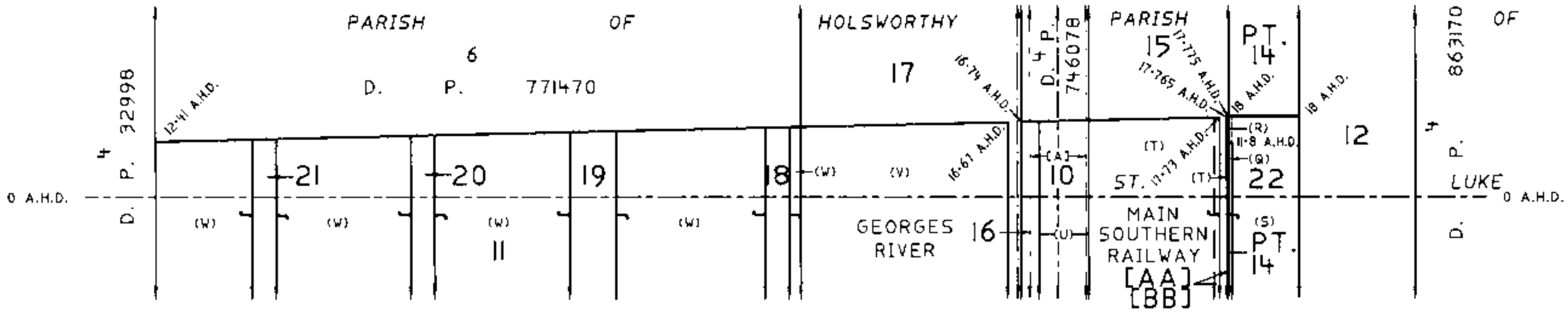
This is sheet of the plan of sheets covered by my certificate No. of

General Manager

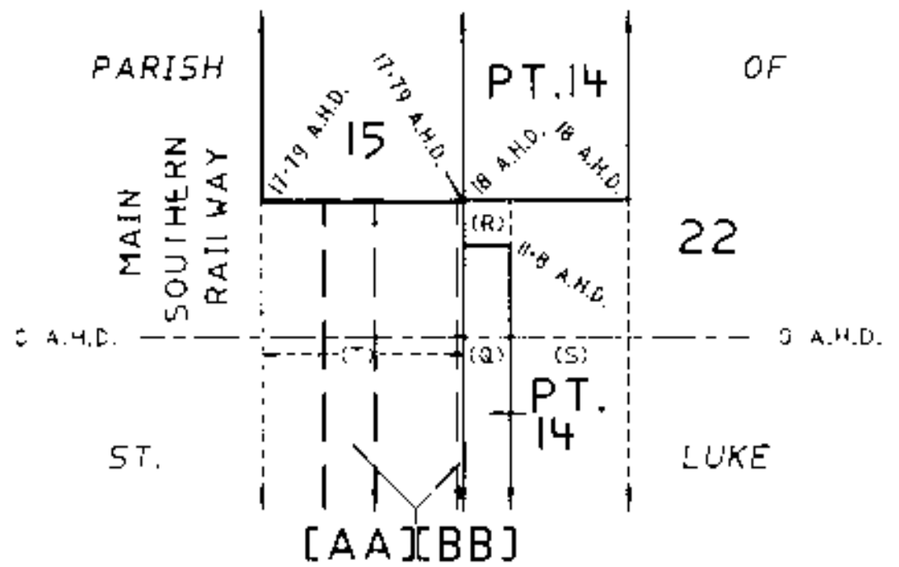
L.G.A.: LIVERPOOL CITY
Suburb: MOOREBANK
Parish: ST. LUKE & HOLSWORTHY
County: CUMBERLAND

For use where space is insufficient in any panel on Plan Form 2.

[A] R870162-EASEMENT FOR TRANSMISSION LINE 12·19 WIDE (D.P.452637)
[G] I399595-EASEMENT TO DRAIN WATER 8 WIDE (D.P.771470)



SECTION "A"-"A"



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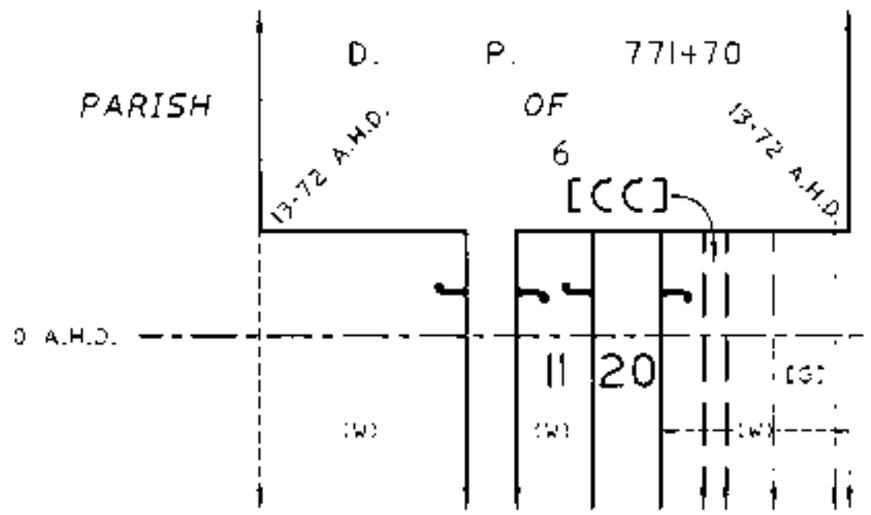
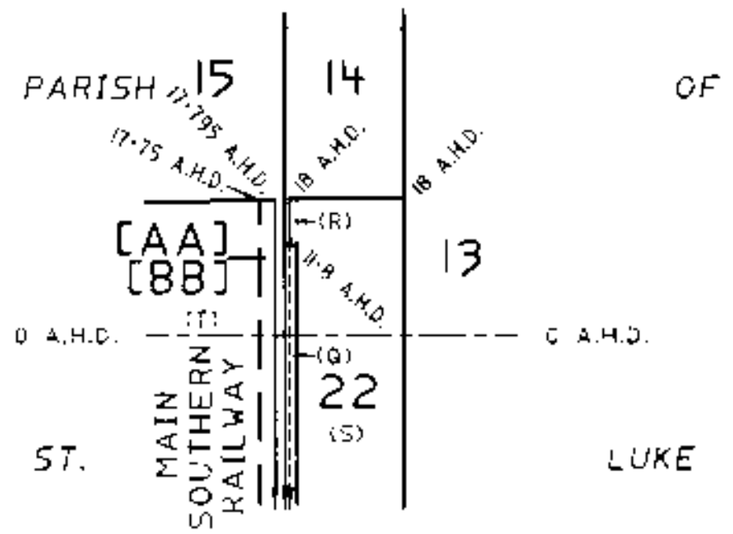


SECTION "C"-"C"



SECTION "D"-"D"

LOT 14 IS A STRATUM UNLIMITED IN HEIGHT LYING ABOVE A HORIZONTAL PLANE AS IDENTIFIED ON SHEET 7 AND IS INCLUSIVE OF THOSE PARTS CONTAINING AREAS OF 3·6 m² AND 5·5 m² SHOWN ON SHEET 8 WHICH ARE UNLIMITED IN HEIGHT AND DEPTH EXCEPT FOR THOSE PARTS DESIGNATED (Q) WHICH ARE LIMITED IN HEIGHT TO A HORIZONTAL PLANE AT R.L. 11·8 A.H.D.
LOT 22 IS UNLIMITED IN HEIGHT AND DEPTH EXCEPT FOR THAT PART DESIGNATED (S) WHICH IS LIMITED TO A STRATUM UNLIMITED IN DEPTH LYING BELOW A HORIZONTAL PLANE AT R.L. 18 A.H.D. AS IDENTIFIED ON SHEET 7 AS A BOUNDARY OF LOT 14, WHICH EXCLUDES THOSE PARTS DESIGNATED (R) WHICH ARE LIMITED IN DEPTH TO A HORIZONTAL PLANE AT R.L. 11·8 A.H.D.
THAT PART OF MAIN SOUTHERN RAILWAY DESIGNATED (T) IS A STRATUM UNLIMITED IN DEPTH LYING BELOW AN INCLINED PLANE AS IDENTIFIED HEREON AS A BOUNDARY OF LOT 15.
THAT PART OF GEORGES RIVER DESIGNATED (V) IS A STRATUM UNLIMITED IN DEPTH LYING BELOW AN INCLINED PLANE AS IDENTIFIED HEREON AS A BOUNDARY OF LOT 17.
LOT 10 IS UNLIMITED IN HEIGHT AND DEPTH EXCEPT FOR THAT PART DESIGNATED (U) WHICH IS LIMITED TO A STRATUM UNLIMITED IN DEPTH LYING BELOW AN INCLINED PLANE AS IDENTIFIED HEREON AS A BOUNDARY OF LOT 4, D.P.746078.
LOT 11 IS UNLIMITED IN HEIGHT AND DEPTH EXCEPT FOR THAT PART DESIGNATED (W) WHICH IS LIMITED TO A STRATUM UNLIMITED IN DEPTH LYING BELOW AN INCLINED PLANE AS IDENTIFIED HEREON AS A BOUNDARY OF LOT 6, D.P.771470.

[AA] PROPOSED EASEMENT FOR SUPPORT IS A STRATUM LIMITED IN HEIGHT TO AN INCLINED PLANE AS IDENTIFIED ON SHEET 7 AS A BOUNDARY OF LOT 15 AND IS UNLIMITED IN DEPTH.

[BB] PROPOSED EASEMENT FOR ACCESS IS A STRATUM LIMITED IN HEIGHT TO AN INCLINED PLANE AS IDENTIFIED ON SHEET 7 AS A BOUNDARY OF LOT 15 AND IS UNLIMITED IN DEPTH.

[CC] PROPOSED EASEMENT TO DRAIN WATER 3 WIDE AND VARIABLE WIDTH IS A STRATUM LIMITED IN HEIGHT TO AN INCLINED PLANE AS IDENTIFIED ON SHEET 7 AS A BOUNDARY OF LOT 6, D.P.771470 AND IS UNLIMITED IN DEPTH.

Lengths are in metres. Reduction Ratio 1:500

Plan Drawing only to appear in this space

R.T.A. FILE : 55/259.690 — R.T.A. PLAN :6005 259 SS 0365

PLAN FORM 3 — To be used in conjunction with Plan Form 2 — WARNING : CREASING OR FOLDING WILL LEAD TO REJECTION — *OFFICE USE ONLY

[AA] PROPOSED EASEMENT FOR SUPPORT IS A STRATUM LIMITED IN HEIGHT TO AN INCLINED PLANE AS IDENTIFIED ON SHEET 7 AS A BOUNDARY OF LOT 15 AND IS UNLIMITED IN DEPTH.

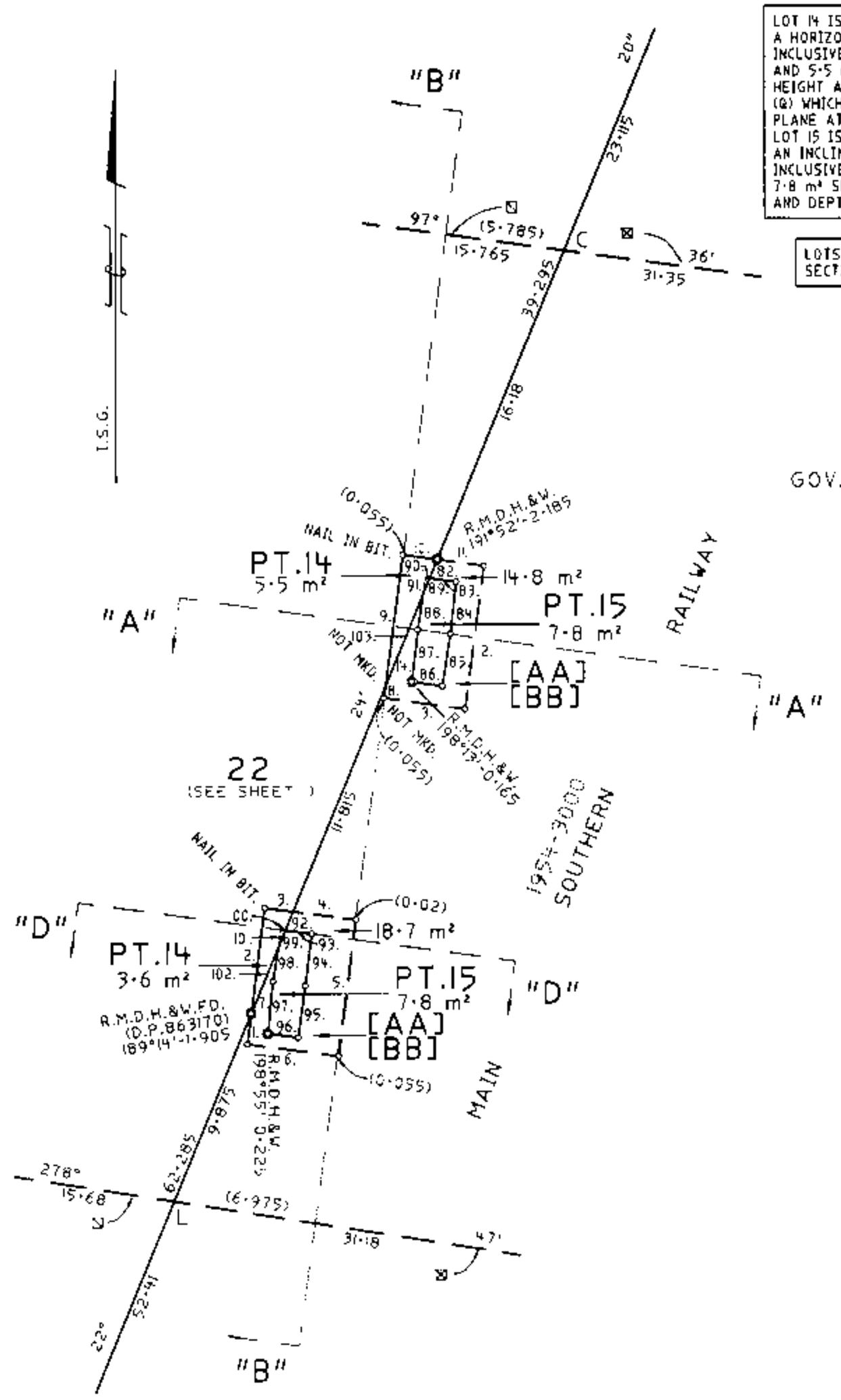
[BB] PROPOSED EASEMENT FOR ACCESS IS A STRATUM LIMITED IN HEIGHT TO AN INCLINED PLANE AS IDENTIFIED ON SHEET 7 AS A BOUNDARY OF LOT 15 AND IS UNLIMITED IN DEPTH.

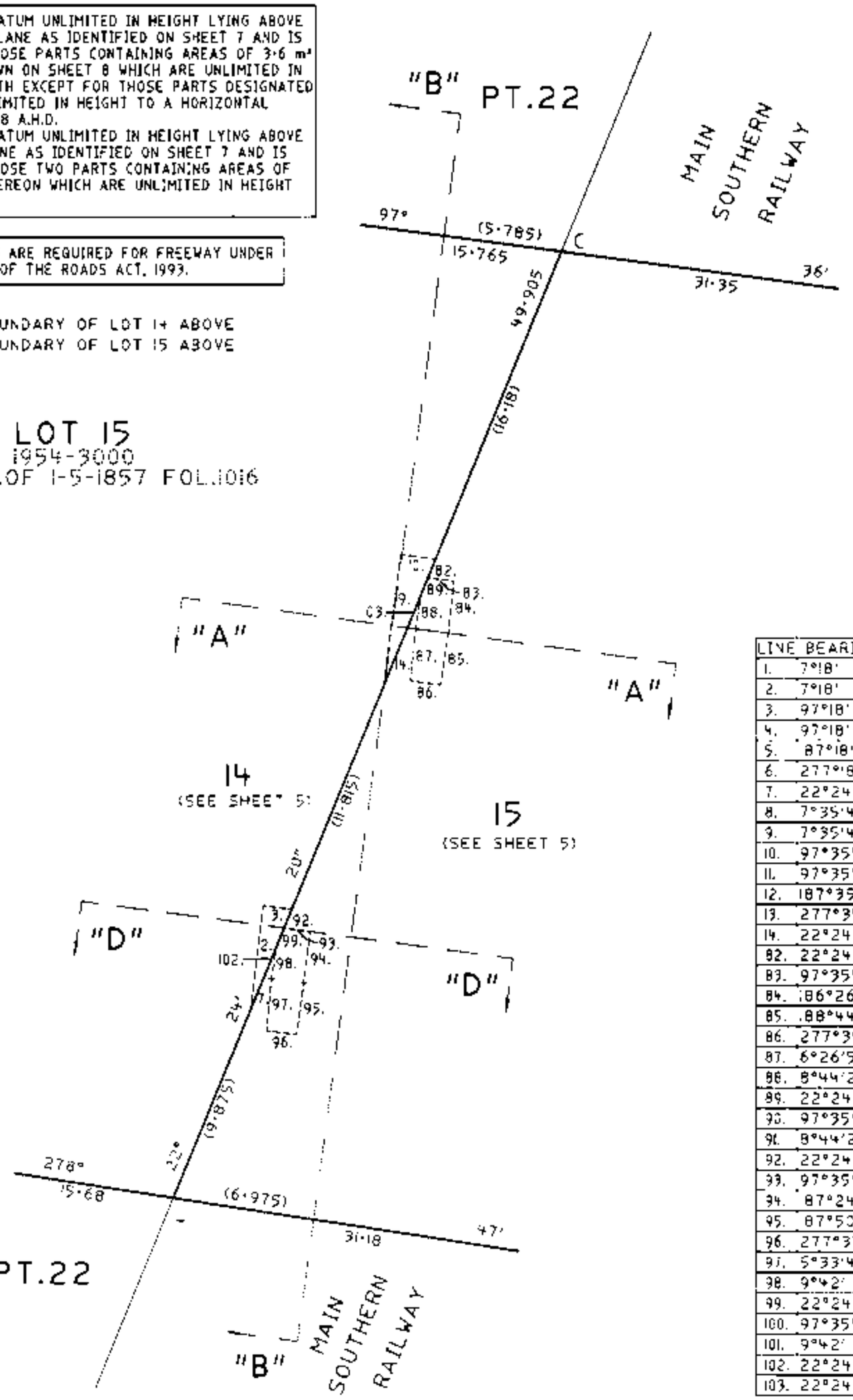
LOT 14 IS A STRATUM UNLIMITED IN HEIGHT LYING ABOVE A HORIZONTAL PLANE AS IDENTIFIED ON SHEET 7 AND IS INCLUSIVE OF THOSE PARTS CONTAINING AREAS OF 3·6 m² AND 5·5 m² SHOWN ON SHEET 8 WHICH ARE UNLIMITED IN HEIGHT AND DEPTH EXCEPT FOR THOSE PARTS DESIGNATED (Q) WHICH ARE LIMITED IN HEIGHT TO A HORIZONTAL PLANE AT R.L. 11·8 A.H.D.
LOT 15 IS A STRATUM UNLIMITED IN HEIGHT LYING ABOVE AN INCLINED PLANE AS IDENTIFIED ON SHEET 7 AND IS INCLUSIVE OF THOSE TWO PARTS CONTAINING AREAS OF 7·8 m² SHOWN HEREON WHICH ARE UNLIMITED IN HEIGHT AND DEPTH.

LOTS 14 & 15 ARE REQUIRED FOR FREEWAY UNDER SECTION 48 OF THE ROADS ACT, 1993.

▣ BOUNDARY OF LOT 14 ABOVE
⊠ BOUNDARY OF LOT 15 ABOVE

LOT 15
1954-3000
GOV.GAZ.OF 1-5-1857 FOL.1016





LINE	BEARING	DISTANCE
1.	7°18'	1·51
2.	7°18'	5·19
3.	97°18'	1·4
4.	97°18'	3·1
5.	87°18'	6·7
6.	277°18'	4·5
7.	22°24'20"	9·535
8.	7°35'40"	0·56
9.	7°35'40"	6·44
10.	97°35'40"	1·7
11.	97°35'40"	2·3
12.	187°35'40"	7
13.	277°35'40"	4
14.	22°24'20"	4·83
82.	22°24'20"	0·98
83.	97°35'40"	1·3
84.	186°26'55"	2·55
85.	88°44'25"	2·55
86.	277°35'40"	1·5
87.	6°26'55"	2·55
88.	8°44'25"	1·73
89.	22°24'20"	0·85
90.	97°35'40"	0·2
91.	8°44'25"	0·82
92.	22°24'20"	0·99
93.	97°35'40"	1·31
94.	87°24'50"	2·555
95.	87°50'40"	2·56
96.	277°35'40"	1·5
97.	5°33'40"	2·56
98.	9°42'	1·735
99.	22°24'20"	0·85
100.	97°35'40"	0·19
101.	9°42'	0·82
102.	22°24'20"	5·375
103.	22°24'20"	6·66

DP 881265

Registered: 11·12·1998

This is sheet 8 of my plan in 8 sheets dated 7TH MAY, 1998.

Signature .....
Surveyor registered under the Surveyors Act, 1929.

This is sheet of the plan of sheets covered by my certificate No. of

General Manager

L.G.A.: LIVERPOOL CITY
Suburb: MOOREBANK
Parish: ST. LUKE
County: CUMBERLAND

For use where space is insufficient in any panel on Plan Form 2.

Lengths are in metres. Reduction Ratio :200

Plan Drawing only to appear in this space

R.T.A. FILE : FS/259.690

R.T.A. PLAN :6005 259 SS 0365

Appendix D

Section 149 certificates

PLANNING CERTIFICATE UNDER SECTION 149
ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

Ref.: EMAIL
Ppty: 12889

Cert. No.: 2201
Page No.: 1

Applicant:
PARSONS BRINCKERHOFF
LEVEL 27, 680 GEORGE STREET
SYDNEY NSW 2001

Receipt No.: 1821329
Receipt Amt.: 100.00
Date: 11-Nov-2010

Owner: (as recorded by Council):
LIVERPOOL CITY COUNCIL
LOCKED BAG 7064
LIVERPOOL BC NSW 1871

Property Desc: MILL PARK, 474 HUME HIGHWAY, CASULA NSW 2170
LOT 10 DP 881265

PART A
PRESCRIBED INFORMATION PROVIDED PURSUANT TO SECTION 149(2) OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

NOTE: The following information is provided pursuant to Section 149(2) of the Environmental Planning and Assessment Act (EP&A Act) 1979 as prescribed by Schedule 4 of the Environmental Planning and Assessment Regulation (EP&A Regulation) 2000 and is applicable to the subject land as of the date of this certificate.

The Environmental Planning and Assessment Amendment Act 1997 commenced operation on the 1 July 1998. As a consequence of this Act the information contained in this certificate needs to be read in conjunction with the provisions of the Environmental Planning and Assessment (Amendment) Regulation 1998, Environmental Planning and Assessment (Further Amendment) Regulation 1998 and Environmental Planning and Assessment (Savings and Transitional) Regulation, 1998.

1. Names of Relevant LEP's, DCP's, REPs, and SEPPs

(1)(a) The names of each local environment plan and deemed environmental planning instrument applying to the land is/are listed below: -

Name of Instrument: Liverpool Local Environmental Plan 2008
Name of Zone: RE1 Public RecreationSP2 Infrastructure - Classified Road

(1)(b) Draft Local Environmental Plan(s)
The names of each draft Local Environmental Plan applying to the land that has been placed on exhibition under section 66(1)(b) of the Act, is/are listed below: -

Name of Draft Instrument: Draft Liverpool Local Environmental Plan 2008 Amendment No: 5 – Anomalies
Name of Zone: Subject to all zones

(1)(c) Development Control Plan(s) under Section 72
The names of each Development Control Plan applying to the land has been prepared by the council under section 72 of the Act is/are listed below: -

Liverpool Development Control Plan 2008 (as amended).

Development Control Plan(s) under Section 51A
The names of each Development Control Plan applying to the land that has been prepared by the Director-General under section 51A of the Act are listed as follows: -

Nil

(2)(a) Regional Environmental Plan(s)
The names of each Regional Environmental Plan applying to the land is/are listed below:

Greater Metropolitan Regional Environmental Plan No. 2 – Georges River Catchment
This plan aims to preserve and protect and to encourage the restoration or rehabilitation of regionally significant sensitive natural environments, to preserve, enhance and protect the freshwater and estuarine ecosystems within the Catchment and to ensure that development achieves the environmental objectives for the Catchment.

(2)(b) Draft Regional Environmental Plan(s)
The names of each draft Regional Environmental Plan applying to the land that has been placed on exhibition under section 47(b) of the Act is/are listed below:

Nil

(3)(a) State Environmental Planning Policy(s)

The names of each State Environmental Planning Policy applying to the land are listed below: -

State Environmental Planning Policy No. 6 – Number of Storeys in a Building
State Environmental Planning Policy No. 19 – Bushland in Urban Areas
State Environmental Planning Policy No. 21 – Caravan Parks
State Environmental Planning Policy No. 30 – Intensive Agriculture
State Environmental Planning Policy No. 32 – Urban Consolidation (Redevelopment of Urban Land)
State Environmental Planning Policy No. 33 – Hazardous and Offensive Development
State Environmental Planning Policy No. 44 – Koala Habitat
State Environmental Planning Policy No. 50 – Canal Estate Development
State Environmental Planning Policy No. 55 – Remediation of Land
State Environmental Planning Policy – (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy No 62 – Sustainable Aquaculture
State Environmental Planning Policy No. 64 – Advertising and Signage
State Environmental Planning Policy No. 65 – Design Quality of Residential Flat Development
State Environmental Planning Policy – (Building Sustainability Index: BASIX) 2004
State Environmental Planning Policy – (Major Development) 2005
State Environmental Planning Policy – Affordable Housing (Revised Scheme) 2009
State Environmental Planning Policy – (Infrastructure) 2007
State Environmental Planning Policy – (Mine, Petrol Prod and Extractive Ind) 2007
State Environmental Planning Policy – (Temporary Structures and Places Public Entertainment) 2007
State Environmental Planning Policy – (Affordable Rental Housing) 2009

3(b) Draft State Environmental Planning Policy(s)

The names of each draft State Environmental Planning Policy applying to the land that has been publicised as referred to in section 39(2) of the Act are listed below: -

Draft State Environmental Planning Policy No. 66 – Integration of Land Use and Transport

2. ZONING AND LAND USE UNDER RELEVANT LOCAL ENIVIRONMENTAL PLANS

(a) The identity of the zone, whether by reference to a name or by reference to a number is/are listed in: -

Section (1)(a) of this Planning Certificate.

(b) The purposes for which the plan or instrument provides that development may be carried out within the zone without the need for development consent is/are detailed in the Liverpool Local Environmental Plan 2008: -

See Part 2 (Permitted or prohibited development), Part 3 (Exempt and complying development), and Schedule 2 (Exempt development) of Liverpool Local Environmental Plan 2008.

(c) **The purposes for which the plan or instrument provides that development may not be carried out within the zone except with development consent is/are detailed in the Liverpool Local Environmental Plan 2008: -**

See Part 2 (Permitted or prohibited development), Part 3 (Exempt and complying development), Schedule 1 (Additional uses) and Schedule 3 (Complying development) of Liverpool Local Environmental Plan 2008.

(d) **The purposes for which the plan or instrument provides that development is/are prohibited within the zone are detailed in the Liverpool Local Environmental Plan 2008: -**

See Part 2 (Permitted or prohibited development) of Liverpool Local Environmental Plan 2008.

Should you require further information about development standards and restrictions on development for any particular purpose or any purpose that may have an effect of prohibiting development, it is recommended that you consult the Liverpool Local Environmental Plan 2008 and/or Liverpool Development Control Plan 2008.

(e) **Dwelling House**
The development standards applying to the land that fix minimum land dimensions for the erection of a dwelling house on the land is/are listed below: -

The land's dimensions (when considered in isolation) are not such as to prohibit the erection of a dwelling house on the land. However, Liverpool Local Environmental Plan 2008 prohibits the erection of a dwelling house within the zone that applies to the land

(f) **Critical Habitat**
The provisions applying to the land that relate to critical habitat is/are outlined below:-

The land is subject to the provisions of Clause 5.9 of the Liverpool Local Environmental Plan 2008. The clause relates to the preservation of trees or vegetation on the land.

The land is subject to the provisions of Clause 7.6 of the Liverpool Local Environmental Plan 2008. The clause relates to additional considerations given to development on environmentally significant land.

The land does not include or comprise critical habitat.

(g) Conservation Area
The provisions applying to the land that relate to a conservation areas is/are outlined below: -

Land is not located in a Conservation Area.

(h) Environmental Heritage
The provisions applying to the land that relate to an item of environmental heritage is/are outlined below: -

An item of the Environmental Heritage is situated on the land. Refer to Schedule 5 – Environmental Heritage under Liverpool Local Environmental Plan 2008.

3. COMPLYING DEVELOPMENT
Complying development under the General Housing Code may not be carried out on the land.

Complying development under the Housing Internal Alterations Code may not be carried out on the land.

Complying Development under the General Commercial and Industrial Code may not be carried out on this land.

This land is excluded being land that is identified in an environmental planning instrument as being within an area that is environmentally sensitive.

This land is excluded being land that comprises, or on which there is a local heritage item or draft local heritage item identified in an Environmental Planning Instrument.

This land is excluded being land that is identified in as being bush fire prone land.

This land is excluded being land identified in an environmental planning instrument as being a flood control lot.

4. Coastal Protection Act 1979
There has been no notification from the Department of Public Works that the land is subject to the operation of Section 38 or 39 of the Coastal Protection Act, 1979.

5. Mine Subsidence
The land is not within an area proclaimed to be a mine subsidence district within the meaning of the Mine Subsidence Compensation Act, 1961.

6. Road Widening and Road Realignment
The provisions applying to the land that relate to road widening or road realignment is/are outlined below: -

The land is not affected by any road widening or road realignment under Division 2 of Part 3 of the Roads Act 1993, any environmental planning instrument or any resolution of the Council.

7. Council and Other Public Authority Policies on Hazard Risk Restrictions
The policies applying to the land from Council and other Public Authorities regarding hazard risk restrictions is/are outlined below: -

(a) Council Policy – Other Risks

The land is not affected by a policy adopted by Council that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence or any other risk.

However, the land is affected by Liverpool Local Environmental Plan 2008 that restricts the development of the land because of the likelihood of acid sulphate soils.
The land is not affected by a policy adopted by Council that restricts the development of the land because of the likelihood of land slip, tidal inundation, subsidence, acid sulphate soils or any other risk.

However, the land is affected by the *Rural Fires Act 1997* that restricts the development of the land because of the likelihood of bushfire.

(b) Public Authority Policies

The land is not affected by a policy adopted by any other public authority and notified to the Council for the express purpose of its adoption by that authority being referred to in the planning certificates issued by the Council, that restricts the development of the land because of the likelihood of land slip, bushfire, flooding, tidal inundation, subsidence, acid sulphate soils or any other risk.

7A. Flood Related Development Controls Information

1. **The property is affected by flood inundation and therefore the controls applying to residential forms of development contained with the Liverpool Local Environmental Plan 2008 and Development Control Plan 2008 apply to this property.**

2. **The property is affected by flood inundation and therefore the controls applying to all forms of development contained with the Liverpool Local Environmental Plan 2008 and Development Control Plan 2008 apply to this property.**

3. **The expressions "dwelling houses, "dual occupancies," "multi dwelling housing" and "residential flat buildings" as used in clauses (1) and (2) above have the same meanings as in the instrument set out in the Schedule of the Standard Instrument (Local Environmental Plans) Order 2006 but do not include development for the purposes of "group homes" or "seniors housing".**

8. Land Reserved for Acquisition

The provisions applying to the land that relate to acquisition of the land by a public authority is/are listed below: -

Nil

Liverpool Local Environmental Plan 2008 applies to the land and provides for the acquisition of the land by a public authority, as referred to in Section 27 of the Act.

9. CONTRIBUTION PLANS

The name of each contribution plan applying to the land is/are outlined below: -
Liverpool Contributions Plan 2001

10. Matters arising to the Contaminated Land Management Amendment Act 2009 NSW)
Nil

11. Bushfire Prone Land
Part of the land subject to this certificate is bushfire prone land as defined in the Environmental Planning and Assessment Act 1979.

12. Property Vegetation Plans

The provisions applying to the land that relate to property vegetation plans is/are listed below:-

The land subject to this certificate is not affected by the Native Vegetation Act 2003 as defined in the Environmental Planning and Assessment Act 1979.

13. Orders under Trees (Disputes Between Neighbours Act 2006)

There has been no notification that the land subject of this certificate is affected by an order to carry out work in relation to a tree on the land under the Trees (Disputes Between Neighbours Act 2006).

14. Directions under Part 3A

There has been no notification of a direction by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or stage of a project on the land under Part 4 of the Act does not have effect.

15. Site Compatibility Certificates and Conditions for Seniors Housing

There has been no notification of a current site compatibility certificate issued under clause 25 of the State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 in respect of proposed development on the land.

16. Site Compatibility Certificates for Infrastructure

There has been no notification of a valid site compatibility certificate for the land subject of this certificate issued under clause 19 of the State Environmental Planning Policy (Infrastructure) 2007.

17. Site Compatibility Certificates and Condition for Affordable Rental Housing
Council is not aware of a current site compatibility certificate (affordable rental housing) in respect of proposed development on the land.

PART B
ADDITIONAL INFORMATION PROVIDED PURSUANT TO SECTION 149(5) OF THE ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

1. Threatened Species Conservation Act
It is advisable for any application intending to purchase and/or develop land within the Liverpool Local Government Area to approach Council to ascertain if the requirements of the Threatened Species Act, 1995 are likely to apply to their land.

If the land has native vegetation of any sort (ie trees, shrubs, ground covers etc), has recently been cleared or is vacant land, it may have impediments to development under the Threatened Species Act, 1995.

This notation should be read in conjunction with Liverpool Local Environmental Plan 2008, and the Threatened Species Act, 1995.

Enquiries should be directed to Council's Department of Environment and Community.

2. Tree Preservation Provision
The land is subject to a tree preservation provision under the Liverpool Local Environmental Plan 2008.

3. Controlled Access Road
The land does not have a boundary to a controlled access road under the provisions of the Liverpool Local Environmental Plan 2008.

4. Notices
No notices/orders have been served in respect of a breach of the provisions of an environmental planning instrument occurring on the land.

5. Other Information in Relation to Water
The property is identified as flood prone and is with the high risk flood category. High Flood Risk Category means land below the 1% Annual Exceedence Probability flood that is either subject to high hydraulic hazard or where there are significant evacuation difficulties (see Liverpool Development Control Plan 2008 for controls relating to flood prone land). For further information on flood risk contact Council on 9821 9222.

6. Sydney Water Corporation
Nil

7. Foreshore Building Line
Nil

8. Contaminated Land
Nil

9. Airport Noise Affectation
Badgery's Creek Airport
Nil

Hoxton Park Airport
Nil

10. Airport Acquisition
Nil

11. Environmentally Significant Land
Environmentally Significant Land
The subject property is identified as containing environmentally significant land under Division 2 General provisions of the Liverpool Local Environmental Plan 2008.

(1) The objectives of this clause are as follows:

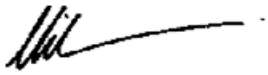
(a) to maintain bushland, wetlands and wildlife corridors of high conservation value,
(b) to identify areas of significance for revegetation to connect to or buffer bushland, wetlands and wildlife corridors,
(c) to protect rare and threatened native flora and native fauna,
(d) to ensure consideration of the significance of vegetation, the sensitivity of the land and the impact of development on the environment prior to the giving of any development consent.

Further information in this regard is available from Council's City Strategy Department or the Liverpool Local Environmental Plan 2008.

12. Archaeological Management Plan
Nil

13. Unhealthy Building Land Proclamation

Nil



Mr Milan Marecic
Director – City Strategy
Liverpool City Council

For further information, please contact
CALL CENTRE – 9821 9222

ANNEXURE TO SECTION 149(5) CERTIFICATE

Liverpool city council
creating our future together

Issue Date: 11/11/2010

Issue No: 2025769

File No: 2010/0038

Premises at Lot 10 DP 881265
Hume Highway Casula

Further to the advice contained in the Section 149(2) Certificate and on the basis of the latest information available to the Council:

1. the maximum calculated level of the probable maximum flood (PMF) in the vicinity of your property in metres AHD is **12.9.**

2. the maximum calculated level of the 1% annual exceedance probability flood (previously referred to as the 1 in 100 year) in the vicinity of your property in metres AHD is **10.8.**

3. the maximum calculated level of the 2% annual exceedance probability flood (previously referred to as the 1 in 50 year) in the vicinity of your property in metres AHD is **10.3.**

4. the maximum calculated level of the 5% annual exceedance probability flood (previously referred to as the 1 in 20 year) in the vicinity of your property in metres AHD is **9.6.**

The Council does not possess accurate information on the natural surface levels of individual allotments or on constructed building levels, and these should be established by private survey to ascertain their relationship to the above flood levels.

Flood levels are obtained from **Georges River Floodplain Risk Mangement Study & Plan - July 2004**

Name of Assessor: **W. Siripala**

Signature:

Appendix E

NSW EPA Notice records

Environment Protection Authority NSW

Ongoing maintenance order

(Section 28 of the Contaminated Land Management Act 1997)

Notice Number 20132801; Area Number 3054

Service: By registered mail

ABB Australia Pty Limited
ACN: 003 337 611
1 Bapaume Road
Moorebank NSW 2170

Attention: [Name Withheld]

This notice is issued under section 28 of the *Contaminated Land Management Act 1997* (CLM Act).

ABB Australia Pty Limited, "the recipient", must maintain management action in accordance with the requirements set out in this order.

1. Land to which this notice applies ("the land")

This notice applies to Lots 2 and 3 in Deposited Plan 32998 located at 1 Bapaume Road, Moorebank NSW.

2. Background

A. ABB Australia Pty Limited is the owner of the land to which this notice applies.

B. Investigations have identified polychlorinated biphenyls (PCB) in soil at the site. The contamination is associated with the use of PCB containing materials during the production of electrical condensers and transformers at the site in the past.

C. PCB-contaminated soils remain at the site. The Environment Protection Authority (EPA) has been advised that a layer of capping material has been placed over in-situ contaminated soil and that recently excavated soil will be contained on the site.

D. The EPA regulated the land to which this notice applies using notice powers under section 35 of the *Environmentally Hazardous Chemicals Act 1985.*

E. The section 35 notices relating to the site have either been revoked by the EPA or ceased to have legal effect.

3. Commencement of maintenance of management action

This order takes effect from the date of this order and continues in force, unless it is varied or revoked, while the recipient is the owner or occupier of the land.

4. Maintenance requirements

The EPA requires the recipient to maintain the following management action in relation to the land:

a) Maintain the integrity of the capping layer over the PCB-contaminated soil as well as any future PCB containment areas in order to prevent the escape of PCBs and any associated exposures; and

b) Report to the EPA as soon as practicable any incident that causes or threatens to cause the escape of PCBs to the environment (e.g. the Georges River); and

c) Implement a Site Environmental Management Plan (SEMP) for the site that outlines measures designed to:

- Ensure the long-term integrity of the capping material/containment areas, including inspections; and
- Prevent human health and environmental risks including the escape of PCBs to the surrounding environment; and
- Ensure that:
    - Prior to any person carrying out any work or activity that may result in the disturbance of PCB-contaminated soil, samples of the soil are collected and tested for PCBs; and
    - If PCBs are detected above 50 mg/kg, the work or activity that may result in the disturbance of PCB-contaminated soil is not to be undertaken unless prior written approval has been obtained from the EPA and the work is undertaken in accordance with all requirements of that approval. The work must be conducted in accordance with the *Polychlorinated Biphenyl (PCB) Chemical Control Order 1997*; and
- Provide guidance to builders and contractors who may access PCB-contaminated soil and specifically addresses the following:
    - The disturbance of potentially PCB-contaminated soil which may promote the mobility of PCBs; and
    - Any controls or protective equipment required to minimise worker exposure to potentially PCB-contaminated soil; and

d) Submit the SEMP to the EPA within **three months** from the date of this notice.

5. Notification of change of owner/occupier

At least 30 days prior to the recipient ceasing to be the owner or occupier of the land, as the case may be, the recipient must give written notification to the EPA of the name and contact details of the prospective owner or occupier.

[Signed]

NIALL JOHNSTON
Manager Contaminated Sites
Environment Protection Authority

Date: 13 May 2013

NOTE:

Breaches of this Notice

A person who fails to comply with an order issued under section 28 of the CLM Act is guilty of an offence. Heavy penalties may be imposed where a person fails to comply with directions given in an order issued under section 28 of the CLM Act.

Information recorded by the EPA

Section 58 of the CLM Act requires the EPA to maintain a public record. A copy of this order will be included in the public record.

Information recorded by councils

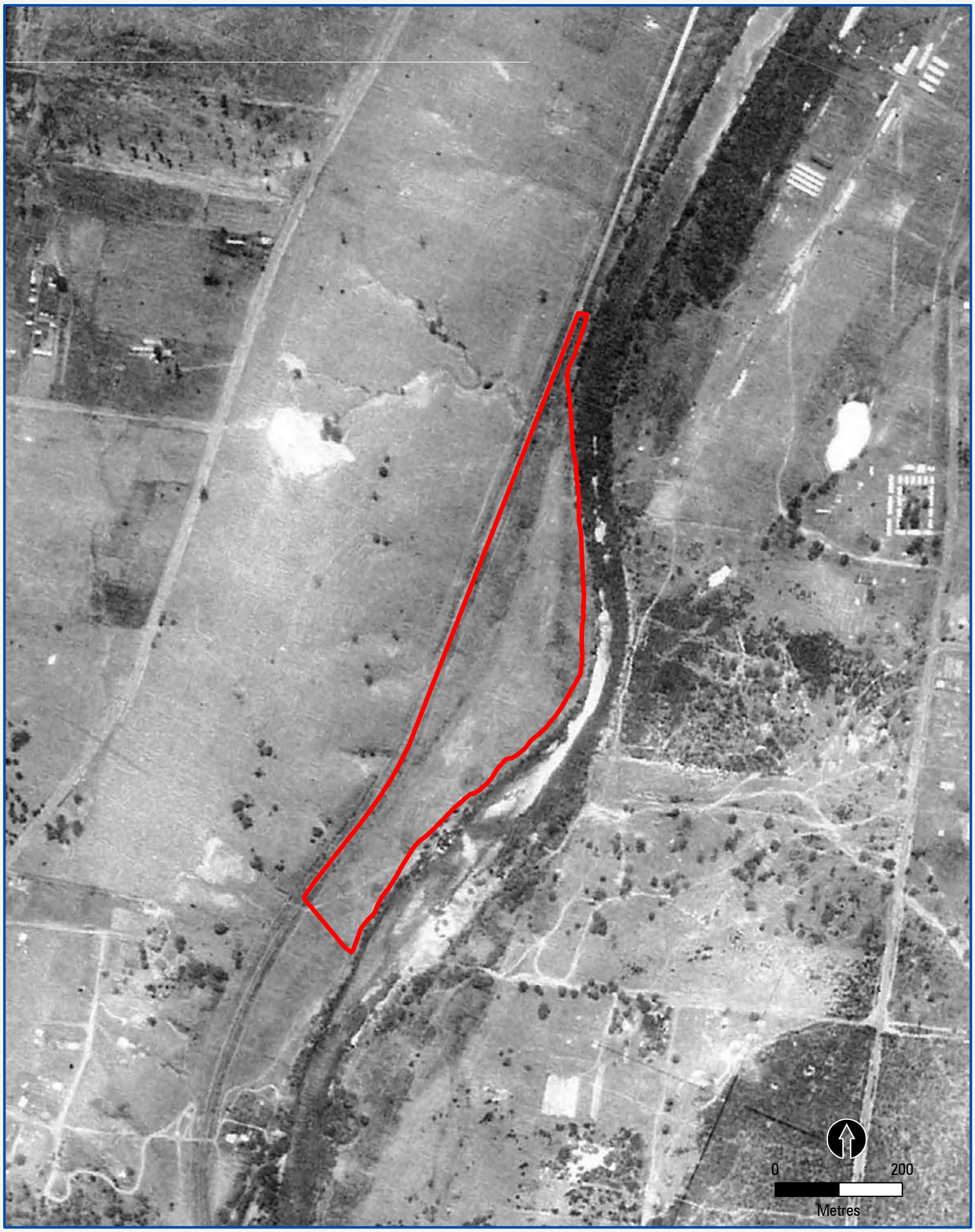
Section 59 of the CLM Act requires the EPA to inform the relevant local council that this order has been served. The council is then required to note on its planning certificate issued pursuant to s.149 (2) of the *Environmental Planning and Assessment Act 1979* that the land is subject to an ongoing maintenance order. The EPA is required to notify council as soon as practicable when the order is revoked and the notation on the s.149 (2) certificate is no longer required.

Relationship with other regulatory instruments

This notice does not affect the provisions of any relevant environmental regulatory instruments which apply to the land or provisions of any other environmental protection legislation administered by the EPA, including licence No.86 issued under the *Environmentally Hazardous Chemicals Act 1985* and the *Polychlorinated Biphenyl (PCB) Chemical Control Order 1997*.

Appendix F

Aerial photographs



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Study area

Historical aerial (1930)

Aerial Source: © 2009 Microsoft Corporation and its data suppliers

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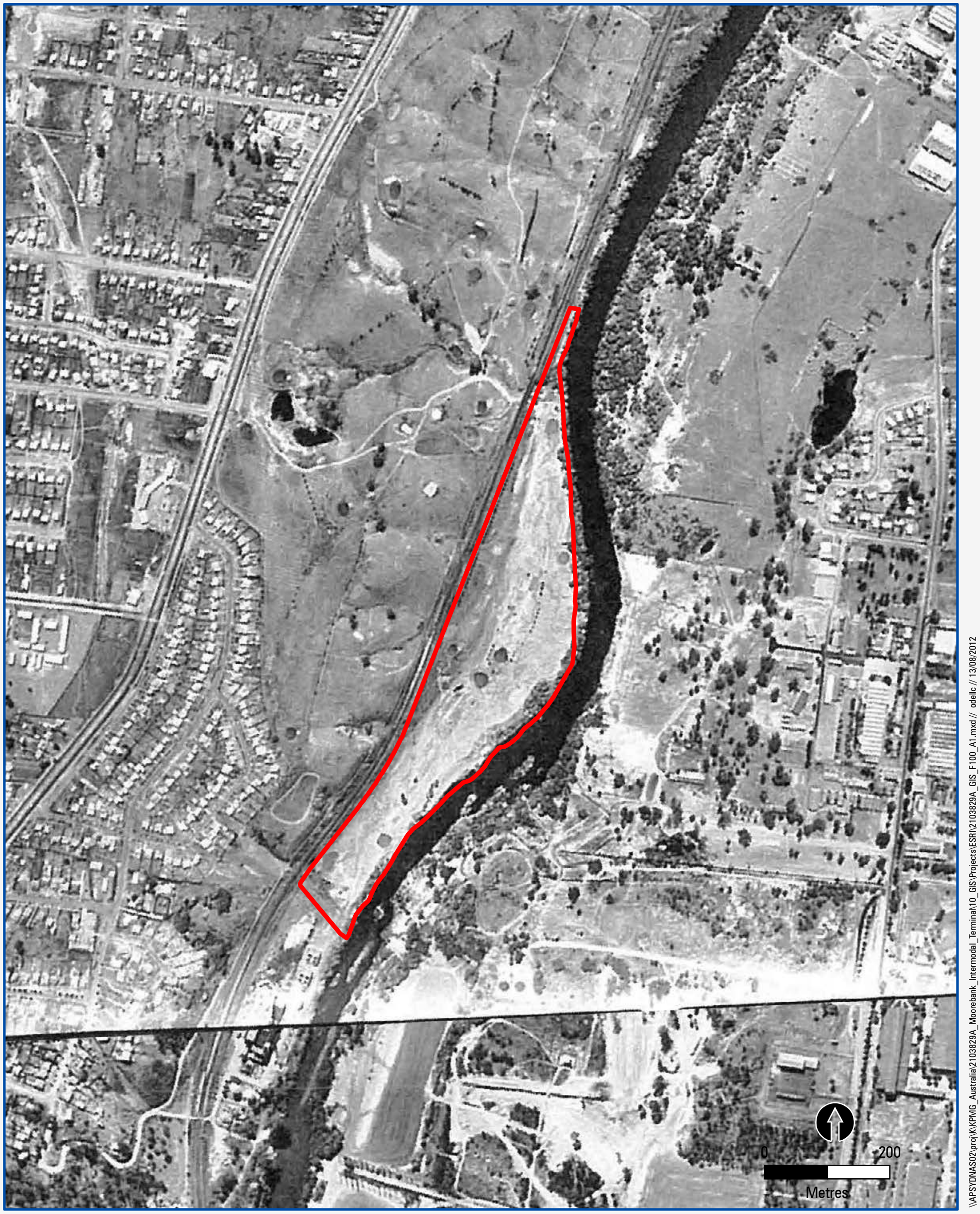
Study area

Historical aerial (1961)



Aerial Source: © 2009 Microsoft Corporation and its data suppliers

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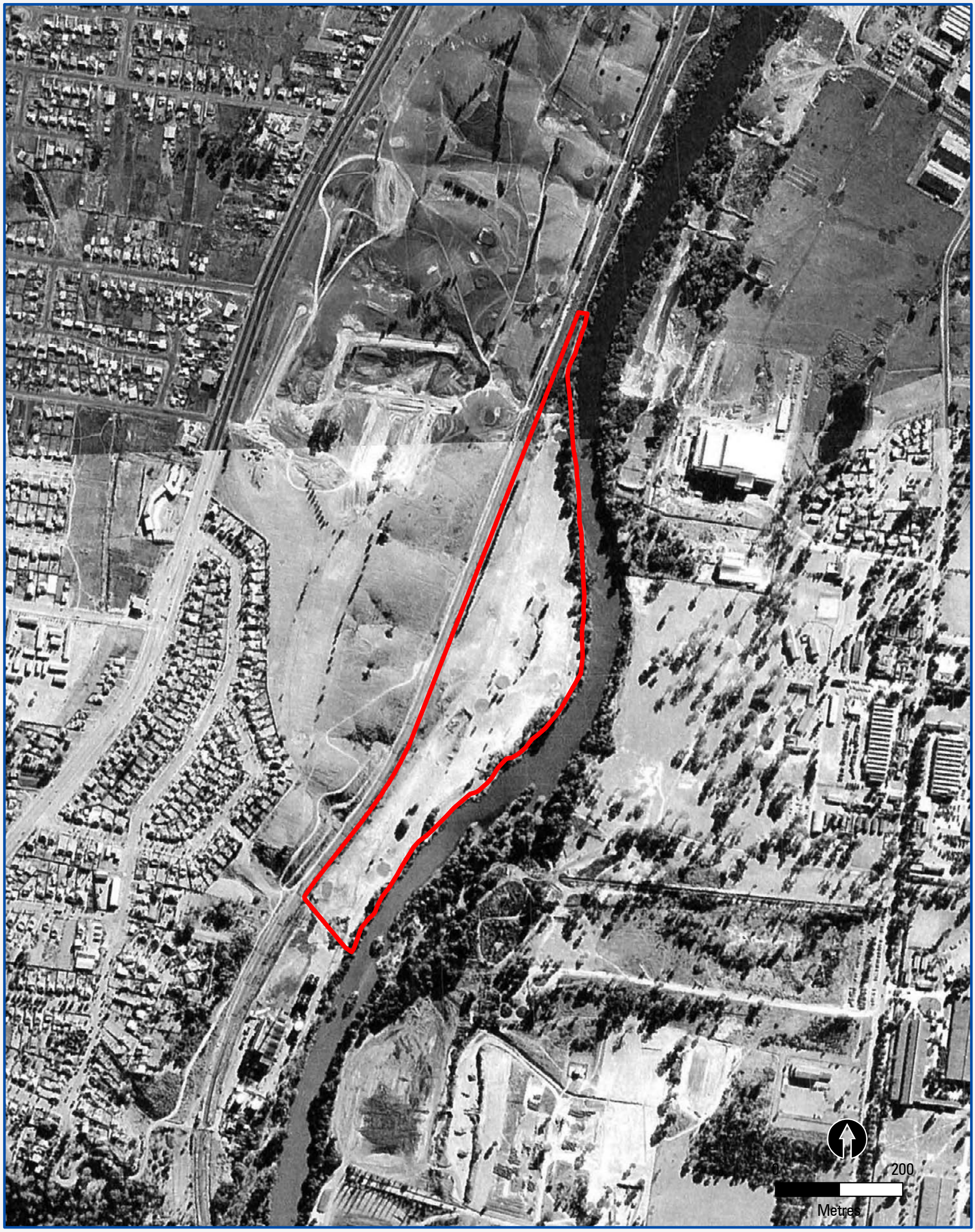
Study area

Historical aerial (1961)



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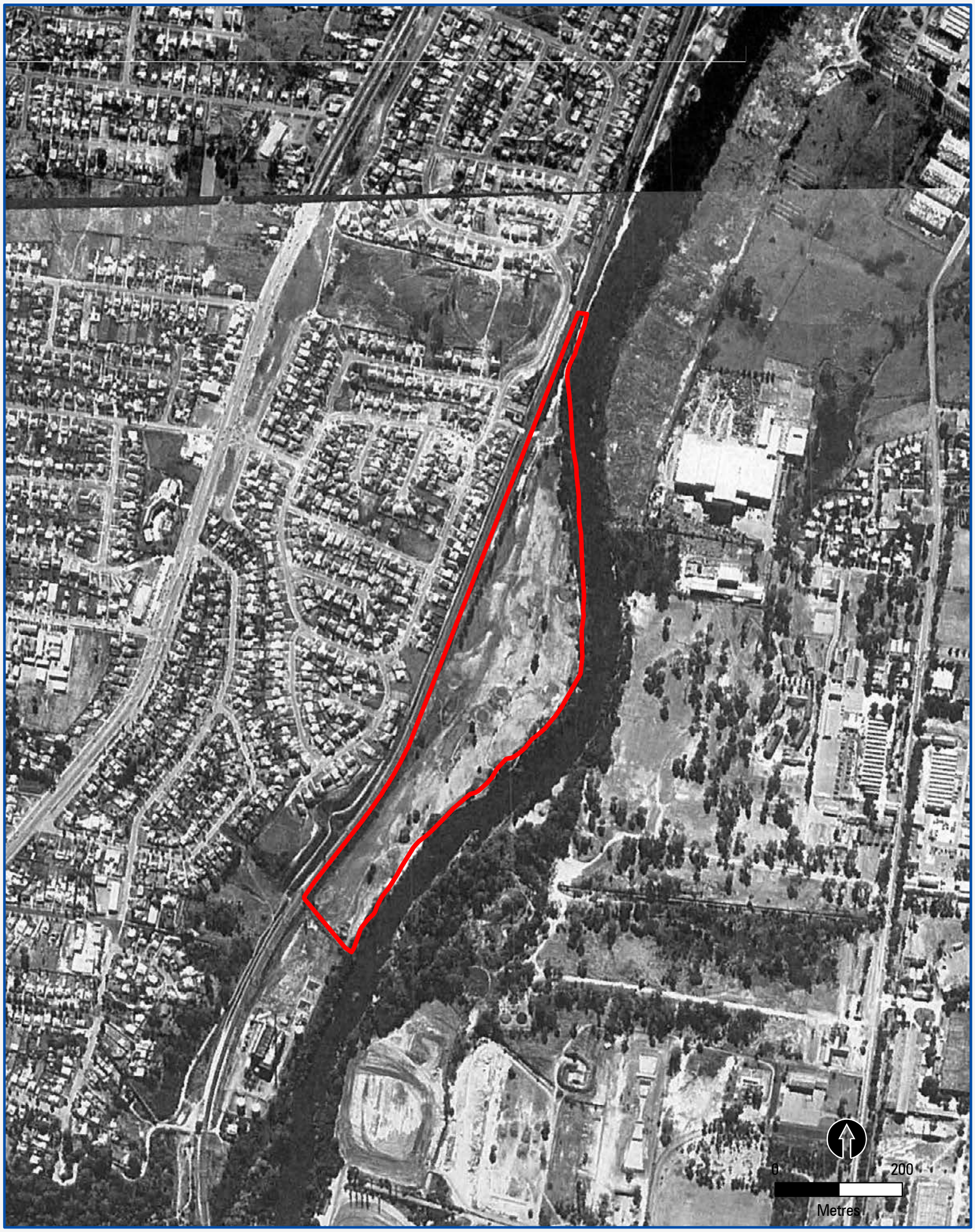
Study area

Historical aerial (1970)



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Study area

Historical aerial (1978)

PARSONS BRINCKERHOFF

COMMERCIAL IN CONFIDENCE

Proposed Moorebank Intermodal Terminal - Phase 1 ESA for land west of Georges River

Aerial Source: © 2009 Microsoft Corporation and its data suppliers

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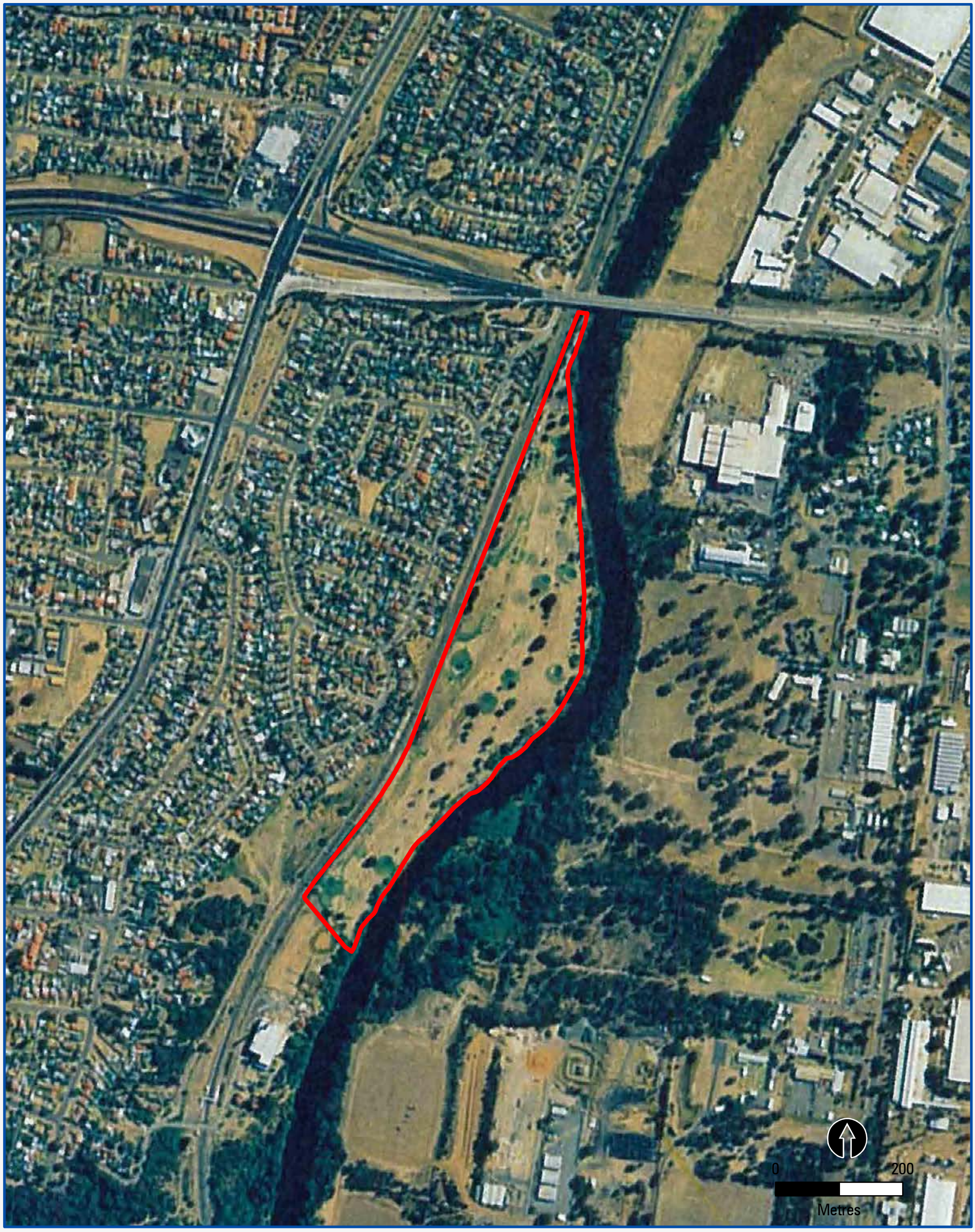
Study area

Historical aerial (1986)



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Study area

Historical aerial (1994)

PARSONS BRINCKERHOFF

COMMERCIAL IN CONFIDENCE

Proposed Moorebank Intermodal Terminal - Phase 1 ESA for land west of Georges River

Aerial Source: © 2009 Microsoft Corporation and its data suppliers

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Study area

Historical aerial (2005)