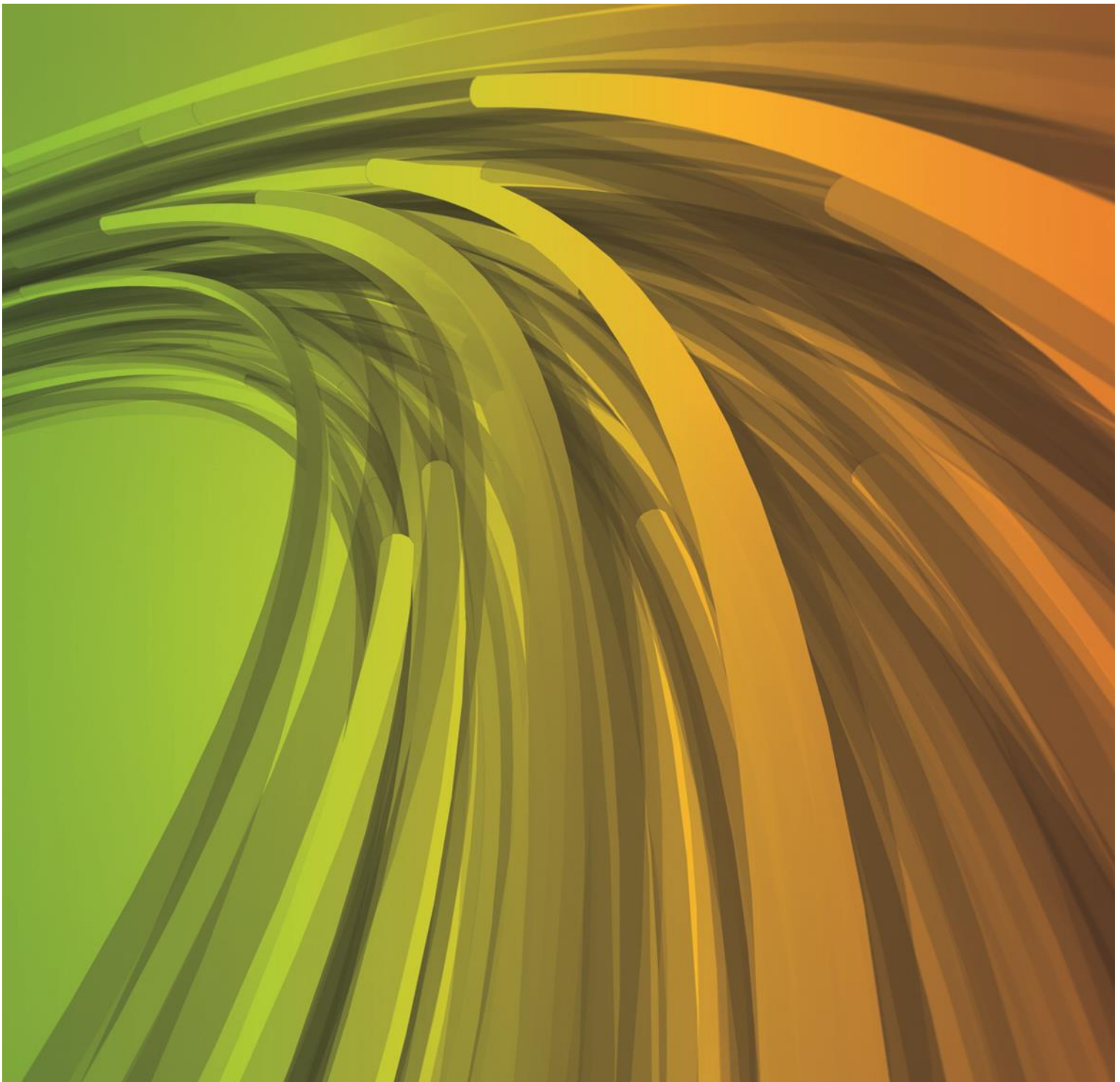


Section 49 Kingston

Site Investigation Report



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Site Investigation Report

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Executive Summary

This Site Investigation Report has been prepared by AECOM for the Land Development Agency (LDA) for the purpose of providing background information in support of the sale of the land. Its objective is to compile previous supplementary investigations, studies and other relevant information relating to the Site and its surrounding areas into one document. The source documents on which this report has been based are included in the Appendices.

General: Section 49, Kingston (the Site) is located immediately south of Lake Burley Griffin in central Canberra. The Site is bounded by Eastlake Parade to the north and east, Wentworth Avenue to the west, and residential/commercial developments to the south on Block 1 Section 45 and Block 1 Section 52, Kingston, covering an area of approximately 5.4 ha.

The Site has been divided into two precincts, namely the Heritage Precinct and the Development Precinct, as shown in Figure 1, Appendix A.

Heritage: Several buildings and features listed as having Heritage Significance are located within the Site. The majority of these buildings are located within the Heritage Precinct. Further consideration will be required prior to and during development to ensure it appropriately reflects the heritage significance of the existing elements on the Site.

Utilities: A number of utilities services are located within the Site, including stormwater, water, sewer, gas, electricity and telecommunications. All local services within the Site will likely require upgrading or relocation due to the proposed development. Relocation of the 132kV high voltage underground power cables within the site would incur considerable costs. Consideration should be given to avoiding major impacts to this infrastructure as part of the future development.

Geotechnical/Hydrogeology: The Site primarily consists of Alluvium (natural and reworked) to depths between 0 m and 5.8 m. Areas of fill were encountered on the site consisting primarily of medium dense gravelly sands and clayey sands. Mudstone rock (generally highly fractured) was found beneath the residual soils across the site, varying dramatically in depth. The mudstone rock would likely be suitable to support piles for heavy loaded structures. Excavation for development on the Site would be achievable with conventional plant, with spoil generally likely to be suitable for re-use as fill on-site.

The groundwater levels identified on the site ranged from 3.09 m to 5.73 m below surface level.

Contamination

A draft Phase 2 Environmental Site Assessment (ESA) prepared by AECOM for the Development Precinct concluded the Site is "suitable for the proposed commercial/industrial and high density residential land use" with respect to contamination. The ESA is still in under review by the Auditor, and could be subject to change. The LDA is targeting a Site Audit Statement for the Development Precinct by early 2016, subject to all Auditor requirements being met.

Following Auditor review of the Phase 2 ESA prepared by AECOM for the Heritage Precinct, AECOM have prepared a Sampling, Analysis and Quality Plan (SAQP) outlining the scope and rationale for additional validation works within the area. The works identified in the SAQP are currently in progress and the LDA is targeting a Site Audit Statement for the Heritage Precinct by early 2016 subject to all Auditor requirements being met.

It should be noted that the site audit statements for the two development precincts are pending, and as such information presented is based on draft investigations and reporting.

Traffic/Parking: The existing local road network is likely to operate at an acceptable level of service following development of the Site. Significant intersections on Wentworth Avenue with Eastlake Parade and Giles Street may require upgrades to cater for future traffic demands resulting from the development of the Site.

The parking provisions for future development will need to take into account the expected demand. There is expected to be an oversupply of long stay car parking and an undersupply of short stay car parking. Further investigation into opportunities for additional parking provision should be undertaken.

1.0 Introduction

This Site Investigation Report has been prepared by AECOM for the Land Development Agency (LDA) for the purpose of providing background information in support of the sale of the land. Its objective is to compile previous supplementary investigations, studies and other relevant information relating to the Site and its surrounding areas into one document.

2.0 General Site Information

Section 49, Kingston (the Site), refer Appendix A, is located immediately south of Lake Burley Griffin in central Canberra. The Site is bounded by Eastlake Parade to the north and east, Wentworth Avenue to the west, and residential/commercial developments to the south on Block 1 Section 45 and Block 1 Section 52, Kingston, covering an area of approximately 5.4 ha.

The Site is currently occupied by several buildings, including:

- The Former Transport Depot, used as the location for the “Old Bus Depot Markets” occurring every Sunday
- The Canberra Glassworks (former Kingston Power House)
- The former Fitters’ Workshop, used on occasion for art exhibitions
- The Telopea Park Zone Substation (in operation)
- The former Switch Room, located adjacent to the Substation, now used as temporary accommodation for visiting artists.

The site also consists of sections of rail rack and rail embankment, asphalt and gravel car parking areas, and both hard and soft landscaped areas.

A number of underground utilities services are located within and adjacent to the Site.

The Site has been divided into two precincts, namely the Heritage Precinct and the Development Precinct.

3.0 Previous Studies and Investigations

3.1 Survey

The Section 49 boundary is shown in Appendix B. A detailed survey of the site was conducted by Mail McDonald Barnsley Surveyors in 2012 as part of the *Whole of Kingston Foreshore Detail Survey Masterplan*. The survey includes all built and natural above ground features on the Site, as well surface level contours at 0.5 m intervals.

3.2 Heritage

Lovell Chen Architects and Heritage Consultants prepared a *Statement of Heritage Impact, Kingston Section 49 Masterplan, Lovell Chen (2012)*. The report addresses heritage aspects associated with the existing structures and features of the Site, and considers potential impacts of future development of the Site. This report is included in Appendix C.

The following elements within the Site were identified as having Heritage Significance

- Glassworks building (former Power House building);
- Fitters Workshop,
- original alignment of the railway and existing track/embankment,
- Landscape elements: Monterey Pin (*Pinus radiata*) and White Brittle gum (*Eucalyptus mannifera*) located at the south-west and south-east corners of the site;
- Base of the second chimney stack;
- Fabric and operation of the sire and whistle;
- 1948 Switch Room; and
- Former Transport Depot

A requirement of any future development on the site is that it appropriately reflects the heritage significance of the place and its constituent elements. The Heritage Impact Report reflected that the proposed Master Plan generally satisfies this requirement, however, further consideration to this requirement will need to be given prior to and during development.

3.3 Utilities

SMEC conducted an investigation on the underground utilities services within the site. The findings of the investigation, which outlines the type and location of the underground services was presented in the *Kingston Foreshore Part Section 49, Geotechnical and Utilities Report, SMEC (2015)* (refer Appendix D).

There are a number of major and minor utilities within the Site, including (but not limited to):

- Stormwater – a number of stormwater pipes/pits ranging from 300mm to 450mm in diameter. Stormwater infrastructure would likely require significant upgrades to cater for future development
- Water – several watermains ranging from 100mm to 150mm in diameter servicing the existing buildings on the Site. An abandoned 450mm diameter watermain which formerly serviced the Glassworks building extends to Eastlake Parade to the north. No major infrastructure was located within the Site. It is likely that the existing water network may not be able to service future development on the Site. The responsible utility authority should be contacted to discuss any upgrade requirements.
- Sewer – two 225mm diameter sewer mains are located within the Site servicing the existing buildings. There is no major infrastructure within the site
- Gas – a 50mm low pressure main services the Glassworks building, feeding from the existing 200mm diameter steel high pressure main located within the median of Wentworth Avenue.
- Telecommunications – Telstra, Optus and TransACT all have infrastructure located within the Site servicing the existing buildings. No other communications service providers have been identified as having infrastructure within the Site.
- Electrical – both High Voltage and Low Voltage infrastructure is located within the Site. Several 132kV High Voltage Underground cables run east-west through the centre of the site to the North of the Glassworks Building, which extend from the Telopea Park Zone Substation through to Printers Way. The Work As Executed Drawings for this infrastructure as prepared by SMEC are included in Appendix D.

The Site also contains a number of abandoned utilities which previously catered for buildings which have been demolished. Detailed investigation of the existing and required utilities within the Site would be required prior to any future development.

3.4 Geotechnical/Hydrogeology

SMEC conducted an investigation on the existing geotechnical and hydrogeological conditions within the Site. A number of boreholes were drilled to determine the insitu soil properties and current groundwater levels/flow. The findings of the investigation are presented in the *Kingston Foreshore Part Section 49, Geotechnical and Utilities Report, SMEC (2015)* (refer Appendix D).

The majority of the site was found to be natural Alluvium and reworked Alluvium to depths between 0 m to 5.8 m. The areas of reworked Alluvium are believed to have been reworked during the placement of utilities infrastructure and other earthwork activities on-site.

Two types of fill were encountered on-site, which were both highly variable in depth and characteristics. The fill primarily comprised of medium dense gravelly sands and clayey sands, with gravel of both natural mudstone and construction waste, including bitumen, concrete, brick and plastic.

Mudstone rock was found beneath the residual soils across the majority of the site. The mudstone rock was found to be highly fractured in all borehole locations. The depth to rock varies dramatically, but appears to increase toward the north-west portion of the Site.

The investigation identified that overall site conditions are overall favourable for construction of heavy loaded structures, which can be supported on bored piles founded on the mudstone rock. Due to the depth of rock, excavation on the site could generally be performed with conventional plant, with a large excavator with ripper tyne likely being suitable to remove mudstone rock. The majority of excavated material would likely be suitable for re-use as fill on site if and where required.

The hydrogeology investigation identified the groundwater levels ranged between 3.09 m and 5.73 m below the surface level. Further hydrogeological investigations would likely be required in order to determine the requirements for a pumping system or other water removal, and the design for hydro-slab pressure on retaining walls and uplift on base slabs.

3.5 Contamination and Soil/Groundwater Assessment

Section 49 lies within the Kingston Foreshore Development which is subject to an Environmental Protection Agreement with the ACT EPA. A requirement of the agreement is that all sites must have an environmental validation report which is reviewed and endorsed by the independent Site Auditor (Golder Associates). It should be noted that the site audit statements for the two development precincts are pending, and as such the information presented below is based on draft investigations and reporting.

Development Precinct

AECOM undertook validation and soil/groundwater investigation within Development Precinct of Section 49. The *Phase 2 Environmental Site Assessment, Section 49 Kingston Foreshore – Development Precinct v4.0, AECOM (2015)* which assesses the Site's suitability with respect to soil and groundwater quality for the proposed land use is included in Appendix E. The Phase 2 ESA concluded that based on the investigation the Site is suitable for the proposed commercial/industrial and high density residential land use provided that there is a Contamination Management Plan (CMP).

The Phase 2 ESA is still in DRAFT form and under review by the Auditor. The LDA is targeting a Site Audit Statement by early 2016, subject to meeting all relevant Auditor requirements.

A Construction Environmental Management Plan (CEMP) will be recommended to enable all contractors/subcontractors undertaking works within the Site have a clear understanding of specific health, safety and environmental requirements associated with potential exposure to unexpected finds which may be present within the Site. This will include a requirement to prepare, and submit to the EPA, a compliance report.

Heritage Precinct

Following Auditor review of the Phase 2 ESA prepared by AECOM for the Heritage Precinct, AECOM have prepared a Sampling, Analysis and Quality Plan (SAQP) outlining the scope and rationale for additional validation works within the area. The objective of the additional works underway is to address the Auditor's concerns and adequately demonstrate that the Site is suitable for its intended use with respect to contamination. The works identified in the SAQP are currently in progress and the LDA is targeting a Site Audit Statement for the Heritage Precinct by early 2016, subject to all Auditor requirements being met. The SAQP is included in Appendix E.

3.6 Traffic/Parking Study

SMEC conducted a study on the existing traffic and parking within and surrounding Section 49. The *Kingston Foreshore Section 49 Traffic and Parking Study Report, SMEC (2015)* (included in Appendix F) outlines the capacity of the existing traffic on the road network surrounding site and the current parking facilities located on the Site, as well as the expected impact of future development on the Site.

The report concluded that the existing road network and key intersections are currently operating at acceptable levels of service, however several of the key intersections are operating above 80% of their capacity. When assessed against the expected traffic volumes generated by future development, the internal intersections are expected to operate at an acceptable level of service, however, the intersections of Wentworth Avenue with Eastlake Parade/Telopea Park and Giles Street are expected to operate over capacity. These intersections may require significant upgrades to cater for traffic generated by future development.

The review of the parking provision for the proposed development was based on the assumption that public car parking spaces could be shared between land use types, which have peak demands at different times. The proposed parking provision of the current Master Plan does not include sufficient parking spaces to accommodate the expected parking demand. The report identified that there is expected to be an oversupply of long stay car parking and an undersupply of short stay car parking.

The *Kingston Arts Precinct, Section 49 Car Parking Feasibility Study, SMEC (2015)* (Included in Appendix F) explored options for upgrades to existing intersections surrounding the site and reviewed provisions for parking included in the Master Plan.

The study outlined that the new 4 way Eastlake Parade/Printers Way intersection will likely require traffic signals to assist with traffic movement. A number of traffic calming measures along Eastlake Parade were suggested to promote pedestrian permeability along the corridor. It was also suggested that the proposed 90-degree on-street parking within Printers Way should be provided as parallel parking to increase visibility for vehicles and pedestrians. A bus bay on Wentworth Avenue was investigated with indicative drawings of a possible solution.

Further investigation into opportunities for additional parking provision and required road/intersection upgrades should be explored prior to development.

3.7 Telopea Park Zone Substation

The Telopea Park Zone substation is located on the western boundary of Block 15, Section 49. The Substation is outside of the Section 49 site boundary.

ActewAGL have advised that there are a number of conditions which need to be adhered to for any development adjacent to the Substation. The developer will be required to undertake a risk assessment related to the Substation for the proposed design of the future development. The Developer will be required to liaise with ActewAGL and receive approval of the proposed design prior to construction.

Appendix A

Site Location

Appendix B

Survey

Appendix C

Heritage

Appendix D

Utilities, Geotechnical and Hydrogeological

Appendix E

Contamination

Appendix F

Traffic and Parking