

The **Ordinary Meeting** of
Bayside Council
will be held in the Rockdale Town Hall, Council Chambers,
Level 1, 448 Princes Highway, Rockdale
on Wednesday, 14 March 2018 at 7:00 pm

UNDER SEPARATE COVER ATTACHMENTS

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Former City of Botany Bay Council

GENERAL PURPOSE FINANCIAL STATEMENTS
for the period to 9 September 2016

*The former City of Botany Bay is committed to improving the total environment
to allow all community members who live, work, or use the facilities in the
Council area to enjoy and benefit from the services provided."*



Former City of Botany Bay Council

General Purpose Financial Statements for the period to 9 September 2016

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Overview

- (i) These financial statements are General Purpose Financial Statements and cover the operations for the Former City of Botany Bay Council.
- (ii) Former City of Botany Bay Council is a body politic of NSW, Australia – being constituted as a local government area by proclamation and is duly empowered by the *Local Government Act 1993* (LGA).
- Council's Statutory Charter is detailed in Paragraph 8 of the LGA and includes giving Council;
- the ability to provide goods, services and facilities, and to carry out activities appropriate to the current and future needs of the local community and of the wider public,
 - the responsibility for administering regulatory requirements under the LGA and
 - a role in the management, improvement and development of the resources in the area.
- A description of the nature of Council's operations and its principal activities are provided in Note 2(b).
- (iii) All figures presented in these financial statements are presented in Australian currency.
- (iv) These financial statements were authorised for issue by the Council on dd/mm/yy.
Council has the power to amend and reissue these financial statements.
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Former City of Botany Bay Council

General Purpose Financial Statements

for the period to 9 September 2016

Statement by Councillors and Management

made pursuant to Section 413(2)(c) of the *Local Government Act 1993 (NSW)* (as amended)

The attached General Purpose Financial Statements for the former City of Botany Bay Council for the period 1 July 2015 to 9 September 2016

The former City of Botany Bay Council was amalgamated on 9 September with the former Rockdale City Council to form the Bayside Council by way of the Local Government (Bayside) Proclamation 2016.

This Statement by Councillors and Management is in respect of the former City of Botany Bay Council and is limited due to the significant breakdowns in administrative, financial and governance internal controls identified in the former Council.

The breakdown is evidenced by the NSW Independent Commission Against Corruption (ICAC) report 2016 on the former City of Botany Bay Council (Operation Ricco) which identifies overwhelming corruption and systemic failures in internal controls.

Whilst significant work has been undertaken to develop and implement a new internal control environment and to address the Independent Commission Against Corruption (ICAC) report on the former City of Botany Council within the new Council, this cannot correct the past failings of the former City of Botany Bay Council.

The current Council and Management of the newly formed Bayside Council cannot warrant the completeness and reliability of the financial statements as a whole as covered above.

Signed in accordance with a resolution of Council made on 14 March 2018.

Bill Saravinovski
Mayor

Councillor

Meredith Wallace
General manager

Matthew Walker
Responsible accounting officer

Former City of Botany Bay Council

Income Statement

for the period to 9 September 2016

Budget ¹			Actual	Actual
1/7/15			1/7/15	1/7/14
to 9/9/16		Notes	to 9/9/16	to 30/6/15
\$ '000				
Income from continuing operations				
Revenue:				
n/a	Rates and annual charges	3a	64,060 ²	34,272
n/a	User charges and fees	3b	17,856	14,818
n/a	Interest and investment revenue	3c	3,250	2,178
n/a	Other revenues	3d	1,441	2,131
n/a	Grants and contributions provided for operating purposes	3e,f	9,925 ³	7,522
n/a	Grants and contributions provided for capital purposes	3e,f	64,466	18,848
Other income:				
n/a	Net gains from the disposal of assets	5	127	14
n/a	Net share of interests in joint ventures and associates using the equity method	19	167	—
n/a	Total income from continuing operations		161,292	79,783
Expenses from continuing operations				
n/a	Employee benefits and on-costs	4a	37,305	27,868
n/a	Borrowing costs	4b	—	—
n/a	Materials and contracts	4c	39,767	22,531
n/a	Depreciation and amortisation	4d	8,477	5,564
n/a	Impairment	4d	124	—
n/a	Other expenses	4e	5,743	4,452
n/a	Net share of interests in joint ventures and associates using the equity method	19	—	340
n/a	Total expenses from continuing operations		91,416	60,755
n/a	Operating result from continuing operations		69,876	19,028
Discontinued operations				
n/a	Net profit/(loss) from discontinued operations	24	—	—
n/a	Net operating result for the period		69,876	19,028
n/a	Net operating result attributable to Council		69,876	19,028
n/a	Net operating result attributable to non-controlling interests		—	—
n/a	Net operating result for the period before grants and contributions provided for capital purposes		5,410	180

¹ Original budget as approved by Council is not required for these financial statements

² Rates are recognised as revenue at the commencement of the rating years for the periods 1/7/15 to 30/6/16 and 1/7/16 to 30/6/17.

No adjustments have been made for rates not earned during the period 10/9/16 to 30/6/17.

³ Federal Assistance Grants (FAGs) are recognised as revenue upon their receipt or upon earlier notification that the grant has been secured. As such the revenue for FAGs includes the full grant allocation for the 15/16 and 16/17 years.

This statement should be read in conjunction with the accompanying notes.

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Financial Statements 2016

Former City of Botany Bay Council

Statement of Comprehensive Income
for the period to 9 September 2016

\$ '000	Notes	Actual	Actual
		1/7/15 to 9/9/16	1/7/14 to 30/6/15
Net operating result for the period (as per Income Statement)		69,876	19,028
Other comprehensive income:			
Amounts which will not be reclassified subsequently to the operating result			
Gain (loss) on revaluation of I,PP&E	20b (ii)	(832)	40,992
Total items which will not be reclassified subsequently to the operating result		(832)	40,992
Amounts which will be reclassified subsequently to the operating result when specific conditions are met			
Nil			
Total other comprehensive income for the period		(832)	40,992
Total comprehensive income for the period		69,044	60,020
Total comprehensive income attributable to Council		69,044	60,020
Total comprehensive income attributable to non-controlling interests		—	—

This statement should be read in conjunction with the accompanying notes.

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Financial Statements 2016

Former City of Botany Bay Council

Statement of Financial Position
as at 9 September 2016

\$ '000	Notes	Actual 9/9/16	Actual 30/6/15
ASSETS			
Current assets			
Cash and cash equivalents	6a	36,625	6,198
Investments	6b	55,000	50,561
Receivables	7	23,102	7,922
Inventories	8	301	261
Other	8	563	55
Non-current assets classified as 'held for sale'	22	—	—
Total current assets		115,591	64,997
Non-current assets			
Investments	6b	34,883	9,000
Receivables	7	—	292
Inventories	8	—	—
Infrastructure, property, plant and equipment	9	368,971	363,491
Investments accounted for using the equity method	19	1,611	1,444
Investment property	14	—	—
Intangible assets	25	266	—
Total non-current assets		405,731	374,227
TOTAL ASSETS		521,322	439,224
LIABILITIES			
Current liabilities			
Payables	10	15,524	13,363
Borrowings	10	—	—
Provisions	10	15,132	7,446
Total current liabilities		30,656	20,809
Non-current liabilities			
Payables	10	—	—
Borrowings	10	—	—
Provisions	10	3,744	537
Total non-current liabilities		3,744	537
TOTAL LIABILITIES		34,400	21,346
Net assets		486,922	417,878
EQUITY			
Retained earnings	20	325,683	255,807
Revaluation reserves	20	161,239	162,071
Council equity interest		486,922	417,878
Non-controlling equity interests		—	—
Total equity		486,922	417,878

This statement should be read in conjunction with the accompanying notes.

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Former City of Botany Bay Council

Statement of Changes in Equity
for the period to 9 September 2016

\$ '000	Notes	Retained earnings	Reserves (Refer 20b)	Council interest	Non-controlling Interest	Total equity
1/7/15 to 9/9/16						
Opening balance (as per last year's audited accounts)		255,807	162,071	417,878	—	417,878
a. Correction of prior period errors	20 (c)	—	—	—	—	—
b. Changes in accounting policies (prior year effects)	20 (d)	—	—	—	—	—
Revised opening balance (as at 1/7/15)		255,807	162,071	417,878	—	417,878
c. Net operating result for the period		69,876	—	69,876	—	69,876
d. Other comprehensive income						
– Revaluations: IPP&E asset revaluation rsve	20b (ii)	—	(832)	(832)	—	(832)
Other comprehensive income		—	(832)	(832)	—	(832)
Total comprehensive income (c&d)		69,876	(832)	69,044	—	69,044
e. Distributions to/(contributions from) non-controlling Interests		—	—	—	—	—
f. Transfers between equity		—	—	—	—	—
Equity – balance at end of the reporting period		325,683	161,239	486,922	—	486,922

\$ '000	Notes	Retained Earnings	Reserves (Refer 20b)	Council Interest	Non-controlling Interest	Total Equity
1/7/14 to 30/6/15						
Opening balance (as per last year's audited accounts)		236,779	121,079	357,858	—	357,858
a. Correction of prior period errors	20 (c)	—	—	—	—	—
b. Changes in accounting policies (prior year effects)	20 (d)	—	—	—	—	—
Revised opening balance (as at 1/7/14)		236,779	121,079	357,858	—	357,858
c. Net operating result for the period		19,028	—	19,028	—	19,028
d. Other comprehensive income						
– Revaluations: IPP&E asset revaluation rsve	20b (ii)	—	40,992	40,992	—	40,992
Other comprehensive income		—	40,992	40,992	—	40,992
Total comprehensive income (c&d)		19,028	40,992	60,020	—	60,020
e. Distributions to/(contributions from) non-controlling Interests		—	—	—	—	—
f. Transfers between equity		—	—	—	—	—
Equity – balance at end of the reporting period		255,807	162,071	417,878	—	417,878

This statement should be read in conjunction with the accompanying notes.

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Former City of Botany Bay Council

Statement of Cash Flows

for the period to 9 September 2016

Budget ¹			Actual	Actual
1/7/15			1/7/15	1/7/14
to 9/9/16	\$ '000	Notes	to 9/9/16	to 30/6/15
Cash flows from operating activities				
Receipts:				
n/a	Rates and annual charges		46,508	33,974
n/a	User charges and fees		19,611	15,247
n/a	Investment and interest revenue received		2,322	618
n/a	Grants and contributions		74,476	26,485
n/a	Bonds, deposits and retention amounts received		1,705	1,709
n/a	Other		9,067	1,244
Payments:				
n/a	Employee benefits and on-costs		(36,203)	(28,694)
n/a	Materials and contracts		(36,364)	(22,927)
n/a	Bonds, deposits and retention amounts refunded		(928)	(1,228)
n/a	Other		(4,522)	(3,612)
n/a	Net cash provided (or used in) operating activities	11b	75,672	22,816
Cash flows from investing activities				
Receipts:				
n/a	Sale of investment securities		101,561	22,950
n/a	Sale of infrastructure, property, plant and equipment		364	87
Payments:				
n/a	Purchase of investment securities		(131,754)	(36,064)
n/a	Purchase of infrastructure, property, plant and equipment		(15,416)	(8,116)
n/a	Contributions paid to joint ventures and associates		–	(446)
n/a	Net cash provided (or used in) investing activities		(45,245)	(21,589)
Cash flows from financing activities				
Nil				
n/a	Net increase/(decrease) in cash and cash equivalents		30,427	1,227
n/a	Plus: cash and cash equivalents – beginning of year	11a	6,198	4,971
n/a	Cash and cash equivalents – end of the period	11a	36,625	6,198
Additional Information:				
	plus: Investments on hand – end of period	6b	89,883	59,561
	Total cash, cash equivalents and investments		126,508	65,759

¹ The original budget as approved by Council is not required for these financial statements

Please refer to Note 11 for information on the following:

- Non-cash financing and investing activities
- Financing arrangements
- Net cash flow disclosures relating to any discontinued operations

This statement should be read in conjunction with the accompanying notes.

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Former City of Botany Bay Council

Notes to the Financial Statements

for the period to 9 September 2016

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n/a – not applicable

Former City of Botany Bay Council

Notes to the Financial Statements for the period to 9 September 2016

Note 1. Summary of significant accounting policies

The principal accounting policies adopted by Council in the preparation of these consolidated financial statements are set out below in order to assist in its general understanding.

Under Australian Accounting Standards (AASBs), accounting policies are defined as those specific principles, bases, conventions, rules and practices applied by a reporting entity (in this case Council) in preparing and presenting its financial statements.

(a) Basis of preparation

(i) Background

These financial statements are general purpose financial statements, which have been prepared in accordance with:

- Australian Accounting Standards and Australian Accounting Interpretations issued by the Australian Accounting Standards Board,
- the *Local Government Act (1993)* and Regulation,
- the Local Government (Bayside) Proclamation 2016 and
- the Local Government Code of Accounting Practice and Financial Reporting (No.24).

For the purpose of preparing these financial statements, Council has been deemed to be a not-for-profit entity.

(ii) Compliance with International Financial Reporting Standards (IFRSs)

Because AASBs are sector neutral, some standards either:

- (a) have local Australian content and prescription that is specific to the not-for-profit sector (including local government) which are not in compliance with IFRSs, or
- (b) specifically exclude application by not-for-profit entities.

Accordingly, in preparing these financial statements and accompanying notes, Council has been unable to comply fully with International Accounting

Standards, but has complied fully with Australian Accounting Standards.

Under the *Local Government Act* (LGA), Regulation and Local Government Code of Accounting Practice and Financial Reporting, it should be noted that Councils in NSW only have a requirement to comply with AASBs.

(iii) New and amended standards adopted by Council

There have been no new accounting standards adopted in this year's financial statements which have had any material impact on reported financial position, performance or cash flows.

(iv) Early adoption of accounting standards

Council has not elected to apply any pronouncements before their operative date in the annual reporting period beginning 1 July 2015, except for AASB2015-7 Amendments to Australian Accounting Standards – Fair Value Disclosures of Not-for-Profit Public Sector Entities, which has reduced the fair value disclosures for Level 3 assets.

For summary information relating to the effects of standards with future operative dates refer further to paragraph (x).

(v) Basis of accounting

These financial statements have been prepared under the **historical cost convention** except for:

- (i) certain financial assets and liabilities at fair value through profit or loss and available-for-sale financial assets, which are all valued at fair value,
- (ii) the write down of any asset on the basis of impairment (if warranted), and
- (iii) certain classes of non-current assets (eg. infrastructure, property, plant and equipment and investment property) that are accounted for at fair valuation.

The accrual basis of accounting has also been applied in their preparation.

Former City of Botany Bay Council

Notes to the Financial Statements for the period to 9 September 2016

Note 1. Summary of significant accounting policies (continued)

(vi) Changes in accounting policies

Council's accounting policies have been consistently applied to all the financial periods presented, unless otherwise stated.

There have also been no changes in accounting policies when compared with previous financial statements unless otherwise stated [refer Note 20 (d)].

(vii) Critical accounting estimates

The preparation of financial statements requires the use of certain critical accounting estimates (in conformity with AASBs).

Accordingly this requires management to exercise its judgement in the process of applying the Council's accounting policies.

Estimates and judgements are continually evaluated and are based on historical experience and other factors, including expectations of future events that may have a financial impact on Council and that are believed to be reasonable under the circumstances.

Critical accounting estimates and assumptions

Council makes estimates and assumptions concerning the future.

The resulting accounting estimates will, by definition, seldom equal the related actual results.

The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are set out below:

(i) Preparation of the financial statements on a going concern basis

AASB 101 states that an entity shall prepare financial statements on a going concern basis unless management either intends to liquidate the entity or to cease trading, or has no realistic alternative but to do so.

Whilst the former City of Botany Bay Council has been amalgamated into the Bayside Council from 9 September 2016, Council believes that the going concern basis for preparation of the financial statements for the period 1 July 2015 to 9

September 2016 is appropriate for the following reasons:

- The business of the Council is continuing through the Bayside Council
 - The Local Government (Bayside) Proclamation 2016 ensures:
 - all relevant staff, assets, rights, liabilities and responsibilities of former councils are transferred to new councils
 - new councils can commence operations on day one with minimal disruption to the delivery of services, council operations and staff duties
 - any reference in any document to a former council is to be read as a reference to the new council, and that anything done by a former council before the amalgamation is taken to have been done by the new council.
 - The former City of Botany Bay Council has not been liquidated nor has trading ceased.
- (ii) Estimated fair values of infrastructure, property, plant and equipment,
- (iii) Estimated remediation provisions.

Significant judgements in applying Council's accounting policies include the impairment of receivables.

(b) Revenue recognition

Income recognition as a result of Council's amalgamation

The former City of Botany Bay Council was amalgamated on 9 September 2016 with the former Rockdale City Council to form the new Bayside Council.

In accordance with the Australian Accounting Standards the former City of Botany Bay Council has had to recognise 100% of the rates revenue for the 2015/16 and 2016/17 rating years as control over assets acquired from rates is obtained at the commencement of the rating year/s or where earlier upon receipt of the rates.

Former City of Botany Bay Council

Notes to the Financial Statements for the period to 9 September 2016

Note 1. Summary of significant accounting policies (continued)

The former City of Botany Bay Council has also recognised 100% of the Federal Assistance Grants (FAGs) revenue received for the 15/16 and 16/17 financial years since grants are recognised upon receipt or upon earlier notification that the grant has been secured.

As a consequence, these financial statements include all the rates and FAGs revenue for the period from 1 July 2015 to 30 June 2017 but only expenditure obligations for the period 1 July 2015 to 9 September 2016.

Expenditure obligations for the period from 10 September 2016 to 30 June 2017 will be included in the future financial statements of the new Bayside Council for that period.

Council recognises revenue when the amount of revenue can be reliably measured, it is probable that future economic benefits will flow to it, and specific criteria have been met for each of the Council's activities as described below.

Council bases any estimates on historical results, taking into consideration the type of customer, the type of transaction and the specifics of each arrangement.

Revenue is measured at the fair value of the consideration received or receivable.

Revenue is measured on major income categories as follows:

Rates, Annual Charges, Grants and Contributions

Rates, annual charges, grants and contributions (including developer contributions) are recognised as revenues when the Council obtains control over the assets comprising these receipts.

Control over assets acquired from rates and annual levies is obtained at the commencement of the rating year as it is an enforceable debt linked to the rateable property or, where earlier, upon receipt of the rates.

Rates are recognised as revenue for the period 1 July 15 to 30 June 2017. No adjustments have been made to reverse (ie. not recognise) rates not earned during the period 10/09/2016 to 30/06/2017.

A provision for the impairment on rates receivables has not been established as unpaid rates represent a charge against the rateable property that will be recovered when the property is next sold.

Control over granted assets/contributed assets is normally obtained upon their receipt (or acquittal) or upon earlier notification that a grant has been secured, and is valued at their fair value at the date of transfer.

Revenue from contributions is recognised when the Council either obtains control of the contribution or the right to receive it, **(i)** it is probable that the economic benefits comprising the contribution will flow to the Council and **(ii)** the amount of the contribution can be measured reliably.

Where grants or contributions recognised as revenues during the financial year were obtained on condition that they be expended in a particular manner or used over a particular period and those conditions were undischarged at balance date, the unused grant or contribution is disclosed in Note 3 (g).

Note 3 (g) also discloses the amount of unused grant or contribution from prior years that was expended on Council's operations during the current year.

The Council has obligations to provide facilities from contribution revenues levied on developers under the provisions of s94 of the *EPA Act 1979*.

Whilst Council generally incorporates these amounts as part of a Development Consents Order, such developer contributions are only recognised as income upon their physical receipt by Council, due to the possibility that individual development consents may not be acted upon by the applicant and accordingly would not be payable to Council.

Developer contributions may only be expended for the purposes for which the contributions were required but the Council may apply contributions according to the priorities established in work schedules.

A detailed note relating to developer contributions can be found at Note 17.

Former City of Botany Bay Council

Notes to the Financial Statements for the period to 9 September 2016

Note 1. Summary of significant accounting policies (continued)

User charges, fees and other income

User charges, fees and other income (including parking fees and fines) are recognised as revenue when the service has been provided, the payment is received, or when the penalty has been applied, whichever first occurs.

A provision for the impairment of these receivables is recognised when collection in full is no longer probable.

A liability is recognised in respect of revenue that is reciprocal in nature to the extent that the requisite service has not been provided as at balance date.

Sale of infrastructure, property, plant and equipment

The profit or loss on sale of an asset is determined when control of the asset has irrevocably passed to the buyer.

Interest and rents

Rental income is accounted for on a straight-line basis over the lease term.

Interest income from cash and investments is accounted for using the effective interest rate at the date that interest is earned.

Dividend income

Revenue is recognised when the Council's right to receive the payment is established, which is generally when shareholders approve the dividend.

Other income

Other income is recorded when the payment is due, the value of the payment is notified or the payment is received, whichever occurs first.

(c) Principles of consolidation

These consolidated financial statements include the financial position and performance of controlled entities from the date on which control is obtained until the date that control is lost.

(i) The Consolidated Fund

In accordance with the provisions of section 409(1) of the LGA 1993, all money and property received by Council is held in the Council's consolidated fund unless it is required to be held in the Council's trust fund.

The consolidated fund and other entities through which the Council controls resources to carry on its functions have been included in the financial statements forming part of this report.

The following entities have been included as part of the consolidated fund:

- General purpose operations

(ii) Interests in other entities

Subsidiaries

Council has no interest in any subsidiaries.

Joint ventures

Joint ventures represent operational arrangements where the joint control parties have rights to the net assets of the arrangement.

Any interests in joint ventures are accounted for using the equity method and are carried at cost.

Under the equity method, Council's share of the operation's profits/(losses) are recognised in the income statement, and its share of movements in retained earnings and reserves are recognised in the balance sheet.

Detailed information relating to Council's joint ventures can be found at Note 19 (a).

Associates

Council has no interest in any associates.

County councils

Council is not a member of any county councils.

Unconsolidated structured entities

Council has no interest in any unconsolidated structured entities.

Former City of Botany Bay Council

Notes to the Financial Statements for the period to 9 September 2016

Note 1. Summary of significant accounting policies (continued)

(d) Leases

All leases entered into by Council are reviewed and classified on inception date as either a finance lease or an operating lease.

Finance leases

Leases of property, plant and equipment where the Council has substantially all the risks and rewards of ownership are classified as finance leases.

Finance leases are capitalised at the lease's inception at the lower of the fair value of the leased property and the present value of the minimum lease payments.

The corresponding rental obligations, net of finance charges, are included in borrowings.

Each lease payment is allocated between the liability outstanding and the recognition of a finance charge.

The interest element of the finance charge is costed to the income statement over the lease period so as to produce a constant periodic rate of interest on the remaining balance of the liability for each period.

Property, plant and equipment acquired under finance leases is depreciated over the shorter of each leased asset's useful life and the lease term.

Operating Leases

Leases in which a significant portion of the risks and rewards of ownership are retained by the lessor are classified as operating leases.

Payments made under operating leases (net of any incentives received from the lessor) are charged to the income statement on a straight-line basis over the period of the lease.

Lease income from operating leases is recognised in income on a straight-line basis over the lease term.

(e) Cash and Cash Equivalents

For Statement of Cash Flows (and Statement of Financial Position) presentation purposes, cash and cash equivalents includes;

- cash on hand,

- deposits held **at call** with financial institutions,
- other short-term, highly liquid investments **with original maturities of three months or less** that are readily convertible to known amounts of cash and that are subject to an insignificant risk of changes in value, and
- bank overdrafts.

Bank overdrafts are shown within borrowings in current liabilities on the balance sheet but are incorporated into cash and cash equivalents for presentation of the Cash Flow Statement.

(f) Investments and other financial assets

Council (in accordance with AASB 139) classifies each of its investments into one of the following categories for measurement purposes:

- **financial assets at fair value through profit or loss,**
- **loans and receivables,**
- **held-to-maturity investments,** and
- **available-for-sale financial assets.**

Each classification depends on the purpose or intention for which the investment was acquired and at the time it was acquired.

Management determines each investment classification at the time of initial recognition and re-evaluates this designation at each reporting date.

(i) Financial assets at fair value through profit or loss

Financial assets at fair value through profit or loss include financial assets that are 'held for trading'.

A financial asset is classified in the 'held for trading' category if it is acquired principally for the purpose of selling in the short term.

Assets in this category are primarily classified as current assets as they are primarily held for trading and/or are expected to be realised within 12 months of the balance sheet date.

Former City of Botany Bay Council

Notes to the Financial Statements for the period to 9 September 2016

Note 1. Summary of significant accounting policies (continued)

(ii) Loans and receivables

Loans and receivables are non-derivative financial assets with fixed or determinable payments that are not quoted in an active market.

They arise when the Council provides money, goods or services directly to a debtor with no intention (or in some cases ability) of selling the resulting receivable.

They are included in current assets, except for those with maturities greater than 12 months after the balance sheet date, which are classified as non-current assets.

(iii) Held-to-maturity investments

Held-to-maturity investments are non-derivative financial assets with fixed or determinable payments and fixed maturities that the Council's management has the positive intention and ability to hold to maturity.

In contrast to the 'loans and receivables' classification, these investments are generally quoted in an active market.

Held-to-maturity financial assets are included in non-current assets, except for those with maturities less than 12 months from the reporting date, which are classified as current assets.

(iv) Available-for-sale financial assets

Available-for-sale financial assets are non-derivatives that are either designated in this category or not classified in any of the other categories.

Investments must be designated as available-for-sale if they do not have fixed maturities and fixed or determinable payments and management intends to hold them for the medium to long term.

Accordingly, this classification principally comprises marketable equity securities, but can include all types of financial assets that could otherwise be classified in one of the other investment categories.

They are generally included in non-current assets unless management intends to dispose of the investment within 12 months of the balance sheet date or the term to maturity from the reporting date is less than 12 months.

Financial assets – reclassification

Council may choose to reclassify a non-derivative trading financial asset out of the held-for-trading category if the financial asset is no longer held for the purpose of selling it in the near term.

Financial assets other than loans and receivables are permitted to be reclassified out of the held-for-trading category only in rare circumstances arising from a single event that is unusual and highly unlikely to recur in the near term.

Council may also choose to reclassify financial assets that would meet the definition of loans and receivables out of the held-for-trading or available-for-sale categories if it has the intention and ability to hold these financial assets for the foreseeable future or until maturity at the date of reclassification.

Reclassifications are made at fair value as of the reclassification date. Fair value becomes the new cost or amortised cost as applicable, and no reversals of fair value gains or losses recorded before reclassification date are subsequently made.

Effective interest rates for financial assets reclassified to loans and receivables and held-to-maturity categories are determined at the reclassification date. Further increases in estimates of cash flows adjust effective interest rates prospectively.

General accounting and measurement of financial instruments:

(i) Initial recognition

Investments are initially recognised (and measured) at fair value, plus in the case of investments not at 'fair value through profit or loss', directly attributable transactions costs.

Purchases and sales of investments are recognised on trade-date – the date on which the Council commits to purchase or sell the asset.

Financial assets are derecognised when the rights to receive cash flows from the financial assets have expired or have been transferred and the Council has transferred substantially all the risks and rewards of ownership.

Former City of Botany Bay Council

Notes to the Financial Statements for the period to 9 September 2016

Note 1. Summary of significant accounting policies (continued)

(ii) Subsequent measurement

Available-for-sale financial assets and financial assets at fair value through profit and loss are subsequently carried at fair value.

Loans and receivables and held-to-maturity investments are carried at amortised cost using the effective interest method.

Realised and unrealised gains and losses arising from changes in the fair value of the financial assets classified as **'fair value through profit or loss'** category are included in the income statement in the period in which they arise.

Unrealised gains and losses arising from changes in the fair value of non-monetary securities classified as **'available-for-sale'** are recognised in equity in the available-for-sale investments revaluation reserve.

When securities classified as **'available-for-sale'** are sold or impaired, the accumulated fair value adjustments are included in the income statement as gains and losses from investment securities.

Impairment

Council assesses at each balance date whether there is objective evidence that a financial asset or group of financial assets is impaired.

A financial asset or a group of financial assets is impaired and impairment losses are incurred only if there is objective evidence of impairment as a result of one or more events that occurred after the initial recognition of the asset (a 'loss event') and that loss event (or events) has an impact on the estimated future cash flows of the financial asset or group of financial assets that can be reliably estimated.

(iii) Types of investments

Council has an approved Investment Policy in order to invest in accordance with (and to comply with) section 625 of the *Local Government Act* and s212 of the LG (General) Regulation 2005.

Investments are placed and managed in accordance with the policy and having particular regard to authorised investments prescribed under the Ministerial Local Government Investment Order.

Council maintains its Investment Policy in compliance with the Act and ensures that it or its representatives exercise care, diligence and skill that a prudent person would exercise in investing Council funds.

Council amended its policy following revisions to the Ministerial Local Government Investment Order arising from the Cole Inquiry recommendations. Certain investments that Council holds are no longer prescribed (eg. managed funds, CDOs, and equity linked notes), however they have been retained under grandfathering provisions of the Order. These will be disposed of when most financially advantageous to Council.

(g) Fair value estimation – financial instruments

The fair value of financial assets and financial liabilities must be estimated for recognition and measurement or for disclosure purposes.

The fair value of financial instruments traded in active markets is based on quoted market prices at the balance sheet date.

The fair value of financial instruments that are not traded in an active market is determined using valuation techniques.

Council uses a variety of methods and makes assumptions that are based on market conditions existing at each balance date.

Quoted market prices or dealer quotes for similar instruments are used for long-term debt instruments held.

If the market for a financial asset is not active (and for unlisted securities), the Council establishes fair value by using valuation techniques.

These include reference to the fair values of recent arm's length transactions, involving the same instruments or other instruments that are substantially the same, discounted cash flow analysis, and option pricing models refined to reflect the issuer's specific circumstances.

The nominal value less estimated credit adjustments of trade receivables and payables are assumed to approximate their fair values.

Former City of Botany Bay Council

Notes to the Financial Statements for the period to 9 September 2016

Note 1. Summary of significant accounting policies (continued)

The fair value of financial liabilities for disclosure purposes is estimated by discounting the future contractual cash flows at the current market interest rate that is available to the Council for similar financial instruments.

(h) Receivables

Receivables are initially recognised at fair value and subsequently measured at amortised cost, less any provision for impairment.

Receivables (excluding rates and annual charges) are generally due for settlement no more than 30 days from the date of recognition.

The collectibility of receivables is reviewed on an ongoing basis. Debts that are known to be uncollectible are written off in accordance with Council's policy.

A provision for impairment (i.e. an allowance account) relating to receivables is established when objective evidence shows that Council will not be able to collect all amounts due according to the original terms of each receivable.

The amount of the provision is the difference between the asset's carrying amount and the present value of estimated future cash flows, discounted at the effective interest rate.

Impairment losses are recognised in the Income Statement within other expenses.

When a receivable for which an impairment allowance had been recognised becomes uncollectible in a subsequent period, it is written off against the allowance account.

Subsequent recoveries of amounts previously written off are credited against other expenses in the Income Statement.

(i) Inventories

(i) Raw materials and stores, work in progress and finished goods

Raw materials and stores, work in progress and finished goods in respect of business undertakings are all stated at the lower of cost and net realisable value.

Cost comprises direct materials, direct labour and an appropriate proportion of variable and fixed overhead expenditure, the latter being allocated on the basis of normal operating capacity.

Costs are assigned to individual items of inventory on the basis of weighted average costs.

Net realisable value is the estimated selling price in the ordinary course of business less the estimated costs of completion and the estimated costs necessary to make the sale.

Inventories held in respect of non-business undertakings have been valued at cost subject to adjustment for loss of service potential.

(ii) Land held for resale/capitalisation of borrowing costs

Land held for resale is stated at the lower of cost and net realisable value.

Cost is assigned by specific identification and includes the cost of acquisition, and development and borrowing costs during development.

When development is completed borrowing costs and other holding charges are expensed as incurred.

Borrowing costs included in the cost of land held for resale are those costs that would have been avoided if the expenditure on the acquisition and development of the land had not been made.

Borrowing costs incurred while active development is interrupted for extended periods are recognised as expenses.

(j) Infrastructure, property, plant and equipment (I,PP&E)

Acquisition of assets

Council's non-current assets are continually revalued (over a 5-year period) in accordance with the fair valuation policy as mandated by the Office of Local Government.

Former City of Botany Bay Council

Notes to the Financial Statements for the period to 9 September 2016

Note 1. Summary of significant accounting policies (continued)

At balance date, the following classes of I,PP&E were stated at their fair value:

- **Plant and equipment**
(as approximated by depreciated historical cost)
- **Operational land** (external valuation)
- **Community land** (external valuation)
- **Land improvements**
(as approximated by depreciated historical cost)
- **Buildings**
(external valuation)
- **Other structures**
(as approximated by depreciated historical cost)
- **Roads assets including roads, bridges and footpaths**
(external valuation)
- **Stormwater drainage** (external valuation)
- **Library books**
(as approximated by depreciated historical cost)
- **Other assets**
(as approximated by depreciated historical cost)

Initial recognition

On initial recognition, an asset's cost is measured at its fair value, plus all expenditure that is directly attributable to the acquisition.

Where settlement of any part of an asset's cash consideration is deferred, the amounts payable in the future are discounted to their present value as at the date of recognition (i.e. date of exchange) of the asset to arrive at fair value.

The discount rate used is the Council's incremental borrowing rate, being the rate at which a similar borrowing could be obtained from an independent financier under comparable terms and conditions.

Where infrastructure, property, plant and equipment assets are acquired for no cost or for an amount other than cost, the assets are recognised in the financial statements at their fair value at acquisition date – being the amount that the asset could have been exchanged between knowledgeable willing parties in an arm's length transaction.

Subsequent costs

Subsequent costs are included in the asset's carrying amount or recognised as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the item will flow to Council and the cost of the item can be measured reliably.

All other repairs and maintenance are charged to the income statement during the financial period in which they are incurred.

Asset revaluations (including indexation)

In accounting for asset revaluations relating to infrastructure, property, plant and equipment:

- increases in the combined carrying amounts of asset classes arising on revaluation are credited to the asset revaluation reserve,
- to the extent that a net asset class increase reverses a decrease previously recognised via the profit or loss, then increase is first recognised in profit or loss,
- net decreases that reverse previous increases of the same asset class are first charged against revaluation reserves directly in equity to the extent of the remaining reserve attributable to the asset, with all other decreases charged to the Income Statement.

Water and sewerage network assets are indexed annually between full revaluations in accordance with the latest indices provided in the NSW Office of Water – Rates Reference Manual.

For all other assets, Council assesses at each reporting date whether there is any indication that a revalued asset's carrying amount may differ materially from that which would be determined if the asset were revalued at the reporting date.

If any such indication exists, Council determines the asset's fair value and revalues the asset to that amount.

Full revaluations are undertaken for all assets on a 5-year cycle.

Former City of Botany Bay Council

Notes to the Financial Statements
for the period to 9 September 2016

Note 1. Summary of significant accounting policies (continued)

Capitalisation thresholds, Depreciation and Revaluation

Items of infrastructure, property, plant and equipment are not capitalised unless their cost of acquisition exceeds the amounts listed in the following table:

Depreciation

Depreciation on Council's infrastructure, property, plant and equipment assets is calculated using the straight-line method (or describe here any other methods Council uses) in order to allocate an asset's cost (net of residual values) over its estimated useful life.

Land is not depreciated.

Estimated useful lives for Council's I,PP&E include the amounts listed in the following table:

Asset Class	Capitalisation Threshold	Useful life	Valuation Methodology	Revaluation Methodology
Land Assets				
Community Land	100% capitalised	Not depreciated	Revaluation	Revalued 2016 by VG
Operational Land	100% capitalised	Not depreciated	Revaluation	Revalued 2016 by APV
Crown Land	100% capitalised	Not depreciated	Revaluation	Revalued 2016 by VG
Plant & Equipment				
Office Equipment	>\$2,000	5 to 10 years	Historical Cost	N/A
Computer Equipment	>\$2,000	4 years	Historical Cost	N/A
Furniture & Fittings	>\$2,000	10 years	Historical Cost	N/A
Vehicles (general)	>\$2,000	5 years	Historical Cost	N/A
Heavy Plant/Road Making Equipment	>\$2,000	5 to 8 years	Historical Cost	N/A
Buildings & Land Improvements				
Buildings	100% capitalised	6 to 195 years	Revaluation	Revalued 2016 by APV - short life/long life weighted average
Land Improvements	100% capitalised	20 to 40 years	Historical Cost	N/A
Other Structures	>\$2,000	10 to 40 years	Historical Cost	N/A
Infrastructure Assets				
Road Surface	>\$2,000	26 to 35 years	Revaluation	Revalued 2016 by APV
Road Base (Concrete/Standard)	>\$2,000	85 to 119 years	Revaluation	Revalued 2016 by APV
Street Furniture	>\$2,000	15 to 30 years	Revaluation	Revalued 2016 by APV
Traffic Management Assets	>\$2,000	30 to 114 years	Revaluation	Revalued 2016 by APV
Kerb & Gutter	>\$2,000	82 to 97 years	Revaluation	Revalued 2016 by APV
Stormwater Drainage	>\$2,000	80 to 97 years	Revaluation	Revalued 2016 by APV
Footpaths	>\$2,000	22 to 77 years	Revaluation	Revalued 2016 by APV
Intangible Assets				
Software Applications	>\$2,000	2 - 10 years	Historical Cost	N/A
Library Books	100% capitalised	10 years	Historical Cost	N/A
Other Assets	>\$2,000	10 to 40 years	Historical Cost	N/A

Former City of Botany Bay Council

Notes to the Financial Statements for the period to 9 September 2016

Note 1. Summary of significant accounting policies (continued)

All asset residual values and useful lives are reviewed and adjusted (if appropriate) at each reporting date.

An asset's carrying amount is written down immediately to its recoverable amount if the asset's carrying amount is greater than its estimated recoverable amount – refer Note 1 (s) on asset impairment.

Disposal and derecognition

An item of property, plant and equipment is derecognised upon disposal or when no further future economic benefits are expected from its use or disposal.

Any gain or loss arising on derecognition of the asset (calculated as the difference between the net disposal proceeds and the carrying amount of the asset) is included in Council's Income Statement in the year the asset is derecognised.

(k) Land

Land (other than land under roads) is in accordance with Part 2 of Chapter 6 of the *Local Government Act (1993)* classified as either operational or community.

This classification of land is disclosed in Note 9 (a).

(l) Land under roads

Land under roads is land under roadways and road reserves, including land under footpaths, nature strips and median strips.

Council has elected not to recognise land under roads acquired before 1 July 2008 in accordance with AASB 1051.

Land under roads acquired after 1 July 2008 is recognised in accordance with AASB 116 – Property, Plant and Equipment.

(m) Intangible assets

IT development and software

Costs incurred in developing products or systems and costs incurred in acquiring software and licenses that will contribute to future period financial

benefits through revenue generation and/or cost reduction are capitalised to software applications and systems.

Costs capitalised include external direct costs of materials and services, direct payroll and payroll-related costs of employees' time spent on the project.

Amortisation is calculated on a straight line bases over periods generally ranging from 2 to 5 years.

IT development costs include only those costs directly attributable to the development phase and are only recognised following completion of technical feasibility and where Council has an intention and ability to use the asset.

(n) Crown reserves

Crown reserves under Council's care and control are recognised as assets of the Council.

While ownership of the reserves remains with the Crown, Council retains operational control of the reserves and is responsible for their maintenance and use in accordance with the specific purposes to which the reserves are dedicated.

Improvements on Crown reserves are also recorded as assets, while maintenance costs incurred by Council and revenues relating to the reserves are recognised within Council's Income Statement.

Representations are currently being sought across state and local government to develop a consistent accounting treatment for Crown Reserves across both tiers of government.

(o) Impairment of assets

All Council's I,PP&E is subject to an annual assessment of impairment.

Assets that are subject to amortisation are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable.

An impairment loss is recognised for the amount by which the asset's carrying amount exceeds its recoverable amount.

The recoverable amount is the higher of an asset's fair value less costs to sell and value in use.

Former City of Botany Bay Council

Notes to the Financial Statements for the period to 9 September 2016

Note 1. Summary of significant accounting policies (continued)

Where an asset is not held principally for cash-generating purposes (for example infrastructure assets) and would be replaced if the Council was deprived of it, then depreciated replacement cost is used as value in use, otherwise value in use is estimated by using a discounted cash flow model.

Non-financial assets (other than goodwill) that suffered a prior period impairment are reviewed for possible reversal of the impairment at each reporting date.

Goodwill and other intangible assets that have an indefinite useful life and are not subject to amortisation are tested annually for impairment.

(p) Payables

These amounts represent liabilities and include goods and services provided to the Council prior to the end of financial period that are unpaid.

The amounts for goods and services are unsecured and are usually paid within 30 days of recognition.

(q) Borrowings

Borrowings are initially recognised at fair value, net of transaction costs incurred.

Borrowings are subsequently measured at amortised cost.

Amortisation results in any difference between the proceeds (net of transaction costs) and the redemption amount being recognised in the Income Statement over the period of the borrowings using the effective interest method.

Borrowings are removed from the balance sheet when the obligation specified in the contract is discharged, cancelled or expired.

Borrowings are classified as current liabilities unless the Council has an unconditional right to defer settlement of the liability for at least 12 months after the balance sheet date.

(r) Borrowing costs

Borrowing costs are expensed.

Borrowing costs incurred for the construction of any qualifying asset are capitalised during the period of time that is required to complete and prepare the asset for its intended use or sale.

(s) Provisions

Provisions for legal claims, service warranties and other like liabilities are recognised when:

- Council has a present legal or constructive obligation as a result of past events,
- it is more likely than not that an outflow of resources will be required to settle the obligation, and
- the amount has been reliably estimated.

Provisions are not recognised for future operating losses.

Where there are a number of similar obligations, the likelihood that an outflow will be required in settlement is determined by considering the class of obligations as a whole.

A provision is recognised even if the likelihood of an outflow with respect to any one item included in the same class of obligations may be small.

Provisions are measured at the present value of management's best estimate of the expenditure required to settle the present obligation at the reporting date.

The discount rate used to determine the present value reflects current market assessments of the time value of money and the risks specific to the liability.

The increase in the provision due to the passage of time is recognised as interest expense.

(t) Employee benefits

(i) Short-term obligations

Short-term employee benefit obligations include liabilities for wages and salaries (including non-monetary benefits), annual leave and vesting sick leave expected to be wholly settled within the 12 months after the reporting period.

Former City of Botany Bay Council

Notes to the Financial Statements for the period to 9 September 2016

Note 1. Summary of significant accounting policies (continued)

Leave liabilities are recognised in the provision for employee benefits in respect of employees' services up to the reporting date with other short term employee benefit obligations disclosed under payables.

These provisions are measured at the amounts expected to be paid when the liabilities are settled and include recognition of associated on-costs.

All other short-term employee benefit obligations are presented as payables.

Liabilities for non-vesting sick leave are recognised at the time when the leave is taken and measured at the rates paid or payable, and accordingly no Liability has been recognised in these reports.

Wages and salaries, annual leave and vesting sick leave are all classified as current liabilities.

(ii) Other long-term obligations

The liability for all long service and annual leave in respect of services provided by employees up to the reporting date (which is not expected to be wholly settled within the 12 months after the reporting period) are recognised in the provision for employee benefits.

These liabilities are measured at the present value of the expected future payments to be made using the projected unit credit method.

Consideration is given to expected future wage and salary levels, experience of employee departures and periods of service.

Expected future payments are then discounted using market yields at the reporting date based on national government bonds with terms to maturity and currency that match as closely as possible the estimated future cash outflows.

Due to the nature of when and how long service leave can be taken, all long service leave for employees with 4 or more years of service has been classified as current, as it has been deemed that Council does not have the unconditional right to defer settlement beyond 12 months – even though it is not anticipated that all employees with more than 4 years service (as at reporting date) will apply for and take their leave entitlements in the next 12 months.

(iii) Retirement benefit obligations

All employees of the Council are entitled to benefits on retirement, disability or death.

Council contributes to various defined benefit plans and defined contribution plans on behalf of its employees.

Defined benefit plans

A liability or asset in respect of defined benefit superannuation plans would ordinarily be recognised in the balance sheet, and measured as the present value of the defined benefit obligation at the reporting date plus unrecognised actuarial gains (less unrecognised actuarial losses) less the fair value of the superannuation fund's assets at that date and any unrecognised past service cost.

The present value of the defined benefit obligation is based on expected future payments which arise from membership of the fund to the reporting date, calculated annually by independent actuaries using the projected unit credit method. Consideration is given to expected future wage and salary levels, experience of employee departures and periods of service.

However, when this information is not reliably available, Council can account for its obligations to defined benefit plans on the same basis as its obligations to defined contribution plans – i.e. as an expense when they become payable.

Council is party to an Industry Defined Benefit Plan under the Local Government Superannuation Scheme, named the 'Local Government Superannuation Scheme – Pool B'.

This scheme has been deemed to be a 'multi-employer fund' for the purposes of AASB 119.

Sufficient information is not available to account for the Scheme as a defined benefit plan (in accordance with AASB 119) because the assets to the scheme are pooled together for all Councils.

The last valuation of the scheme was performed by Mr Martin Stevenson BSc, FIA, FIAA on 20/02/13 and covers the period ended 30/06/15.

Former City of Botany Bay Council

Notes to the Financial Statements for the period to 9 September 2016

Note 1. Summary of significant accounting policies (continued)

However the position is monitored annually and the actuary has estimated that as at 9 September 2016 the prior period deficit still exists.

Effective from 1 July 2009, employers are required to contribute additional contributions to assist in extinguishing this deficit.

The amount of employer contributions to the defined benefit section of the Local Government Superannuation Scheme and recognised as an expense and disclosed as part of superannuation expenses at Note 4 (a) for the year ending 9 September 2016 was \$1,175,416.

The amount of additional contributions included in the total employer contribution advised above is \$616,721.

The share of this deficit that can be broadly attributed to Council is estimated to be in the order of \$360,252 as at 30 June 2016.

Council's share of that deficiency cannot be accurately calculated as the scheme is a mutual arrangement where assets and liabilities are pooled together for all member councils.

For this reason, no liability for the deficiency has been recognised in these financial statements.

Council has, however, disclosed a contingent liability in Note 18 to reflect the possible obligation that may arise should the scheme require immediate payment to correct the deficiency.

Defined contribution plans

Contributions to defined contribution plans are recognised as an expense as they become payable.

Prepaid contributions are recognised as an asset to the extent that a cash refund or a reduction in the future payments is available.

(iv) Employee benefit on-costs

Council has recognised at year end the aggregate on-cost liabilities arising from employee benefits, and in particular those on-cost liabilities that will arise when payment of current employee benefits is made in future periods.

These amounts include superannuation and workers compensation expenses which will be payable upon the future payment of certain leave liabilities accrued as at 09/09/16.

(u) Self-insurance

Council does not self-insure.

(v) Allocation between current and non-current assets and liabilities

In the determination of whether an asset or liability is classified as current or non-current, consideration is given to the time when each asset or liability is expected to be settled.

The asset or liability is classified as current if it is expected to be settled within the next 12 months, being the Council's operational cycle.

Exceptions

In the case of liabilities where Council does not have the unconditional right to defer settlement beyond 12 months (such as vested long service leave), the liability is classified as current even if it is not expected to be settled within the next 12 months.

In the case of inventories that are 'held for trading', these are also classified as current even if not expected to be realised in the next 12 months.

(w) Taxes

The Council is exempt from both Commonwealth Income Tax and Capital Gains Tax.

Council does, however, have to comply with both Fringe Benefits Tax and Goods and Services Tax (GST).

Goods and Services Tax (GST)

Income, expenses and assets are all recognised net of the amount of GST, except where the amount of GST incurred is not recoverable from the Australian Tax Office (ATO).

In these circumstances the GST is recognised as part of the cost of acquisition of the asset or as part of the revenue / expense.

Former City of Botany Bay Council

Notes to the Financial Statements for the period to 9 September 2016

Note 1. Summary of significant accounting policies (continued)

Receivables and payables within the Balance Sheet are stated inclusive of any applicable GST.

The net amount of GST recoverable from or payable to the ATO is included as a current asset or current liability in the Balance Sheet.

Operating cash flows within the Cash Flow Statement are on a gross basis, i.e. they are inclusive of GST where applicable.

Investing and financing cash flows are treated on a net basis (where recoverable from the ATO), i.e. they are exclusive of GST. Instead, the GST component of investing and financing activity cash flows that are recoverable from or payable to the ATO are classified as operating cash flows.

Commitments and contingencies are disclosed net of the amount of GST recoverable from (or payable to) the ATO.

(x) New accounting standards and Interpretations issued (not yet effective)

Certain new (or amended) accounting standards and interpretations have been published that are not mandatory for reporting periods ending 30 June 2016.

Council has not adopted any of these standards early.

These include the following standards that are anticipated will impact on local government:

AASB 9 – Financial Instruments

AASB 15 – Revenue from Contracts with Customers and associated amending standards

AASB ED 260 – Income of Not-for-Profit Entities

AASB16 – Leases

AASB2015-6 – Amendments to Australian Accounting Standards – Extending Related Party Disclosures to Not-for-Profit Public Sector Entities

AASB 2014 – 10 Sale or Contribution of Assets Between an Investor and its Associate or Joint Venture

AASB 2014 – 3 Amendments to Australian Accounting Standards – Accounting for Acquisitions of Interests in Joint Operations [AASB 1 and AASB 11]

The full impact of the above standards has yet to be ascertained or quantified but will range from additional and/or revised disclosures to changes in how certain transactions and balances are accounted for.

(y) Rounding of amounts

Unless otherwise indicated, amounts in the financial statements have been rounded off to the nearest thousand dollars.

(z) Comparative figures

To ensure comparability with the current reporting period's figures, some comparative period line items and amounts may have been reclassified or individually reported for the first time within these financial statements and/or the notes.

(aa) Disclaimer

Nothing contained within these statements may be taken to be an admission of any liability to any person under any circumstance.

Financial Statements 2016

Former City of Botany Bay Council

Notes to the Financial Statements
for the period to 9 September 2016

Note 2(a). Council functions/activities – financial information

Functions/activities	Income, expenses and assets have been directly attributed to the following functions/activities. Details of these functions/activities are provided in Note 2(b).												
	Income from continuing operations			Expenses from continuing operations			Operating result from continuing operations			Grants included in income from continuing operations		Total assets held (current & non-current)	
	Original budget	Actual	Actual	Original budget	Actual	Actual	Original budget	Actual	Actual	Actual	Actual	Actual	Actual
	1/7/15 to 9/9/16	1/7/15 to 9/9/16	1/7/14 to 30/6/15	1/7/15 to 9/9/16	1/7/15 to 9/9/16	1/7/14 to 30/6/15	1/7/15 to 9/9/16	1/7/15 to 9/9/16	1/7/14 to 30/6/15	1/7/15 to 9/9/16	1/7/14 to 30/6/15	1/7/15 to 9/9/16	1/7/14 to 30/6/15
Governance	n/a	–	–	n/a	–	–	n/a	–	–	–	–	–	–
Administration	n/a	15,797	4,382	n/a	26,731	13,581	n/a	(10,934)	(9,199)	121	–	354,910	78,676
Public order and safety	n/a	826	1,177	n/a	3,030	1,342	n/a	(2,204)	(165)	–	–	–	–
Health	n/a	80	11	n/a	6	75	n/a	74	(64)	4	–	43	–
Environment	n/a	10,022	7,395	n/a	11,873	9,872	n/a	(1,851)	(2,477)	43	584	21,774	–
Community services and education	n/a	18,277	4,287	n/a	4,914	4,343	n/a	13,363	(56)	2,515	2,061	556	20,994
Housing and community amenities	n/a	464	386	n/a	3,163	2,219	n/a	(2,699)	(1,833)	28	68	1	47,957
Recreation and culture	n/a	37,460	2,294	n/a	12,923	11,372	n/a	24,537	(9,078)	119	230	280	90,888
Mining, manufacturing and construction	n/a	1,770	19,523	n/a	5,158	4,502	n/a	(3,388)	15,021	–	–	118	–
Transport and communication	n/a	12,012	1,888	n/a	9,447	4,535	n/a	2,565	(2,647)	3,002	1,140	141,017	199,265
Economic affairs	n/a	8,849	7,593	n/a	14,171	8,574	n/a	(5,322)	(981)	–	–	1,012	–
Total functions and activities	n/a	105,557	48,936	n/a	91,416	60,415	n/a	14,141	(11,479)	5,832	4,083	519,711	437,780
Share of gains/(losses) in associates and joint ventures (using the equity method)	n/a	167	–	n/a	–	340	n/a	167	(340)	–	–	1,611	1,444
General purpose income ¹	n/a	55,568	30,847	n/a	–	–	n/a	55,568	30,847	2,668	1,406	–	–
Operating result from continuing operations	n/a	161,292	79,783	n/a	91,416	60,755	n/a	69,876	19,028	8,500	5,489	521,322	439,224

1. Includes: rates and annual charges (incl. ex-gratia), untied general purpose grants and unrestricted interest and investment income.

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Former City of Botany Bay Council

Notes to the Financial Statements for the period to 9 September 2016

Note 2(b). Council functions/activities – component descriptions

Details relating to the Council's functions/activities as reported in Note 2(a) are as follows:

GOVERNANCE

Includes costs relating to Council's role as a component of democratic government, including elections, members' fees and expenses, subscriptions to local authority associations, meetings of Council and policy-making committees, public disclosure (e.g. GIPA), and legislative compliance.

ADMINISTRATION

Includes corporate support and other support services, engineering works, and any Council policy compliance.

PUBLIC ORDER AND SAFETY

Fire protection, animal control, beach control, enforcement of local government regulations, emergency services, other.

HEALTH

Includes immunisation, food control, health centres etc.

ENVIRONMENT

Includes noxious plants and insect/vermin control; other environmental protection; solid waste management, including domestic waste; other waste management; other sanitation; and garbage, street cleaning, drainage and stormwater management.

COMMUNITY SERVICES AND EDUCATION

Includes administration and education; social protection (welfare); migrant, Aboriginal and other community services and administration (excluding accommodation – as it is covered under 'housing and community amenities'); youth services; aged and disabled persons services; children's services, including family day care; child care; and other family and children services.

HOUSING AND COMMUNITY AMENITIES

Includes public cemeteries; public conveniences; street lighting; town planning; other community amenities, including housing development and accommodation for families and children, aged persons, disabled persons, migrants and Indigenous persons.

RECREATION AND CULTURE

Includes public libraries; museums; art galleries; community centres and halls, including public halls and performing arts venues; sporting grounds and venues; swimming pools; parks; gardens; lakes; and other sporting, recreational and cultural services.

MINING, MANUFACTURING AND CONSTRUCTION

Includes building control, quarries and pits, mineral resources, and abattoirs.

TRANSPORT AND COMMUNICATION

Urban local, urban regional, includes sealed and unsealed roads, bridges, footpaths, parking areas, and aerodromes.

ECONOMIC AFFAIRS

Includes camping areas and caravan parks; tourism and area promotion; industrial development promotion; sale yards and markets; real estate development; commercial nurseries; and other business undertakings.

Former City of Botany Bay Council

Notes to the Financial Statements
for the period to 9 September 2016

Note 3. Income from continuing operations

		Actual 1/7/15 to 30/6/17	Actual 1/7/14 to 30/6/15
\$ '000	Notes		
(a) Rates and annual charges			
Ordinary rates			
Residential		20,935	9,667
Business		31,434	16,167
Total ordinary rates		52,369	25,834
Special rates			
Parking		200	97
Main street		200	97
Total special rates		400	194
Annual charges (pursuant to s.496, s.496A, s.496B, s.501 & s.611)			
Domestic waste management services		9,390	7,156
Stormwater management services		1,473	701
Section 611 charges		428	387
Total annual charges		11,291	8,244
TOTAL RATES AND ANNUAL CHARGES		64,060	34,272

In accordance with the Australian Accounting Standards the former City of Botany Bay Council has had to recognise 100% of the rates revenue for 2015/16 and 2016/17. No adjustments have been made for rates not earned during the period 10/09/2016 to 30/06/2017.

Prior year comparative balances are restated to align to current year disclosures.

Council has used 2013 year valuations provided by the NSW Valuer General in calculating its rates.

Former City of Botany Bay Council

Notes to the Financial Statements
for the period to 9 September 2016

Note 3. Income from continuing operations (continued)

		Actual 1/7/15 to 9/9/16	Actual 1/7/14 to 30/6/15
\$ '000	Notes		
(b) User charges and fees			
Specific user charges (per s.502 – specific 'actual use' charges)			
Nil			
Other user charges and fees			
(i) Fees and charges – statutory and regulatory functions (per s.608)			
Inspection services		120	109
Planning and building regulation		1,465	1,596
Private works – section 67		529	308
Registration fees		128	6
Section 603 certificates		84	76
Total fees and charges – statutory/regulatory		2,326	2,095
(ii) Fees and charges – other (incl. general user charges (per s.608))			
Advertising		165	188
B/A school fees		673	479
Contract services		8,849	6,942
Golf course		372	328
Hire and usage fees		1,424	1,663
Long Day Care		1,932	1,487
Meals on wheels		170	135
Rent and hire of property		67	64
Restoration charges		433	535
Road openings		258	113
Swimming centres		657	549
Other		530	240
Total fees and charges – other		15,530	12,723
TOTAL USER CHARGES AND FEES		17,856	14,818

Former City of Botany Bay Council

Notes to the Financial Statements
for the period to 9 September 2016

Note 3. Income from continuing operations (continued)

		Actual 1/7/15 to 9/9/16	Actual 1/7/14 to 30/6/15
\$ '000	Notes		
(c) Interest and investment revenue (including losses)			
Interest			
– Interest on overdue rates and annual charges (incl. special purpose rates)		153	126
– Interest earned on cash and investments (interest and coupon payment income)		2,968	2,048
Fair value adjustments			
– Fair valuation movements in investments (at fair value or held for trading)		129	4
<u>TOTAL INTEREST AND INVESTMENT REVENUE</u>		<u>3,250</u>	<u>2,178</u>
Interest revenue is attributable to:			
Unrestricted investments/financial assets:			
Overdue rates and annual charges (general fund)		153	126
General Council cash and investments		378	1,398
Restricted investments/funds – external:			
Development contributions			
– Section 94		2,719	654
<u>Total interest and investment revenue recognised</u>		<u>3,250</u>	<u>2,178</u>
(d) Other revenues			
Fines – parking		747	710
Legal fees recovery – other		208	12
GST recovery		–	991
Insurance claim recoveries		62	38
Sales – general		199	214
Other		225	166
<u>TOTAL OTHER REVENUE</u>		<u>1,441</u>	<u>2,131</u>

Former City of Botany Bay Council

Notes to the Financial Statements
for the period to 9 September 2016

Note 3. Income from continuing operations (continued)

\$ '000	1/7/15 to 9/9/16 Operating	1/7/14 to 30/6/15 Operating	1/7/15 to 9/9/16 Capital	1/7/14 to 30/6/15 Capital
(e) Grants				
General purpose (untied)				
Financial assistance	2,422 ¹	1,184	—	—
Pensioners' rates subsidies – general component	246	222	—	—
Total general purpose	2,668	1,406	—	—
Specific purpose				
Pensioners' rates subsidies:				
– Domestic waste management	105	121	—	—
Community care	2,520	2,075	—	—
Community centres	—	—	—	68
Heritage and cultural	148	115	—	48
Recreation	—	—	—	45
Street lighting	250	500	—	—
Transport (other roads and bridges funding)	768	140	1,875	500
Other	166	471	—	—
Total specific purpose	3,957	3,422	1,875	661
Total grants	6,625	4,828	1,875	661
Grant revenue is attributable to:				
– Commonwealth funding	2,422	1,527	—	500
– State funding	4,037	3,301	—	161
– Other funding	166	—	1,875	—
	6,625	4,828	1,875	661

¹ Federal Assistance Grants (FAGs) are recognised as revenue upon their receipt or upon earlier notification that the grant has been secured. As such the revenue for FAGs includes the full grant allocation for the 16/17 year.

Former City of Botany Bay Council

Notes to the Financial Statements

for the period to 9 September 2016

Note 3. Income from continuing operations (continued)

	1/7/15 to 9/9/16	1/7/14 to 30/6/15	1/7/15 to 9/9/16	1/7/14 to 30/6/15
\$ '000	Operating	Operating	Capital	Capital
(f) Contributions				
Developer contributions:				
(s93 & s94 – EP&A Act, s64 of the LGA):				
S 93F – contributions using planning agreements	–	–	3,274	–
S 94 – contributions towards amenities/services	–	–	59,317	18,187
Total developer contributions ¹⁷	–	–	62,591	18,187
Other contributions:				
Ex – gratia rates	3,035	2,397	–	–
RMS contributions (regional roads, block grant)	80	79	–	–
Other	185	218	–	–
Total other contributions	3,300	2,694	–	–
Total contributions	3,300	2,694	62,591	18,187
TOTAL GRANTS AND CONTRIBUTIONS	9,925	7,522	64,466	18,848

	Actual 1/7/15 to 9/9/16	Actual 1/7/14 to 30/6/15
\$ '000		

(g) Restrictions relating to grants and contributions

Certain grants and contributions are obtained by Council on condition that they be spent in a specified manner:

Unexpended at the close of the previous reporting period	54,325	38,613
Add: grants and contributions recognised in the current period but not yet spent:	64,037	19,421
Less: grants and contributions recognised in a previous reporting period now spent:	(6,411)	(3,709)
Net increase (decrease) in restricted assets during the period	57,626	15,712
Unexpended and held as restricted assets	111,951	54,325
Comprising:		
– Specific purpose unexpended grants	198	786
– Developer contributions	111,753	53,539
	111,951	54,325

Former City of Botany Bay Council

Notes to the Financial Statements
for the period to 9 September 2016

Note 4. Expenses from continuing operations

\$ '000	Notes	Actual 1/7/15 to 9/9/16	Actual 1/7/14 to 30/6/15
(a) Employee benefits and on-costs			
Salaries and wages		29,372	21,222
Travel expenses		88	121
Employee leave entitlements (ELE)		3,879	3,208
Superannuation		3,163	2,554
Workers' compensation insurance		1,337	504
Fringe benefit tax (FBT)		153	167
Training costs (other than salaries and wages)		156	92
Total employee costs		38,148	27,868
Less: capitalised costs		(843)	—
TOTAL EMPLOYEE COSTS EXPENSED		37,305	27,868
Number of 'full-time equivalent' employees (FTE) at year end		305	324
(b) Borrowing costs			
Nil			
(c) Materials and contracts			
Raw materials and consumables		20,316	12,635
Contractor and consultancy costs		21,526	8,646
Onerous contracts future losses		4,339	—
Auditors remuneration		480	54
Legal expenses:			
— Legal expenses: planning and development		1,914	1,089
— Legal expenses: amalgamation costs		538	—
— Legal expenses: ICAC investigations		1,369	—
— Legal expenses: other		1,161	107
Total materials and contracts		51,643	22,531
Less: capitalised costs		(11,876)	—
TOTAL MATERIALS AND CONTRACTS		39,767	22,531

Former City of Botany Bay Council

Notes to the Financial Statements

for the period to 9 September 2016

Note 4. Expenses from continuing operations (continued)

		Actual 1/7/15 to 9/9/16	Actual 1/7/14 to 30/6/15
\$ '000	Notes		

(c) Materials and contracts (continued)

Auditor remuneration

During the period, the following fees were incurred for services provided by the Council's Auditor:

Audit and other assurance services

Audit and review of financial statements: Council's Auditor

	480	54
Remuneration for audit and other assurance services	480	54
Total Auditor remuneration	480	54

		Impairment costs		Depreciation/amortisation	
		Actual 1/7/15 to 9/9/16	Actual 1/7/14 to 30/6/15	Actual 1/7/15 to 9/9/16	Actual 1/7/14 to 30/6/15
\$ '000	Notes				

(d) Depreciation, amortisation and impairment

Plant and equipment		—	—	854	1,143
Office equipment		—	—	161	435
Furniture and fittings		—	—	104	—
Land improvements (depreciable)		—	—	198	—
Infrastructure:					
– Buildings *		—	—	2,263	1,757
– Other structures		—	—	1,168	153
– Roads		—	—	2,592	1,049
– Bridges		—	—	71	59
– Footpaths		—	—	429	575
– Stormwater drainage		—	—	322	245
Other assets					
– Library books		—	—	124	—
– Other		—	—	8	83
Asset reinstatement costs	9 & 26	—	—	—	65
Intangible assets	25	124	—	183	—
TOTAL DEPRECIATION AND IMPAIRMENT COSTS EXPENSED		124	—	8,477	5,564

* Prior year comparative balances are restated to align to current year disclosures.

Former City of Botany Bay Council

Notes to the Financial Statements

for the period to 9 September 2016

Note 4. Expenses from continuing operations (continued)

	Actual 1/7/15 to 9/9/16	Actual 1/7/14 to 30/6/15
\$ '000	Notes	
(e) Other expenses		
Advertising	139	258
Bad and doubtful debts	137	59
Computer software charges	68	–
Contributions/levies to other levels of government		
– Department of planning levy	–	84
– Emergency services levy (includes FRNSW, SES, and RFS levies)	990	697
Councillor expenses – mayoral fee	47	39
Councillor expenses – councillors' fees	157	125
Councillors' expenses (incl. mayor) – other (excluding fees above)	125	97
Donations, contributions and assistance to other organisations (Section 356)	57	49
Electricity and heating	475	417
Insurance	938	335
Street lighting	1,202	1,059
Subscriptions and publications	191	172
Telephone and communications	603	649
Other	614	412
TOTAL OTHER EXPENSES	5,743	4,452

Note 5. Gains or losses from the disposal of assets

Plant and equipment			
Proceeds from disposal – plant and equipment		364	87
Less: carrying amount of plant and equipment assets sold/written off		(237)	(73)
<u>Net gain/(loss) on disposal</u>		<u>127</u>	<u>14</u>
Financial assets *			
Proceeds from disposal/redemptions/maturities – financial assets		101,561	22,950
Less: carrying amount of financial assets sold/redeemed/matured		(101,561)	(22,950)
<u>Net gain/(loss) on disposal</u>		<u>–</u>	<u>–</u>
<u>NET GAIN/(LOSS) ON DISPOSAL OF ASSETS</u>		<u>127</u>	<u>14</u>

Former City of Botany Bay Council

Notes to the Financial Statements
for the period to 9 September 2016

Note 6a. – Cash assets and Note 6b. – investments

		9/9/16 Actual Current	9/9/16 Actual Non-current	30/6/15 Actual Current	30/6/15 Actual Non-current
\$ '000	Notes				
Cash and cash equivalents (Note 6a)					
Cash on hand and at bank		22,625	–	6,198	–
Cash-equivalent assets ¹					
– Deposits at call		10,000	–	–	–
– Short-term deposits		4,000	–	–	–
Total cash and cash equivalents		36,625	–	6,198	–
Investments (Note 6b)					
– Managed funds		–	–	2,557	–
– Long term deposits		55,000	20,000	47,000	9,000
– NCD's, FRN's (with maturities > 3 months)		–	14,883	1,004	–
Total investments		55,000	34,883	50,561	9,000
TOTAL CASH ASSETS, CASH EQUIVALENTS AND INVESTMENTS		91,625	34,883	56,759	9,000

¹ Those investments where time to maturity (from date of purchase) is < 3 mths.

**Cash, cash equivalents and investments were
classified at year end in accordance with
AASB 139 as follows:**

Cash and cash equivalents					
a. 'At fair value through the profit and loss'		36,625	–	6,198	–
Investments					
a. 'At fair value through the profit and loss'					
– 'Held for trading'	6(b-i)	–	14,883	3,561	–
b. 'Held to maturity'	6(b-ii)	55,000	20,000	47,000	9,000
Investments		55,000	34,883	50,561	9,000

Refer to Note 27. Fair value measurement for information regarding the fair value of investments held.

Former City of Botany Bay Council

Notes to the Financial Statements
for the period to 9 September 2016

Note 6b. investments (continued)

	9/9/16 Actual Current	9/9/16 Actual Non-current	30/6/15 Actual Current	30/6/15 Actual Non-current
\$ '000				
Note 6(b-i)				
Reconciliation of investments classified as 'at fair value through the profit and loss'				
Balance at the beginning of the year	3,561	–	2,493	–
Revaluations (through the Income Statement)	(4)	133	4	–
Additions	52,004	13,750	1,064	–
Disposals (sales and redemptions)	(54,561)	–	–	–
Transfers between current/non-current	(1,000)	1,000	–	–
Balance at end of period	–	14,883	3,561	–
Comprising:				
– Managed funds	–	–	2,557	–
– NCD's, FRN's (with maturities > 3 months)	–	14,883	1,004	–
Total	–	14,883	3,561	–
Note 6(b-ii)				
Reconciliation of investments classified as 'held to maturity'				
Balance at the beginning of the year	47,000	9,000	28,950	15,000
Additions	46,000	20,000	35,000	–
Disposals (sales and redemptions)	(47,000)	–	(22,950)	–
Transfers between current/non-current	9,000	(9,000)	6,000	(6,000)
Balance at end of period	55,000	20,000	47,000	9,000
Comprising:				
– Long term deposits	55,000	20,000	47,000	9,000
Total	55,000	20,000	47,000	9,000

Former City of Botany Bay Council

Notes to the Financial Statements

for the period to 9 September 2016

Note 6c. Restricted cash, cash equivalents and investments – details

	9/9/16 Actual Current	9/9/16 Actual Non-current	30/6/15 Actual Current	30/6/15 Actual Non-current
\$ '000				
Total cash, cash equivalents and investments	91,625	34,883	56,759	9,000
attributable to:				
External restrictions (refer below)	86,780	34,883	52,004	9,000
Internal restrictions (refer below)	4,794	–	4,686	–
Unrestricted	51	–	69	–
	91,625	34,883	56,759	9,000

1/7/15 to 9/9/16	Opening balance	Transfers to restrictions	Transfers from restrictions	Closing balance
\$ '000				

Details of restrictions

External restrictions – included in liabilities

Nil

External restrictions – other

Developer contributions – general	(A)	53,539	65,310	(7,096)	111,753
Specific purpose unexpended grants	(B)	786	127	(715)	198
Domestic waste management	(C)	2,409	10,741	(7,536)	5,614
Stormwater management	(C)	2,788	989	(1,561)	2,216
Mascot main street		501	200	–	701
Mascot parking rate		981	200	–	1,181
External restrictions – other		61,004	77,567	(16,908)	121,663
Total external restrictions		61,004	77,567	(16,908)	121,663

A Development contributions which are not yet expended for the provision of services and amenities in accordance with contributions plans (refer Note 17).

B Grants which are not yet expended for the purposes for which the grants were obtained. (refer Note 1 (b))

C Water, sewerage, domestic waste management (DWM) and other special rates/levies/charges are externally restricted assets and must be applied for the purposes for which they were raised.

Former City of Botany Bay Council

Notes to the Financial Statements
for the period to 9 September 2016

Note 6c. Restricted cash, cash equivalents and investments – details (continued)

1/7/15 to 9/9/16 \$ '000	Opening balance	Transfers to restrictions	Transfers from restrictions	Closing balance
Internal restrictions				
Infrastructure replacement	100	–	–	100
Employee leave entitlements	1,200	–	–	1,200
Bonds and deposits	2,000	–	–	2,000
Asset replacement	200	–	–	200
Church Ave road widening	200	–	–	200
Domestic waste management	122	–	–	122
Mascot oval	80	–	–	80
Office equipment	100	–	–	100
O'Riordan St cables	210	–	–	210
Plant replacement	250	–	–	250
Public works	224	–	–	224
Childrens Services	–	108	–	108
Total internal restrictions	4,686	108	–	4,794
TOTAL RESTRICTIONS	65,690	77,675	(16,908)	126,457

Former City of Botany Bay Council

Notes to the Financial Statements

for the period to 9 September 2016

Note 7. Receivables

\$ '000	Notes	9/9/16 Current	9/9/16 Non-current	30/6/15 Current	30/6/15 Non-current
Purpose					
Rates and annual charges		19,124 ¹	–	1,439	133
Interest and extra charges		266	–	199	53
User charges and fees		1,833	–	2,228	440
Accrued revenues					
– Interest on investments		785	–	–	–
– Other income accruals		919	–	3,437	–
Net GST receivable		165	–	–	–
Other levels of government		–	–	588	–
Other debtors		10	–	31	106
Total		23,102	–	7,922	732
Less: provision for impairment					
User charges and fees		–	–	–	(440)
Total provision for impairment – receivables		–	–	–	(440)
TOTAL NET RECEIVABLES		23,102	–	7,922	292
Externally restricted receivables					
Domestic waste management		2,822	–	504	–
Stormwater management		443	–	31	–
Mascot Parking		90	–	–	–
Mascot Main Street		92	–	3	–
Total external restrictions		3,447	–	538	–
Internally restricted receivables					
Nil					
Unrestricted receivables		19,655	–	7,384	292
TOTAL NET RECEIVABLES		23,102	–	7,922	292

¹ The first of the four payment instalments for rates (and annual charges) income was 31/08/16. As at 9/9/16 there is a large outstanding debtor that reflects this timing difference between the financial reporting date & the remaining instalment payment dates.

Notes on debtors above:

- (i) Rates and annual charges outstanding are secured against the property.
- (ii) Doubtful rates debtors are provided for where the value of the property is less than the debt outstanding.
An allowance for other doubtful debts is made when there is objective evidence that a receivable is impaired.
- (iii) Interest was charged on overdue rates and charges at 8.50% (2015:8.50%).
Generally all other receivables are non-interest bearing.
- (iv) Please refer to Note 15 for issues concerning credit risk and fair value disclosures.

Former City of Botany Bay Council

Notes to the Financial Statements
for the period to 9 September 2016

Note 8. Inventories and other assets

\$ '000	Notes	9/9/16 Current	9/9/16 Non-current	30/6/15 Current	30/6/15 Non-current
(a) Inventories					
(i) Inventories at cost					
Stores and materials		262	–	179	–
Trading stock		39	–	82	–
Total inventories at cost		301	–	261	–
(ii) Inventories at net realisable value (NRV)					
Nil					
TOTAL INVENTORIES		301	–	261	–
(b) Other assets					
Prepayments		563	–	55	–
TOTAL OTHER ASSETS		563	–	55	–

Externally restricted assets

There are no restrictions applicable to the above assets.

Other disclosures**Inventory write downs**

There were no amounts recognised as an expense relating to the write down of inventory balances held during the period.

Refer to Note 27. Fair value measurement for information regarding the fair value of other assets held.

Financial Statements 2016

Former City of Botany Bay Council

Notes to the Financial Statements
for the period to 9 September 2016

Note 9a. Infrastructure, property, plant and equipment

\$ '000	as at 30/6/2015					Asset movements during the reporting period							as at 9/9/2016				
	At cost	At fair value	Accumulated depreciation	Accumulated impairment	Carrying value	Additions new assets	Carrying value of disposals	Depreciation expense	Other movements	Tfr to Intangible Assets (Note 25) *	Revaluation decrements to equity (ARR)	Revaluation increments to equity (ARR)	At cost	At fair value	Accumulated depreciation	Accumulated impairment	Carrying value
Plant and equipment	–	13,971	11,779	–	2,192	802	(254)	(854)	(37)	–	–	–	–	7,654	5,805	–	1,849
Office equipment **	–	12,835	10,918	–	1,917	248	–	(161)	(620)	(1,043)	–	–	–	1,328	987	–	341
Furniture and fittings	–	–	–	–	–	64	(6)	(104)	534	–	–	–	–	888	400	–	488
Land:																	
– Operational land	–	90,160	–	–	90,160	2,088	–	–	(313)	–	–	18,506	–	110,441	–	–	110,441
– Community land	–	58,460	–	–	58,460	2,220	–	–	–	–	(20,515)	–	–	40,165	–	–	40,165
Land improvements – depreciable	–	–	–	–	–	912	(159)	(198)	2,603	–	–	–	–	3,605	447	–	3,158
Infrastructure:																	
– Buildings *	–	94,678	44,228	–	50,450	1,212	(23)	(2,263)	(14,906)	–	–	1,771	–	58,187	21,946	–	36,241
– Other structures	–	4,249	433	–	3,816	1,579	–	(1,168)	10,426	–	–	–	–	19,281	4,628	–	14,653
– Roads	–	142,400	31,367	–	111,033	3,711	(20)	(2,592)	3,772	–	–	4,283	–	164,042	43,855	–	120,187
– Bridges	–	3,568	475	–	3,093	–	–	(71)	–	–	–	435	–	3,586	129	–	3,457
– Footpaths	–	28,073	11,060	–	17,013	1,694	–	(429)	–	–	(2,754)	–	–	28,170	12,646	–	15,524
– Stormwater drainage	–	32,288	9,247	–	23,041	1,595	–	(322)	17	–	(2,558)	–	–	32,587	10,814	–	21,773
Other assets:																	
– Library books	–	3,618	3,005	–	613	133	–	(124)	(71)	–	–	–	–	1,563	1,012	–	551
– Other	–	2,650	947	–	1,703	63	(210)	(8)	(1,405)	–	–	–	–	204	61	–	143
TOTAL INFRASTRUCTURE, PROPERTY, PLANT AND EQUIP.	–	486,950	123,459	–	363,491	16,321	(672)	(6,294)	–	(1,043)	(25,827)	24,995	–	471,701	102,730	–	368,971

* Prior year comparative balances are restated to align to current year disclosures.

** Office Equipment as reported at 30/06/15 included Intangible Assets to the value of \$1.043M that have been transferred to Note 25 during the current reporting period.

Renewals are defined as the replacement of existing assets (as opposed to the acquisition of new assets).

Refer to Note 27. Fair value measurement for information regarding the fair value of other infrastructure, property, plant and equipment.

Former City of Botany Bay Council

Notes to the Financial Statements

for the period to 9 September 2016

Note 9b. Externally restricted infrastructure, property, plant and equipment

Council has no externally restricted infrastructure, property, plant and equipment.

Note 9c. Infrastructure, property, plant and equipment – current year impairments

Council has recognised no impairment losses during the reporting period nor reversed any prior period losses.

Note 10a. Payables, borrowings and provisions

\$ '000	Notes	9/9/16 Current	9/9/16 Non-current	30/6/15 Current	30/6/15 Non-current
Payables					
Goods and services – operating expenditure		661	–	3,878	–
Accrued expenses:					
– Salaries and wages		1,004	–	–	–
– Other expenditure accruals		2,846	–	515	–
Security bonds, deposits and retentions		10,155	–	8,450	–
Builders service and plan first levy payable		405	–	–	–
Other		453	–	520	–
Total payables		15,524	–	13,363	–
Borrowings					
Nil					
Provisions					
Employee benefits:					
Annual leave		3,287	–	2,857	–
Sick leave		486	–	512	–
Long service leave		4,063	353	4,036	537
Gratuities and other		50	–	41	–
Sub-total – aggregate employee benefits		7,886	353	7,446	537
Other Provisions:					
– Onerous Contracts		948	3,391	–	–
– Settlement and legal costs		2,398	–	–	–
– Reparation of City of Botany Bay					
Financial Controls		3,500	–	–	–
– Audit fees		400	–	–	–
Total provisions		15,132	3,744	7,446	537
TOTAL PAYABLES, BORROWINGS AND PROVISIONS		30,656	3,744	20,809	537

(i) Liabilities relating to restricted assets

There are no restricted assets (external or internal) applicable to the above liabilities.

Former City of Botany Bay Council

Notes to the Financial Statements

for the period to 9 September 2016

Note 10a. Payables, borrowings and provisions (continued)

	Actual 9/9/16	Actual 30/6/15
\$ '000		

(ii) Current liabilities not anticipated to be settled within the next twelve months

The following liabilities, even though classified as current, are not expected to be settled in the next 12 months.

Provisions – employee benefits	6,120	5,911
Payables – security bonds, deposits and retentions	9,380	–
	15,500	5,911

Note 10b. Description of and movements in provisions

Class of provision	Opening balance as at 1/7/15	1/7/15 to 9/9/16			Unused amounts reversed	Closing balance as at 9/9/16
		Additional provisions	Decrease due to payments	Remeasurement effects due to discounting		
Annual leave	2,857	1,936	(1,506)	–	–	3,287
Sick leave	512	–	(26)	–	–	486
Long service leave	4,573	578	(735)	–	–	4,416
Gratuities and other	41	9	–	–	–	50
Other Provisions:						
– Onerous Contracts	–	4,339	–	–	–	4,339
– Reparation of City of Botany Bay Financial Controls	–	3,500	–	–	–	3,500
– Audit fees	–	400	–	–	–	400
TOTAL	7,983	13,160	(2,267)	–	–	18,876

- a. Employee leave entitlements and on-costs represents those benefits accrued and payable and an estimate of those that will become payable in the future as a result of past service.

Former City of Botany Bay Council

Notes to the Financial Statements
for the period to 9 September 2016

Note 11. Statement of cash flows – additional information

\$ '000	Notes	Actual 9/9/16	Actual 30/6/15
(a) Reconciliation of cash assets			
Total cash and cash equivalent assets	6a	36,625	6,198
Less bank overdraft	10	—	—
Balance as per the Statement of Cash Flows		36,625	6,198
(b) Reconciliation of net operating result to cash provided from operating activities			
Net operating result from Income Statement		69,876	19,028
Adjust for non-cash items:			
Depreciation and amortisation		8,477	5,564
Net losses/(gains) on disposal of assets		(127)	(14)
Impairment losses recognition – I,PP&E		124	—
Losses/(gains) recognised on fair value re-measurements through the P&L:			
– Investments classified as 'at fair value' or 'held for trading'		(129)	(4)
Share of net (profits) or losses of associates/joint ventures		(167)	300
+/- Movement in operating assets and liabilities and other cash items:			
Decrease/(increase) in receivables		(14,448)	(3,142)
Increase/(decrease) in provision for doubtful debts		(440)	58
Decrease/(increase) in inventories		(40)	29
Decrease/(increase) in other assets		(508)	(55)
Increase/(decrease) in payables		(3,217)	911
Increase/(decrease) in other accrued expenses payable		3,335	—
Increase/(decrease) in other liabilities		2,043	331
Increase/(decrease) in employee leave entitlements		256	(190)
Increase/(decrease) in other provisions		10,637	—
Net cash provided from/(used in) operating activities from the Statement of Cash Flows		75,672	22,816

Former City of Botany Bay Council

Notes to the Financial Statements
for the period to 9 September 2016

Note 11. Statement of cash flows – additional information (continued)

\$ '000	Notes	Actual 9/9/16	Actual 30/6/15
(c) Non-cash investing and financing activities			
Nil			
(d) Financing arrangements			
(i) Unrestricted access was available at balance date to the following lines of credit:			
Bank overdraft facilities ⁽¹⁾		540	540
Credit cards/purchase cards		100	100
Total financing arrangements		640	640

1. The bank overdraft facility may be drawn at any time and may be terminated by the bank without notice.
Interest rates on overdrafts are interest rates on loans and other payables are disclosed in Note 15.

(ii) Secured loan liabilities

Loans are secured by a mortgage over future years rate revenue only.

(e) Bank guarantees

Contract Performance Guarantee, Sydney Airport Corporation Ltd = \$400K
Contract Performance Guarantee, Robert McLucas = \$9K

Note 12. Commitments for expenditure

Nil

Former City of Botany Bay Council

Notes to the Financial Statements
for the period to 9 September 2016

Note 13a(i). Statement of performance measurement – indicators (consolidated)

\$ '000	Amounts 9/9/16	Indicator 9/9/16	Prior periods	
			30/6/15	30/6/14
Local government industry indicators – consolidated				
1. Operating performance ratio				
Total continuing operating revenue ⁽¹⁾ excluding capital grants and contributions less operating expenses	4,987	5.17%	0.82%	1.06%
Total continuing operating revenue ⁽¹⁾ excluding capital grants and contributions	96,403			
2. Own source operating revenue ratio				
Total continuing operating revenue ⁽¹⁾ excluding all grants and contributions	86,478	53.76%	66.94%	66.97%
Total continuing operating revenue ⁽¹⁾	160,869			
3. Unrestricted current ratio				
Current assets less all external restrictions ⁽²⁾	25,364	1.67x	1.67x	1.25x
Current liabilities less specific purpose liabilities ^(3, 4)	15,156			
4. Debt service cover ratio				
Operating result ⁽¹⁾ before capital excluding interest and depreciation/impairment/amortisation	13,588	0.00x	0.00x	0.00x
Principal repayments (Statement of Cash Flows) plus borrowing costs (Income Statement)	–			
5. Rates, annual charges, interest and extra charges outstanding percentage				
Rates, annual and extra charges outstanding	19,390	29.36%	5.07%	5.56%
Rates, annual and extra charges collectible	66,037			
6. Cash expense cover ratio				
Current year's cash and cash equivalents plus all term deposits	111,625	17.17 mths	13.2 mths	11.6 mths
Payments from cash flow of operating and financing activities	6,501			

Notes

⁽¹⁾ Excludes fair value adjustments and reversal of revaluation decrements, net gain/(loss) on sale of assets and the net share of interests in joint ventures and associates.

⁽²⁾ Refer Notes 6-8 inclusive.

Also excludes any real estate and land for resale not expected to be sold in the next 12 months.

⁽³⁾ Refer to Note 10(a).

⁽⁴⁾ Refer to Note 10(a)(ii) – excludes all payables and provisions not expected to be paid in the next 12 months (incl. ELE).

Former City of Botany Bay Council

Notes to the Financial Statements for the period to 9 September 2016

Note 14. Investment properties

\$ '000

Council has not classified any land or buildings as 'investment properties'.

Note 15. Financial risk management

Risk management

Council's activities expose it to a variety of financial risks including **(1)** price risk, **(2)** credit risk, **(3)** liquidity risk and **(4)** interest rate risk.

The Council's overall risk management program focuses on the unpredictability of financial markets and seeks to minimise potential adverse effects on the financial performance of the Council.

Council does not engage in transactions expressed in foreign currencies and is therefore not subject to foreign currency risk.

A comparison by category of the carrying amounts and fair values of Council's financial assets and financial liabilities recognised in the financial statements is presented below.

	Carrying value		Fair value	
	9/9/16	30/6/15	9/9/16	30/6/15
Financial assets				
Cash and cash equivalents	36,625	6,198	36,625	6,198
Investments				
– 'Held for trading'	14,883	3,561	14,883	3,561
– 'Held to maturity'	75,000	56,000	75,050	56,000
Receivables	23,102	8,214	22,183	8,214
Total financial assets	149,610	73,973	148,741	73,973
Financial liabilities				
Payables	15,524	13,363	15,524	13,363
Total financial liabilities	15,524	13,363	15,524	13,363

Fair value is determined as follows:

- **Cash and cash equivalents, receivables, payables** – are estimated to be the carrying value that approximates market value.
- **Borrowings and held-to-maturity investments** – are based upon estimated future cash flows discounted by the current mkt interest rates applicable to assets and liabilities with similar risk profiles, unless quoted market prices are available.
- Financial assets classified (i) '**at fair value through profit and loss**' or (ii) '**available-for-sale**' – are based upon quoted market prices (in active markets for identical investments) at the reporting date or independent valuation.

Refer to Note 27. Fair value measurement for information regarding the fair value of financial assets and liabilities.

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Former City of Botany Bay Council

Notes to the Financial Statements

for the period to 9 September 2016

Note 15. Financial risk management (continued)

\$ '000

Council's objective is to maximise its return on cash and investments whilst maintaining an adequate level of liquidity and preserving capital.

Council's finance area manages the cash and Investments portfolio with the assistance of independent advisors.

Council has an investment policy which complies with the *Local Government Act 1993* and Minister's investment order. This policy is regularly reviewed by Council and it's staff and an investment report is tabled before Council on a monthly basis setting out the portfolio breakup and its performance.

The risks associated with the investments held are:

- **Price risk** – the risk that the capital value of Investments may fluctuate due to changes in market prices, whether these changes are caused by factors specific to individual financial instruments or their issuers or are caused by factors affecting similar instruments traded in a market.
- **Interest rate risk** – the risk that movements in interest rates could affect returns and income.
- **Credit risk** – the risk that the investment counterparty will not complete their obligations particular to a financial instrument, resulting in a financial loss to Council – be it of a capital or income nature.

Council manages these risks (amongst other measures) by diversifying its portfolio and only purchasing investments with high credit ratings or capital guarantees.

Council also seeks advice from independent advisers before placing any funds in cash equivalents and investments.

(a) Market risk – price risk and interest rate risk

The following represents a summary of the sensitivity of Council's Income Statement and accumulated surplus (for the reporting period) due to a change in either the price of a financial asset or the interest rates applicable.

It is assumed that the change in interest rates would have been constant throughout the reporting period.

	Increase of values/rates		Decrease of values/rates	
	Profit	Equity	Profit	Equity
1/7/15 to 9/9/16				
Possible impact of a 10% movement in market values	1,488	1,488	(1,488)	(1,488)
Possible impact of a 1% movement in interest rates	1,116	1,116	(1,116)	(1,116)
1/7/14 to 30/6/15				
Possible impact of a 10% movement in market values	25	25	(25)	(25)
Possible impact of a 1% movement in interest rates	595	595	(595)	(595)

Former City of Botany Bay Council

Notes to the Financial Statements

for the period to 9 September 2016

Note 15. Financial risk management (continued)

\$ '000

(b) Credit risk

Council's major receivables comprise (i) rates and annual charges and (ii) user charges and fees.

The major risk associated with these receivables is credit risk – the risk that debts due and payable to Council may not be repaid in full.

Council manages this risk by monitoring outstanding debt and employing stringent debt recovery procedures. It also encourages ratepayers to pay their rates by the due date through incentives.

Credit risk on rates and annual charges is minimised by the ability of Council to secure a charge over the land relating to the debts – that is, the land can be sold to recover the debt. Council is also able to charge interest on overdue rates and annual charges at higher than market rates which further encourages the payment of debt.

There are no significant concentrations of credit risk, whether through exposure to individual customers, specific industry sectors and/or regions.

The level of outstanding receivables is reported to Council monthly and benchmarks are set and monitored for acceptable collection performance.

Council makes suitable provision for doubtful receivables as required and carries out credit checks on most non-rate debtors.

There are no material receivables that have been subjected to a re-negotiation of repayment terms.

A profile of Council's receivables credit risk at balance date follows:

		9/9/16	9/9/16	30/6/15	30/6/15
		Rates and annual charges	Other receivables	Rates and annual charges	Other receivables
(i) Ageing of receivables – %					
Current (not yet overdue)		94%	39%	0%	6%
Overdue		6%	61%	100%	94%
		100%	100%	100%	100%
		Rates and annual charges	Other receivables	Rates and annual charges	Other receivables
(ii) Ageing of receivables – value					
Rates and annual charges	Other receivables				
Current	Current	17,814	1,583	–	425
< 1 year overdue	0 – 30 days overdue	1,310	929	739	71
1 – 2 years overdue	30 – 60 days overdue	–	1,169	157	283
2 – 5 years overdue	60 – 90 days overdue	–	60	393	779
> 5 years overdue	> 90 days overdue	–	237	283	5,524
		19,124	3,978	1,572	7,082
(iii) Movement in provision for impairment of receivables				9/9/16	30/6/15
Balance at the beginning of the year				440	440
+ new provisions recognised during the year				137	–
– amounts already provided for and written off this year				(577)	–
Balance at the end of the year				–	440

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Former City of Botany Bay Council

Notes to the Financial Statements

for the period to 9 September 2016

Note 15. Financial risk management (continued)

\$ '000

(c) Liquidity risk

Payables and borrowings are both subject to liquidity risk – the risk that insufficient funds may be on hand to meet payment obligations as and when they fall due.

Council manages this risk by monitoring its cash flow requirements and liquidity levels and maintaining an adequate cash buffer.

Payment terms can (in extenuating circumstances) also be extended and overdraft facilities utilised as required.

The contractual undiscounted cash outflows (ie. principal and interest) of Council's payables and borrowings are set out in the maturity table below:

\$ '000	Subject to no maturity	≤ 1 Year	1-2 Yrs	payable in:				Total cash outflows	Actual carrying values
				2-3 Yrs	3-4 Yrs	4-5 Yrs	> 5 Yrs		
1/7/15 to 9/9/16									
Trade/other payables	10,155	5,369	–	–	–	–	–	15,524	15,524
Total financial liabilities	10,155	5,369	–	–	–	–	–	15,524	15,524
1/7/14 to 30/6/15									
Trade/other payables	8,450	983	983	983	983	983	–	13,363	13,363
Total financial liabilities	8,450	983	983	983	983	983	–	13,363	13,363

Borrowings are also subject to interest rate risk – the risk that movements in interest rates could adversely affect funding costs and debt servicing requirements. Council manages this risk through the diversification of borrowing types, maturities and interest rate structures.

The following interest rates were applicable to Council's borrowings at balance date:

	9/9/16 Carrying value	9/9/16 Average interest rate	30/6/15 Carrying value	30/6/15 Average interest rate
Trade/other payables	15,524	0.00%	13,363	0.00%
	15,524		13,363	

Note 16. Material budget variations

In accordance with the Supplementary Code 24(a), this note is not applicable for "former Councils".

Former City of Botany Bay Council

Notes to the Financial Statements
for the period to 9 September 2016

Note 17. Statement of developer contributions

\$ '000

Council recovers contributions, raises levies and enters into planning agreements on development works that are subject to a development consent issued by Council. All contributions must be spent/utilised for the specific purpose they were levied and any interest applicable to unspent funds must be attributed to remaining funds.

The following tables detail the receipt, interest and use of the above contributions and levies and the value of all remaining funds which are 'restricted' in their future use.

SUMMARY OF CONTRIBUTIONS AND LEVIES

PURPOSE	Opening balance	Contributions received during the period		Interest earned in period	Expenditure during period	Internal transfers (to)/from	Held as restricted asset	Cumulative internal borrowings due/(payable)
		Cash	Non-cash					
Drainage	472	584	–	28	–	4,466	5,550	–
Traffic facilities	4,092	5,270	–	195	(1,045)	26,393	34,905	–
Open space	24,032	39,374	–	1,326	(4,100)	(26,393)	34,239	–
Community facilities	2,232	7,779	–	181	(62)	–	10,130	–
Other	22,596	6,310	–	952	(489)	(4,466)	24,903	–
S94 contributions – under a plan	53,424	59,317	–	2,682	(5,696)	–	109,727	–
Total S94 revenue under plans	53,424	59,317	–	2,682	(5,696)	–	109,727	–
S93F planning agreements	115	3,274	–	37	(1,400)	–	2,026	–
Total contributions	53,539	62,591	–	2,719	(7,096)	–	111,753	–

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Former City of Botany Bay Council

Notes to the Financial Statements
for the period to 9 September 2016

Note 17. Statement of developer contributions (continued)

\$ '000

S94 CONTRIBUTIONS – UNDER A PLAN

CONTRIBUTION PLAN S94

PURPOSE	Opening balance	Contributions received during the period		Interest earned in period	Expenditure during period	Internal transfers (to)/from	Held as restricted asset	Cumulative internal borrowings due/(payable)
		Cash	Non-cash					
Drainage	472	584	–	28	–	4,466	5,550	–
Traffic facilities	4,092	4,366	–	190	(1,045)	26,393	33,996	–
Open space	24,032	36,030	–	1,310	(4,100)	(26,393)	30,879	–
Community facilities	2,232	6,707	–	177	(62)	–	9,054	–
Other	7,082	592	–	279	(114)	(4,466)	3,373	–
Total	37,910	48,279	–	1,984	(5,321)	–	82,852	–

CONTRIBUTION PLAN - MASCOT PRECINCT

PURPOSE	Opening balance	Contributions received during the period		Interest earned in period	Expenditure during period	Internal transfers (to)/from	Held as restricted asset	Cumulative internal borrowings due/(payable)
		Cash	Non-cash					
Other	15,514	5,662	–	673	(375)	–	21,474	–
Total	15,514	5,662	–	673	(375)	–	21,474	–

CONTRIBUTION PLAN S94 PLAN 2016-2031

PURPOSE	Opening balance	Contributions received during the period		Interest earned in period	Expenditure during period	Internal transfers (to)/from	Held as restricted asset	Cumulative internal borrowings due/(payable)
		Cash	Non-cash					
Traffic facilities	–	904	–	5	–	–	909	–
Open space	–	3,344	–	16	–	–	3,360	–
Community facilities	–	1,072	–	4	–	–	1,076	–
Other	–	56	–	–	–	–	56	–
Total	–	5,376	–	25	–	–	5,401	–

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Former City of Botany Bay Council

Notes to the Financial Statements for the period to 9 September 2016

Note 18. Contingencies and other assets/liabilities not recognised

\$ '000

The following assets and liabilities do not qualify for recognition in the Statement of Financial Position, but their knowledge and disclosure is considered relevant to the users of Council's financial report.

LIABILITIES NOT RECOGNISED:

1. Guarantees

(i) Defined benefit superannuation contribution plans

Council participates in an employer-sponsored defined benefit superannuation scheme, and makes contributions as determined by the superannuation scheme's trustees.

Member councils bear responsibility of ensuring there are sufficient funds available to pay out the required benefits as they fall due.

The schemes most recent full actuarial review indicated that the net assets of the scheme were not sufficient to meet the accrued benefits of the schemes defined benefit member category with member councils required to make significantly higher contributions in future years.

The Local Government Superannuation Scheme however is unable to provide Council with an accurate estimate of its share of the net deficit and accordingly Council has not recorded any net liability from it's defined benefit scheme obligations in accordance with AASB 119.

Future contributions made to the defined benefit scheme to rectify the net deficit position will be recognised as an expense when they become payable – similar to the accounting for defined contributions plans.

(ii) Metropool and United Independent Pool

Council is a member of Metropool and United Independent Pool, a Joint Venture pool schemes providing liability insurance to local government.

Membership includes the potential to share in either the net assets or liabilities of the fund depending on its past performance. Council's share of the net assets or liabilities reflects Council's contributions to the pool and the result of insurance claims within each of the fund years.

The future realisation and finalisation of claims incurred but not reported to 9/09/2016 may result in future liabilities or benefits as a result of past events that Council will be required to fund or share in respectively.

(iii) Other guarantees

Council has two contract performance limited guarantees to:

Sydney Airport Corporation Ltd, \$400K and
Robert McLucas, \$9K

2. Other liabilities

(i) Third party claims

The Council is involved from time to time in various claims incidental to the ordinary course of business including claims for damages relating to its services.

Council believes that it is appropriately covered for all claims through its insurance coverage and does not expect any material liabilities to eventuate.

Former City of Botany Bay Council

Notes to the Financial Statements
for the period to 9 September 2016

Note 18. Contingencies and other assets/liabilities not recognised (continued)

\$ '000

LIABILITIES NOT RECOGNISED (continued):**2. Other liabilities (continued)****(ii) ICAC investigation Operation Ricco**

ICAC's investigation of allegations of fraud and corruption identified significant weakness in the former City of Botany Bay Council's internal controls. The systemic nature of the breakdown in governance may result in liabilities relating to past decisions or actions which are unknown at reporting date.

Whilst some provision has been made there is also potential for future costs relating to resolving these matters.

(iii) Developer Contribution plans

Council levies section 94/94A contributions upon various developments across the Council area through the required contributions plans. Council may also enter into planning agreements under S93.

As part of these plans and agreements, Council has received funds for which it will be required to expend the monies in the future accordance with those plans and agreements.

As well, these plans indicate proposed future expenditure to be undertaken by Council, which will be funded by making levies and receipting funds in future years or where a shortfall exists by the use of Council's general funds.

These future expenses do not yet qualify as liabilities as of the reporting date, but represent Council's intention to spend funds in the manner and timing set out in those plans.

(iv) Potential land acquisitions due to planning restrictions imposed by Council

Council has classified a number of privately owned land parcels as local open space or bushland. As a result, where notified in writing by the various owners, Council will be required to purchase these land parcels.

(iv) Potential land acquisitions due to planning restrictions imposed by Council (continued)

At reporting date, reliable estimates as to the value of any potential liability (and subsequent land asset) from such potential acquisitions has not been possible.

ASSETS NOT RECOGNISED:**(i) Land under roads**

As permitted under AASB 1051, Council has elected not to bring to account land under roads that it owned or controlled up to and including 30/6/08.

(ii) Legal recoveries of fraud

Legal recovery actions are being progressed against persons for recovery of monies identified by the ICAC Operation Ricco and by Council as fraud against the former City of Botany Bay Council. Outcomes cannot be reliably measured at time of reporting resulting in a contingent asset relating to legal recoveries and insurance settlements.

(iii) Legal actions

Council has provided for some legal settlements but is currently defending these legal claims which are potential contingent assets if successful.

(iv) Infringement notices/fines

Fines and penalty income, the result of Council issuing infringement notices is followed up and collected by the Infringement Processing Bureau. Council's revenue recognition policy for such income is to account for it as revenue on receipt. Accordingly, at year end, there is a potential asset due to Council representing issued but unpaid infringement notices.

Due to the limited information available on the status, value and duration of outstanding notices, Council is unable to determine the value of outstanding income.

Former City of Botany Bay Council

Notes to the Financial Statements
for the period to 9 September 2016

Note 18. Contingencies and other assets/liabilities not recognised (continued)

\$ '000

ASSETS NOT RECOGNISED (continued):**(v) Onerous Contracts**

The Council as part of Council's operations enters into contracts for the provisions of services. While some provision has been made in the accounts for Onerous Contracts, there is potential for further exposure to losses not already provided for.

Former City of Botany Bay Council

Notes to the Financial Statements
for the period to 9 September 2016

Note 19. Interests in other entities

\$ '000

Council's objectives can and in some cases are best met through the use of separate entities and operations.

These operations and entities range from 100% ownership and control through to lower levels of ownership and control via co-operative arrangements with other councils, bodies and other outside organisations.

The accounting and reporting for these various entities, operations and arrangements varies in accordance with accounting standards, depending on the level of council's (i) interest and (ii) control and the type (form) of entity/operation, as follows;

Controlled entities (subsidiaries)**Note 19(a)**

Operational arrangements where Council's control (but not necessarily interest) exceeds 50%.

Joint ventures and associates**Note 19(b)**

Joint ventures are operational arrangements where the parties that have joint control have rights to the net assets of the arrangement.

Associates are separate entities where Council has significant influence over the operations (but neither controls nor jointly controls them).

Joint operations**Note 19(c)**

Operational arrangements where the parties that have joint control have rights to specific assets and obligations for specific liabilities relating to the arrangement rather than a right to the net assets of the arrangement.

Unconsolidated structured entities**Note 19(d)**

Unconsolidated structured entities represent "special vehicles" that Council has an interest in but which are not controlled by Council and therefore not consolidated as a subsidiary, joint arrangement or associate. Attributes of structured entities include restricted activities, a narrow and well-defined objective and insufficient equity to finance its activities without financial support.

Subsidiaries, joint arrangements and associates not recognised**Note 19(e)****Accounting recognition:**

(i) Subsidiaries disclosed under Note 19(a) and joint operations disclosed at Note 19(c) are accounted for on a 'line by line' consolidation basis within the Income Statement and Statement of Financial Position.

(ii) Joint ventures and associates as per Note 19(b) are accounted for using the equity accounting method and are disclosed as a 1 line entry in both the Income Statement and Statement of Financial Position.

	Council's share of net income		Council's share of net assets	
	Actual 1/7/15 to 9/9/16	Actual 1/7/14 to 30/6/15	Actual 9/9/16	Actual 30/6/15
Joint ventures	167	(340)	1,611	1,444
Associates	—	—	—	—
Total	167	(340)	1,611	1,444

Former City of Botany Bay Council

Notes to the Financial Statements

for the period to 9 September 2016

Note 19. Interests in other entities (continued)

\$ '000

(a) Controlled entities (subsidiaries) – being entities and operations controlled by Council

Council has no interest in any controlled entities (subsidiaries).

(b) Joint ventures and associates

Council has incorporated the following joint ventures and associates into its consolidated financial statements.

(a) Net carrying amounts – Council's share

Name of entity	Nature of relationship	Measurement method	9/9/16	30/6/15
United Independent Pools	Joint Venture	Equity Method	219	217
Metropool	Joint Venture	Equity Method	1,392	1,227
Total carrying amounts – material joint ventures and associates			1,611	1,444

(b) Details

Name of entity	Principal activity	Place of business
United Independent Pools	Liability insurance & risk management	Penrith
Metropool	Liability insurance & risk management	Penrith

(c) Relevant interests and fair values

Name of entity	Quoted fair value		Interest in outputs		Interest in ownership		Proportion of voting power	
	9/9/16	30/6/15	2016	2015	2016	2015	2016	2015
United Independent Pools	N/A	N/A	3%	3%	3%	3%	5%	3%
Metropool	N/A	N/A	15%	14%	15%	14%	11%	14%

(d) Summarised financial information for joint ventures and associates

Statement of financial position	United Independent Pools		Metropool	
	30/6/16	30/6/15	30/6/16	30/6/15
Current assets				
Cash and cash equivalents	171	1,554	28	100
Other current assets	4,177	4,473	5,998	4,662
Total current assets	4,348	6,027	6,026	4,762
Non-current assets	8,539	5,761	16,408	15,491
Current liabilities				
Financial liabilities (excl. accounts payable)	2,800	1,539	1,659	1,146
Other current liabilities	346	269	206	92
Total current liabilities	3,146	1,808	1,865	1,238
Non-current liabilities	2,454	2,462	11,147	10,644
Net assets	7,287	7,518	9,422	8,371
Reconciliation of the carrying amount				
Opening net assets (1 July)	7,517	6,906	8,371	8,327
Profit/(loss) for the period	(231)	611	1,050	44
Closing net assets	7,286	7,517	9,421	8,371
Council's share of net assets (%)	3.0%	2.9%	14.8%	14.7%
Council's share of net assets (\$)	219	217	1,392	1,227

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Former City of Botany Bay Council

Notes to the Financial Statements
for the period to 9 September 2016

Note 19. Interests in other entities (continued)

\$ '000

(b) Joint ventures and associates (continued)

(d) Summarised financial information for joint ventures and associates (continued)

	United Independent Pools		Metropool	
	1/7/15 to 30/6/16	1/7/14 to 30/6/15	1/7/15 to 30/6/16	1/7/14 to 30/6/15
Statement of comprehensive income				
Income	8,551	8,696	3,590	3,341
Interest income	423	388	774	953
Other expenses	(9,205)	(8,472)	(3,314)	(4,250)
Profit/(loss) for period	(231)	612	1,050	44
Other comprehensive income	—	—	—	—
Total comprehensive income	(231)	612	1,050	44
Share of income – Council (%)	-1.0%	2.9%	15.7%	89.7%
Profit/(loss) – Council (\$)	2	18	165	39
Total comprehensive income – Council (\$)	2	18	165	39

(c) Joint operations

Council has no interest in any joint operations.

(d) Unconsolidated structured entities

Council has no unconsolidated structured entities

(e) Subsidiaries, joint arrangements and associates not recognised

All subsidiaries, joint arrangements and associates have been recognised in this financial report.

Former City of Botany Bay Council

Notes to the Financial Statements

for the period to 9 September 2016

Note 20. Retained earnings, revaluation reserves, changes in accounting policies, changes in accounting estimates and errors

\$ '000	Notes	Actual 9/9/16	Actual 30/6/15
(a) Retained earnings			
Movements in retained earnings were as follows:			
Balance at beginning of year (from previous years audited accounts)		255,807	236,779
a. Net operating result for the year		69,876	19,028
Balance at end of the reporting period		325,683	255,807
(b) Revaluation reserves			
(i) Reserves are represented by:			
– Infrastructure, property, plant and equipment revaluation reserve		161,239	162,071
Total		161,239	162,071
(ii) Reconciliation of movements in reserves:			
Infrastructure, property, plant and equipment revaluation reserve			
– Opening balance		162,071	121,079
– Revaluations for the year	9(a)	(832)	40,992
– Balance at end of year		161,239	162,071
TOTAL VALUE OF RESERVES		161,239	162,071
(iii) Nature and purpose of reserves			
Infrastructure, property, plant and equipment revaluation reserve			
The infrastructure, property, plant and equipment revaluation reserve is used to record increments/decrements of non-current asset values due to their revaluation.			
At the end of the reporting period, the amount held in the reserve related to the following asset classes:			
Land		68,373	70,382
Buildings		32,126	30,355
Roads, bridges, footpaths		51,992	50,028
Stormwater drainage		8,748	11,306
		161,239	162,071

(c) Correction of error/s relating to a previous reporting period

Council made no correction of errors during the current reporting period.

(d) Voluntary changes in accounting policies

Council made no voluntary changes in any accounting policies during the period.

Former City of Botany Bay Council

Notes to the Financial Statements for the period to 9 September 2016

Note 21. Financial result and financial position by fund

\$ '000

Council utilises only a general fund for its operations.

Note 22. 'Held for sale' non-current assets and disposal groups

Council did not classify any non-current assets or disposal groups as 'held for sale'.

Note 23. Events occurring after the reporting date

Events that occur between the end of the reporting period (9 September 2016) and the date when the financial statements are 'authorised for issue' have been taken into account in preparing these statements.

Council has adopted the date of receipt of the Auditors' Report as the applicable 'authorised for issue' date relating to these General Purpose Financial Statements.

Accordingly, the 'authorised for issue' date is dd/mm/yy.

Events that occur after the reporting period represent one of two types:

(i) Events that provide evidence of conditions that existed at the reporting period

These financial statements (and the figures therein) incorporate all 'adjusting events' that provided evidence of conditions that existed at 9 September 2016.

(ii) Events that provide evidence of conditions that arose after the reporting period

These financial statements (and figures therein) do not incorporate any 'non-adjusting events' that have occurred after 9 September 2016 and which are only indicative of conditions that arose after 9 September 2016.

Council is unaware of any material or significant 'non-adjusting events' that should be disclosed.

Note 24. Discontinued operations

Council has not classified any of its operations as 'discontinued'.

Former City of Botany Bay Council

Notes to the Financial Statements
for the period to 9 September 2016

Note 25. Intangible assets

	Actual 9/9/16	Actual 30/6/15
--	------------------	-------------------

\$ '000

Intangible assets represent identifiable non-monetary assets without physical substance.

Intangible assets are as follows:

Opening values:

Gross book value (1/7)	—	—
Accumulated amortisation (1/7)	—	—
Accumulated impairment (1/7)	—	—
Net book value – opening balance	—	—

Movements for the period

– Transfer from Note 9 (Office Equipment)	1,043	
– Purchases	92	—
– Amortisation charges	(183)	—
– Impairment charges	(124)	—
– Gross book value written off	(1,368)	—
– Accumulated amortisation charges written off	806	—

Closing values:

Gross book value (9/9/16)	313	
Accumulated amortisation (9/9/16)	(47)	
Accumulated impairment (9/9/16)	—	—

TOTAL INTANGIBLE ASSETS – NET BOOK VALUE 1

266	—
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¹. The net book value of intangible assets represent:

– Software	266	—
	266	—

Note 26. Reinstatement, rehabilitation and restoration liabilities

Council has no outstanding obligations to make, restore, rehabilitate or reinstate any of its assets/operations.

Former City of Botany Bay Council

Notes to the Financial Statements
for the period to 9 September 2016

Note 27. Fair value measurement

\$ '000

The Council measures the following asset and liability classes at fair value on a recurring basis:

- Infrastructure, property, plant and equipment
- Financial assets and liabilities

The fair value of assets and liabilities must be estimated in accordance with various accounting standards for either recognition and measurement requirements or for disclosure purposes.

AASB 13 Fair Value Measurement requires all assets and liabilities measured at fair value to be assigned to a 'level' in the fair value hierarchy as follows:

Level 1: Unadjusted quoted prices in active markets for identical assets or liabilities that the entity can access at the measurement date.

Level 2: Inputs other than quoted prices included within level 1 that are observable for the asset or liability, either directly or indirectly.

Level 3: Inputs for the asset or liability that are not based on observable market data (unobservable inputs).

(1) The following table presents all assets and liabilities that have been measured and recognised at fair values:

1/7/15 to 9/9/16		Fair value measurement hierarchy			Total
		Level 1	Level 2	Level 3	
	Date of latest valuation	Quoted prices in active mkts	Significant observable inputs	Significant unobservable inputs	
Recurring fair value measurements					
Financial assets					
Investments					
– 'Designated at fair value on initial recognition'	9/09/16	14,883	111,625	–	126,508
Total financial assets		14,883	111,625	–	126,508
Infrastructure, property, plant and equipment					
Plant and equipment	9/09/16	–	7,654	–	7,654
Office equipment /Furniture & Fittings	9/09/16	–	1,328	–	1,328
Library Books	9/09/16	–	1,563	–	1,563
Operational Land	9/09/16	–	110,441	–	110,441
Community Land	9/09/16	–	–	40,165	40,165
Buildings	9/09/16	–	–	58,187	58,187
Other Structures	9/09/16	–	–	19,281	19,281
Roads	9/09/16	–	–	164,042	164,042
Bridges	9/09/16	–	–	3,586	3,586
Footpaths	9/09/16	–	–	28,170	28,170
Stormwater Drainage	9/09/16	–	–	32,587	32,587
Other Assets	9/09/16	–	–	204	204
Furniture & Fittings	9/09/16	–	888	–	888
Land Improvements	9/09/16	–	–	3,605	3,605
Total infrastructure, property, plant and equipment		–	121,874	349,827	471,701

Former City of Botany Bay Council

Notes to the Financial Statements
for the period to 9 September 2016

Note 27. Fair value measurement (continued)

\$ '000

(1) The following table presents all assets and liabilities that have been measured and recognised at fair values: (continued)

1/7/14 to 30/6/15		Fair value measurement hierarchy			Total
		Level 1	Level 2	Level 3	
	Date of latest valuation	Quoted prices in active mkts	Significant observable inputs	Significant unobservable inputs	
Recurring fair value measurements					
Financial assets					
Investments					
– Designated at fair value on initial recognition [*]	30/06/15	–	–	3,356	3,356
Total financial assets		–	–	3,356	3,356
Infrastructure, property, plant and equipment					
Plant and equipment	30/06/15	–	2,192	–	2,192
Office equipment	30/06/15	–	1,917	–	1,917
Library Books	30/06/15	–	613	–	613
Operational Land	30/06/15	–	–	90,160	90,160
Community Land	30/06/15	–	–	58,460	58,460
Buildings *	30/06/15	–	–	50,450	50,450
Other Structures	30/06/15	–	–	3,816	3,816
Roads	30/06/15	–	–	111,033	111,033
Bridges	30/06/15	–	–	3,093	3,093
Footpaths	30/06/15	–	–	17,013	17,013
Stormwater Drainage	30/06/15	–	–	23,041	23,041
Other Assets	30/06/15	–	–	1,703	1,703
Total infrastructure, property, plant and equipment		–	4,722	358,769	363,491

(2) Transfers between level 1 and level 2 fair value hierarchies

During the period, there were no transfers between level 1 and level 2 fair value hierarchies for recurring fair value measurements.

* Prior year comparative balances are restated to align to current year disclosures.

Former City of Botany Bay Council

Notes to the Financial Statements for the period to 9 September 2016

Note 27. Fair value measurement (continued)

\$ '000

(3) Valuation techniques used to derive level 2 and level 3 fair values

Where Council is unable to derive fair valuations using quoted market prices of identical assets (ie. level 1 inputs) Council instead utilises a spread of both observable inputs (level 2 inputs) and unobservable inputs (level 3 inputs).

The fair valuation techniques Council has employed while utilising level 2 and level 3 inputs are as follows:

Infrastructure, property, plant and equipment (IPP&E)

Fair value hierarchy level 3 valuations of land - Valuations of Crown land, community land and land subject to other restrictions on use or disposal, shown above as being based on fair value hierarchy level 3 valuation inputs, are based on prices for similar assets in an active market, but include adjustments for specific advantages or disadvantages attaching to the particular asset that are not directly or indirectly observable in that market, or the number and / or amount of observable adjustments of which are so great that the valuation is more fairly described as being based on level 3 valuation inputs.

Fair value hierarchy level 3 valuations of buildings, infrastructure and other assets - There is no known market for these assets and they are valued at depreciated current replacement cost. This method involves:

The determination of the cost to construct the asset (or its modern engineering equivalent) using current prices for materials and labour, the quantities of each being estimated based on recent experience of this or similar Councils, or on industry construction guides where these are more appropriate.

The calculation of the depreciation that would have accumulated since original construction using current estimates of residual value and useful life under the prime cost depreciation method adopted by Council.

This method has significant inherent uncertainties, relying on estimates of quantities of materials and labour, residual values and useful lives, and the possibility of changes in prices for materials and labour, and the potential for development of more efficient construction techniques.

Former City of Botany Bay Council

Notes to the Financial Statements
for the period to 9 September 2016

Note 27. Fair value measurement (continued)

\$ '000

(4). Fair value measurements using significant unobservable inputs (level 3)

The following tables present the changes in level 3 fair value asset classes.

	Operational Land	Community Land	Buildings *	Total
Opening balance – 1/7/14	90,160	58,460	50,705	199,325
Purchases (GBV)	–	–	1,502	1,502
Depreciation and impairment	–	–	(1,757)	(1,757)
Closing balance – 30/6/15	90,160	58,460	50,450	199,070
Purchases (GBV)	–	2,220	1,212	3,432
Disposals (WDV)	–	–	(23)	(23)
Depreciation and impairment	–	–	(2,263)	(2,263)
Other movement	–	–	(14,906)	(14,906)
Revaluation increment	–	–	1,771	1,771
Revaluation decrement	–	(20,515)	–	(20,515)
Other movement – Transfer to Level 2	(90,160)	–	–	(90,160)
Closing balance – 9/9/16	–	40,165	36,241	76,406

	Other Structures	Roads	Bridges	Footpaths	Total
Opening balance – 1/7/14	3,256	72,150	3,034	15,313	93,753
Purchases (GBV)	713	3,299	–	264	4,276
Depreciation and impairment	(153)	(1,049)	(59)	(575)	(1,836)
FV gains – other comprehensive income	–	36,633	118	2,011	38,762
Closing balance – 30/6/15	3,816	111,033	3,093	17,013	134,955
Purchases (GBV)	1,579	3,711	–	1,694	6,984
Disposals (WDV)	–	(20)	–	–	(20)
Depreciation and impairment	(1,168)	(2,592)	(71)	(429)	(4,260)
Other movement	10,426	3,772	–	–	14,198
Revaluation Increment	–	4,283	435	–	4,718
Revaluation decrement	–	–	–	(2,754)	(2,754)
Closing balance – 9/9/16	14,653	120,187	3,457	15,524	153,821

* Prior year comparative balances are restated to align to current year disclosures.

Former City of Botany Bay Council

Notes to the Financial Statements
for the period to 9 September 2016

Note 27. Fair value measurement (continued)

\$ '000

(4). Fair value measurements using significant unobservable inputs (level 3) (continued)

The following tables present the changes in level 3 fair value asset classes. (continued)

	Land Improvements	Stormwater Drainage	Other Assets	Total
Opening balance – 1/7/14	–	20,032	899	20,931
Purchases (GBV)	–	1,024	868	1,892
Depreciation and impairment	–	(245)	(64)	(309)
FV gains – other comprehensive income	–	2,230	–	2,230
Closing balance – 30/6/15	–	23,041	1,703	24,744
Purchases (GBV)	912	1,595	63	2,570
Disposals (WDV)	(159)	–	(210)	(369)
Depreciation and impairment	(198)	(322)	(8)	(528)
Other movement	2,603	17	(1,405)	1,215
Revaluation Decrement	–	(2,558)	–	(2,558)
Closing balance – 9/9/16	3,158	21,773	143	25,074

(5). Highest and best use

All of Council's non-financial assets are considered as being utilised for their highest and best use.

Former City of Botany Bay Council

SPECIAL PURPOSE FINANCIAL STATEMENTS
for the period to 9 September 2016

*The former City of Botany Bay is committed to improving the total environment
to allow all community members who live, work, or use the facilities in the
Council area to enjoy and benefit from the services provided."*



SPFS 2016

Former City of Botany Bay Council

Special Purpose Financial Statements

for the period to 9 September 2016

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2. Special Purpose Financial Statements:

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n/a

Income Statement – Sewerage Business Activity

n/a

Income Statement – Other Business Activities

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Statement of Financial Position – Water Supply Business Activity

n/a

Statement of Financial Position – Sewerage Business Activity

n/a

Statement of Financial Position – Other Business Activities

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3. Notes to the Special Purpose Financial Statements

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4. Auditor's Report

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Background

(i) These Special Purpose Financial Statements have been prepared for the use by both Council and the Office of Local Government in fulfilling their requirements under National Competition Policy.

(ii) The principle of competitive neutrality is based on the concept of a 'level playing field' between persons/entities competing in a market place, particularly between private and public sector competitors.

Essentially, the principle is that government businesses, whether Commonwealth, state or local, should operate without net competitive advantages over other businesses as a result of their public ownership.

(iii) For Council, the principle of competitive neutrality and public reporting applies only to declared business activities.

These include **(a)** those activities classified by the Australian Bureau of Statistics as business activities being water supply, sewerage services, abattoirs, gas production and reticulation, and **(b)** those activities with a turnover of more than \$2 million that Council has formally declared as a business activity (defined as Category 1 activities).

(iv) In preparing these financial statements for Council's self-classified Category 1 businesses and ABS-defined activities, councils must **(a)** adopt a corporatisation model and **(b)** apply full cost attribution including tax-equivalent regime payments and debt guarantee fees (where the business benefits from Council's borrowing position by comparison with commercial rates).

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Former City of Botany Bay Council

Special Purpose Financial Statements

for the period to 9 September 2016

Statement by Councillors and Management

made pursuant to the Local Government Code of Accounting Practice and Financial Reporting

The former City of Botany Bay Council was amalgamated on 9 September with the former Rockdale City Council to form the Bayside Council by way of the Local Government (Bayside) Proclamation 2016

This Statement by Councillors and Management is in respect of the former City of Botany Bay Council and is limited due to the significant breakdowns in administrative, financial and governance internal controls identified in the former Council.

The breakdown is evidenced by the NSW Independent Commission Against Corruption (ICAC) report 2016 on the former City of Botany Bay Council (Operation Ricco) which identifies overwhelming corruption and systemic failures in internal controls.

Whilst significant work has been undertaken to develop and implement a new internal control environment and to address the Independent Commission Against Corruption (ICAC) report on the former City of Botany Bay Council within the new Council, this cannot correct the past failings of the former City of Botany Bay Council.

The current Council and Management of the newly formed Bayside Council cannot warrant the completeness and reliability of the Special Purpose Financial Report for the Airport Business Unit on the basis the Airport Business Unit was a central element of the ICAC (Operation Ricco) report.

Signed in accordance with a resolution of Council made on 14 March 2018.

Bill Saravinovski
Mayor

Councillor

Meredith Wallace
General manager

Matthew Walker
Responsible accounting officer

SPFS 2016

Former City of Botany Bay Council

Income Statement of Council's Other Business Activities
for the period to 9 September 2016

	Airport		Golf Course	
	Category 1		Category 1	
	Actual	Actual	Actual	Actual
	1/7/15	1/7/14	1/7/15	1/7/14
\$ '000	to 9/9/16	to 30/6/15	to 9/9/16	to 30/6/15
Income from continuing operations				
Access charges	—	—	—	—
User charges	8,849	6,942	355	328
Fees	—	—	—	—
Interest	—	—	—	—
Grants and contributions provided for non-capital purposes	—	—	—	—
Profit from the sale of assets	—	—	—	—
Other income	—	—	—	—
Total income from continuing operations	8,849	6,942	355	328
Expenses from continuing operations				
Employee benefits and on-costs	5,084	3,217	633	530
Borrowing costs	—	—	—	—
Materials and contracts	9,060	5,349	252	246
Depreciation and impairment	27	29	7	18
Loss on sale of assets	—	—	—	—
Calculated taxation equivalents	208	—	—	—
Debt guarantee fee (if applicable)	105	—	—	—
Other expenses	—	—	—	—
Total expenses from continuing operations	14,484	8,595	892	794
Surplus (deficit) from continuing operations before capital amounts	(5,635)	(1,653)	(537)	(466)
Grants and contributions provided for capital purposes	—	—	—	—
Surplus (deficit) from continuing operations after capital amounts	(5,635)	(1,653)	(537)	(466)
Surplus (deficit) from discontinued operations	—	—	—	—
Surplus (deficit) from all operations before tax	(5,635)	(1,653)	(537)	(466)
Less: corporate taxation equivalent (30%) [based on result before capital]	—	—	—	—
SURPLUS (DEFICIT) AFTER TAX	(5,635)	(1,653)	(537)	(466)
Plus opening retained profits	1,518	3,171	56	522
Plus/less: prior period adjustments	—	—	—	—
Plus adjustments for amounts unpaid:				
– Taxation equivalent payments	208	—	—	—
– Debt guarantee fees	105	—	—	—
– Corporate taxation equivalent	—	—	—	—
Add:				
– Subsidy paid/contribution to operations	3,804	—	—	—
Less:				
– TER dividend paid	—	—	—	—
– Dividend paid	—	—	—	—
Closing retained profits	—	1,518	(481)	56
Return on capital %	n/a	n/a	n/a	n/a
Subsidy from Council	5,635	—	537	—

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SPFS 2016

Former City of Botany Bay Council

Statement of Financial Position – Council's Other Business Activities

as at 9 September 2016

	Airport		Golf Course	
	Category 1		Category 1	
\$ '000	Actual 9/9/16	Actual 30/6/15	Actual 9/9/16	Actual 30/6/15
ASSETS				
Current assets				
Cash and cash equivalents	–	–	–	–
Investments	–	–	–	–
Receivables	1,012	1,518	–	–
Inventories	–	–	39	56
Contribution from Council's General Funds	3,327	–	–	–
Non-current assets classified as held for sale	–	–	–	–
Total Current Assets	4,339	1,518	39	56
Non-current assets				
Investments	–	–	–	–
Receivables	–	–	–	–
Inventories	–	–	–	–
Infrastructure, property, plant and equipment	–	–	–	–
Investments accounted for using equity method	–	–	–	–
Investment property	–	–	–	–
Intangible assets	–	–	–	–
Total non-current assets	–	–	–	–
TOTAL ASSETS	4,339	1,518	39	56
LIABILITIES				
Current liabilities				
Bank overdraft	–	–	–	–
Payables	948	–	–	–
Borrowings	–	–	–	–
Provisions	–	–	–	–
Total current liabilities	948	–	–	–
Non-current liabilities				
Payables	–	–	–	–
Borrowings	–	–	–	–
Provisions	3,391	–	–	–
Other Liabilities	–	–	–	–
Total non-current liabilities	3,391	–	–	–
TOTAL LIABILITIES	4,339	–	–	–
NET ASSETS	–	1,518	39	56
EQUITY				
Retained earnings	–	1,518	56	56
Revaluation reserves	–	–	–	–
Council equity interest	–	1,518	56	56
Non-controlling equity interest	–	–	–	–
TOTAL EQUITY	–	1,518	56	56

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SPFS 2016

Former City of Botany Bay Council

Special Purpose Financial Statements

for the period to 9 September 2016

Contents of the notes accompanying the financial statements

Note	Details	Page
1	Summary of significant accounting policies	6
2	Water Supply Business Best-Practice Management disclosure requirements	n/a
3	Sewerage Business Best-Practice Management disclosure requirements	n/a

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Former City of Botany Bay Council

Notes to the Special Purpose Financial Statements

for the period to 9 September 2016

Note 1. Significant accounting policies

These financial statements are a Special Purpose Financial Statements (SPFS) prepared for use by Council and the Office of Local Government.

For the purposes of these statements, the Council is not a reporting not-for-profit entity.

The figures presented in the SPFS, unless otherwise stated, have been prepared in accordance with:

- the recognition and measurement criteria of relevant Australian Accounting Standards,
- other authoritative pronouncements of the Australian Accounting Standards Board (AASB), and
- Australian Accounting Interpretations.

The disclosures in the SPFS have been prepared in accordance with:

- the Local Government Act (1993) NSW,
- the Local Government (General) Regulation,
- the Local Government Proclamation (Bayside) 2016
- the Local Government Code of Accounting Practice and Financial Reporting.

For the Local Government Bayside Proclamation 2016 amalgamated the former City of Botany Bay Council with the former Rockdale Council effective 9 September 2016. These Special Purpose Financial Statements are the final statements for the former City of Botany Bay Council business activities.

The statements are also prepared on an accruals basis, based on historic costs and do not take into account changing money values nor current values of non-current assets (except where specifically stated).

Certain taxes and other costs (appropriately described) have been imputed for the purposes of the National Competition Policy.

National Competition Policy

Council has adopted the principle of 'competitive neutrality' to its business activities as part of the national competition policy which is being applied throughout Australia at all levels of government.

The framework for its application is set out in the June 1996 government policy statement, *Application of National Competition Policy to Local Government*.

The *Pricing and Costing for Council Businesses, A Guide to Competitive Neutrality*, issued by the Office of Local Government in July 1997, has also been adopted.

The pricing and costing guidelines outline the process for identifying and allocating costs to activities and provide standards for disclosure. These disclosures are reflected in Council's pricing and/or financial reporting systems and include taxation equivalents, Council subsidies, return on investments (rate of return), and dividends paid.

Declared business activities

In accordance with *Pricing and Costing for Council Businesses – A Guide to Competitive Neutrality*, Council has declared that the following are to be considered as business activities:

Category 1

(where gross operating turnover is over \$2 million)

- a. Contract Services - Airport
- b. Golf Course

Category 2

(where gross operating turnover is less than \$2 million)

Nil

Monetary amounts

Amounts shown in the financial statements are in Australian currency and rounded to the nearest thousand dollars.

(i) Taxation-equivalent charges

Council is liable to pay various taxes and financial duties in undertaking its business activities. Where this is the case, they are disclosed in these statements as a cost of operations just like all other costs.

However, where Council is exempt from paying taxes which are generally paid by private sector

Former City of Botany Bay Council

Notes to the Special Purpose Financial Statements

for the period to 9 September 2016

Note 1. Significant accounting policies (continued)

businesses (such as income tax), equivalent tax payments have been applied to all Council-nominated business activities and are reflected in these financial statements.

For the purposes of disclosing comparative information relevant to the private sector equivalent, the following taxation equivalents have been applied to all Council-nominated business activities (this does not include Council's non-business activities):

Notional rate applied (%)

Corporate income tax rate – 30%

Land tax – the first **\$482,000** of combined land values attracts **0%**. For that valued from \$482,001 to \$2,947,000 the rate is **1.6% + \$100**. For the remaining combined land value that exceeds \$2,947,000, a premium marginal rate of **2.0%** applies.

Payroll tax – **5.45%** on the value of taxable salaries and wages in excess of \$750,000.

Income tax

An income tax equivalent has been applied on the profits of each reported business activity.

While income tax is not a specific cost for the purpose of pricing a good or service, it needs to be taken into account in terms of assessing the rate of return required on capital invested.

Accordingly, the return on capital invested is set at a pre-tax level (gain or loss from ordinary activities before capital amounts) as would be applied by a private sector competitor – that is, it should include a provision equivalent to the corporate income tax rate, currently 30%.

Income tax is only applied where a positive gain/(loss) from ordinary activities before capital amounts has been achieved.

Since this taxation equivalent is notional – that is, it is payable to Council as the 'owner' of business operations, it represents an internal payment and has no effect on the operations of the Council. Accordingly, there is no need for disclosure of internal charges in Council's General Purpose Financial Statements.

The 30% rate applied is the equivalent company tax rate prevalent as at balance date. No adjustments have been made for variations that have occurred during the year.

Local government rates and charges

A calculation of the equivalent rates and charges payable on all category 1 businesses has been applied to all land assets owned or exclusively used by the business activity.

Loan and debt guarantee fees

The debt guarantee fee is designed to ensure that council business activities face 'true' commercial borrowing costs in line with private sector competitors.

In order to calculate a debt guarantee fee, Council has determined what the differential borrowing rate would have been between the commercial rate and Council's borrowing rate for its business activities.

(ii) Subsidies

Government policy requires that subsidies provided to customers, and the funding of those subsidies, must be explicitly disclosed.

Subsidies occur when Council provides services on a less-than-cost-recovery basis. This option is exercised on a range of services in order for Council to meet its community service obligations.

Accordingly, 'subsidies disclosed' (in relation to National Competition Policy) represents the difference between revenue generated from 'rate of return' pricing and revenue generated from prices set by Council in any given financial year.

The overall effect of subsidies is contained within the Income Statement of each reported business activity.

(iii) Return on investments (rate of return)

The policy statement requires that councils with category 1 businesses 'would be expected to generate a return on capital funds employed that is comparable to rates of return for private businesses operating in a similar field'.

Former City of Botany Bay Council

Notes to the Special Purpose Financial Statements for the period to 9 September 2016

Note 1. Significant accounting policies (continued)

Such funds are subsequently available for meeting commitments or financing future investment strategies.

The rate of return on capital is calculated as follows:

Operating result before capital income + interest expense

Written down value of I,PP&E as at 30 June

As a minimum, business activities should generate a return equal to the Commonwealth 10 year bond rate which is 1.99% at 09/09/16.

The actual rate of return achieved by each business activity is disclosed at the foot of each respective Income Statement.

(iv) Dividends

Council is not required to pay dividends to either itself (as owner of a range of businesses) or to any external entities.

Former City of Botany Bay Council

SPECIAL SCHEDULES

for the period to 9 September 2016

*The former City of Botany Bay is committed to improving the total environment
to allow all community members who live, work, or use the facilities in the
Council area to enjoy and benefit from the services provided."*



Former City of Botany Bay Council

Special Schedules

for the period to 9 September 2016

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Special Schedules¹

Special Schedule 1	Net Cost of Services	2
Special Schedule 2(a)	Statement of Long Term Debt (all purposes)	n/a
Special Schedule 2(b)	Statement of Internal Loans (Sect. 410(3) LGA 1993)	n/a
Special Schedule 3	Water Supply Operations – incl. Income Statement	n/a
Special Schedule 4	Water Supply – Statement of Financial Position	n/a
Special Schedule 5	Sewerage Service Operations – incl. Income Statement	n/a
Special Schedule 6	Sewerage Service – Statement of Financial Position	n/a
Notes to Special Schedules 3 and 5		n/a
Special Schedule 7	Report on Infrastructure Assets	4

Background

- (i) These Special Schedules have been designed to meet the requirements of special purpose users such as;
- the NSW Grants Commission
 - the Australian Bureau of Statistics (ABS),
 - the NSW Office of Water (NOW), and
 - the Office of Local Government (OLG).
- (ii) The financial data is collected for various uses including;
- the allocation of Financial Assistance Grants,
 - the incorporation of Local Government financial figures in national statistics,
 - the monitoring of loan approvals,
 - the allocation of borrowing rights, and
 - the monitoring of the financial activities of specific services.

Special Schedules 2016

Former City of Botany Bay Council

Special Schedule 1 – Net Cost of Services
for the period to 9 September 2016

\$'000				
Function or activity	Expenses from continuing operations	Income from continuing operations		Net cost of services
		Non-capital	Capital	
Governance	–	–	–	–
Administration	26,731	9,278	6,519	(10,934)
Public order and safety				
Fire service levy, fire protection, emergency services	812	–	–	(812)
Beach control	–	–	–	–
Enforcement of local government regulations	2,218	807	–	(1,411)
Animal control	–	19	–	19
Other	–	–	–	–
Total public order and safety	3,030	826	–	(2,204)
Health	6	80	–	74
Environment				
Noxious plants and insect/vermin control	–	–	583	583
Other environmental protection	94	–	–	(94)
Solid waste management	9,059	9,439	–	380
Street cleaning	2,097	–	–	(2,097)
Drainage	623	–	–	(623)
Stormwater management	–	–	–	–
Total environment	11,873	9,439	583	(1,851)
Community services and education				
Administration and education	844	57	12,870	12,083
Social protection (welfare)	–	–	–	–
Aged persons and disabled	600	541	–	(59)
Children's services	3,470	4,809	–	1,339
Total community services and education	4,914	5,407	12,870	13,363
Housing and community amenities				
Public cemeteries	–	–	–	–
Public conveniences	226	–	–	(226)
Street lighting	1,202	–	–	(1,202)
Town planning	1,735	464	–	(1,271)
Other community amenities	–	–	–	–
Total housing and community amenities	3,163	464	–	(2,699)
Water supplies	–	–	–	–
Sewerage services	–	–	–	–

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Former City of Botany Bay Council

Special Schedule 1 – Net Cost of Services (continued)
for the period to 9 September 2016

\$'000

Function or activity	Expenses from continuing operations	Income from continuing operations		Net cost of services
		Non-capital	Capital	
Recreation and culture				
Public libraries	1,771	178	—	(1,593)
Museums	86	—	—	(86)
Art galleries	—	—	—	—
Community centres and halls	—	—	—	—
Performing arts venues	—	—	—	—
Other performing arts	—	—	—	—
Other cultural services	—	—	—	—
Sporting grounds and venues	2,708	710	—	(1,998)
Swimming pools	1,095	685	—	(410)
Parks and gardens (lakes)	7,263	530	35,357	28,624
Other sport and recreation	—	—	—	—
Total recreation and culture	12,923	2,103	35,357	24,537
Fuel and energy	—	—	—	—
Agriculture	—	—	—	—
Mining, manufacturing and construction				
Building control	5,158	1,770	—	(3,388)
Other mining, manufacturing and construction	—	—	—	—
Total mining, manufacturing and const.	5,158	1,770	—	(3,388)
Transport and communication				
Urban roads (UR) – local	4,804	4,157	7,855	7,208
Urban roads – regional	—	—	—	—
Sealed rural roads (SRR) – local	—	—	—	—
Sealed rural roads (SRR) – regional	—	—	—	—
Unsealed rural roads (URR) – local	—	—	—	—
Unsealed rural roads (URR) – regional	—	—	—	—
Bridges on UR – local	—	—	—	—
Bridges on SRR – local	—	—	—	—
Bridges on URR – local	—	—	—	—
Bridges on regional roads	—	—	—	—
Parking areas	—	—	—	—
Footpaths	4,643	—	—	(4,643)
Aerodromes	—	—	—	—
Other transport and communication	—	—	—	—
Total transport and communication	9,447	4,157	7,855	2,565
Economic affairs				
Camping areas and caravan parks	—	8,849	—	8,849
Other economic affairs	14,171	—	—	(14,171)
Total economic affairs	14,171	8,849	—	(5,322)
Totals – functions	91,416	42,373	63,184	14,141
General purpose revenues ⁽¹⁾		55,568		55,568
Share of interests – joint ventures and associates using the equity method	—	167		167
NET OPERATING RESULT ⁽²⁾	91,416	98,108	63,184	69,876

(1) Includes: rates and annual charges (including ex gratia, excluding water and sewer), non-capital general purpose grants, interest on investments (excluding externally restricted assets) and interest on overdue rates and annual charges (2) As reported in the Income Statement

Special Schedules 2016

Former City of Botany Bay Council

Special Schedule 7 – Report on Infrastructure Assets as at 9 September 2016

\$'000

Asset class	Asset category	Estimated cost to bring assets to satisfactory standard	Estimated cost to bring to the agreed level of service set by Council	2015/16 Required maintenance ^a	2015/16 Actual maintenance	Carrying value	Gross replacement cost (GRC)	Assets in condition as a percentage of gross replacement cost				
								1	2	3	4	5
Buildings *	Buildings	1,314	1,314	383	340	14,614	19,620	55%	9%	15%	21%	0%
	Council Offices	1,836	1,836	247	316	3,575	7,732	0%	0%	20%	80%	0%
	Works Depot	116	116	58	241	2,586	4,310	0%	0%	81%	19%	0%
	Halls	1,234	1,234	461	238	10,038	18,803	0%	24%	54%	22%	0%
	Library	–	–	34	184	1,841	2,566	100%	0%	0%	0%	0%
	Sub-total	4,500	4,500	1,183	1,319	32,654	53,031	25.2%	11.8%	34.2%	28.8%	0.0%
Other structures **	Other structures ***	–	–	–	–	10,927	14,201	0%	33%	34%	33%	0%
	Sub-total	–	–	–	–	10,927	14,201	0.0%	33.0%	34.0%	33.0%	0.0%
Roads	Sealed roads surface	1,830	1,830	447	753	11,969	27,959	0%	44%	24%	32%	0%
	Sealed roads structure	2,444	2,444	50	84	87,258	102,429	0%	44%	24%	32%	0%
	Bridges	–	–	–	2	3,456	3,586	100%	0%	0%	0%	0%
	Footpaths	448	448	631	1,867	15,524	28,170	0%	50%	46%	4%	0%
	Other road assets	–	–	–	37	4,355	7,827	0%	44%	24%	32%	0%
	Kerb and gutter	265	265	88	85	16,606	25,827	0%	21%	76%	3%	0%
	Sub-total	4,987	4,987	1,216	2,828	139,168	195,798	1.8%	41.0%	33.6%	23.6%	0.0%

Prior year comparative balances are restated to align to current year disclosures.

* The Aquatic Centre has been disclosed below in Recreational Assets. When balancing to Note 9 this will effect asset class totals however overall Infrastructure total will balance.

** Playground Equipment has been disclosed below in Recreational Assets. When balancing to Note 9 this will effect asset class totals however overall totals will balance.

*** Maintenance costs for Other Structures, Stormwater Drainage, and Playground Equipment were not separated in the former BBC and are therefore not identifiable.

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Special Schedules 2016

Former City of Botany Bay Council

Special Schedule 7 – Report on Infrastructure Assets as at 9 September 2016 (continued)

\$'000

Asset class	Asset category	Estimated cost to bring assets to satisfactory standard	Estimated cost to bring to the agreed level of service set by Council	2015/16 Required maintenance ^a	2015/16 Actual maintenance	Carrying value	Gross replacement cost (GRC)	Assets in condition as a percentage of gross replacement cost				
								1	2	3	4	5
Stormwater drainage	Stormwater drainage	–	–	–	562	21,773	32,587	7%	51%	36%	5%	1%
	Sub-total	–	–	–	562	21,773	32,587	7.0%	51.0%	36.0%	5.0%	1.0%
Open space/recreational assets	Aquatic Centre	–	–	–	130	3,587	5,157	1%	3%	92%	4%	0%
	Playground Equipment	–	–	–	–	3,726	5,080	66%	25%	7%	2%	0%
	Sub-total	–	–	–	130	7,313	10,237	33.3%	13.9%	49.8%	3.0%	0.0%
	TOTAL – ALL ASSETS	9,487	9,487	2,399	4,839	211,835	305,854	7.4%	35.7%	34.5%	22.2%	0.1%

Notes:

^a Required maintenance is the amount identified in Council's asset management plans.

Infrastructure asset condition assessment 'key'

- | | | |
|---|------------------|---------------------------------------|
| 1 | Excellent | No work required (normal maintenance) |
| 2 | Good | Only minor maintenance work required |
| 3 | Average | Maintenance work required |
| 4 | Poor | Renewal required |
| 5 | Very poor | Urgent renewal/upgrading required |

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Special Schedules 2016

Former City of Botany Bay Council

Special Schedule 7 – Report on Infrastructure Assets (continued)
for the period to 9 September 2016

\$ '000	Amounts 9/9/16	Indicator 9/9/16	Prior periods 30/6/1530/6/14	
Infrastructure asset performance indicators * consolidated				
1. Infrastructure renewals ratio				
Asset renewals ⁽¹⁾	5,830	85.17%	150.86%	76.00%
Depreciation, amortisation and impairment	6,845			
2. Infrastructure backlog ratio				
Estimated cost to bring assets to a satisfactory standard	9,487	4.41%	4.64%	7.00%
Carrying value of infrastructure assets	214,993			
3. Asset maintenance ratio				
Actual asset maintenance	4,839	2.02	0.92	0.81
Required asset maintenance	2,399			
4. Capital expenditure ratio				
Annual capital expenditure	15,649	1.85	1.52	1.02
Annual depreciation	8,477			

Notes

* All asset performance indicators are calculated using the asset classes identified in the previous table.

⁽¹⁾ Asset renewals represent the replacement and/or refurbishment of existing assets to an equivalent capacity/performance as opposed to the acquisition of new assets (or the refurbishment of old assets) that increases capacity/performance.

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Former City of Botany Bay Council

General Purpose Financial Statements

for the period to 9 September 2016

Statement by Councillors and Management

made pursuant to Section 413(2)(c) of the *Local Government Act 1993 (NSW)* (as amended)

The attached General Purpose Financial Statements for the former City of Botany Bay Council for the period 1 July 2015 to 9 September 2016

The former City of Botany Bay Council was amalgamated on 9 September with the former Rockdale City Council to form the Bayside Council by way of the Local Government (Bayside) Proclamation 2016.

This Statement by Councillors and Management is in respect of the former City of Botany Bay Council and is limited due to the significant breakdowns in administrative, financial and governance internal controls identified in the former Council.

The breakdown is evidenced by the NSW Independent Commission Against Corruption (ICAC) report 2016 on the former City of Botany Bay Council (Operation Ricco) which identifies overwhelming corruption and systemic failures in internal controls.

Whilst significant work has been undertaken to develop and implement a new internal control environment and to address the Independent Commission Against Corruption (ICAC) report on the former City of Botany Council within the new Council, this cannot correct the past failings of the former City of Botany Bay Council.

The current Council and Management of the newly formed Bayside Council cannot warrant the completeness and reliability of the financial statements as a whole as covered above.

Signed in accordance with a resolution of Council made on 14 March 2018.

Bill Saravinovski
Mayor

Councillor

Meredith Wallace
General manager

Matthew Walker
Responsible accounting officer

SPFS 2016

Former City of Botany Bay Council

Special Purpose Financial Statements for the period to 9 September 2016

Statement by Councillors and Management made pursuant to the Local Government Code of Accounting Practice and Financial Reporting

The former City of Botany Bay Council was amalgamated on 9 September with the former Rockdale City Council to form the Bayside Council by way of the Local Government (Bayside) Proclamation 2016

This Statement by Councillors and Management is in respect of the former City of Botany Bay Council and is limited due to the significant breakdowns in administrative, financial and governance internal controls identified in the former Council.

The breakdown is evidenced by the NSW Independent Commission Against Corruption (ICAC) report 2016 on the former City of Botany Bay Council (Operation Ricco) which identifies overwhelming corruption and systemic failures in internal controls.

Whilst significant work has been undertaken to develop and implement a new internal control environment and to address the Independent Commission Against Corruption (ICAC) report on the former City of Botany Bay Council within the new Council, this cannot correct the past failings of the former City of Botany Bay Council.

The current Council and Management of the newly formed Bayside Council cannot warrant the completeness and reliability of the Special Purpose Financial Report for the Airport Business Unit on the basis the Airport Business Unit was a central element of the ICAC (Operation Ricco) report.

Signed in accordance with a resolution of Council made on 14 March 2018.

Bill Saravinovski
Mayor

Councillor

Meredith Wallace
General manager

Matthew Walker
Responsible accounting officer

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This report is considered a draft unless signed by a Director



September 2017

Michael Harrison

Director Urban Design and Planning

Revision history

Issue Reference	Issue Date	Issue Status
A	27 September 2017	Draft for Client Review
B	29 September 2017	Final

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Attachments

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Attachment A – Urban Context Report, prepared by Architectus, dated September 2017
Attachment B – Site Survey, Prepared by Linker Surveying, dated August 2015
Attachment C – Site Survey, Prepared by Cardno, dated May 2017
Attachment D – Site Audit Statement, Prepared by Ramboll Environ Australia, dated June 2017
Attachment E – Transport Report, Prepared by Arup, dated September 2017
Attachment F – Draft Master Plan: Preliminary Heritage Review, Prepared by NBRS Architects, dated September 2017
Attachment G – Flora and Fauna Surveys 73 Gardeners Road, Prepared by ACS Environmental Pty Ltd dated September 2017
Attachment H – Flora and Fauna Surveys 75 Gardeners Road, Prepared by ACS Environmental Pty Ltd, dated November 2015
Attachment I – Aeronautical Assessment, Prepared by Strategic Airspace, dated September 2017
Attachment J – Environmental Noise Impact Assessment, Prepared by Acoustic Logic, dated September 2017
Attachment K – Arboricultural Impact Appraisal and Method Statement, Prepared by Naturally Trees, dated September 2017
Attachment L – Geotechnical Assessment 73 Gardeners Road, Prepared by JK Geotechnics, dated July 2017
Attachment M – Geotechnical Assessment 75 Gardeners Road, Prepared by JK Geotechnics, dated May 2015
Attachment N – Hydrology, Stormwater and Creek Assessment 73-75 Gardeners Road, Prepared by Northrop Consulting, dated September 2017
Attachment O – Proposed Mapping Amendments, Prepared by Architectus, dated September 2017

Executive summary

This Planning Proposal is prepared by Architectus on behalf of Sydney Water for a vacant site located at 75 Gardeners Road and the neighbouring Sydney Water Depot at 73 Gardeners Road, in the suburb of Eastlakes. The Planning Proposal seeks Council support to progress an amendment to the land use zoning, maximum height of buildings and floor space ratio applicable to the site in the Botany Bay Local Environmental Plan (BBLEP) 2013.

Sydney Water are in the process of divesting surplus land to allow redevelopment and improved utilisation of this land within the Sydney Metropolitan area. For the subject sites, due to their location within the wider context of Eastlakes, it is proposed to seek a rezoning to allow for high density residential development and other appropriate supporting land uses such as small scale shops, retail or similar uses. The proposal will enable the future redevelopment of both sites for residential dwellings contained within buildings ranging in height between 6-14 storeys. No approval is sought for the master plan at this stage as it simply evidences that the proposed changes to the planning controls are appropriate.

The proposed amendments to the BBLEP 2013 include the following:

- Land use – rezone from SP1 Recreation Facility (Outdoor) and SP2 Infrastructure (Sydney Water Depot) to R4 High Density Residential (including amendments to the current Schedule 1 Additional Permitted Land Uses to permit low scale retail / commercial uses on site);
- Height of buildings – increase from 14 metres (in the existing SP1 zone) to a range from 29 metres to 50 metres across both sites; and
- Floor space ratio – increase from 1:1 (in the existing SP1 zone) to 1.65:1 for 75 Gardeners Road and implement an FSR of 1.95:1 to the site at 75 Gardeners Road.

However, the land zoning, HOB and FSR development standards for 73 Gardeners Road are proposed to be deferred until the current use of the site as a Sydney Water Operational Depot is no longer required by Sydney Water. During this time, it is proposed that the relevant maps in the BBLEP will identify 73 Gardeners Road as a 'deferred matter' and that the current zoning and development standards will continue to apply. It is intended that both sites would be developed by one entity to achieve consistency and a better outcome, however the master plan has been developed to allow both sites to be developed independently from one another to allow for the ongoing use of the Sydney Water Depot until such time that it is surplus to their operational requirements.

The site

This report relates to the land at 75 Gardeners Road, Eastlakes (Lot 51 in DP 1216168) and the neighbouring Sydney Water Depot Site at 73 Gardeners Road (Lot 101 in DP 1232571), identified in **Figure 1**. The site is an irregular allotment. The site at 75 Gardeners Road is approximately 1.46 ha in area and is currently vacant but was previously occupied by the garden centre tenant Gardens-R-Us. The Sydney Water Operational Depot site is approximately 1.28 ha and currently

contains a carparking area, a concrete and metal warehouse and office building. A portion of the site is also currently occupied by a vacant residential dwelling to the east of 75a Gardeners Road.

The entire site area has a total area of approximately 2.75 ha.



Figure 1 Subject site – 73-75 Gardeners Road, Eastlakes
Site outlined and shaded in blue. Source: Six Maps, NSW Government

This Planning Proposal has been drafted in accordance with Section 55 of the Environmental Planning and Assessment Act 1979 (EP&A Act) and *A Guide to Preparing Planning Proposals*, NSW Department of Planning and Environment (2016). In line with these documents, this Planning Proposal explains the intended effect of the proposed instrument and sets out the justification for the making of the proposed instrument.

Strategic and planning context

The site is well located on Gardeners Road and is bound by land occupied by The Lakes Golf Club to the south and east. From its elevated position, the site enjoys expansive views over the golf course, Botany Wetlands and beyond towards Botany Bay.

To the north, the site is dominated by its boundary to Gardeners Road, which is also aligned with the boundary of Randwick LGA. The western boundary of the site borders the residential cul-de-sac Slattery Place.

The site is well located, with direct bus links to Sydney CBD, Mascot, Bondi Junction, Eastgardens and the University of NSW. There is also a future light rail station proposed at Kingsford, which is around 10-15 minutes' walk east along Gardeners Road.

There are two shopping centres within 800 metres (Eastlakes and Kingsford) and two schools within a 10-15 minute walk radius. There are also sports fields and public open spaces nearby, with the potential for links into and through the Botany Wetlands.

The site area of approximately 2.75 ha presents a unique opportunity in Eastlakes to provide for a higher density form of housing in the area to meet the needs of the existing and future residents of the LGA. A whole-of-site master plan has been prepared and tested, demonstrating the benefit of allowing a high density form of residential living in the area, to support the rezoning of the site.

No approval is sought for the master plan at this stage as it simply seeks to evidence that the proposed changes to the planning controls are appropriate. Any

future development of the site will be subject to future development applications lodged with Council. The master plan envisages that both sites will be developed, but ensures that each site can function independently from one another. At this stage, due to the current use of 73 Gardeners Road as a Sydney Water Depot, it is unknown whether both sites will be sold simultaneously, or whether both sites will be developed jointly. This will be subject to the outcomes of the Sydney Water Depot Optimization report which is still ongoing. It is envisaged that both sites will be sold to one entity to enable the sites to be developed in stages. The timing of the relocation of Sydney Water's operations at 73 Gardeners Road is subject to the finalisation of the Depot Optimisation report.

Strategic merit test

The proposed amendments to the BBLEP 2013 are consistent with relevant strategic plans, including the Sydney Metropolitan Strategy *A Plan for Growing Sydney*, the *Draft Central District Plan*, and the *Botany Bay Planning Strategy 2031*. Refer to **Section 2.5**.

The relevant strategic documents recognise the need to provide a range a housing choice for central Sydney to accommodate a reduction in household sizes, while ensuring housing is delivered in the right locations and with access to jobs:

- The *Draft Central District Plan* estimates that “there will be 61,100 more people living alone over the next 20 years, which will be the fastest growing household type between 2016 and 2036”, and
- The Bayside Council *Botany Bay Planning Strategy 2031* recognises the opportunity to provide more housing within close proximity to the Eastlakes commercial centre and the need to “enhance access to high quality open space assets” such as the Botany Wetlands.

The proposed amendments to the BBLEP 2013 will support the proposed master plan to redevelop the site to provide for more residential development in the suburb of Eastlakes. This will allow for an increase in apartment style living within close proximity to commercial centres, good quality open space and with connections to schools and jobs. Critically, the sites redevelopment will allow for its enhanced relationship with sites immediate surrounds through the delivery of residential units, publicly accessible open space and low scale supporting commercial / retail spaces.

Site specific merit test

Several master plan options were considered, based the following constraints and conditions to guide the planning for the site:

- Retain existing and valuable trees, especially to the perimeter of the site.
- Retain the existing intersection as the primary site access from Gardeners Road.
- Work with and improve existing retaining wall structures along the site frontage.
- Use internal vehicular circulation to provide an increased buffer/setback to Gardeners Road.
- Maintain a transition in building heights towards the existing apartments on Slattery Place.
- Create a series of communal open spaces.
- Orientate built form and open space to maximise solar access to communal space.
- Maximise views from open space to the south over the golf course.

- Provide an improved response for stormwater / flooding to provide usable public open space.
- Retain the existing landscape buffer to the golf course.
- Enhance site permeability through a defined pedestrian network.
- Minimise the impact on the golf course infrastructure particularly greens and fairway views.

This Planning Proposal has considered potential environmental impacts of the proposed redevelopment of 73-75 Gardeners Road, including impacts of the proposed redevelopment on residents from surrounding neighbourhoods and the unimpeded use of the adjacent golf course.

The heritage context of the site has been taken into consideration and has helped to shape the master plan for the site. The site is not a heritage item itself, and is not within close proximity to any heritage listed items. The nearest heritage item is within the Randwick LGA and is the St Spyridon Green Orthodox Church at 78 Gardeners Road, approximately 440 metres from the site. However, the Botany Wetlands are located to the south and east of the site. This area is identified on the Heritage Map of the BBLEP 2013 as being an item of environmental heritage.

Other supporting reports including transport, stormwater, acoustic, arboricultural, geotechnical, aeronautical, heritage and ecology have also been provided which have identified that the proposal is appropriate for the subject site.

Consultation with relevant stakeholders, including residents from the adjacent properties and the golf course has been undertaken including presentation of the preferred urban design option for the site. This consultation focused primarily on the 75 Gardeners Road as at that stage the Sydney Water Depot site was not identified for potential divestment. However, the critical findings of this initial consultation were considered and implemented as part of the master plan development for the Sydney Water Depot Site.

The master plan provides a holistic strategy to redevelop the currently vacant Sydney Water site at 75 Gardeners Road (formerly Gardens-R-U's) and the existing Sydney Water Depot at 73 Gardeners Road into high density residential to accommodate the growing population for the central Sydney district. The proposal will enable the future redevelopment of both sites resulting in approximately 744 units, 1417 parking spaces and a range of building heights between 6-14 storeys. It should be noted that subject to timing constraints for Sydney Water, the sites may be developed jointly or may be developed independently in separate stages.

Proposed amendments to the Botany Bay planning controls

The following amendments to the BBLEP 2013 are proposed to facilitate the preferred master plan option, evidencing design led planning:

- Land use – rezone from SP1 and SP2 to R4 High Density Residential, to facilitate redevelopment of the site to accommodate the growing population for Sydney and provide for high quality apartment housing stock for the Eastlakes residential area (including amendments to the current Schedule 1 Additional Permitted Land Uses to permit low scale retail / commercial uses on site and prohibit garden centres, hardware and building supplies, landscaping material supplies);
- Height of buildings – amend the BBLEP 2013 from 14 meters at 75 Gardeners Road (the Sydney Water Depot site does not currently have a maximum height control) of a range of 29 metres to 50 metres across the site. This will allow for optimal built form and public domain outcomes and to facilitate a redevelopment of the site; and
- Floor space ratio – amend the BBLEP 2013 to increase the maximum floor

space ratio permitted from 1:1 at 75 Gardeners Road (the Sydney Water Depot site does not currently have a maximum floor space ratio control) to 1.65:1 for 75 Gardeners Road and 1.95:1 for 73 Gardeners Road. This will allow for redevelopment of the site for high density residential, providing for optimal built form and excellent public domain outcomes.

This Planning Proposal addresses the whole of the site, however the rezoning of the existing Sydney Water Depot at 73 Gardeners Road is proposed to be deferred until the current use of the site as a water depot is no longer required. The timing of this is subject to the finalisation of a Depot Optimization Report currently being prepared by Sydney Water.

The planning for both sites has been undertaken together to ensure the orderly planning and coordinated design of the development, however the master plan has been designed to allow for the development of 75 Gardeners Road to occur independently of the Sydney Water Depot site at 73 Gardeners Road. The inclusion of 73 Gardeners Road creates an opportunity to provide a better design outcome for both the immediate surrounding area and the wider Eastlakes area.

Assessment

A number of assessments have been undertaken to accompany the Planning Proposal and investigate potential issues within the proposed legislative amendments, including transport, ecological, heritage, geotechnical, aeronautical and acoustic assessments, and an Urban Context Report.

These assessments demonstrate that the legislative amendments sought in this Planning Proposal and the preferred urban design concept would be feasible and have acceptable impacts.

Justification

We consider this Planning Proposal to be well justified on the following basis:

- The Planning Proposal is consistent with the objectives and actions of the NSW Government's Sydney Metropolitan Strategy, *A Plan for Growing Sydney*, as well as district and local strategic planning objectives;
- The proposed redevelopment of the site will be for the purpose of high density residential, and will therefore change the current use of the site to accommodate the growing demand for new and diverse range of housing in the Central Sydney District;
- The proposed rezoning of the site from SP1 and SP2 to R4 High Density Residential will enable the provision of new housing within close proximity with the Eastlakes and Kingsford commercial centres, the future Randwick Health and Education Precinct and with easy access to the Sydney CBD; and
- The proposed legislative amendments sought in this Planning Proposal and the preferred urban design concept are considered to be feasible and have acceptable environmental impacts.

Urban design testing has demonstrated that the proposed amendments to the BBLEP 2013 would result in a desirable urban design outcome for the site. Refer to the Urban Context Report at **Attachment A** where these options are illustrated and assessed.

It is considered that the site is well located to provide for high density residential development. The master plan for the site aims to provide for a range of apartment types that takes advantage of the surrounding environmental features and the stunning views to the south over the golf course. Six design principles have been identified to inform a master plan for the site, including:

- Provision of a generous landscape setback from Gardeners Road.
- Provision of a central open space area with views towards the golf course.
- Retention of mature trees.
- Orientation of buildings to address the public domain.
- Defined public and private open space areas.
- Maximisation of solar access to open space areas and apartments.

These principles aim to achieve a built form, which ensures delivery of a high quality urban development that encourages active and social living, while taking advantage of the stunning views and natural features of the area.

The master plan for 73 and 75 Gardeners Road is driven by the need to ensure:

- the delivery of a built form adequately responsive to the sites location;
- allow for the delivery of significant publicly accessible land at minimal cost to the community and development, whilst ensuring a financially feasible development outcome for future prospective purchasers;
- increase the opportunities for delivery of additional housing within Sydney;
- develop a holistic, considered response to the future development of both sites, notwithstanding their potential separate development at different times;
- undertake a holistic ensure and a need for additional housing within Sydney; and
- maximise the access to amenities such as local centres, open space and public transport for new dwellings within Sydney.

Given the site's location and size, it presents a unique opportunity to deliver high density housing in an area primarily occupied by low to medium density residential developments, with minimal impacts on surrounding properties. It also seeks to take advantage of important public open space and nearby environmental features.

Recommendation

This Planning Proposal is supported by evidence from an Urban Context Report, detailed master plan, transport assessment, ecological and heritage assessments, geotechnical, aeronautical and acoustic assessments.

The proposed scale of the development is appropriate for the area, and does not set an undesirable precedent for development in the neighbourhood because of its unique location adjacent to the golf course and on a main carriageway, with transport connections to key local and strategic centres.

The Planning Proposal is well justified and would deliver a diverse range of housing to meet the needs of Sydney's growing population and changing demographics. It is in line with Council's vision for the area and is supported by state and metropolitan strategic plans.

The Planning Proposal is therefore recommended for support by Council.



Figure 2 Artists impression of Gardeners Road looking west towards the development

Source: Architectus, September 2017

1. Introduction

1.1 Preliminary

This Planning Proposal is prepared by Architectus on behalf of Sydney Water for the vacant site located at 75 Gardeners Road and the neighbouring Sydney Water Depot at 73 Gardeners Road, in the suburb of Eastlakes. The subject site is located in the Bayside Local Government Area (LGA) (formerly the Botany Bay LGA). The Planning Proposal seeks an amendment to the BBLEP 2013 to enable the redevelopment of the site for residential purposes.

The site is bound by Gardeners Road to the north, which is aligned with the boundary of Randwick LGA. The site is bound to the south and east by land occupied by The Lakes Golf Club, and to the west by the residential cul-de-sac Slattery Place. The wider locality is characterized by low to medium density residential dwellings and established street trees. The area surrounding the Eastlakes Village to the west and including Slattery Place is zoned R4 High Density Residential.

The vegetation and wetlands network to the south and east of the site forms part of the Botany Wetlands corridor. The largest freshwater wetlands in the Sydney region and containing some of the area's remaining indigenous vegetation and significant native fauna.

Whilst the Planning Proposal is for the site in its entirety, the proposed amendments to the existing Sydney Water Depot site are proposed to be deferred until use of the site is no longer needed by Sydney Water.



Figure 3 Local context plan

Site highlighted in blue

Source: Six Viewer, NSW Government, September 2017

This Planning Proposal has been drafted in accordance with Section 55 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and *A Guide to Preparing Planning Proposals*, NSW Department of Planning and Environment (2016). In line with these documents, this Planning Proposal seeks to explain the intended effect of the proposed instrument and set out the justification for making the proposed amendments to the BBLEP 2013.

The subject site is located to the north of the Lakes Golf Club. From its elevated position, the site enjoys expansive views over the golf course, Botany Wetlands and beyond to Botany Bay.

The current land zoning does not permit residential development and the maximum height of building (HOB) controls and floor space ratio (FSR) for the site do not allow for a higher density form of development than that of the adjacent Slattery Place. Urban design testing demonstrates the site would be ideal for high density residential development due to its proximity to commercial centres, good transport options and access to open space.

This Planning Proposal therefore seeks to amend the land use zoning, maximum building height and floor space ratio controls to redevelop the site for high density residential and provide a good urban design and built form outcomes for the site.

1.2 Structure of this report

This report is prepared in accordance with the NSW Government's '*A Guide to Preparing Planning Proposals*' (2016), and is set out as follows:

- **Section 2: The site and context** – provides an overview of the site to which the Planning Proposal is intended to apply.
- **Section 3: The vision for 73 and 75 Gardeners Road** – outlines the design principles and built form philosophy that have been identified to inform the master plan for the redevelopment of the site.
- **Section 4: Objectives and intended outcomes** – provides a concise statement of the proposal objectives and intended outcomes.
- **Section 5: Explanation of provisions** – outlines the proposed amendments to the planning provisions within the BBLEP 2013 to achieve the proposal.
- **Section 6: Justification** – provides the urban planning justification to support the proposal.
- **Section 7: Mapping** – identification of the land subject to the Planning Proposal, existing land zoning and development standards and proposed land zoning and development standards.
- **Section 8: Consultation** – outlines the community consultation program that should be undertaken in respect of the proposal.
- **Section 9: Project Timeline** – outlines expectations for timeframe of the progression of the proposal.
- **Section 10: Conclusion** – concludes the report with a summary of findings and recommendations.

This report should be read in conjunction with **Attachments A to N**.

1.3 Preparation of the application

This Planning Proposal has been prepared by Geoff Kwok, Graduate Urban Planner, Haley Rich, Urban Planner and Adrian Melo, Associate and Urban Planner. The report has been reviewed by Rachael Nesbitt, Associate and Urban Planner and Michael Harrison, Director, Urban Design and Planning.

1.4 Evolution of the design

Extensive consultation with Bayside Council (formerly Botany Bay Council) has been undertaken as the Planning Proposal has been prepared, including initial discussions in September and October 2015. At this time, the proposal was for 75 Gardeners Road only and did not include planning for the Sydney Water Depot. The master plan for the site evolved and a number of changes were adopted at the request of Council, including:

- 1) Stepping the building height down towards the golf course;
- 2) Reduced building height to address overshadowing of golf course green;
- 3) Reducing the height of buildings adjacent to Slattery Place (14 to 9 storeys); and
- 4) Footprint adjustments to allow for greater tree retention.

Figure 4 and **Figure 5** below demonstrate the evolution of the design in response to Council's concerns.

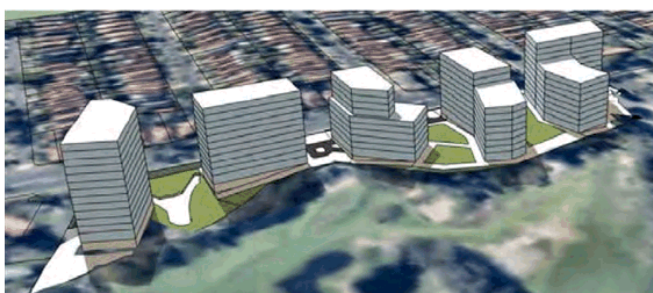


Figure 4 Initial design option presented to Council

The above is the master plan presented to Council in September 2015
Source: Architectus, dated September 2015



Figure 5 Previous proposal addressing Council comments

The above is the subsequent master plan presented to Council in October 2015.
Source: Architectus, dated October 2017

The scheme was amended to adopt all of Council's advice. Further, the new design introduced a 2 storey masonry typology along the golf course, providing an even better transition down to the golf course and activating the public domain on the southern edge of the site.

Further consultation was undertaken with Council and key stakeholders. As a result a number of additional changes were made to design to incorporate feedback received. These changes include:

- 1) Built form adjusted to provide a large centrally located public open space (approx. 2,800m²);

- 2) Western building removed to provide improved open space and relationship to existing buildings at Slattery Place;
- 3) Enlarged public open space in the western portion of the site (approx. 1800m²);
- 4) Consolidated built form to maximise open space.

Following the above, as a result of the initial review of current assets owned by Sydney Water, it was determined that the site should be expanded to include the current Sydney Water Depot at 73 Gardeners Road. This part of the site is proposed to be deferred from the rezoning until the Depot site is closed, however the master planning has been undertaken for both sites together to provide a better design outcome.

Following the inclusion of 73 Gardeners Road, meetings were held with Bayside Council staff on 14 July 2017 and 15 August 2017 to further discuss the development of the site. At the initial meeting with Council, an overview of the site and history to date was discussed with the key points arising from the meeting as follows:

- Future development of the site is to be subject to sale and preparation of a Development Application by others;
- Sydney Water Depot is to be subject to a Deferred Matter zoning to allow for its ongoing use as a depot until such time that Sydney Water is ready to divest the site; and
- The Planning Proposal will need to be supported by a Voluntary Planning Agreement which will need to consider capturing some of the value uplift as public benefit. The finalisation of a VPA and its proposed outcomes is subject to negotiations between Council and Sydney Water.

The discussions were supported by a high level plan showing key principles which is provided at **Figure 6** below. A subsequent meeting was held 15 August 2017 to further discuss the progression of the planning proposal. Key points arising from this discussion were:

- Council were to review the heights of the proposal further and provide comments on the scale and massing of the development; and
- The planning proposal was to be circulated internally and seek comments from other internal stakeholders.

The discussions were supported by a high level plan showing key principles which is provided at **Figure 7** below. Sydney Water and Architectus would like to reaffirm their willingness to continue to discuss the proposal and master plan with Council as part of the initial assessment of the planning proposal by Council.



Figure 6 Indicative master plan principles for 75 Gardeners Road and 73 Gardeners Road

Source: Architectus, dated July 2017



Figure 7 Final indicative master plan for 75 Gardeners Road and Sydney Water Depot

The above is the final master plan presented to Council in August 2017.

Source: Architectus, dated August 2017

1.5 Project team

The Project team is set out below:

Table 1 Project team

Applicant and Project Manager	Sydney Water
Urban Planning	Architectus
Urban Design	Architectus
Heritage	NBRS Architecture
Surveyor	Linker Surveying and Cardno
Transport	ARUP
Ecology	ACS Environmental Pty Ltd
Stormwater	Northrop
Arboricultural	Naturally Trees
Aeronautical	Strategic Airspace
Geotechnical	JK Geotechnics
Acoustic	Acoustic Logic
Site Audit	Ramboll Environ Australia

2. The site and its context

2.1 Regional context

The site is located around 3 kilometers by road from Mascot train station and around 4.3 kilometres from Sydney Airport. The University of NSW is around 1.5 kilometres and Prince of Wales Hospital is around 2.5 kilometres by road to the north-east. Regular buses for routes 302 to Eastgardens/Sydney CBD, 303 to Mascot, 343 to Kingsford/Chatswood, and 418 to Bondi Junction/Burwood, leave from the northern boundary of the site on Gardeners Road. The site is approximately 6.5 kilometers south of Sydney's city center.

The site is located within close proximity to the Strategic Centres of Randwick (approximately 3.5 kilometers) and Green Square (less than 4 kilometers) which are both identified in Sydney's metropolitan strategy, *A Plan for Growing Sydney*. Green Square is identified as part of the Urban Renewal Corridor for Sydney and Randwick is identified as an area for local renewal as a health and education precinct, which will benefit from the future connections to Sydney CBD with the South East Light Rail. The light rail is proposed to have services every 8 minutes to and from the Sydney CBD, Randwick and Kingsford.

The sites proximity to the above centres, and good public transport connections, make it an ideal location for high density residential living. It is noted that in addition to this, the master plan for 73 and 75 Gardeners Road proposes to improve the community's access to local public open space area and to provide significant areas of open space onsite, as well as additional associated uses such as retail and cafes. This will allow residents to experience village life, encourage social interaction and stimulate everyday wellbeing.

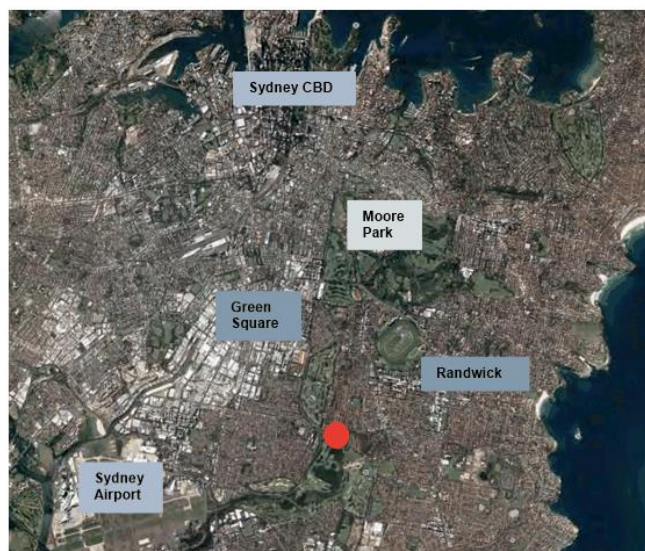


Figure 10 Regional context aerial view

Location of site identified with a red dot

Source: Google Earth, dated August 2017

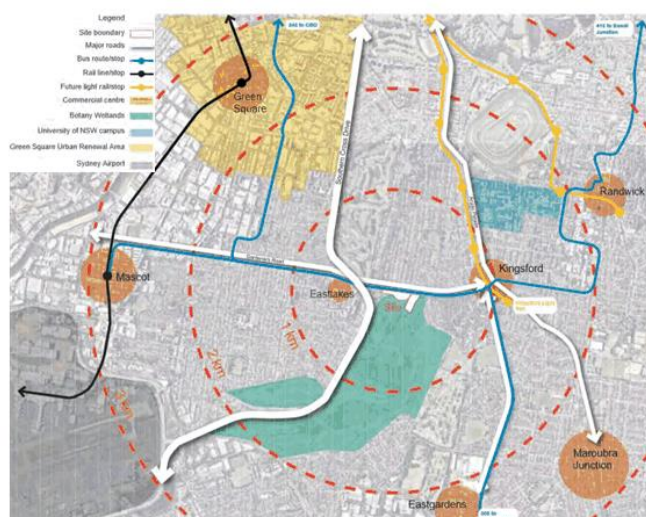


Figure 11 Strategic context plan

Site identified in red

Source: Architectus, dated September 2017

2.2 Local context and site surrounds

The site is situated along the northern extent of the suburb of Eastlakes, within the Bayside LGA.

The site is bound by Gardeners Road to the north, with low rise apartment blocks and single and two storey dwellings to the north of Gardeners Road; Slattery Place in the west, containing multi-level (1 to 5 storey) residential accommodation; and the Lakes Golf Club to the south and east, with the Botany

Wetlands surrounding. The Local Centres of Eastlakes and Kingsford are located within 800m, easy walking distance of the site and are also accessible by bus.

The locality is characterised by established low density detached residential dwellings with large established trees. There are also numerous sports fields and public open spaces within 5-10 minute walk of the site and two schools within a 10-15 minute walk.

The site has high level of amenity due to the adjacent golf course and nearby Botany Wetlands. The slope of the site allows for stunning views to the south over the golf course and open space areas.

Refer to photographs of the site at **Figure** below.

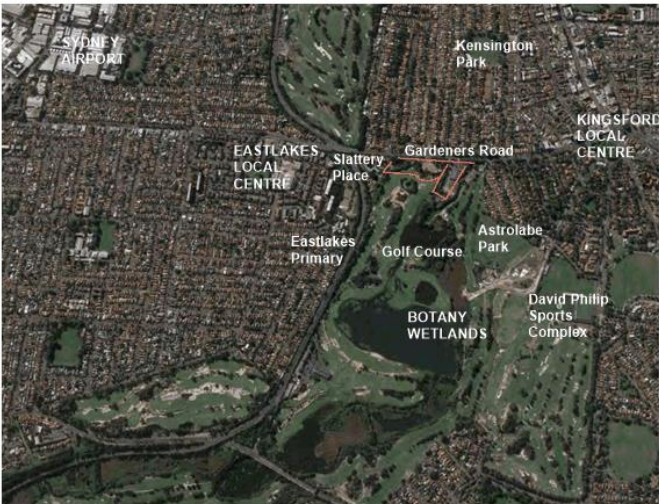


Figure 12 Local context aerial view
Site outlined in red
Source: Google Earth, dated August 2017



Figure 13 Local context plan
Site outlined in red
Source: Architectus, September 2017

2.3 Site details

Existing land use

75 Gardeners Road

The site at 75 Gardeners Road was previously used as a garden centre, known as Gardens-R-Us, however the site is now vacant.

The site enjoys a slightly elevated position compared to the surrounding area. The main access to 75 Gardeners Road is from the signalised intersection, with a level change of 2-3m up from street level into the site. A second site access exists from Slattery Place. There is a raised level area around the center of the site with the land falling away towards the golf course and to the west down towards Slattery Place.

There is an open stormwater feature to the west of the site with two channels joining and flowing south towards the golf course. This area also contains a number of established Paper Bark trees.

There are a number of established trees along the eastern boundary with Gardeners Road, including Eucalypts of between 10m and 25m in height. The southern boundary is characterized by a buffer of native re-vegetation to the golf course that varies in width of between 10 and 20m.

73 Gardeners Road (Sydney Water Depot)

The Sydney Water Depot at 73 Gardeners Road is located to the east of 75 Gardeners Road and remains operational. The main access to the Sydney Water Depot site is from Gardeners Road, which allows for left-in and left-out traffic movements only.

Along the north-eastern boundary with Gardeners Road there are a number of mature trees, ranging from 5-15m in height. To the west of the site is a landscaped buffer of trees and shrubs adjacent to the Lakes Golf Course. Along the eastern boundary of the site is a stormwater channel with steep embankments, with water flowing from two culverts that run beneath Gardeners Road towards the Botany Wetlands.

In the north-east corner of the site there is a 3m wide easement for high pressure sewer main, this is connected to an easement providing access to the sewer pump station. The pump house is contained in a brick building along the western boundary of the site and remains a critical piece of infrastructure.

The Sydney Water Depot is a 2 storey building of blue colorbond located in the centre of the site. There is surface carparking between Gardeners Road and the Depot building and a hard paved area south of the Depot building for truck parking and machinery.

Refer to the Urban Context Report prepared by Architectus (dated September 2017) at **Attachment A** for further detail regarding the site.

Surrounding land uses

The Lakes Golf Course

The Lakes Golf Course, located to the south of the site, is a privately owned golf club established in 1928. The club is one of the leading major tournament venues in Australia having recently hosted the 2010, 2011 and 2012 Men's Australian Opens. The land is leased from Sydney Water and makes up part of the Botany Wetlands.

The ongoing use of the site as a private golf club is expected to continue into the foreseeable future.

Eastlakes Golf Course

The Eastlakes Golf Course was established simultaneously with the Lakes Golf Course on the adjoining land to the east. The Eastlakes Golf Club is located to

the east the Sydney Water Depot site, with the course stretching down to the south-east. Unlike its neighbouring courses, Eastlake Golf Club is not a private Club and is open to members and the community.

77 Slattery Place

Immediately to the west of the site is land at 77 Slattery Place which is currently used as social housing, under the care and management of Land and Housing Corporation. It is understood that this land may be redeveloped to a greater level of density in the future by LAHC but the timing of this is unknown at this stage, although the land is currently zoned R4 under the BBLEP 2013.

Residential area Randwick

Adjacent to the site, to the north of Gardeners Road, is residential zoned land in the Randwick LGA. The area is predominately characterised by single and two storey dwellings. There are also a number of low rise residential flat buildings of 3-5 storeys along Gardeners Road.

2.4 Legal description

The subject site is an irregularly shaped allotment that consists of two lots, legally described as Lot 101 in DP 1232571 (73 Gardeners Road) & Lot 51 in DP 1216168 (75 Gardeners Road). A site survey has been provided at **Attachment B and C**.

The site has a total area of approximately 2.75 hectares.



Figure 14 Aerial view of the subject site

Lots highlighted in blue

Source: Six Viewer, NSW Government, dated September 2017

2.5 Land ownership

The land is owned by Sydney Water.

2.6 Site photos

Images of the site are provided in **Figure 15** to **Figure 14** below.



Figure 15 Entrance to 75 Gardeners Road showing level change



Figure 16 Boundary to Gardeners Road showing level change



Figure 17 Existing trees along corner Gardeners Road and Slattery Place



Figure 18 Single storey dwellings and unit block across intersection at Gardeners Rd



Figure 19 View of Water Board Depot



Figure 10 View towards site from eastern boundary



Figure 11 Five storey residential flat building at Slattery Place



Figure 12 Western boundary from Slattery Place



Figure 13 View north towards site from golf course fairway



Figure 14 Southern boundary of site to golf course



Figure 25 Entrance to 73 Gardeners Road



Figure 26 Operations pump house building

2.7 Planning context

The following primary legislation, planning instruments and planning controls are applicable to the proposal:

Strategic plans	<ul style="list-style-type: none"> – Metropolitan Strategy for Sydney: <i>A Plan for Growing Sydney</i> – Draft Central District Plan – Botany Bay Planning Strategy 2031 – Directions Paper: A Draft Vision for the City of Botany Bay – 20 Year Randwick City Plan
Current planning controls and legislation	<ul style="list-style-type: none"> – Environmental Planning and Assessment Act 1979 (EP&A Act) – <u>Environmental Planning Instruments:</u> – State Environmental Planning Policy No 55—Remediation of Land – State Environmental Planning Policy No 65 – Design Quality of Residential Apartment Development – Botany Bay Local Environmental Plan 2013 – <u>Development Control Plans:</u> – Botany Bay Development Control Plan 2013
Other plans and policies	<ul style="list-style-type: none"> – Green Web Sydney: <i>Vegetation Management Plan for the Sydney Region 1997</i> – NSW 2021: <i>A Plan to Make NSW Number One</i> – Premier's Priorities and State Priorities – Draft Planning Strategy for Kensington and Kingsford Town Centres

The above legislation, planning instruments and planning controls are the primary considerations for this Planning Proposal. An assessment against all legislation is provide at **Section 6**.

2.8 Strategic planning context

Sydney Metropolitan Strategy: A Plan for Growing Sydney

Sydney's metropolitan strategy, *A Plan for Growing Sydney*, was released in December 2014 and is the NSW Government's 20-year plan for the Sydney Metropolitan Area. It provides direction for Sydney's productivity, environmental management, livability, and for the location of housing, employment, infrastructure and open space.

The Metropolitan Strategy's vision for Sydney is "a strong global city, a great place to live". The Strategy identifies goals, directions and principles which inform the future growth and development of Sydney. The key matters which relate to the subject site are as follows:

- Goal 2: A city of housing choice, with homes that meet our needs and lifestyles.
 - o Direction 2.1 – Accelerate housing supply across Sydney
 - Action 2.1.1 – Accelerate housing supply and local housing choices
 - o Direction 2.2 – Accelerate urban renewal across Sydney – providing homes closer to jobs
 - o Direction 2.3 – Improve housing choice to suit different needs and lifestyles
- Goal 3: A great place to live with communities that are strong, increasing housing choice around all centres through urban renewal in established areas;
 - Direction 3.1 – Revitalise existing suburbs
 - Direction 3.3 – Create healthy built environments

The proposal will generally support the intended outcome of the Strategy as:

- It seeks to increase the supply of **high quality apartment housing** in an area which is predominantly characterised by single detached dwellings and low rise residential flat buildings of around 4-5 storeys.
- The proposal is supported by consultants' reports, including an urban context study, transport assessment, ecological and heritage assessments, geotechnical, and aeronautical and acoustic assessments evidencing that **the site is suitable for the proposed uses.**
- Allows for the **redevelopment of surplus government land** for high density residential, including 5 residential flat buildings, two public parks and three community open space areas, with connections to a broader open space network.
- Seeks to provide for walking in and around the site by opening up the site and providing walking and cycling tracks along the southern boundary with the golf course, through to the Botany Wetlands. This will seek to **improve permeability and walkability** within and around the site.
- Seeks to provide for high density residential development on the site, in relatively **close proximity to a range of existing centres.**
- Seeks to enhance the existing community through the delivery of a more diverse range of dwelling types in an environment with **significant open space and improved links to important environmental features** of the area.
- Will revitalize the wider suburb and region through the redevelopment of the site.

Central District 2036 – Draft Central District Plan

In addition to the above, the site is identified as being within Greater Sydney's Central District. Sydney's Central District is centered on the Sydney City but stretches from beachside suburbs in the east, to Botany and Rockdale in the south, through the inner west and across to Strathfield, Burwood and Canada Bay. The continued growth of the Central District is vital to the future success and prosperity of Greater Sydney, New South Wales and Australia.

The draft District Plan describes the Central District as, *"the powerhouse of the NSW economy — home to commercial towers, financial and professional services, as well as a growing urban population attracted to all that the inner city has to offer."*

The Central District is home to over 1 million people, including Greater Sydney's largest concentration of 25-34 year olds. These young working age people bring buoyancy and vibrancy to the District, taking advantage of the District's great employment opportunities and globally competitive higher education institutions. With the Central District's population growing from almost one million in 2016 to an estimated 1.34 million by 2036, there is the vital need to plan for jobs, housing and essential services such as health and education.

There are many opportunities identified in the draft Central District Plan to enhance this part of Sydney, such as the renewal of government-owned land near Sydney City.

The draft Central District Plan was publicly exhibited until the end of March 2017 and will be finalised towards the end of this year.

The site is subject to the priorities and actions identified in the draft Central District Plan, which guide the proposed development, including:

- *Identify the opportunities to create the capacity to deliver 20-year strategic housing supply targets*
- *Increase housing capacity across the District*
- *Encourage housing diversity.*
- *Conserve and enhance environmental heritage including Aboriginal, European and natural*

This Planning Proposal seeks to amend the permissible planning controls applicable to the site to allow development which will increase the supply of housing to the area and provide for a more diverse range of high quality housing options including apartments. This will ensure the acceleration of housing supply, choice and affordability to the Central Sydney District.

A master plan proposes to create a quality built environment that focuses on promoting a healthy lifestyle. The plan provides improved pedestrian accessibility through and around the site where residents can experience an element of village life through the creation of a great place. It also includes the delivery of significant areas of publicly accessible land which will be used by the wider community.

The proposed development seeks to take advantage of the existing established trees onsite and the surrounding environmental setting through orientation of development and complimentary landscaping. The proposed development will benefit from stunning views over the golf course and improved connections to the Botany Wetlands. The submitted master plan identifies the retention of existing significant trees which will ensure that future development will protect and promote the sustainability and resilience of the natural environment.

Action L2 of the draft Central District Plan is 'Identify the opportunities to create the capacity to deliver 20-year strategic housing supply targets', Action L3 requires 'Councils to increase housing capacity across the District' and Action L4 is to 'Encourage housing diversity'. The aim of these actions is to identify opportunities for more good quality housing in specific areas and to support the development of housing diversity and improved affordability in the District. Action L3 lists specific actions for Council for the Bayside LGA, including:

- *monitor and support the delivery of Bayside's five-year housing target of 10,150 dwellings recognising significant growth in infill areas*
- *work with Land and Housing Corporation and Transport for NSW to investigate and coordinate urban renewal at Eastlakes and Eastgardens Shopping Centre and surrounds*
- *investigate local opportunities to address diversity and demand in the short to medium term at local centres and close to transport and other areas with high accessibility*

The proposal is to redevelop surplus government land into high density residential to help meet the demand for new housing in the Central District to accommodate the growing population. With a large number of young adults being drawn to Sydney Central to take advantage of employment opportunities, providing a range of housing types at different price points is important. The proposal includes apartment housing, in an area predominately characterised by detached and attached dwellings and low rise residential flat buildings.

Action L13 is 'Conserve and enhance environmental heritage including Aboriginal, European and natural'. Further, the draft Central District Plan proposes a number of priority projects. Priority Project 4 is the Mill Stream and Botany Wetlands Open Space Corridor Project. The corridor is home to two regionally rare vegetation communities, the Sydney Freshwater Wetlands and the Eastern Suburbs Banksia Scrub. Public use and access along this corridor is limited, and this Priority Project presents a significant opportunity for improved north south access and cross-district access.

The master plan for the redevelopment of the Eastlakes site is driven by the need to retain existing mature trees onsite and take advantage of the surrounding natural environment by linking the residential development to the wider area and enhancing interaction with the Botany Wetlands.

Botany Bay Planning Strategy 2031. Local Livability, Global Connections

The Botany Bay Planning Strategy 2031, Local Livability, Global Connection, was adopted in 2009. The strategy was prepared to address the dwelling and job targets identified in the previous Draft East Subregional Strategy and provides a framework for growth and development to 2031. It was used to guide the preparation of the BBLEP 2013. The strategy provides a set of principles to guide planning and direction for the LGA.

The Strategy Principles that relate to the Planning Proposal include:

- Enhance existing urban character, improve amenity and protect areas of cultural and environmental significance.
- Promote the sustainable use of resources and enhance natural ecosystems.
- Consolidate residential activity in and around existing centres.
- Ensure that future urban development is guided by principles of good urban design and built form.
- Improve quality of, and access to, open space in the LGA

The Strategy is the outcome of consultation with residents, community groups, business and agencies. The aim of the plan is to provide long term direction for

the delivery of community policies, programs and services. The following Strategy Directions have been considered throughout the design phase of the Planning Proposal.

1. Enhancing Housing Choice and Liveability

7. Protecting the Natural Environment

The master plan for the site has been designed to improve the urban and natural environment, while delivering a higher density housing product with limited impact on the surrounding established neighbourhoods. Good transport links provide access to jobs in the Sydney CBD the nearby Randwick and Green Square Strategic Centres and delivery of two new public parks and communal open space will provide improved lifestyle and health options for residents and the broader community. Shared pedestrian links into the Botany Wetlands will promote the use of this important natural feature and retention of existing established trees onsite and additional landscaping will improve flora and fauna corridors in the area.

Directions Paper: A Draft Vision for the City of Botany Bay

Botany Bay Council prepared a Directions Paper as part of the "Botany Bay 2040 Vision" process, which aims to create a vision for the City of Botany Bay for the next 25 years. The paper sets out six themes and 25 specific priorities that reflect the feedback received through surveys, community meetings and resident submissions during the consultation process.

The paper highlights the need to provide a diverse range of housing types to support Botany Bay's diverse community, including residents with high or low incomes, single people or those with large families, and people at all phases of life.

Botany Wetlands are the largest freshwater wetlands in the Sydney region and contain some of the area's remaining indigenous vegetation and significant native fauna. The paper proposes working to restore community access to the Botany Wetlands, including cycling and pedestrian connections from Gardeners Road through the golf course and throughout the wetlands. The Paper proposes creation of a new massive park, covering the Eastlakes Golf Course that will provide important open space for a growing population. Council recognises that as apartment living continues to increase, ready access to parks is essential to help people stay active. The new park with pedestrian and bicycle links would restore internal connections through our City from the Bay through to Gardeners Road.

Another key aim of the paper is to ensure that local streets are designed to promote safety and encourage pedestrian activity.

The proposed design of the master plan includes a range of apartment types to accommodate households of different sizes and promotes the high quality environmental setting of the site by orientating the buildings and public and communal open space areas to take advantage of the stunning views over the golf course. The master plan also includes pedestrian and cycle pathways through the site and into the Botany Wetlands to the south.

The Randwick City Plan: A 20 Year Plan

The Randwick City Plan was first published in 2006 following extensive consultation with the local community and was updated in 2011. This plan is organised into six broad interrelated themes, with ten outcomes arranged under those themes. The theme and outcomes most relevant to this planning proposal include:

3. Places for People

- *Excellence in urban design*
- *Excellence in recreation and lifestyle opportunities*

The master plan for the site proposes high quality apartment living in a natural setting that takes advantage of the stunning views over the adjacent golf courses. The provision of open space areas for the future residents and broader community onsite and the cycleways and pedestrian links into the Botany Wetlands to the south encourage recreation opportunities and improved lifestyle options for those living in the surrounding areas.

2.9 Current planning controls

State Environmental Planning Policy No 55—Remediation of Land (SEPP 55)

This policy applies to the whole state of New South Wales and aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment.

Clause 6 of SEPP 55 relates to 'Contamination and remediation to be considered in zoning or rezoning proposal'. The subject site is proposed to be rezoned as part of this Planning Proposal for the development of high density residential, this is a change from the existing zoning of SP1 Recreation Facility (Outdoor) and SP2 Infrastructure (Sydney Water Depot).

As the rezoning of the site will result in a change of land use a site audit was undertaken by Ramboll Environ Australia Pty Ltd, in accordance with SEPP 55 Planning Guidelines, and reported in accordance with the Office of Environment's Guidelines for Consultants Reporting on Contaminated Sites, dated 2011. The Site Audit Statement, dated June 2017, is included at **Attachment D**.

The investigations undertaken identified fill material on the former nursery, residential property and depot containing anthropogenic material such as brick, concrete and tile, including fragments of asbestos containing material. Laboratory analysis of fill samples identified elevated concentrations of metals, particularly lead, Total Recoverable Hydrocarbons and Polycyclic Aromatic Hydrocarbons (PAHs). Concentrations exceeded the adopted human health criteria, particularly at the depot site. Isolated detections of volatile contaminants were identified in the west of the site at 75 Gardeners Road and southwest of the depot at 73 Gardeners Road.

Groundwater investigations identified elevated concentrations of metals and nutrients, however these were representative of urban water quality and are not considered to present a risk to future occupants of the site. Elevated concentrations of PAHs identified during historical monitoring on the depot were considered to be representative of contaminated sediment in the wells.

The Site Audit Statement includes the following recommendations to ensure that the site is appropriate for the future use as high density residential:

- Further investigation of the site should be considered prior to remediation to address the data gaps identified in the conceptual site model. The need for and scope of further investigation would be dependent on the proposed development.
- Preparation of a remedial action plan (RAP) specific to any development.
- The RAP should be implemented prior to or during redevelopment of the site.
- Preparation of a Site Audit Statement certifying suitability for the proposed use, at the completion of remediation and validation.
- Groundwater to be assessed for its suitability for any proposed use prior to extraction.

Given the above, it is considered that the site is capable of being remediated for the purposes of residential development.

State Environmental Planning Policy No 65 – Design Quality of Residential Apartment Development (SEPP 65)

This policy applies to the whole state of New South Wales and aims to improve the design quality of residential apartment development across the state.

SEPP 65 applies to the determination of development applications for residential flat buildings and requires that the design of developments must be in accordance with the design quality principles set out in the SEPP and the Apartment Design Guide.

No approval is sought for the master plan at this stage as it simply seeks to evidence that the proposed changes to the planning controls are appropriate. Any future development of the site will be subject to future development applications lodged with Council.

Notwithstanding, the design principles and Apartment Design Guide have been considered throughout the design phase for the master plan, which sets the strategic planning context and will be used to inform a future DCP for the site, if considered necessary by Council. Any such sit specific DCP could be prepared jointly with Council once a gateway determination is issued and in advance of public exhibition of the application.

Botany Bay Local Environmental Plan 2013

The Botany Bay Local Environmental Plan 2013 applies to the site. Extracts of the critical sections of the BBLEP 2013 controls are provided below.

Zoning

The subject site is currently zoned **SP1 Special Activities - Recreation facility (Outdoor)** and **SP2 Infrastructure (Sydney Water Depot)** under the LEP.

SP1 Special Activities - Recreation Facility (Outdoor)

Objectives of the zone	<ul style="list-style-type: none"> – To provide for special land uses that are not provided for in other zones. – To provide for sites with special natural characteristics that are not provided for in other zones. – To facilitate development that is in keeping with the special characteristics of the site or its existing or intended special use, and that minimises any adverse impacts on surrounding land.
Permitted without consent	<i>Environmental protection works</i>
Permitted with consent	<i>The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose</i>
Prohibited	<i>Any development not specified in item 2 or 3</i>

SP2 Infrastructure – Sydney Water Depot

Objectives of the zone	<ul style="list-style-type: none">– To provide for infrastructure and related uses.– To prevent development that is not compatible with or that may detract from the provision of infrastructure.
Permitted without consent	<i>Environmental protection works</i>
Permitted with consent	<i>Roads; The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose</i>
Prohibited	<i>Any development not specified in item 2 or 3</i>

The land use zoning map of the site and the surrounding area is provided at **Figure 15**.

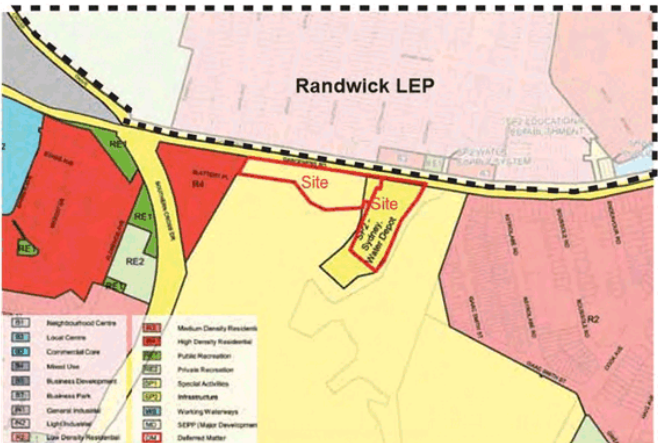


Figure 157 Land use zoning map

Site outlined in red

Source: Botany Bay LEP 2013, Sheet LZN_004

The objectives of the zones and the list of permitted uses do not allow for residential development. Therefore, to provide for the redevelopment of the site to high density residential a change to the land use zone for the site is required.

75 Gardeners Road, Eastlakes also benefits from Additional Permitted Uses under Schedule 1 of the BBLEP 2013. An extract of the relevant clause is provided below:

7 Use of certain land at 75 Gardeners Road, Eastlakes

- (1) This clause applies to land at 75 Gardeners Road, Eastlakes, being Lot 1, DP 1116853 and identified as "7" on the Additional Permitted Uses Map.
- (2) Development for the purposes of entertainment facilities, food and drink premises, function centres, garden centres, hardware and building supplies, landscaping material supplies, recreation areas and recreation facilities (indoor) is permitted with development consent.

It is also noted that 75 Gardeners Road is subject to additional permitted land uses under Schedule 1 Additional Permitted uses of the BBLEP 2013. This clause allows the use of the site for the purposes of entertainment facilities, food and drink premises, function centres, garden centres, hardware and building supplies, landscaping material supplies, recreation areas and recreation facilities (indoor).

Building height

The maximum building height for development on the site is controlled under Clause 4.3 of the BBLEP 2013. The BBLEP 2013 currently allows for heights of 14 meters on the part of the site zoned for SP1, however the Sydney Water Depot does not currently have a building height control.

The objectives of the maximum height of building controls under Clause 4.3 are as follows:

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

- (a) *to ensure that the built form of Botany Bay develops in a coordinated and cohesive manner,*
- (b) *to ensure that taller buildings are appropriately located,*
- (c) *to ensure that building height is consistent with the desired future character of an area,*
- (d) *to minimise visual impact, disruption of views, loss of privacy and loss of solar access to existing development,*
- (e) *to ensure that buildings do not adversely affect the streetscape, skyline or landscape when viewed from adjoining roads and other public places such as parks, and community facilities.*

2) *The height of a building on any land is not to exceed the maximum height shown for the land on the Height of Buildings Map.*

2A) Despite subclause (2), if an area of land in Zone R3 Medium Density Residential or Zone R4 High Density Residential exceeds 2,000 square metres, the height of a building on that land may exceed the maximum height shown for the land on the Height of Buildings Map but must not exceed 22 metres.

(2B) Subclause (2A) does not apply to land identified as "Area 1" on the Height of Buildings Map.

(2C) Despite subclause (2), if an area of land identified as "Area 2" on the Height of Buildings Map has a site area exceeding 1,900 square metres, the maximum height for a building on that land may exceed the maximum height shown for the land on the Height of Buildings Map by no more than 2 metres.

The maximum building height plan for the site and the surrounding area is illustrated at **Figure 16**.

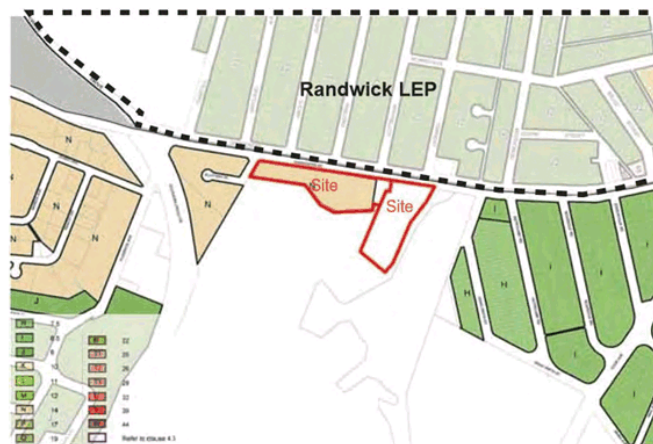


Figure 16 Maximum building height map
 Site outlined in red
 Source: Botany Bay LEP 2013, Sheet HOB_004

Floor space ratio

The maximum floor space ratio for development on the site is controlled under Clause 4.4 of the BBLEP 2013. The LEP permits maximum floor space ratios of 1:1 for 75 Gardeners Road (refer to **Figure 17**). There is no floor space ratio currently identified for the existing Sydney Water Depot.

The objectives of this clause are as follows:

- a) to establish standards for the maximum development density and intensity of land use,
- b) to ensure that buildings are compatible with the bulk and scale of the existing and desired future character of the locality,
- c) to maintain an appropriate visual relationship between new development and the existing character of areas or locations that are not undergoing, and are not likely to undergo, a substantial transformation,
- d) to ensure that buildings do not adversely affect the streetscape, skyline or landscape when viewed from adjoining roads and other public places such as parks, and community facilities,
- e) to minimise adverse environmental effects on the use or enjoyment of adjoining properties and the public domain,
- f) to provide an appropriate correlation between the size of a site and the extent of any development on that site,
- g) to facilitate development that contributes to the economic growth of Botany Bay.

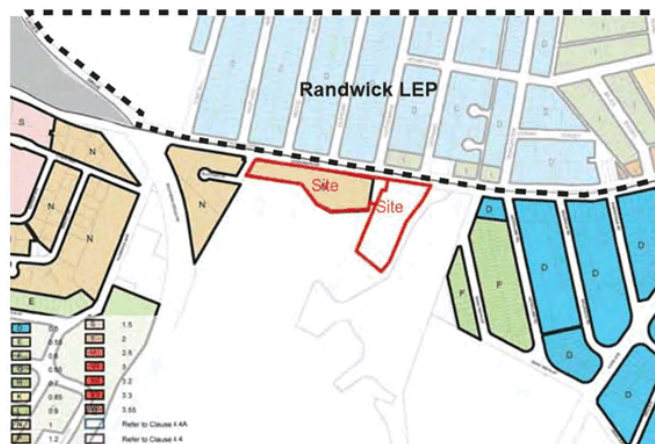


Figure 17 Maximum floor space ratio plan

Site outlined in red

Source: Botany Bay LEP 2013, Sheet FSR_004

Heritage

The subject site is not a heritage or landscape item and is not located in a heritage conservation area, however the Lakes Golf Course and the Botany Wetlands to the south and east of the site are identified on the Heritage Map in the LEP as being an item of environmental heritage, namely the Botany Water reserves. Under Schedule 5 of the BBLEP 2013 the area is described as an area of "about 200ha between Mascot and Botany extending from the northern shore of Botany Bay to Gardeners Road including the Lakes and Eastlakes Golf Courses and Mill and Engine Ponds".

Refer to **Figure 30** below, and the Preliminary Heritage Review Report provided by NBR Architecture at **Attachment F**.

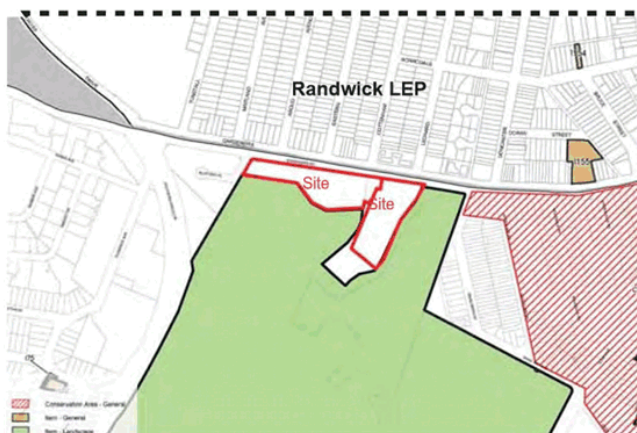


Figure 30 Heritage Map

Site outlined in red

Source: Botany Bay LEP 2013, Sheet HER_004

Wetland

The creek line to the east of the Sydney Water Depot is identified as "wetland" on the Foreshore Building Line, Terrestrial Biodiversity and Wetland Map in the LEP.

Refer to **Figure 18** below, **Section 2.9**, and the Ecological Assessment prepared by ACS Environmental Pty Ltd at **Appendix F**.

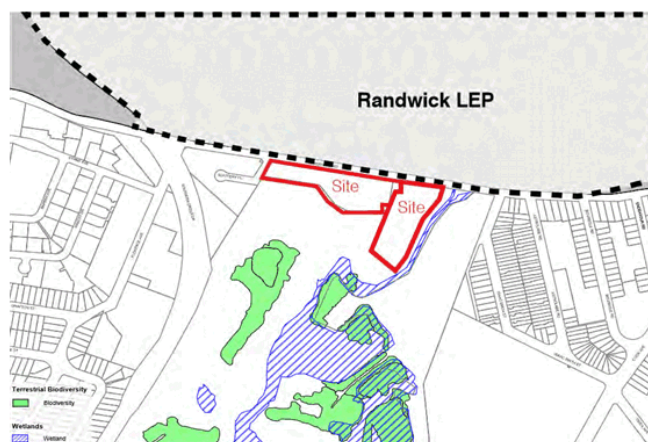


Figure 18 Foreshore Building Line, Terrestrial Biodiversity, Wetlands Map

Site outlined in red

Source: Botany Bay LEP 2013, Sheet CL1_004

Botany Bay Development Control Plan 2013

The Botany Bay Development Control Plan (BBDCP) 2013 applies to all sites within the LGA. The BBDCP was originally adopted by Council on 11 December 2013 and came into effect on 17 December 2013.

The BBDCP applies to the wider Botany LGA and provides for a range of controls relating to site suitability, built form, site density and other matters. The DCP sets out objectives aimed at creating a dynamic City, one that looks forward to a firm, prosperous and secure future. Developments should address the principles of ecologically sustainable development, be sensitive to the local environment, socially responsible and promote a safe living environment. The aim of the DCP is to help create a highly livable urban place through the promotion of design excellence and to minimise impacts to adjoining properties, while encouraging innovative housing, commercial and industrial design. The proposed master plan for the site considers the existing environmental setting of the site and surrounding area and proposes development to accommodate the growing future population of the area, which also connects residents and visitors with the natural environment.

This master plan identifies that the site should be developed for residential with supporting land uses such as small scale shops, retail or similar uses. The proposal will enable the future redevelopment of both sites resulting in approximately 744 units, 1,417 parking spaces and a range of building heights between 6-14 storeys. However, no approval is sought for the master plan at this stage as it simply evidences that the proposed changes to the planning controls are appropriate.

Any future development of the site will be subject to future development applications lodged with Council and would need to be assessed against the provision of the BBDCP 2013 accordingly.

2.10 Other plans and policies

NSW 2021: A Plan to Make NSW Number One

NSW 2021 was the NSW Government's 10-year plan to guide decision making and deliver priorities for communities. The plan's five key strategies are to "rebuild the economy, provide quality services, renovate infrastructure, restore government accountability, and strengthen our local environment and communities". These five strategies are supported by goals and targets. The targets addressed by this Planning Proposal include:

- *Goal 5, Target 1: Improve housing affordability and availability*
- *Partner with local councils to ensure that targets for housing and growth and the priorities within the subregional plans and regional plans are reflected in relevant planning proposals and in local planning instruments (local environmental plans)*

The proposed redevelopment of 73-75 Gardeners Road will improve housing availability for a range of demographic groups that want apartment living in a high quality environmental setting within close proximity to local centres and the Sydney CBD.

Premier's Priorities and State Priorities

The NSW Premier has identified 12 priorities to help improve outcomes for the people of NSW. These Priorities reflect whole-of-government approaches to tackling important issues from helping vulnerable children and raising the performance of school students, to improving housing affordability and building local infrastructure.

State Priority – Increasing housing supply

Deliver more than 50,000 approvals every year

Premier's Priority – Making housing more affordable

Deliver 61,000 housing completions on average per year to 2021

A Plan for Growing Sydney estimates that Sydney will need 664,000 new homes over the next 20 years. By 2036, an extra 2.1 million residents will need somewhere to live. Increasing the supply of housing will put downward pressure on prices. The government is supporting future growth by establishing housing targets across NSW and ensuring enough homes are built to meet the needs of a growing population and at the same time, consider the unique character of our local neighbourhoods.

The Planning Proposal seeks the rezoning of surplus government land to allow for high density residential, within easy access to retail centres, education and healthcare facilities and with good transport connections to Greater Sydney and the Sydney CBD. The rezoning will deliver new dwellings to help meet the specified housing targets of the State and Premier's Priorities.

Green Web Sydney – A Vegetation Management Plan for the Sydney Region

The Green Web Strategy, prepared by Birgit Seidlich on behalf of the Sydney Regional Organisation of Council, dated 1997, aims to develop a coordinated approach by Local Government to bring about the protection and enhancement of the natural vegetation in the Sydney Metropolitan Region. The Strategy identifies remnant bushland, regional habitat corridors and revegetation sites as part of a green web to protect, enhance and expand vegetation, habitat and biodiversity in Sydney. It also proposes a vegetation management plan for Sydney and outlines a regional strategy for revegetation.

Green-Web Sydney proposes the establishment of a green web of native vegetation to protect, conserve and enhance remaining remnant bushland in the Sydney region. Central to the plan is the establishment of habitat corridors, which link fragmented patches of bushland to facilitate the migration of wildlife and natural dispersal of native plants.

The Green Web Sydney includes an action plan and recommendations on policies and projects that will help conserve biodiversity in Sydney.

The key action applicable to this proposal is:

8. Habitat Requirements in Landscape Design for new Developments

Incorporate habitat requirements in landscape design controls and guidelines for public and future private open space in new developments. Landscape design principles for biodiversity conservation need to protect, enhance and create habitat for indigenous plants and native animals and increase their habitat and opportunities for migration.

The proposed master plan seeks to retain existing established vegetation onsite, including a stand of large Eucalypt trees to the northwest of the site. The master plan proposes a comprehensive landscaping scheme, which includes the planting of new trees throughout the site.

However, any trees to be retained and the landscaping provided for the development will be confirmed as part of any future DA for the site.

The Randwick City Plan: A 20 Year Plan

Although the subject site is located in the Bayside LGA, the northern boundary of the site along Gardeners Road is also the northern boundary between Bayside and Randwick LGAs. Therefore, The Randwick City Plan, which guides planning and development in Randwick for the next 20 years has also been considered for this planning proposal.

The Randwick City Plan provides a number of directions to help achieve the key outcomes of the plan. The directions that are most applicable to the proposed rezoning of 73 and 75 Gardeners Road include:

4a. Improved design and sustainability across all development

5a. Maximise opportunities for residents and visitors to enjoy both active and passive open space uses

5c. New open space is created as opportunities arise

9a. A network of safe and convenient walking paths and cycleways linking major land uses and recreation opportunities

Residents living within the Randwick LGA to the north of the site will benefit from the two public parks proposed in the master plan and the pedestrian and cycle way access through the site into the broader open space areas to the south.

Draft Planning Strategy for Kensington and Kingsford Town Centres

The Draft Planning Strategy for Kensington and Kingsford Town Centres is Randwick Council's overarching vision for these centres and has been developed following extensive community consultation. The vision for Kingsford Town Centre includes:

Kingsford will develop into an exciting and dynamic town centre continuing to draw on its rich multicultural identity. The town centre will provide a diverse offer of restaurants, cafes and retail shopping, set within a rejuvenated public domain that supports activation and social interaction.

The town centre will be a safe and inclusive place to live, work and visit. Buildings will be designed to the highest quality incorporating a mix of apartments, laneway mews and affordable housing.

Highly connected and accessible, the town centre will foster hubs of activity focused around the terminus at Kingsford Junction and Kingsford Mid-Town, the old heart of the Kingsford.

The town centre will have a green focus and set a new performance benchmark for sustainability within the LGA through ESD targets, WSUD practices, public places with canopy trees and landscaping and support of sustainable transport modes such as the light rail, cycling and walking.

The integrity of existing heritage and contributory buildings will continue to be respected and integrated, through high quality architectural design. Innovative business start-ups will be encouraged to provide a 'bridge' between research and business".

Overall mid-rise building height limit of 31 metres for new development throughout both town centres is proposed. In addition, FSR changes will enable the density to be spread mainly through mid-rise buildings, providing a more human-scaled built form that supports a comfortable pedestrian environment while also enhancing opportunities for solar access. Within both town centres there are a number of prominent sites located at strategic nodes that could accommodate taller, slender buildings. A higher rise building typology of up to 60m in these locations would help create a distinctive urban form within the town centres, while facilitating activation around the light rail infrastructure.

The subject site is within walking distance to the Kingsford local centre. The proposal to rezone the site to R4 High Density Residential is considered appropriate for the site and would complement the proposed increase in density for the Kingsford town centre.

2.11 Site context

Heritage context

The subject site is not a heritage item itself and there are few listed heritage items within the local area. However, the Lakes Golf Course and the Botany Wetlands are identified as 'Landscape' areas in Heritage Map – Sheet HER_004 of the

BBLEP 2013. Refer to the BBLEP 2013 Heritage Map at **Figure 30** above. The Botany Wetlands (also known as the Botany Water Reserves) is also listed as a heritage item (Item No. 4570025) on the Sydney Water s170 Heritage Register. A Heritage Assessment has been prepared by NBR Architecture and is included at **Attachment F**.

The master plan for the site has been designed to maximise solar access to the Botany Wetlands to the south and seeks to improve north-south view corridors through the site to the Botany Waters Reserve.

Traffic and transport

A Transport Assessment prepared by ARUP (September 2017) provides an assessment of the site's existing transport conditions, forecast traffic generation, road network impacts, parking provisions, access arrangements and public transport availability. Refer to the Transport Assessment at **Attachment E**.

There are currently two existing vehicular and pedestrian entries to the site. The main access to No. 73 is via a left-in left-out entry to Gardeners Road and the main access to No. 75 is via a signalised intersection with Eastern Avenue and Gardeners Road. Vehicles can enter and exit 75 Gardeners Road from any approach and the two Gardeners Road approaches have designated turning lanes.

Public transport servicing the site is via bus routes 302, 303, 418, and 343 which operate services to the Sydney CBD, Eastgardens San Souci, Burwood, Bondi Junction, Kingsford and Millers Point. All routes stop within 80m of the subject site along Gardeners Road and Eastern Avenue. The closest train stations to the site are Mascot Station, 3.2km to the west and Green Square Station, 3.6km to the north-west of the site. Public transport conditions in the vicinity of the site will significantly improve in 2019 following the opening of the CBD and South East Light Rail project. The future Kingsford light rail stop will be located approximately 800m to the east of the subject site.

The site is not located in an area that attracts significant pedestrian activity. There are footpaths running the length of Gardeners Road on each side, and signalised pedestrian crossings are provided at the intersection with Eastern Avenue. Pedestrian facilities are limited in some areas, with footpaths being overgrown in areas and uneven surfaces. There are limited cycle paths in the vicinity, with the closest existing paths located along Houston Road, around 800m to the east of the site, and along Southern Cross Drive around 500m west of the site.

The master plan divides the site into two distinct areas, 73 Gardeners Road and 75 Gardeners Road. The existing signalised intersection will be the primary access to 75 Gardeners Road and the existing access to the Sydney Water Depot site will be the primary access to 73 Gardeners Road. As the access into 73 Gardeners Road is restricted to left-in left-out only, vehicles travelling from the west (e.g. Mascot) are unable to turn right directly into the site. Instead vehicles will use the adjacent intersection at Isaac Smith Drive to access the site. Traffic modelling found that the Gardeners Road and Eastern Avenue intersection and the Gardeners Road and Isaac Smith Drive intersection will perform well in the future, following the full development of the site.

The master plan proposes parking at rates specified in the BBDCP, which results in 1,417 parking spaces. The development of the site will facilitate opportunities to significantly enhance the walking and cycling environment in the area. This will include the potential for a shared pedestrian link along the boundary of the site.

Ecology

An Ecological Assessment has been prepared by ACS Environmental Pty Ltd (November 2015 and September 2017) to undertake an ecological assessment and biodiversity survey at 73-75 Gardeners Road and is provided at **Attachments G and H**. The Assessment found that both sites do not contain any Endangered Ecological Communities or Threatened Species, primarily due to the disturbed nature of the sites.

Arboricultural

An Arboricultural Impact Appraisal and Method Statement has been prepared by Naturally Trees Arboricultural Consulting (September 2017) and provided at **Attachment K**. The Statement provides an assessment of 182 trees located within and adjacent to the subject site and includes a tree schedule that lists and maps all of the trees onsite and their level of significance, including whether they are proposed to be retained as part of the master plan. The Statement finds that the proposed master plan will necessitate the removal of 77 high category trees, which are considered moderate to high significance and display good health and condition. 76 trees of low and very low retention value will be removed as a result of the proposed development. The report also includes guidance on procedures for protecting trees and provides a program for ensuring the plan for the protection of trees is adequately considered during the DA phase of the development.

Geotechnical

A Geotechnical Assessment has been prepared by JK Geotechnics (July 2017) and provided at **Attachments L and M**. The Assessment makes recommendations on a range of geotechnical issues that will need to be addressed in the design and construction of the proposed development, including excavation conditions, techniques and support, dewatering, footings, basement floor slabs, and external pavements. A site specific geotechnical investigation will be completed prior to the DA phase of the development to assess the subsurface conditions for each proposed building.

Acoustic

An Environmental Noise Impact Assessment has been prepared by Acoustic Logic (September 2017) and provided at **Attachment J**. To the north of the site is Gardeners Road, which carries medium to high volumes of traffic. The site is also affected by noise from aircraft movements to and from the third runway at the Sydney Airport and lies between the ANEF 20 and 25 contours.

An assessment of traffic and aircraft noise was conducted with reference to:

- The City of Botany Bay Council Development Control Plan 2013
- NSW State Environmental Planning Policy Infrastructure (2007)
- AS2107 – 2000 Acoustics – Recommended design sound level and reverberation times for building interiors
- AS2021 – 2000 Acoustics – Aircraft noise intrusion – Building siting and construction

The assessment identifies that there are mitigating elements which can be implemented in the design of any future buildings which will ensure that future developments are capable of achieving an acceptable level of amenity which complies with the above controls.

Aeronautical

An Aeronautical Impact Assessment has been prepared by Strategic Airspace (September 2017) and provided at **Attachment I**. The assessment includes consideration of the appropriateness of building heights against the maximum permissible development heights for the site.

Due to proximity to the airport, any developments on the site will be subject to the Airports (Protection of Airspace) Regulations 1996, for the purpose of having building heights approved in relation to Sydney Airport's protected airspace. The two fundamental factors of the Airports Regulations that are used for assessment of development heights are the Obstacle Limitation Surfaces (OLS) and the PANS-OPS Surfaces (the latter to protect the actual instrument flight procedures).

The OLS limiting height across the site is 51m Australian Height Datum (AHD). Any development, including structures and cranes, that would exceed the relevant OLS height across the site would require a prior 'airspace height' approval from the Department of Infrastructure and Regional Development under the Airports (Protection of Airspace) Regulations (or APAR). The PANS-OPS height constraints across the site of 64-72m are regarded as the maximum permissible building heights that would be approved by the aviation authorities.

The proposed master plan has been designed to comply with these height limits.

Stormwater

A Hydrology, Stormwater and Creek Assessment has been prepared by Northrop Consulting (September 2017) and provided at **Attachment N**. This report identifies that notwithstanding the current flood affectation of the site and its proximity to an existing riparian corridor the site is capable of being developed in such a manner to ensure that future development is adequately responsive to the sites constraints.

Critically, it should be noted that any future development of the site will be subject to a Development Application which will ensure that the future proposal adequately responds to flooding, riparian corridor setbacks and appropriately manages stormwater in accordance with Council's requirements.

2.12 Demographic profile and trends

The Planning Proposal takes note of the population projections for the central district. The Australian Bureau of Statistics provides information regarding population demographics and existing housing diversity in the Bayside LGA and the suburb of Eastlakes. As of the 2016 census, the population of Eastlakes was 6,912 people. The median age of the population in Eastlakes is 36 years, which exceeds the Australian average. The percentage of people aged 65 and over was slightly lower than the Australian average.

The composition of dwelling structure in Eastlakes is predominantly flat or apartment housing (70.3%). Detached housing makes up most of the remaining dwellings (27%). There are very few semi-detached houses, row or terrace house, townhouses (2.4%).

The Department of Planning and Environment's *2016 NSW Population and household projections* provides population, age and household projection data in Sydney's LGA's between 2011 and 2036. The summary forecasts a 2.3% average annual population growth rate for the Botany Bay LGA, representing an increase of 31,200 people by 2036 (75.2%).

The proposed master plan for 73 and 75 Gardeners Road is an opportunity to provide a range of housing types for the growing population in the area.

3. The vision

3.1 Need for redevelopment

Sydney Water has a diverse property portfolio including depots, treatment plants, pumping stations and vacant lands. The agency continuously reviews this portfolio to ensure its properties provide best value. Sydney Water seeks to maintain land that is needed for operations and divests land which is surplus to operational needs.

Sydney Water continues to review its portfolio and ensure its operational land is located in areas ensuring that it can service its network efficiently. A Sydney Water Depot Optimisation report is being prepared, which will seek to optimise use and locations of depots to consolidate land holdings and divest those sites that are no longer required.

The Sydney Water Depot at 73 Gardeners Road has been identified as surplus to current needs and is identified for potential future relocation. However, further review of operations and timing for relocation is required, and as such the site will continue to operate as a water depot for the short to medium term until the report is finalised.

Due to this, the planning for the Sydney Water Depot at 73 Gardeners Road has been incorporated into the master plan for the site to ensure coordinated planning and design of the area. However, as the water depot will continue to operate into the foreseeable future, the rezoning of the site will be deferred until Sydney Water have finalised their optimisation process and are in a position to divest ownership of the land. The alternative is for the site to be zoned R4 as part of this proposal will result in the creation of existing use rights for the depot which is not considered appropriate. The deferred matter of 73 Gardeners Road has been discussed with Bayside Council and Department of Planning & Environment.

3.2 Design philosophy

The design principles for the master planning of the site include:

- 1) Generous landscape set-backs
- 2) Central open space with views
- 3) Retain mature trees
- 4) Address the public domain
- 5) Defined public and private space
- 6) Maximise solar access





Figure 32 Design Principles to inform the master plan for 73-75 Gardeners Road, Eastlakes

It should be noted that the location of the vehicular access point to 73 Gardeners Road has been selected to allow for:

- retention and adequate access to the existing pumphouse to be retained on site;
- sufficient distance for the provision of a deceleration lane along Gardeners Road, whilst retaining the existing footpath and bridge over the existing stormwater culvert along the sites eastern most boundary;
- avoid impacting upon an existing high pressure sewer line from the pumphouse.

3.3 Master plan

An indicative master plan for the site has been prepared by Architectus. Refer to the master plan within the Urban Context Report attached at **Attachment A**.

The master plan has been informed by the six design principles detailed above. The final master plan for the site has been separated into two distinct areas, 75 Gardeners Road and 73 Gardeners Road. This is to ensure the sites can be developed independently of each other.

The design of the master plan includes:

- The existing signalised intersection with Gardeners Road and Eastern Avenue as the primary access for 75 Gardeners Road.
- The existing left-in-left-out access to Gardeners Road as the primary access for 73 Gardeners Road.
- A public park to the western portion of the 75 Gardeners Road with the retention of existing mature trees, providing a substantial setback and screening to the residential area at Slattery Place.
- A public park with play area and landscaping centrally located in 75 Gardeners Road, overlooking the golf course to the south.
- Five apartment buildings ranging in height from 6 to 14 storeys, spread across the two sites, with provision for 744 new dwellings. The buildings have been orientated towards the open space areas and to take advantage of views over the wetlands to the south.
- Basement and surface level parking with provision for 1,417 parking spaces across both sites.
- Generous setbacks to Gardeners Road and the boundary with the riparian corridor to the east of the site, including landscaping with native vegetation.
- Opportunities for ground floor retail and café space centrally located in 75 Gardeners Road.
- Shared pedestrian pathways throughout the site and along the boundary with Gardeners Road and the southern boundary with the golf course, providing opportunities for linkages into the Botany Wetlands.

The master plan for the site has been designed to improve the urban and natural environment, while delivering a higher density housing product with limited impact on the surrounding established neighbourhoods. The delivery of two new public

parks and communal open space will provide improved lifestyle and health options for residents and the broader community. Shared pedestrian links into the Botany Wetlands will promote the use of this important natural feature and retention of existing established trees onsite and additional landscaping will improve flora and fauna corridors in the area.

3.4 Voluntary Planning Agreement

It is understood that Bayside Council has adopted the informal policy of the former Rockdale City Council in considering Voluntary Planning Agreements in conjunction with development proposals which seek to increase the value of individual sites to capture a portion of the site as public benefit. It is noted that in the meeting on 14 July 2017, Council identified that they expect value uplift to be captured by way of public benefit. This is often referred to as value sharing mechanisms.

Currently under the NSW planning framework, there are three mechanisms through which this can be achieved:

- Voluntary Planning Agreements between Councils and developers / land owners which seek to include the dedication of land free of cost, the payment of monetary contributions or the provision of other material public benefits;
- Local contribution mechanisms under Section 94 or Section 94A of the EP&A Act 1979 (or alternatively affordable housing under s94F);
- Special Infrastructure Contributions through a Ministerial determination (currently in the Western Sydney Growth Centres, Warnervale Town Centre and Wyong Employment Zone)

Although Sydney Water currently own the land, the land will be divested to others for redevelopment following the rezoning of the sites. Accordingly, it should be recognised that any delivery of public benefits will be undertaken by others as part of the detailed design of future redevelopment of the site.

It is suggested to Council that an appropriate agreement be reached between both Sydney Water and Bayside Council as to a reasonable value sharing mechanisms which provides certainty for both parties in advance of the finalisation of the Planning Proposal, prior to public exhibition.

It is noted that this should include the consideration of:

- A base case for the development of the site under the existing controls;
- Recognition of the significant public benefit delivered by the proposed publicly open space including their ongoing maintenance and management;
- A reasonable application of value capture noting that Sydney Water is a state-owned corporation with a mandate to minimise cost to customers (the public) where possible;
- Sydney Water will not be responsible for the future redevelopment of the site but would be willing to discuss the registration of binding principles prior to the sale of the land;
- A multiple staged VPA between Council, Sydney Water and future buyers which provides certainty and clearly defined responsibilities for the delivery of public benefit and management of land by all parties.

Sydney Water and Architectus are willing to further discuss the above with Council as part of the assessment process for the planning proposal to ensure that Council are satisfied with the final outcomes for the site.

4. Objectives and intended outcomes

This section outlines the objectives of the Planning Proposal and provides detail on the proposed planning control provisions to achieve these objectives and outcomes.

4.1 Intended outcomes

Drawing on the Council and the State Government controls, plans and strategies, Architectus has developed a master plan for the site which will allow for the provision of high density residential apartment living for Eastlakes. This will allow for:

- Five apartment buildings of between 6 and 14 storeys, providing for 744 units;
- 2-3 levels of basement parking, providing for over 1417 parking spaces;
- Two public parks and three communal open space areas, totalling 7,529m²;
- Retention of existing established trees and native vegetation and a generous landscaped setback to Gardeners Road;
- Café and retail space on the ground floor to provide a village feel;
- Opportunities for communal roof gardens/green roofs with wide elevated views over the surroundings; and
- Pedestrian paths and cycleways throughout the site and into the Botany Wetlands.

Land use

The proposed land use zone for the site is R4 High Density Residential. Attached housing, multi-dwelling housing, residential flat buildings, neighborhood shops and shop top housing area permissible under the R4 zone of the BBLEP 2013.

This would be supported by amendments to the current Schedule 1 Additional Permitted Land Uses to permit low scale retail / commercial uses on site and prohibit garden centres, hardware and building supplies, landscaping material supplies. It is noted that under the current definition of shop top housing the whole of the ground floor would need to be utilised for business premises which is not considered appropriate given the sites location and potential to undermine the ongoing growth of surrounding centres. Whilst neighborhood shops are permissible in the R4 High Density Zone, the scale and nature of these permissible shops would not be capable of delivering a meaningful level of passive surveillance or activation of the proposed open spaces.

Built form

The Architectus master plan for 73-75 Gardeners Road provides for residential amenity internally and through public and communal open space facilities. Buildings are well separated, and the envelopes will provide for apartments that can achieve high quality living spaces. Buildings are designed to prioritise views towards the Botany Wetlands, and the large setbacks and the retention of established trees will provide a relaxed leafy surrounding and good transition to the high quality natural environment to the south. This built form could be further defined and supported by a site specific DCP supporting the Design Principles identified in the Urban Context Report.

Height

The existing maximum building height control restricts development to 14 meters for 75 Gardeners Road (there is currently no building height control for the Sydney Water Depot) which does not allow for the number of apartments needed to meet market expectation, while providing good quality open space for the future residents and broader community. The maximum building height control for the site is proposed to be amended to permit a range of building heights from 29 metres to 50 metres. It should be noted that the majority of the development is around 8 storeys, up to 29 metres in height.

FSR

Under current planning controls, the permissible maximum FSR for 75 Gardeners Road is restricted to 1:1. Similar to the above restriction, the control does not allow for development of a built form that would allow for the best design outcome including large areas of public and communal open space. The maximum FSR control for the site is proposed to be amended to permit an FSR of 1.65:1 for 75 Gardeners Road and 1.95:1 for 73 Gardeners Road.

While the master plan and associated assessments have been prepared for the entire site the amendments proposed to the zoning map and the HOB and FSR development standards for 73 Gardeners Road are proposed to be deferred until such time as the current use of the site as a Water Depot is no longer required by Sydney Water. During this time, the relevant maps in the BBLEP will identify 73 Gardeners Road as a 'deferred matter' and the current zoning and development standards will continue to apply.

4.2 Objectives of the proposed controls

The objectives of the Planning Proposal for the subject site are to facilitate the redevelopment of the site from surplus government land to high density residential.

Key objective of this proposal are:

- To provide opportunity for high quality apartment living to accommodate the growing population and allow for renewal of the subject site;
- To retain existing valuable and significant trees onsite and create a series of public and communal open spaces;
- To maximise views to the south over the golf course and Botany Wetlands;
- To provide pedestrian and cycle pathways through the site and into the Botany Wetlands and surrounding area;
- To orient built form and communal open spaces to maximise solar access; and
- To minimise the impact on the golf course infrastructure, particularly greens and fairway views.

The specific objectives are to:

- Land use – rezone from SP1 Special Activities and SP2 Infrastructure to R4 High Density Residential (including amendments to the Additional permitted uses under Schedule 1 of the BBLEP 2013) to facilitate redevelopment of the site to apartment and terrace style living, including some retail and associated commercial uses, to accommodate the current and future demand through providing diversity in housing;
- Height of buildings – amend the BBLEP 2013 from 14 meters to a range from 29 meters to 50 meters to increase the maximum height of buildings to allow for the optimal built form and public domain outcomes and to facilitate a redevelopment of the site to provide for the best design outcome; and
- Floor space ratio – amend the BBLEP 2013 to increase the maximum floor space ratio permitted from 1:1 to 1.65:1 for 75 Gardeners Road and 1.95:1 for 73 Gardeners Road to allow for redevelopment of the site providing for optimal built form and public domain outcomes.

4.3 Amendments to planning provisions

This Planning Proposal seeks to amend the following planning provisions:

- Amend the BBLEP 2013 Land Zoning Map Sheet LZN_004 from SP1 and SP2 to R4 High Density Residential (including amendments to the current Schedule 1 Additional Permitted Land Uses to permit low scale retail / commercial uses on site);
- Amend the BBLEP 2013 Height of Building Map, Sheet HOB_004 to permit the maximum permissible height of a range between 29 meters and 50 meters; and
- Amend the BBLEP 2013 Floor Space Ratio Map, Sheet FSR_004 to permit a maximum floor space ratio of 1.65:1 for Site 1 and 1.95:1 for Site 2.

The proposed amendments have been mapped in **Attachment O**.

As mentioned above land zoning, HOB and FSR development standards for 73 Gardeners Road are proposed to be deferred until such time as the current use of the site as a Water Depot is no longer required by Sydney Water. During this time, the relevant maps in the BBLEP 2013 will identify 73 Gardeners Road as a 'deferred matter' and the current zoning and development standards will continue to apply.

4.4 Land use zoning

The Land Use zoning is proposed to be changed from SP1 Special Activities and SP2 Infrastructure to R4 High Density Residential.

The objectives of the **R4 High Density Residential Zone** under BBLEP 2013 are:

- *To provide for the housing needs of the community within a high density residential environment.*
- *To provide a variety of housing types within a high density residential environment.*
- *To enable other land uses that provide facilities or services to meet the day to day needs of residents.*
- *To encourage development that promotes walking and cycling*

The following uses are permitted without consent:

- *Home occupations*

The following uses are permitted with consent:

Attached dwellings; Bed and breakfast accommodation; Boarding houses; Centre-based child care facilities; Community facilities; Dwelling houses; **Multi dwelling housing;** Neighbourhood shops; Places of public worship; **Residential flat buildings;** Respite day care centres; Roads; Semi-detached dwellings; **Shop top housing;** Any other development not specified in item 2 or 4

The following uses are prohibited:

Advertising structures; Agriculture; Air transport facilities; Airstrips; Amusement centres; Animal boarding or training establishments; Biosolids treatment facilities; Boat building and repair facilities; Boat launching ramps; Boat sheds; Camping grounds; Car parks; Caravan parks; Cemeteries; Charter and tourism boating facilities; Commercial premises; Correctional centres; Crematoria; Depots; Eco-tourist facilities; Electricity generating works; Emergency services facilities; Entertainment facilities; Environmental facilities; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Function centres; Heavy industrial storage establishments; Helipads; Highway service centres; Home businesses; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Information and education facilities; Jetties; Marinas; Mooring pens; Moorings; Mortuaries; Open cut mining; Passenger transport facilities; Port facilities; Public administration buildings; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Research stations; Residential accommodation; Restricted premises; Rural industries; Service stations; Sewage treatment plants; Sex services premises; Storage premises; Tourist and visitor accommodation; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Veterinary hospitals; Warehouse or distribution centres; Waste or resource management facilities; Water recreation structures; Water recycling facilities; Water supply systems; Wharf or boating facilities; Wholesale supplies

The master plan for 73-75 Gardeners Road proposes to provide a combination of apartment housing, including dwellings of 1 to 3 bedrooms and penthouse apartments. The definitions of attached dwelling, multi-dwelling housing, residential flat buildings and shop top housing from the BBLEP 2013 are provided below. These uses would enable the redevelopment of the site in accordance with the master plan prepared by Architectus, dated September 2017.

attached dwelling means a building containing 3 or more dwellings, where:

- a) each dwelling is attached to another dwelling by a common wall, and
- b) each of the dwellings is on its own lot of land, and
- c) none of the dwellings is located above any part of another dwelling.

multi dwelling housing means 3 or more dwellings (whether attached or detached) on one lot of land, each with access at ground level, but does not include a residential flat building

residential flat building means a building containing 3 or more dwellings, but does not include an attached dwelling or multi dwelling housing.

shop top housing means one or more dwellings located above ground floor retail premises or business premises.

It is noted that under the current definition of shop top housing the whole of the ground floor would need to be utilised for business premises which is not considered appropriate given the sites location and potential to undermine the ongoing growth of surrounding centres. However, some small scale shops and commercial premises are considered appropriate for the site to allow for some activation and increased passive surveillance along the proposed open spaces. As such, it is also proposed to amend the BBLEP 2013 to incorporate the following changes:

7 Use of certain land at 75 Gardeners Road, Eastlakes

- (1) This clause applies to land at 75 Gardeners Road, Eastlakes, being Lot 1, DP 1116853 and identified as "7" on the Additional Permitted Uses Map.

- (2) Development for the purposes of entertainment facilities, food and drink premises, ~~and commercial premises function centres, garden centres, hardware and building supplies, landscaping material supplies, recreation areas and recreation facilities (indoor)~~ is permitted with development consent.

4.5 Maximum building height

The maximum building heights for the subject site will need to be amended in accordance with the built form set out as the illustrative master plan in the attached Urban Context Report.

The study identified heights of 6 – 14 storeys. The maximum building height in meters for these buildings should allow for:

- 35 meters for Building A;
- 35 meters for Building B;
- 50 meters for Building C; and
- 29 metres for Buildings D and E.

Accordingly, this Planning Proposal seeks to amend the maximum building heights ranging from 29 metres up to 50 meters.



Figure 19 Proposed maximum building height map
Source: Architectus, dated September 2017

4.6 Maximum floor space ratio

The maximum floor space ratio for the subject site will need to be amended in accordance with the built form set out as the illustrative master plan for the site. Accordingly, this Planning Proposal seeks to amend the maximum permissible floor space ratio to 1.65:1 for 75 Gardeners Road and 1.95:1 for 73 Gardeners Road.

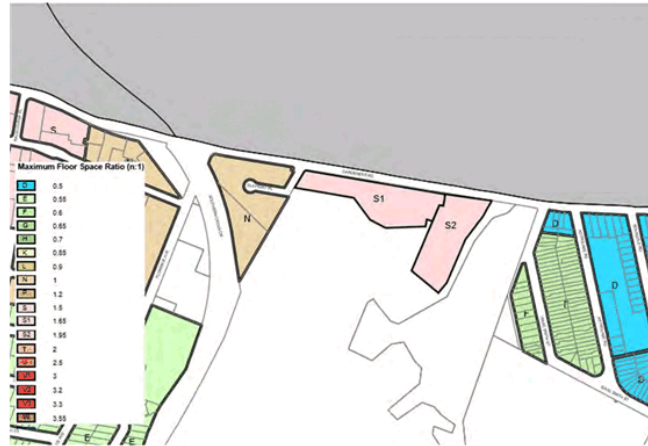


Figure 20 Proposed maximum floor space ratio
Source: Architectus, September 2017

The total gross floor area under the master plan is 49,209m².

This amounts to a floor space ratio of 1.79:1 across the entire site. However, this FSR has been split across the two sites to limit any visual impacts of the development to the residential area at Slattery Place and the golf course to the south of the site. Accordingly, it is recommended that two new floor space ratio zones S1 and S2 are included under BBLEP 2013, which would permit a maximum floor space ratio of 1.65:1 for 75 Gardeners Road and 1.95:1 for 73 Gardeners respectively. This also reflects the extent of the proposed publicly accessible open space to be delivered across both sites.

Although it is acknowledged that this is an increase in density beyond that of the sites immediate surrounds, it is not inconsistent with the density of some areas surrounding the Eastlakes Local Centre and the proposed increase in height and density of the Kingsford Centre. Further, the increased density is required to afford a high quality outcome for future residents, and the Urban Context Report (refer to **Appendix A**) shows that this density can be achieved while maintaining the open and leafy character of the area and limit impacts to the golf course and important environmental value of the Botany Wetlands.

Furthermore, the delivery of high quality apartment and terrace style living with exceptional views and access to superior communal open space will revitalise this section of Gardeners Road and result in a positive outcome for the area.

5. Explanation of provisions

The objectives of this Planning Proposal are to amend the existing BBLEP 2013 to facilitate the redevelopment of surplus government land to meet the growing population for central Sydney. The specific objectives are to amend the existing land use zoning, maximum building height and maximum FSR to allow for the optimal built form and public domain outcomes, and to facilitate the redevelopment of the site.

5.1 Proposed amendments to the Botany Bay planning controls

The following amendments to the Botany Bay Local Environmental Plan 2013 are proposed to facilitate the preferred master plan option and the effective utilisation of the site:

- Land use – to facilitate redevelopment of surplus government land, through permitting apartment and terrace style housing on the site by rezoning to R4 High Density Residential (including amendments to the current Schedule 1 Additional Permitted Land Uses to permit low scale retail / commercial uses on site);
- Height of buildings – to amend the BBLEP 2013 to increase the maximum height of buildings to allow for the optimal built form and public domain outcomes, and to facilitate a redevelopment of the site through increasing building heights from 14m to a range between 29 meters and 50 meters; and
- Floor space ratio – to amend the BBLEP 2013 to increase the maximum floor space ratio to allow for the optimal built form and public domain outcomes, and to facilitate a redevelopment of the site through increasing the FSR from 1:1 to 1.65:1 for 75 Gardeners Road and 1.95:1 for 73 Gardeners Road.

Deferred Matter – Sydney Water Depot

Sydney Water proposes to continue the current use of 73 Gardeners Road as a Water Depot until such time as the site is no longer needed. Therefore, it is proposed to defer the proposed R4 High Density Residential zone and associated HOB and FSR controls from coming into effect until such time Sydney Water is ready to divest ownership of the site. The deferred matter will enable both sites to be developed in stages until the operations cease. If no deferred matter is proposed, it will result in the creation of existing use rights for the depot which is likely to cause significant issues in the ongoing operation of the depot until such time that the site is surplus to Sydney Waters requirements.

As the land at 73 Gardeners Road will be identified as a 'deferred matter' on the relevant LEP maps, the current zoning and development standards will continue to apply.

5.2 Understanding of site context

The master plan for the site has considered the context of proposing to rezone the site in relation to the surrounding land use zones and sensitivity of the community to increased density. Architectus and Sydney Water have considered Council's requests to reduce impacts to the neighbouring residential area at Slattery Place and ensure solar access to the golf course to the south of the site is maintained as much as possible. The master plan has also been designed to not only provide open space for the future residents of the site through the provision of three communal parks, but also provides open space opportunities for the broader community and cycleway links into the Botany Wetlands.

This Planning Proposal proposes to rezone the site to facilitate development under the R4 zone which is considered to be appropriate given the adjacent R3 and R4 land use zones and because residential flat buildings of an increased height are needed in order to ensure that the open space and solar access can be achieved.

The proposed amendment to the BBLEP 2013 HOB control of 29m, 45m and 50m, allows for a range of buildings heights across the site, which means that the buildings to be higher in certain areas closer to the busy main road and stepped down in height towards Slattery Place and the golf course.

The proposed amendment to the BBLEP 2013 FSR control sets an FSR of 1.65:1 for 75 Gardeners Road and an FSR of 1.95:1 for 73 Gardeners Road to enable the built form proposed under the master plan to be delivered in the right locations on the site, and to ensure the bulk and scale of the development does not negatively impact on the surrounding residential areas and golf course.

The proposed scale of the redevelopment is considered to be an appropriate scale for the reasons identified below:

- The site is unique in its location along a busy main road, with good transport connections to local and strategic centres, and adjacent to large open space areas. The bulk and scale of the future development will not impact on the character of existing residential areas in Bayside LGA or Randwick LGA, while providing an important opportunity for the delivery of increased housing supply for the Central Sydney District.
- Visual impacts to Slattery Place to the west of the site are limited due to the reduction in the height of the apartment building nearest the boundary to 8 storeys and provision of a large setback with the retention of existing mature trees to the north-west corner of the site.
- Visual impacts to the south of the site from the Lakes Golf Course are reduced by retaining the existing mature trees along the site boundary nearest to the 14th green and the orientation of the buildings ensure that solar access to the golf course is largely maintained. A landscaped buffer is also proposed to the southern boundary of the site to further limit visual impacts of the development from the golf course.
- Visual impacts of the development from Gardeners Road are reduced through the retention of existing trees along the northern boundary of the site and a provision of a 10 metre landscaped setback along the road frontage to improve the landscape amenity along the boundary and provide for a shared pathway setback further from the busy road edge.
- The proposed building heights allow for the proposed density in a reduced footprint, allowing for generous setbacks, substantial open space, narrow buildings that allow for views to the wetlands and solar access to the open space areas and golf course green.

5.3 Assessment

Expert assessments have been undertaken to accompany the Planning Proposal and are appended to this report. The assessments investigate potential issues resulting from the proposed legislative amendments, including urban context study, heritage assessment, transport assessment, ecological, geotechnical, aeronautical, arboricultural, and stormwater assessments.

These assessments demonstrate that the legislative amendments sought in this Planning Proposal and the preferred urban design concept would be feasible and have acceptable impacts.

6. Justification

This section provides justification of the Planning Proposal in line with the 'questions to consider when demonstration justification' set out within the NSW Government's 'A guide to preparing planning proposals'.

6.1 Section A – Need for the Planning Proposal

Is the planning proposal a result of any strategic study or report?

This Planning Proposal is the result of Sydney Water reviewing its property portfolio to identify any sites that are surplus to its needs. A report is being prepared, which will seek to optimise use and locations of depots to consolidate land holdings and divest those no longer required.

The Sydney Water Depot at 73 Gardeners Road has been identified as surplus to current needs at this stage and is identified for relocation. Further review of the operations and timing for relocation is required, as such the depot will remain in operation for the short to medium term.

This Planning Proposal has also resulted from the following strategic reports.

A Plan for Growing Sydney

Eastlakes falls within the Global Economic Corridor, identified in the Sydney Metropolitan Strategy, *A Plan for Growing Sydney* (the Plan). The Global Economic Corridor is defined as an area (corridor) of concentrated employment, economic activity and other uses in centres, transport gateways and industrial zoned land extending from Port Botany and Sydney Airport, through Sydney CBD, north-west through Macquarie Park, and towards Norwest, Parramatta and Sydney Olympic Park. The site is also within close proximity to the Randwick Education and Health Strategic Centre and the Green Square Strategic Centre, as well as the Sydney Airport Precinct and the Port Botany Precinct. Good transport links are proposed to service the area such as the Light Rail.

The Plan establishes priorities for the Global Economic Corridor, which focus on providing high skilled jobs by expanding employment opportunities, and investing in infrastructure to grow economic activity. Providing for high quality apartment and terrace style living in this area is important to ensure that sufficient housing is supplied to those working in and around the Sydney CBD, other nearby centres and industrial precincts within the Corridor.

The Sydney Metropolitan Strategy also sets directions for the Government to improve housing supply across Sydney, ensure that homes are provided closer to jobs, improve housing choice, and deliver well planned new areas of housing.

This Planning Proposal seeks to amend the planning controls applicable to the site to allow development which will increase the supply of housing in the Central Sydney district in close proximity to jobs. The proposal will provide for more housing choice and high quality housing that is competitive with market standards while achieving an increased yield of the site to ensure development feasibility. The master plan for the site proposes to deliver a quality built environment that focuses on community living and promoting the surrounding natural environment.

Draft Central District Plan

Eastlakes falls within the Central District under the Greater Sydney Commission's Draft District Plans, and as such the site is subject to the *Draft Central District Plan*.

The Draft Central District Plan describes the plan for the Central District as "an attractive place to live, with an increased diversity of housing choices that cater for all groups including people who live on their own, older residents, group households and families. Growth and development will allow improvements to public areas and better walking, cycling and public transport connections across the District. Cultural and environmental heritage will be celebrated."

The key priorities and actions for the Central District include identifying opportunities to increase housing capacity across the District, encourage housing diversity and more affordable housing options to accommodate the growing population. The Plan also refers to providing design led planning to support high quality urban design and increasing the provision of community facilities, such as open space.

The Draft Central District Plan also identifies that there will be an increase of around 61,100 more single person households by 2036 (an increase of 44%) and the need to deliver 46,550 more dwellings by 2021.

This proposal presents an opportunity to respond to the *Draft Central District Plan* by increasing the supply and quality housing within the Bayside LGA and the Central Sydney District, anticipated to be released in late 2017.

Botany Bay Planning Strategy 2031: Local Livability, Global Connections

The Botany Bay Planning Strategy 2031, Local Livability, Global Connection, was adopted in 2009. The strategy provides a set of principles to guide planning and direction for the LGA, including enhancing existing urban character, protecting areas of environmental significance, and improving access to open space, consolidating residential activity in and around existing centres, and promoting principles of good urban design and built form.

The intended outcome of this Planning Proposal is to facilitate the delivery of high quality housing which will meet the needs of the existing and future community of Bayside LGA. The master plan for 73-75 Gardeners Road proposes rezoning surplus government land for high density residential development to cater for a growing population and provide good quality housing options.

It is considered that the site is well located on a main road and adjacent to open space and natural environmental features will provide attractive lifestyle options. The master plan proposes to improve access for residents and the broader community to improved and new open space areas.

Urban Context Report

The Urban Context Report prepared by Architectus (September 2017) is attached to this Planning Proposal at **Attachment A**. The Report provides a good understanding of the sites attributes, context and potential impacts and details a master plan for the site. It should be noted that the master plan is intended to provide an indication for the type of development that would be permissible under the proposed planning controls. Any future development would be subject to a separate DA to be lodged with Council at a later date.

Is the planning proposal the best means of achieving the objectives or intended outcomes, or is there a better way?

Yes. There are no alternative processes to achieve the intent of this Planning Proposal due to the current planning controls that apply to the site under the BBLEP 2013. The current controls do not allow for the redevelopment of the site for high density residential.

6.2 Section B – Relationship to strategic planning framework

This section provides a summary of the strategic planning framework within which the Planning Proposal outcomes for the site have been considered.

Is the planning proposal consistent with the objectives and actions of the applicable regional, sub-regional or district strategy (including any exhibited draft plans or strategies)?

Yes. The Planning Proposal is consistent with the objectives and actions of the following strategies.

Sydney Metropolitan Strategy

The applicable metropolitan strategy is the NSW Government's *A Plan for Growing Sydney*, discussed in further detail in Section A. Relevant directions from the Plan are noted at **Table 2** below.

Table 2 A Plan for Growing Sydney

Strategy or Strategic Plan	Consistency	Comment
GOAL 2: A city of housing choice, with homes that meet our needs and lifestyles <i>Direction 2.1 – Accelerate housing supply across Sydney</i> <i>Direction 2.2 – Accelerate urban renewal across Sydney – providing homes closer to jobs</i> <i>Direction 2.3 – Improve housing choice to suit different needs and lifestyles</i>	Yes	The Planning Proposal seeks to redevelop surplus government land to grow the availability of high quality housing to support a growing population, in an area with good transport links and in close proximity to local and strategic centres. The proposed master plan for the site will provide apartment living in a range of dwelling sizes with public and communal open space.
GOAL 3: A great place to live with communities that are strong, healthy and well connected <i>Direction 3.1: Revitalise existing suburbs</i> <i>Direction 3.3: Create healthy built environments</i>	Yes	This Planning Proposal would achieve this goal by facilitating development of the site for housing to meet the growing demand for the Sydney area. The Planning Proposal also seeks to ensure the delivery of well-designed, high quality buildings to meet the needs of the future residents and also provide improved access for current residents access to superior open space and the natural environment, promoting enjoyment of these important natural features by residents and the wider community.

Goal 1: "A competitive economy with world-class services and transport", and Goal 4: "A sustainable and resilient city that protects the natural environment and has a balanced approach to the use of land and resources" are not considered to be directly relevant to this Planning Proposal.

This Planning Proposal seeks to amend the permissible planning controls applicable to the site to allow development which will increase the supply of high quality housing close to strategic centres and the Sydney CBD and with access to superior public and communal open space.

The master plan developed for the site proposes to create a quality built environment that focuses on community living and provides walking and cycleway access to the Botany Wetlands.

Through addressing the above goals, the proposal also addresses the actions and directions of the plan.

District Plan

The Draft District Plans were released for public comment on 21 November 2016. 73-75 Gardeners Road is located within the Central District and subject to the *Draft Central District Plan*, discussed in further detail in Section A.

Relevant directions from the Draft District Plans are noted at **Table 3**.

Table 3 *Draft Central District Plan*

Strategy or Strategic Plan	Consistency	Comment
Liveability Priority 1: Deliver Central District's five-year housing supply target – <i>Plan to provide sufficient capacity and monitor delivery of the five-year housing targets</i>	Yes	The proposed redevelopment of surplus government land at 73 and 75 Gardeners Road will improve housing capacity by providing more residential land to contribute to the housing target for the Bayside LGA, without impacting on established neighbourhoods. The masterplan demonstrates that the rezoning could facilitate in the order of 744 dwellings.
Liveability Priority 2: Deliver housing diversity – <i>Address housing diversity that is relevant to the needs of the existing and future local housing market</i> – <i>Deliver quality design outcomes for both buildings and places</i>	Yes	The subject site is located in close proximity to the local centres Eastlakes and Kingsford with good transport connections to the future Randwick and Green Square. It will help accommodate the growing Central Sydney population and cater for the projected increase in single person households. The principles that have guided the design of the master plan have focused around providing good quality design for the apartment buildings oriented to provide sufficient public and communal open space with good solar access.
Liveability Priority 5: Facilitate the delivery of safe and healthy places – <i>Facilitate the development of healthy and safe built environments</i>	Yes	The master plan will increase the supply of new dwellings and improve housing choice in the Central District. The proposed development provides high quality apartment living with access to schools, open space and retail centres, and with links through the site into the adjacent golf course and the broader Botany Wetlands
Liveability Priority 6: Facilitate enhanced walking and cycling connections – <i>Facilitate enhanced walking and cycling outcomes by giving due consideration to the delivery of district and regional connections and walkable neighbourhoods.</i>	Yes	The proposed master plan for 73 and 75 Gardeners Road has been designed with the important surrounding natural environment in mind and proposes a shared pedestrian and cycleway link along the boundary of the site with great views over the golf course. The walkway and cycleway link would be publicly accessible.
Liveability Priority 7: Conserve heritage and unique local characteristics – <i>Protect Aboriginal, cultural and natural heritage and places, spaces and qualities valued by the local community.</i>	Yes	The master plan for the site has been developed to enhance and respect the natural heritage value of the Botany Wetlands to the south of the site. The retention of mature established trees and the proposed landscaping across two public parks and three communal open space areas will complement the natural beauty of the surrounding Wetlands.

Is the planning proposal consistent with a Council's local strategy or other local strategic plan?

Yes. The Planning Proposal is consistent with the objectives and actions of the previous Botany Bay Council local strategic plan.

Local strategic plan

Botany Bay Council and Rockdale Council were amalgamated in 2016. The subject site is located in the previous Botany Bay LGA. Botany Bay Council's local strategy *The Botany Bay Planning Strategy 2031: Local Livability, Global Connection*, was adopted in 2009. The strategy was prepared to address the dwelling and job targets identified in the previous Draft East Subregional Strategy and provides a framework for growth and development to 2031.

The amendments to the BBLEP 2013 proposed in this Planning Proposal support the implementation of a master plan for the site. The master plan considers objectives defined in the Botany Bay Planning Strategy as noted at **Table 4** below.

Table 4 The Botany Bay Planning Strategy 2031: Local Livability, Global Connection

Strategy or Strategic Plan	Consistency	Comment
<p><i>Objective 1.1 Improve the urban environment, particularly where additional development is proposed.</i></p> <ul style="list-style-type: none"> <i>– Ensure good quality, adequate local public open space in areas where dwelling numbers are planned to increase.</i> 	Yes	<p>The master plan proposes five apartment buildings of between 6 and 14 storeys, providing for 744 units; as well as 1,417 parking spaces. To accommodate this increase in dwelling numbers the proposal also includes two public parks and three communal open space areas, totalling 7,529m².</p>
<p><i>Objective 1.4 Enhance access to high quality open space assets.</i></p> <ul style="list-style-type: none"> <i>– Investigate the redevelopment of Botany Bay Wetlands to create a major regional open space asset for the Botany Bay LGA and Eastern Subregion.</i> <i>– Use native and water efficient flora species for landscaping.</i> 	Yes	<p>The master plan includes the retention of existing established trees and native vegetation to be incorporated into the landscaping for the site.</p> <p>It also proposes to provide pedestrian paths and cycleways throughout the site and into the Botany Wetlands to promote this important environmental feature of the area and encourage the redevelopment of the space as a major open space asset for the LGA.</p>
<p><i>Objective 1.5 Provide a greater range of housing types.</i></p>	Yes	<p>The delivery of a large number of apartments in a range of sizes will provide greater housing diversity in an area predominately characterised by single and two storey attached and detached dwellings and low rise residential flat buildings.</p>
<p><i>Objective 7.1 Protect and expand high quality flora and fauna corridors and foreshore vegetation.</i></p> <ul style="list-style-type: none"> <i>– 7.1.1 Council to work with Sydney Water and tenants to protect and</i> 	Yes	<p>The master plan promotes the retention of high value trees and proposes two public parks and three areas of communal open space totally 9,620m. These areas will be landscaped with native flora to</p>

establish habitat corridors Botany Wetlands in Botany Wetlands including revitalisation of existing ESBS communities. – Promote the use of indigenous, 'water efficient' flora in the landscaping of local parks and reserves.	enhance the biodiversity of the surrounding area.
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Is the planning proposal consistent with applicable State Environmental Planning Policies?

The State Environmental Planning Policy (Infrastructure) 2007 currently applies to the site. High density residential development is not a permissible use under the SP1 and SP2 zones. Therefore, this planning proposal seeks to amend the zoning for the site to R4 under the BBLEP 2013 to enable the development of high density residential development.

The State Environmental Planning Policy No 55—Remediation of Land is also applicable to this site. As the rezoning of the site will result in a change of land use a site audit was undertaken by Ramboll Environ Australia Pty Ltd, at **Attachment D**, in accordance with SEPP 55 Planning Guidelines. The Site Audit Statement makes recommendations for the remediation of the site subject to any proposed redevelopment.

No other State Environmental Planning Policies (SEPP) are applicable to this development.

Refer to the full assessment of SEPPs at **Table 5** below.

Table 5 Response to State Environmental Planning Policies

State Environmental Planning Policy	Consistency	Comment
State Environmental Planning Policy No 1—Development Standards	N/A	N/A
State Environmental Planning Policy No 14—Coastal Wetlands	N/A	N/A
State Environmental Planning Policy No 15—Rural Landsharing Communities	N/A	N/A
State Environmental Planning Policy No 19—Bushland in Urban Areas	N/A	N/A
State Environmental Planning Policy No 21—Caravan Parks	N/A	N/A
State Environmental Planning Policy No 26—Littoral Rainforests	N/A	N/A
State Environmental Planning Policy No 29—Western Sydney Recreation Area	N/A	N/A
State Environmental Planning Policy No 30—Intensive Agriculture	N/A	N/A
State Environmental Planning Policy No 32—Urban Consolidation (Redevelopment of Urban Land)	N/A	N/A
State Environmental Planning Policy No 33—Hazardous and Offensive Development	N/A	N/A
State Environmental Planning Policy No 36—Manufactured Home Estates	N/A	N/A

State Environmental Planning Policy No 39—Spit Island Bird Habitat	N/A	N/A
State Environmental Planning Policy No 44—Koala Habitat Protection	N/A	N/A
State Environmental Planning Policy No 47—Moore Park Showground	N/A	N/A
State Environmental Planning Policy No 50—Canal Estate Development	N/A	N/A
State Environmental Planning Policy No 52—Farm Dams and Other Works in Land and Water Management Plan Areas	N/A	N/A
State Environmental Planning Policy No 55—Remediation of Land	Yes	A site audit was undertaken in accordance with SEPP 55 Planning Guidelines. The Site Audit Statement includes recommendations to ensure that the site is appropriate for the future use as high density residential.
State Environmental Planning Policy No 59—Central Western Sydney Regional Open Space and Residential	N/A	N/A
State Environmental Planning Policy No 62—Sustainable Aquaculture	N/A	N/A
State Environmental Planning Policy No 64—Advertising and Signage	N/A	N/A
State Environmental Planning Policy No 65—Design Quality of Residential Apartment Development	Yes	The master plan for the site proposes five residential flat buildings of between 6 and 14 storeys. The design of the master plan has been prepared in accordance with the design principles of SEPP 65 and demonstrates that a built form compliant with the requirements of SEPP65 is achievable. However, the detail design of the apartment buildings will be subject to a future DA to be determined by Council.
State Environmental Planning Policy No 70—Affordable Housing (Revised Schemes)	N/A	N/A
State Environmental Planning Policy No 71—Coastal Protection	N/A	N/A
State Environmental Planning Policy (Affordable Rental Housing) 2009	N/A	N/A
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004	N/A	N/A
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008	N/A	N/A
State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004	N/A	N/A
State Environmental Planning Policy (Infrastructure) 2007	Yes	Gardeners Road is a classified road. The site is currently accessed by a signalised intersection with Gardeners Road. The master plan proposed to

		retain this access as the primary access to the site. The master plan includes apartment buildings containing more than 75 dwellings with access to a classified road. This planning proposal seeks to rezone the site to R4 High Density Residential, however approval for the development is not currently being sought. Any future development application will need to be referred to RMS when approval is being sought for the development (See transport Assessment at Attachment E).
State Environmental Planning Policy (Kosciuszko National Park—Alpine Resorts) 2007	N/A	N/A
State Environmental Planning Policy (Kurnell Peninsula) 1989	N/A	N/A
State Environmental Planning Policy (Major Development) 2005	N/A	N/A
State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007	N/A	N/A
State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007	N/A	N/A
State Environmental Planning Policy (Penrith Lakes Scheme) 1989	N/A	N/A
State Environmental Planning Policy (Rural Lands) 2008	N/A	N/A
State Environmental Planning Policy (SEPP 53 Transitional Provisions) 2011	N/A	N/A
State Environmental Planning Policy (State and Regional Development) 2011	N/A	N/A
State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011	N/A	N/A
State Environmental Planning Policy (Sydney Region Growth Centres) 2006	N/A	N/A
State Environmental Planning Policy (Three Ports) 2013	N/A	N/A
State Environmental Planning Policy (Urban Renewal) 2010	N/A	N/A
State Environmental Planning Policy (Western Sydney Employment Area) 2009	N/A	N/A
State Environmental Planning Policy (Western Sydney Parklands) 2009	N/A	N/A

Is the planning proposal consistent with applicable Ministerial Directions (s.117 directions)?

A review of the consistency of the Planning Proposal with the Ministerial Directions for LEPs under Section 117 of the EP&A Act 1979 is discussed at **Table 6** below.

Table 6 Response to Section 117 Directions

No.	Direction	Objectives	Consistency	Comment
1	Employment and Resources			
1.1	Business and Industrial Zones	<ul style="list-style-type: none"> – Encourage employment growth in suitable locations; – Protect employment land in business and industrial zones; and – Support the viability of identified strategic centres. 	N/A	The Planning Proposal does not affect land within an existing or proposed business or industrial zone.
1.2	Rural Zones	<ul style="list-style-type: none"> – Protect the agricultural production value of rural land. 	N/A	The Planning Proposal does not affect land within an existing or proposed rural zone.
1.3	Mining, Petroleum Production and Extractive Industries	<ul style="list-style-type: none"> – Ensure that the future extraction of State or regionally significant reserves of coal, other minerals, petroleum and extractive materials are not compromised by inappropriate development. 	N/A	The Planning Proposal does not relate to the mining of coal or other materials, production of petroleum or extractive materials.
1.4	Oyster Aquaculture	<ul style="list-style-type: none"> – Ensure that Priority Oyster Aquaculture Areas and oyster aquaculture outside such an area are adequately considered when preparing a planning proposal; and – Protect Priority Oyster Aquaculture Areas and oyster aquaculture outside such an area from land uses that may result in adverse impacts on water quality and consequently, on the health of oysters and oyster consumers. 	N/A	The Planning Proposal does not relate to oyster aquaculture or impact Priority Oyster Aquaculture Areas.
1.5	Rural Lands	<ul style="list-style-type: none"> – Protect the agricultural production value of rural land; and – Facilitate the orderly and economic development of 	N/A	The Planning Proposal does not apply to an existing or proposed rural or environmental protection zone.

			rural lands for rural and related purposes.		
2 Environment and Heritage					
2.1	Environment Protection Zones	–	Protect and conserve environmentally sensitive areas.	N/A	The Planning Proposal does not apply to land within an environmental protection zone or identified for environmental protection purposes.
2.2	Coastal Protection	–	Implement the principles in the NSW Coastal Policy.	N/A	The Planning Proposal does not apply to land within the coastal Zone.
2.3	Heritage Conservation	–	Conserve items, areas, objects and places of environmental heritage significance and indigenous heritage significance.	N/A	The Planning Proposal does not propose to amend the heritage status of any of the heritage items or conservation zones surrounding the site.
2.4	Recreation Vehicle Areas	–	Protect sensitive land or land with significant conservation values from adverse impacts from recreation vehicles.	N/A	The Planning Proposal does not seek to enable land to be developed for the purposes of a recreation vehicle area.
3 Housing, Infrastructure and Urban Development					
3.1	Residential Zones	–	Encourage a variety and choice of housing types to provide for existing and future housing needs;	Yes	The Planning Proposal will facilitate the delivery of high quality apartment living to meet the growing population of Bayside LGA and the Central Sydney District. The development will increase housing supply and improve the choice of dwelling type available. The Planning Proposal will make efficient use of existing transport infrastructure as the site is located close to existing bus connections and the future
		–	Make efficient use of existing infrastructure and services and ensure that new housing has appropriate access to infrastructure and services; and		
		–	Minimise the impact of residential development on the environment and resource lands.		

				<p>Sydney Light Rail station at Kingsford.</p> <p>Increasing the density of housing on this site will help conserve the existing residential neighbourhoods of Eastlakes while contributing to the housing targets for the LGA and District.</p> <p>The proposed development has been designed to reduce impacts on the surrounding natural environment and improve connectivity through the Botany Wetlands.</p>
3.2	Caravan Parks and Manufactured Home Estates	<ul style="list-style-type: none"> – Provide for a variety of housing types; and – Provide opportunities for caravan parks and manufactured home estates. 	N/A	The Planning Proposal does not relate to the location or provision for caravan parks or manufactured homes.
3.3	Home Occupations	<ul style="list-style-type: none"> – Encourage the carrying out of low-impact small businesses in dwelling houses. 	Yes	The Planning Proposal does not seek to change the permissibility of home occupations in dwelling houses.
3.4	Integrating Land Use and Transport	<ul style="list-style-type: none"> – Improving access to housing, jobs and services by walking, cycling and public transport; – Increasing the choice of available transport and reducing dependence on cars; – Reducing travel demand including the number of trips generated by development and the distances travelled, especially by car; 	Yes	<p>The site is located close to existing transport infrastructure including bus routes along Gardeners Road and the future light rail stop at Kingsford town centre. It is also located within close proximity to Sydney Airport.</p> <p>The Planning Proposal will enable the intensification of housing in a well-connected site and encourage use</p>

		<ul style="list-style-type: none"> – Supporting the efficient and viable operation of public transport services; and – Providing for the efficient movement of freight. 		of public transport.
3.5	Development Near Licensed Aerodromes	<ul style="list-style-type: none"> – Ensure the effective and safe operation of aerodromes; – Ensure that their operation is not compromised by development that constitutes an obstruction, hazard or potential hazard to aircraft flying in the vicinity; – Ensure development for residential purposes or human occupation, if situated on land within the Australian Noise Exposure Forecast (ANEF) contours of between 20 and 25, incorporates appropriate mitigation measures so that the development is not adversely affected by aircraft noise. 	N/A	The Planning Proposal does not affect land in proximity to an aerodrome.
3.6	Shooting Ranges	<ul style="list-style-type: none"> – Maintain appropriate levels of public safety and amenity when rezoning land adjacent to an existing shooting range; – Reduce land use conflict arising between existing shooting ranges and rezoning of adjacent land; and – Identify issues that must be addressed when giving consideration to rezoning land adjacent to an existing shooting range. 	N/A	The Planning Proposal does not seek to affect, create, alter or remove a zone or provision relating to land adjacent to or adjoining an existing shooting range.
4 Hazard and risk				

4.1	Acid Sulfate Soils	<ul style="list-style-type: none"> Avoid significant adverse environmental impacts from the use of land that has a probability of containing acid sulfate soils. 	N/A	The Planning Proposal does not apply to land identified as having a probability of acid sulfate soils.
4.2	Mine Subsidence and Unstable Land	<ul style="list-style-type: none"> Prevent damage to life, property and the environment on land identified as unstable or potentially subject to mine subsidence. 	N/A	The Planning Proposal does not apply to land that is within a mine subsidence district or that has been identified as being unstable.
4.3	Flood Prone Land	<ul style="list-style-type: none"> Ensure that development of flood prone land is consistent with the NSW Government's Flood Prone Land Policy and the principles of the Floodplain Development Manual 2005 Ensure that the provisions of an LEP on flood prone land is commensurate with flood hazard and includes consideration of the potential flood impacts both on and off the subject land. 	Yes	Although the proposal is on land affected by flooding, it has been supported by a preliminary review prepared by Northrop Consulting which has identified that the site is likely to be capable of being redeveloped for residential land uses, pending further consideration at the detailed design phase for provision of flooding and stormwater management.
4.4	Planning for Bushfire Protection	<ul style="list-style-type: none"> Protect life, property and the environment from bush fire hazards, by discouraging the establishment of incompatible land uses in bush fire prone areas; Encourage sound management of bush fire prone areas. 	N/A	The proposal is not located on or within a bushfire hazard area.
5 Regional Planning				
5.1	Implementation of Regional Strategies	<ul style="list-style-type: none"> Give legal effect to the vision, land use strategy, policies, outcomes and actions contained in regional strategies. 	N/A	The Planning Proposal does not apply to land subject to regional strategies.

5.2	Sydney Drinking Water Catchment	<ul style="list-style-type: none"> – Protect water quality in the Sydney drinking water catchment. 	N/A	The Planning Proposal does not apply to land in the Sydney drinking water catchment.
5.3	Farmland of State and Regional Significance on the NSW Far North Coast	<ul style="list-style-type: none"> – Ensure that the best agricultural land will be available for current and future generations to grow food and fibre; – Provide more certainty on the status of the best agricultural land, thereby assisting councils with their local strategic settlement planning; – Reduce land use conflict arising between agricultural use and non-agricultural use of farmland as caused by urban encroachment into farming areas. 	N/A	The Planning Proposal does not apply to land in the nominated Council areas.
5.4	Commercial and Retail Development along the Pacific Highway, North Coast	<ul style="list-style-type: none"> – Protect the Pacific Highway's function, that is to operate as the North Coast's primary inter- and intra-regional road traffic route; – Prevent inappropriate development fronting the highway; – Protect public expenditure invested in the Pacific Highway; – Protect and improve highway safety and highway efficiency; – Provide for the food, vehicle service and rest needs of travellers on the highway; and – Reinforce the role of retail and commercial development in town centres, where they can best serve the 	N/A	The Planning Proposal does not apply to land in Council areas on the north Coast.

		populations of the towns.		
5.5	Development in the vicinity of Ellalong, Paxton and Millfield (Cessnock LGA)	(Revoked 18 June 2010)		
5.6	Sydney to Canberra Corridor	(Revoked 10 July 2008)		
5.7	Central Coast	(Revoked 10 July 2008)		
5.8	Second Sydney Airport: Badgerys Creek	<ul style="list-style-type: none"> Avoid incompatible development in the vicinity of any future second Sydney Airport at Badgerys Creek 	N/A	The Planning Proposal does not apply to land in the vicinity of Badgerys Creek.
5.9	North West Rail Link Corridor Strategy	<ul style="list-style-type: none"> Promote transit-oriented development and manage growth around the eight train stations of the North West Rail Link (NWRL) Ensure development within the NWRL corridor is consistent with the proposals set out in the NWRL Corridor Strategy and precinct Structure Plans. 	N/A	The Planning Proposal does not apply to land within the Hornsby Shire, Hills Shire or Blacktown Council areas.
6 Local Plan Making				
6.1	Approval and Referral Requirements	<ul style="list-style-type: none"> Ensure that LEP provisions encourage the efficient and appropriate assessment of development. 	Yes	The Planning Proposal does not contravene the objectives of this direction.
6.2	Reserving Land for Public Purposes	<ul style="list-style-type: none"> Facilitate the provision of public services and facilities by reserving land for public purposes; and Facilitate the removal of reservations of land for public purposes where the land is no longer required for acquisition. 	N/A	The proposal includes delivery of two public parks and cycle and walkway links through to the Botany Wetlands.
6.3	Site Specific Provisions	<ul style="list-style-type: none"> Discourage unnecessarily restrictive site specific planning controls. 	N/A	The Planning Proposal does not propose any unnecessarily restrictive site specific planning controls, and will use standard

			built form controls to amend the LEP.
7	Metropolitan Planning		
7.1	Implementation of <i>A Plan for Growing Sydney</i>	– Give legal effect to the planning principles; directions; and priorities for subregions, strategic centres and transport gateways contained in <i>A Plan for Growing Sydney</i>	The Planning Proposal will enable development that is consistent with the key directions of the Metropolitan Strategy. Refer to Sections 2 and 6 of this report.
7.2	Implementation of Greater Macarthur Land Release Investigation	– Ensure development within the Greater Macarthur Land Release Investigation Area is consistent with the Greater Macarthur Land Release Preliminary Strategy and Action Plan (the Preliminary Strategy)	The Planning Proposal does not apply to land in the vicinity of the Macarthur land release area.

6.3 Section C – Environmental, social and economic impact

Is there any likelihood that critical habitat or threatened species, populations, or ecological communities, or their habitats, will be adversely affected as a result of the proposal?

There are no impacts envisaged. 75 Gardeners Road is currently vacant and 73 Gardeners Road is currently in use as the Sydney Water Depot. It is considered unlikely that the proposed changes to land use zoning, height or FSR will have adverse environmental impacts the site.

The subject site is located adjacent to the Botany Water Reserves, which is identified as a heritage item on the following registers and has heritage protection under the Heritage Act 1977 and the Environmental Planning and Assessment Act 1979:

- Botany Bay Local Environmental Plan 2013, Item No. 12.
- NSW State Heritage Register, Listing No. 01317.

However, the land to which this Planning Proposal applies is not identified as being of environmental significance. Notwithstanding, the final master plan for the site has increased the building separation from the earlier designs, improving solar access and north-south view corridors through the site to the Botany Water Reserves. Further, information is included in the Heritage Review for the site, prepared by NBRS Architecture and included at **Attachment F**.

Additionally, an ecological report has been prepared in support of the planning proposal and is provided at **Attachments G and H**.

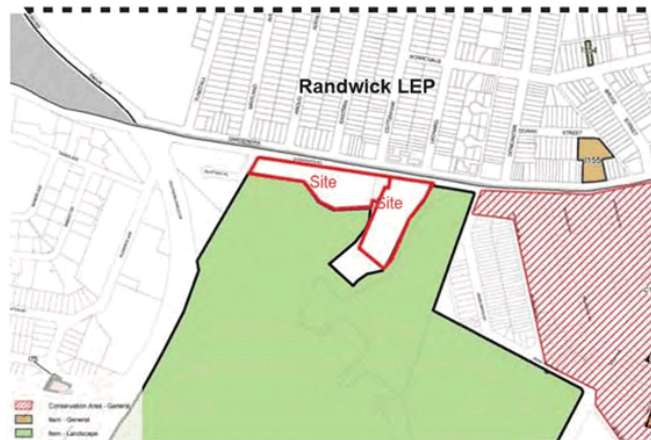


Figure 21 Heritage map of the subject site

Site outlined in red

Source: BBLEP – Heritage Map, Sheet HER_004

Are there any other likely environmental effects as a result of the planning proposal and how are they proposed to be managed?

At this stage, the Planning Proposal will not likely result in any adverse environmental effects.

Any environmental effects that may arise during the design and development phase, or construction phase of the site should be addressed at the Development Application stage.

Has the planning proposal adequately addressed any social and economic effects?

The Planning Proposal will not have any adverse social or economic effects. The proposal seeks to rezone surplus government land for the development of high density residential to provide for quality apartment living, adjacent to valuable public open space and with good transport connections, to accommodate the growing population of the Central Sydney District. The proposal will enable greater housing diversity by delivering apartments in an area predominately characterised by single and two storey attached and detached dwellings and low rise residential flat buildings.

6.4 Section D – State and Commonwealth interests

Is there adequate public infrastructure for the planning proposal?

The Planning Proposal seeks to amend the land use zoning to R4 High Density Residential, and increase the maximum permissible building height and FSR controls, resulting in an increased number of residents living in the area. The master plan for the site proposes delivery of two new public parks and cycle and walkway linkages into the broader open space areas of the Botany Wetlands. The site is also within close proximity to several bus routes to local and strategic centres and the Sydney CBD, as well as the future Sydney Light Rail station at Kingsford.

Consultation will be required with Council, Transport for NSW and the RMS in relation to roads, traffic and transport at more detailed Development Application stages.

What are the views of State and Commonwealth public authorities consulted in accordance with the Gateway determination?

At this stage, no Gateway Determination has been issued as the Planning Proposal is submitted to Bayside Council for consideration. Notwithstanding this, preliminary discussions have taken place between Architectus and the Department of Planning and Environment with regards to the Deferred Matter zoning for the Sydney Water Depot site. At this early stage the Department has indicated preliminary support, pending further consideration of the planning proposal.

7. Mapping

The following maps identify the site, the subject of this Planning Proposal, the current development standards relating to the site, the proposed amendment to the zone and proposed development standards.

While the master plan and associated assessments have been prepared for the entire site the amendments proposed to the zoning map and the HOB and FSR development standards for 73 Gardeners Road are proposed to be deferred until such time as the current use of the site as a Water Depot is no longer required by Sydney Water. During this time, the relevant maps in the BBLEP will identify 73 Gardeners Road as a 'deferred matter' and the current zoning and development standards will continue to apply.

The maps provided below show the proposed mapping for the future use of the site as R4 High Density Residential with the associated development standards to enable the redevelopment, as well as maps that identify 73 Gardeners Road as a 'deferred matter'. It should be noted that in the proposed zoning map there is a remnant area zoned as SP2 which sits outside the sites boundaries. This is not intended to be rezoned at this stage as Sydney Water may still need this space in the future.

Subject site: 73-75 Gardeners Road, Eastlakes



Figure 22 Aerial view of the subject site

Site outlined in red

Source: Architectus, September 2017

7.1 Existing and proposed LEP maps

Land use zone

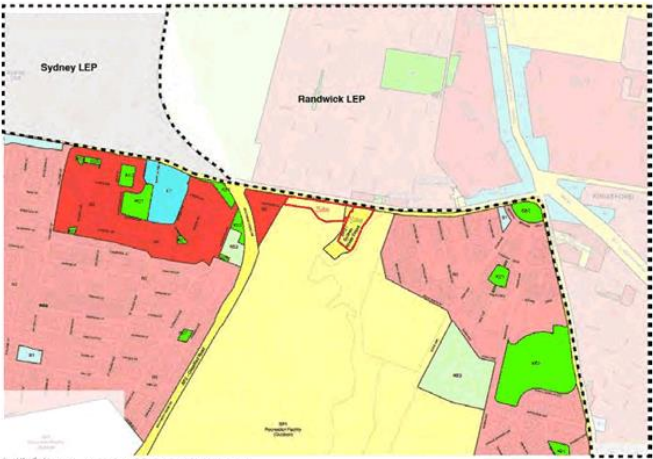


Figure 23 Land use zoning map
Site outlined in red
Source: Botany Bay LEP 2013, Sheet LZN_004



Figure 24 Proposed land use zoning map
Site outlined in black
Source: Architectus, September 2017

[illegible]

Figure 26 Maximum building height map
Site outlined in red
Source: Botany Bay LEP 2013, Sheet HOB_004



Figure 27 Proposed maximum building height map

Site outlined in black

Source: Architectus, September 2017



Figure 28 Proposed maximum building height map with deferred matter

Site outlined in black with deferred matter in red

Source: Architectus, September 2017

Floor Space Ratio

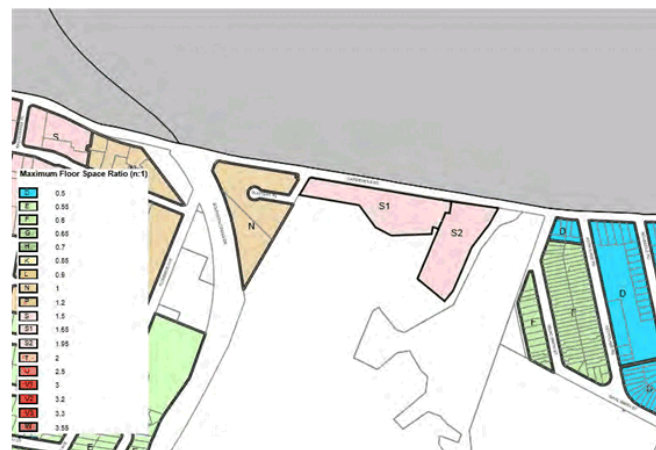
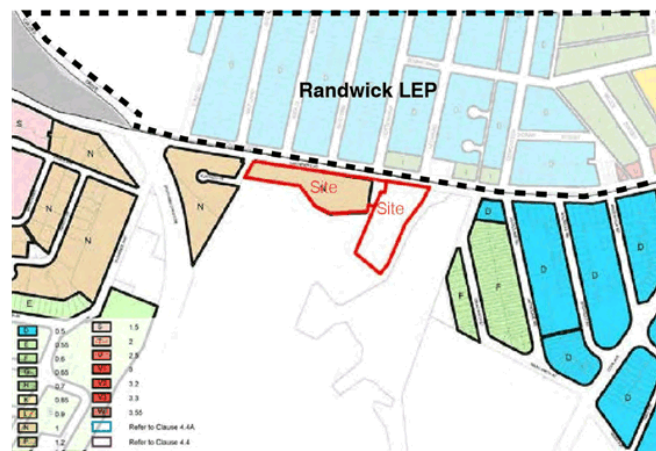




Figure 31 Proposed maximum floor space ratio map with deferred matter
Site outlined in black with deferred matter in red
Source: Architectus, September 2017

8. Consultation

This section provides information regarding consultation with council, stakeholders, residents and the community which has informed the preparation of this Planning Proposal. Consultation was undertaken with stakeholders at a visioning level to support the preparation of the master plan for the site.

8.1 Bayside Council

Consultation with Bayside Council (formerly Botany Bay Council) has been undertaken as the Planning Proposal has been prepared, including initial discussions in September and October 2015. At this time, the proposal was for 75 Gardeners Road only and did not include planning for the Sydney Water Depot. The master plan for the site evolved and a number of changes were adopted at the request of Council, including:

- 1) Stepping the building height down towards the golf course;
- 2) Providing a two storey townhouse frontage to the southern boundary of the site adjoining the golf course;
- 3) Reduced building height to address overshadowing of golf course infrastructure;
- 4) Reducing the height of buildings adjacent to Slattery Place (14 to 9 storeys); and
- 5) Footprint adjustments to allow for greater tree retention.

Figure 4 and **Figure 5** below demonstrate the evolution of the design in response to Council's concerns.

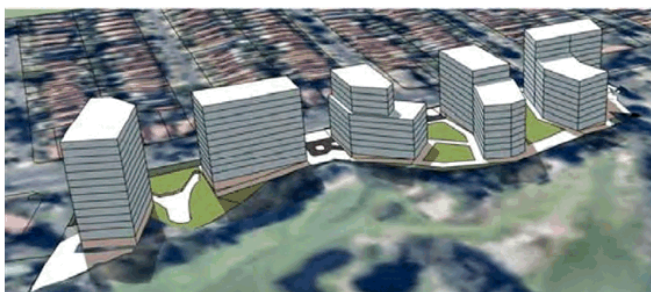


Figure 4 Initial design option presented to Council

The above is the master plan presented to Council in September 2015
Source: Architectus, dated September 2015

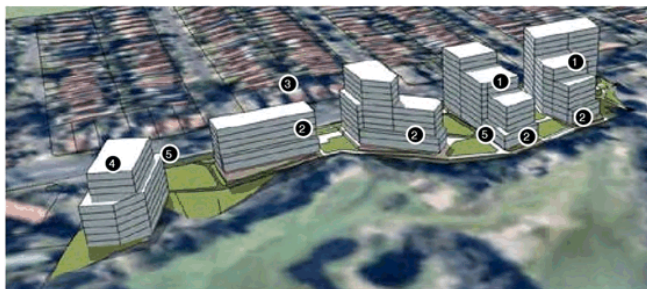


Figure 5 Previous proposal addressing Council comments

The above is the subsequent master plan presented to Council in October 2015.
Source: Architectus, dated October 2017

The scheme was amended to adopt all of Council's advice. Further, the new design introduced a 2 storey masonette typology along the golf course, providing an even better transition down to the golf course and activating the public domain on the southern edge of the site.

Further consultation was undertaken with Council and key stakeholders. As a result a number of additional changes were made to design to incorporate feedback received. These changes include:

- 1) Built form adjusted to provide a large centrally located public open space (approx. 2,800m²);
- 2) Western building removed to provide improved open space and relationship to existing buildings at Slattery Place;
- 3) Enlarged public open space in the western portion of the site (approx. 1800m²);
- 4) Consolidated built form to maximise open space.

Following the above, as a result of the initial review of current assets owned by Sydney Water, it was determined that the site should be expanded to include the current Sydney Water Depot at 73 Gardeners Road. This part of the site is proposed to be deferred from the rezoning until the Depot site is closed, however the master planning has been undertaken for both sites together to provide a better design outcome.

Following the inclusion of 73 Gardeners Road, meetings were held with Bayside Council staff on 14 July 2017 and 15 August 2017 to further discuss the development of the site. At the initial meeting with Council, an overview of the site and history to date was discussed with the key points arising from the meeting as follows:

- Future development of the site is to be subject to sale and preparation of a Development Application by others;
- Sydney Water Depot is to be subject to a Deferred Matter zoning to allow for its ongoing use as a depot until such time that Sydney Water is ready to divest the site; and
- The Planning Proposal will need to be supported by a Voluntary Planning Agreement which will need to consider capturing some of the value uplift as public benefit. This is to be discussed further with Council.

The discussions were supported by a high level plan showing key principles which is provided at **Figure 6** below. A subsequent meeting was held 15 August 2017 to further discuss the progression of the planning proposal. Key points arising from this discussion were:

- Council were to review the heights of the proposal further and provide comments on the scale and massing of the development; and
- The planning proposal was to be circulated internally and seek comments from other internal stakeholders.

The discussions were supported by a high level plan showing key principles which is provided at **Figure 7** below. Sydney Water and Architectus would like to reaffirm their willingness to continue to discuss the proposal and master plan with Council as part of the initial assessment of the planning proposal by Council.



Figure 6 Indicative master plan principles for 75 Gardeners Road and 73 Gardeners Road
Source: Architectus, dated July 2017



Figure 7 Final indicative master plan for 75 Gardeners Road and Sydney Water Depot

The above is the final master plan presented to Council in August 2017.
Source: Architectus, dated August 2017

8.2 Randwick Council

Consultation with Randwick Council was also undertaken. Council was generally supportive however they did raise the following concerns:

- Need to connect with the existing Cycling Strategy – opportunities for connections have been allowed for in the master plan;

- Respond to and manage the existing flooding originating upstream – this has been considered and addressed in Attachment N - Hydrology, Stormwater and Creek Assessment
- Impact on traffic along an existing rat run along Eastern Ave – This has been considered and addressed within Attachment E -Transport Report; and
- Respond to the existing character and transition along the northern side of Gardeners Road – This has been considered and addressed in Attachment A - Urban Context Report .

8.3 Sydney Water

Consultation with Sydney Waters operational team also took place to understand potential design constraints originating from the existing infrastructure on the site. This consultation has informed the current master plan and addressed in Attachment N.

8.4 Golf Course

Sydney Water consulted with the The Lakes Golf Club to the south of the site. It should be noted that this site is owned by Sydney Water but leased to the golf club. Key concerns identified included potential issues with safety and security with access to and from the golf course and overlooking from any future buildings.

The master plan detailed at Attachment A has responded to these concerns and it is noted that these issues will need further detailed design refinement and solution as part of any future Development Application for the site.

8.5 Community

In December 2015 Sydney Water invited the local community to comment on their early planning and visioning work for the site, to share their views, and to provide feedback on what should be considered when planning for this site.

Communication and community consultation was undertaken through:

- A newsletter to residents around the site
- Two community information and feedback sessions
- An interactive feedback exercise
- Feedback forms
- Project email address and 1800 info line
- The Sydneywatertalk.com.au consultation website

41 people attended two community information and feedback sessions held on 10 December 2015 and 12 December 2015. The sessions provided an opportunity for local residents to find out more about Sydney Water's vision for the site, to ask questions of the project team, and to provide feedback on what should be considered when planning for this site. In attendance were representatives from Sydney Water, Architectus and Elton Consulting.

At the community sessions, stakeholders raised the following concerns about the proposal:

- The impact on local traffic, particularly along Gardeners Road and Eastern Avenue
- Population growth and impacts to local community space and infrastructure
- Level of density and proposed building heights
- The street frontage and on-street parking impacts.

At the community sessions, stakeholders supported the following principles of the development:

- The provision of more open space and green corridors between buildings
- Retaining the café onsite and access to views

- Fixing the stormwater channel and flood issues
- More affordable and public housing
- Provision of shared pedestrian/cycleways through the site, into the wetlands, and along Gardeners Road

9. Project timeline

9.1 Timeline

The timeframe for amendment of the BBLEP 2013 is expected to be dependent on the consideration of Council of the Planning Proposal and progression of any additional information requested by Council.

It is considered that the technical studies required to progress the Planning Proposal to a Gateway determination have been submitted along with this Planning Proposal.

9.2 Staging

Detail on projected project timeframes are provided below.

Table 7 Project timeline

Stage	Timing	Responsible Organisation
Lodgment of Planning Proposal to Council	September 2017	Sydney Water / Architectus
Consideration by Council	October – December 2017	Bayside Council
Lodgment for Gateway determination	December 2017	Bayside Council
Anticipated commencement date (date of Gateway determination)	January 2018	Minister (or delegate)
Anticipated timeframe for the completion of required technical information	January – February 2018	Sydney Water / Architectus
Timeframe for government agency consultation (pre and post exhibition as required by Gateway determination)	January – February 2018	Sydney Water / Architectus
Commencement and completion dates for public exhibition period	January – February 2018	Bayside Council
Dates for public hearing (if required)	February 2018	Bayside Council
Timeframe for the consideration of a proposal post exhibition	February 2018	Bayside Council
Date of submission to the department to finalise the LEP	March 2018	Department of Planning and Environment (DPE)
Anticipated date RPA will make the plan (if delegated)	April 2018	Bayside Council
Anticipated date RPA will forward to the department for notification	April 2018	Bayside Council / DPE

10. Conclusion

This Planning Proposal has been prepared in accordance with Section 55 of the Environmental Planning and Assessment Act 1979 and *A Guide to Preparing Planning Proposals*, NSW Department of Planning and Environment (2016).

Key objectives of this proposal are:

- To provide opportunity for high quality apartment living to accommodate the growing population and allow for redevelopment of the subject site.
- To retain existing valuable and significant trees onsite and create a series of public and communal open spaces.
- To maximise views to the south of the site over the golf course and Botany Wetlands.
- To provide pedestrian and cycle pathways through the site and into the Botany Wetlands and surrounding area.
- To orient built form and communal open spaces to maximise solar access.
- To minimise the impact of the development on the golf course infrastructure, particularly greens and fairway views.

The master plan, appended at **Attachment A**, sets out the proposed structure plan for the redevelopment of the site.

To enable the redevelopment of the site, it is sought that the following legislation be amended:

- Amend the BBLEP 2013 Land Zoning Map Sheet LZN_004 from SP1 and SP2 to R4 High Density Residential (including amendments to the current Schedule 1 Additional Permitted Land Uses to permit low scale retail / commercial uses on site);
- Amend the BBLEP 2013 Height of Building Map, Sheet HOB_004 to permit the maximum permissible height of a range between 29 meters and 50 meters; and
- Amend the BBLEP 2013 Floor Space Ratio Map, Sheet FSR_004 to permit a maximum floor space ratio of 1.65:1 for 75 Gardeners Road and 1.95:1 for 73 Gardeners Road.

The list of proposed amendments above includes the final proposed zoning and development standards for the entire site. However, the land zoning, HOB and FSR development standards for 73 Gardeners Road are proposed to be deferred until the current use of the site as a as an operational site is no longer required by Sydney Water. During this time, it is proposed that the relevant maps in the BBLEP will identify 73 Gardeners Road as a 'deferred matter' and that the current zoning and development standards will continue to apply.

Further discussions will be held between Sydney Water and Bayside Council regarding a VPA to allow for the capturing of public benefit as part of the proposed value uplift.

The proposed use, scale and amenity of the proposed master plan are supportable because:

- The Planning Proposal is consistent with the objectives and actions of the NSW Government's Sydney Metropolitan Strategy, *A Plan for Growing Sydney*, as well as district and local strategic planning objectives;
- The proposed redevelopment of the site will be for high density residential to accommodate the growing demand for new and diverse range of housing in the Central Sydney District;
- The proposed rezoning of the site will enable the provision of new housing within close proximity with the Eastlakes and Kingsford commercial centres, the future Randwick Health and Education Precinct and with easy access to the Sydney CBD; and
- The proposed legislative amendments sought in this Planning Proposal and the preferred urban design concept are considered to be feasible and have acceptable environmental impacts.

Urban design testing has demonstrated that the proposed amendments to the BBLEP 2013 would result in a desirable urban design outcome for the site.

The Planning Proposal is therefore recommended for support by Council to proceed to a Gateway Determination.

**Attachment A – Urban
Context Report, prepared by
Architectus, dated September
2017**



Prepared for:
Sydney Water Corporation
Date:
29 September 2017

architectus™

Urban Context Report

73-75 Gardeners Road, Eastlakes

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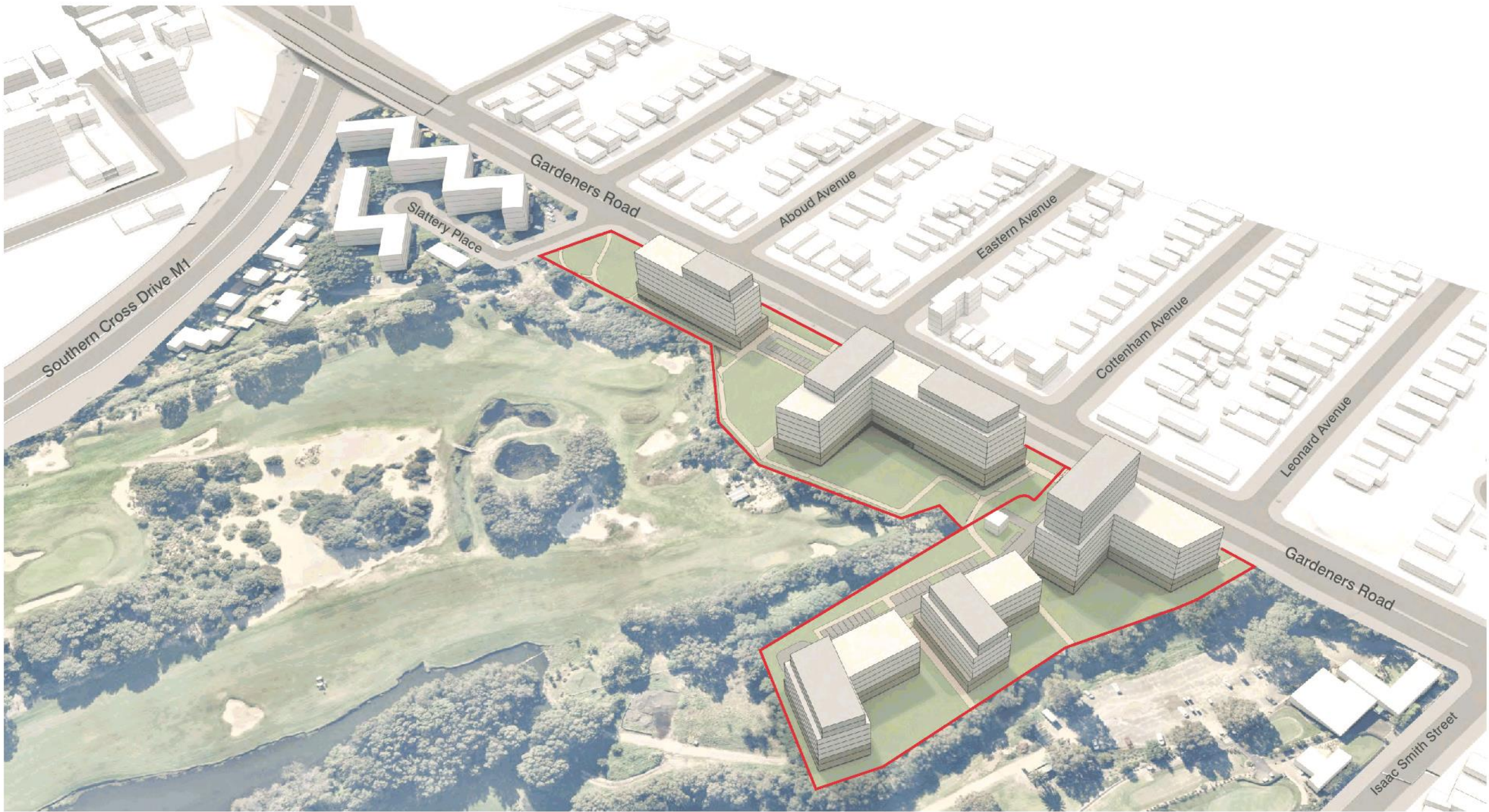
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1 Introduction



73 - 75 Gardeners Road, Eastlakes | Urban Context Report | Architectus

Introduction

Purpose of this Report

Sydney Water have engaged Architectus to prepare a Master Plan for land at 73 and 75 Gardeners Road, Eastlakes for the purposes of informing a Planning Proposal which seeks to amend the current planning controls for the sites to allow residential development and supporting land uses.

Sydney Water are in the process of divesting surplus land to allow the redevelopment and improved utilisation of this land within Sydney Metropolitan area. For the subject sites, due to their location within the wider context of Eastlakes, it is proposed to seek their rezoning to allow for residential development or other appropriate supporting land uses.

In order to test and demonstrate the suitability of the sites for the proposed land uses, this Urban context Report and Master Plan has been prepared.

The Master Plan identifies that the site should be developed for residential with supporting land uses such as small scale shops, retail or similar uses. The proposal will enable the future redevelopment of both sites resulting in approximately 744 units, 1400 parking spaces and a range of building heights between 6-14 storeys. No approval is sought for the master plan at this stage as it simply seeks to evidence that the proposed changes to the planning controls are appropriate.

Any future development of the site will be subject to future development applications lodged with Council. Our review of the master plan has identified that the site is suitable for the proposed land uses as residential and supporting land uses including supporting commercial / retail uses.

The Sites

75 Gardeners Road
The site was formally occupied by a garden centre (Gardens R Us) which closed down and was demolished in 2016 and has been vacant since.

Its primary frontage and signalised access is to Gardeners Road with smaller secondary access points located at the eastern boundary of the site and on Slattery Place to the west. The southern boundary of the site is shared with a private golf course (The Lakes).

The site has some significant topography (+/- 8m) that rises to its south-eastern boundary with views of the golf course to the south. The topography drops to the western end of the site to a low point and an open drainage channel.

There are a number of mature native trees around the site particularly along its boundaries and around the open drainage channel.

73 Gardeners Road
This site is currently occupied by an operational Sydney Water depot. The building occupies the central portion of the site with car parking to the front accessed from Gardeners Road and a paved yard area to the rear and sides of the building. There is also an operational pump house located on the western side of the building to which an easment runs for a high pressure sewer main.

The site is bound to the west and south by a private golf course (The Lakes). Along eastern boundary an open stormwater channel flows south into the Botany Wetlands.

The side is predominantly flat with little vegetation except for a few trees along the northern boundary.



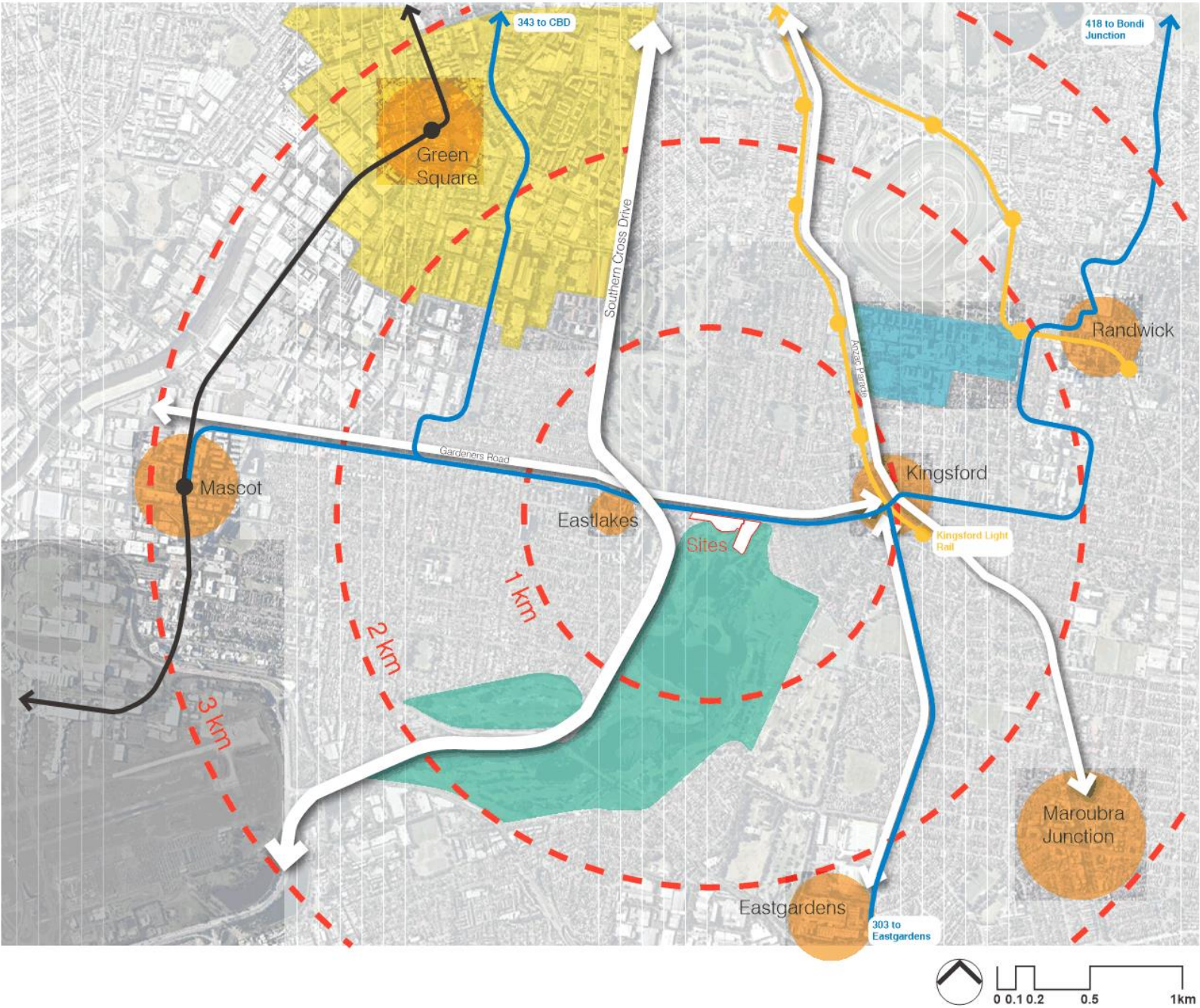
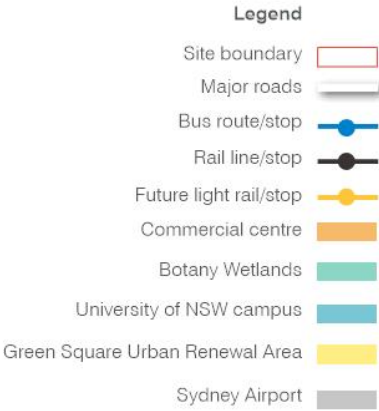


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2 Site & context analysis

Strategic context

- Direct bus links into Sydney CBD, Mascot, Bondi Junction, Eastgardens and the University of NSW.
- Within 1km of 2 local centres and 3km of 5 other commercial centres.
- Within 2km of the Green Square Urban Renewal Precinct and 3km of the Mascot Urban Renewal Area.
- Within 3km of Mascot Train Station
- Approx 1km from the future Kingsford Light Rail station.



Local context

- Bus stops in both directions directly adjacent to site.
- 10-15min walk to future light rail station at Kingsford.
- Within 800m (10 mins walk) of two shopping/ commercial centres (Kingsford and Eastlakes).
- Two schools within a 10-15 minute walk radius.
- Numerous sports fields and public open spaces within a 5-10 minute walk radius.
- Existing cycle links with opportunities to link the site with schools, shops and open spaces.
- Potential links into and through the Botany wetlands.



Planning context

A Plan for Growing Sydney

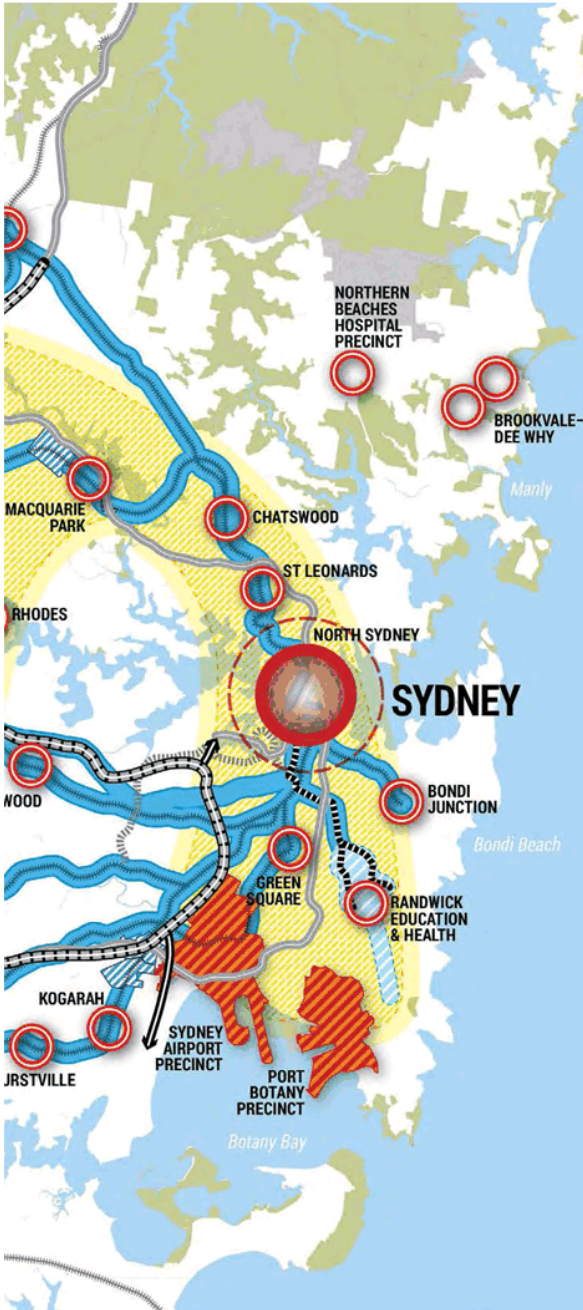
The current Sydney Metropolitan Strategy, 'A Plan for Growing Sydney' identifies Eastlakes as being within the Global Economic Corridor, *an area of concentrated employment, economic activity and other uses in centres, transport gateways and industrial zoned land extending from Port Botany and Sydney Airport, through Sydney CBD to Macquarie Park, Sydney's North-West and Parramatta.*

The Plan also identifies the South East Light Rail alignment as forming part of the transport network within the Global Economic Corridor. The end of the proposed line (Kensington) will be within 1 km of the subject site.

The Strategy identifies goals, directions and principles which inform future growth and development in Sydney including:

- Accelerating housing choice and supply to suit different needs and lifestyles
- Accelerating urban renewal to provide homes closer to jobs
- Create healthy built environments

Any proposals for the site should strive to support the intended outcomes of the Strategy through providing high density residential development on a site which is in close proximity to a range of existing centres, while improving permeability and walkability by fostering cycling and pedestrian connections within and beyond the site



Extract from A Plan for Growing Sydney, NSW Department of Planning & Environment 2014

Draft Central District Plan

The site is also identified as being within Greater Sydney's Central District and is subject to the priorities and actions identified in the draft Central District Plan. These priorities and actions guide the proposed development by increasing housing capacity across the District and encouraging a diverse range of housing options. This will ensure the acceleration of housing supply, choice and affordability to the Central Sydney District.

Further, the draft Central District Plan proposes the priority project Mill Stream and Botany Wetlands Open Space Corridor. The corridor is home to two regionally rare vegetation communities, the Sydney Freshwater Wetlands and the Eastern Suburbs Banksia Scrub. Public use and access along this corridor is limited, and this Priority Project presents a significant opportunity for improved north south access and cross-district access.

The master plan for the redevelopment of the Eastlakes site should be driven by the need to retain existing mature trees onsite and take advantage of the surrounding natural environment by linking the future residential development to the wider area and enhancing interaction with the Botany Wetlands.



Extract showing the 'Green Grid' from Draft Central District Plan, Greater Sydney Commission, November 2016

Planning context

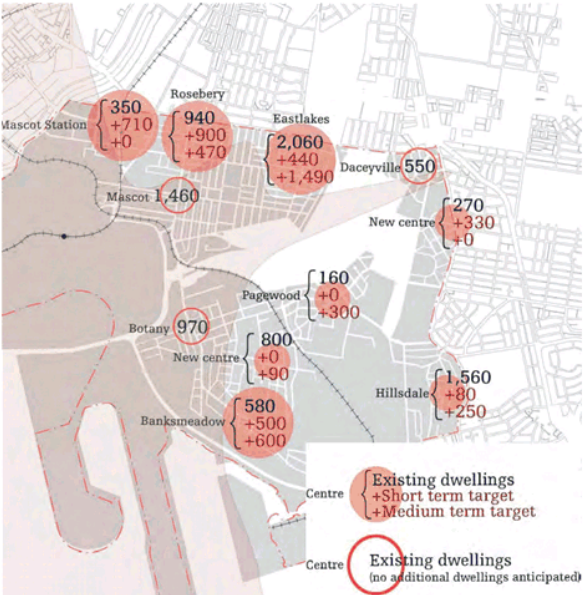
Botany Bay Planning Strategy 2031

The strategy was prepared to address the dwelling and job targets identified in the previous Draft East Subregional Strategy and provides a framework for growth and development to 2031. The Strategy was developed to guide the preparation of the BBLEP 2013 and provides a set of principles to guide planning and direction for the LGA.

The following Strategy Directions have been considered throughout the design phase of the Planning Proposal.

- Enhancing Housing Choice and Liveability
- Protecting the Natural Environment

The master plan for the site has been designed to improve the urban and natural environment, while delivering a higher density housing product with limited impact on the surrounding established neighbourhoods. The delivery of two new public parks and communal open space will provide improved lifestyle and health options for residents and the broader community. Future potential shared pedestrian links into the Botany Wetlands will promote the use of this important natural feature and retention of existing established trees onsite and additional landscaping will improve flora and fauna corridors in the area.



Extract from Botany Bay Planning Strategy 2031 showing projected dwelling distribution, City of Botany Bay Council



Extract from A Draft Vision for the City of Botany Bay, City of Botany Bay Council

Directions Paper: A Draft Vision for the City of Botany Bay

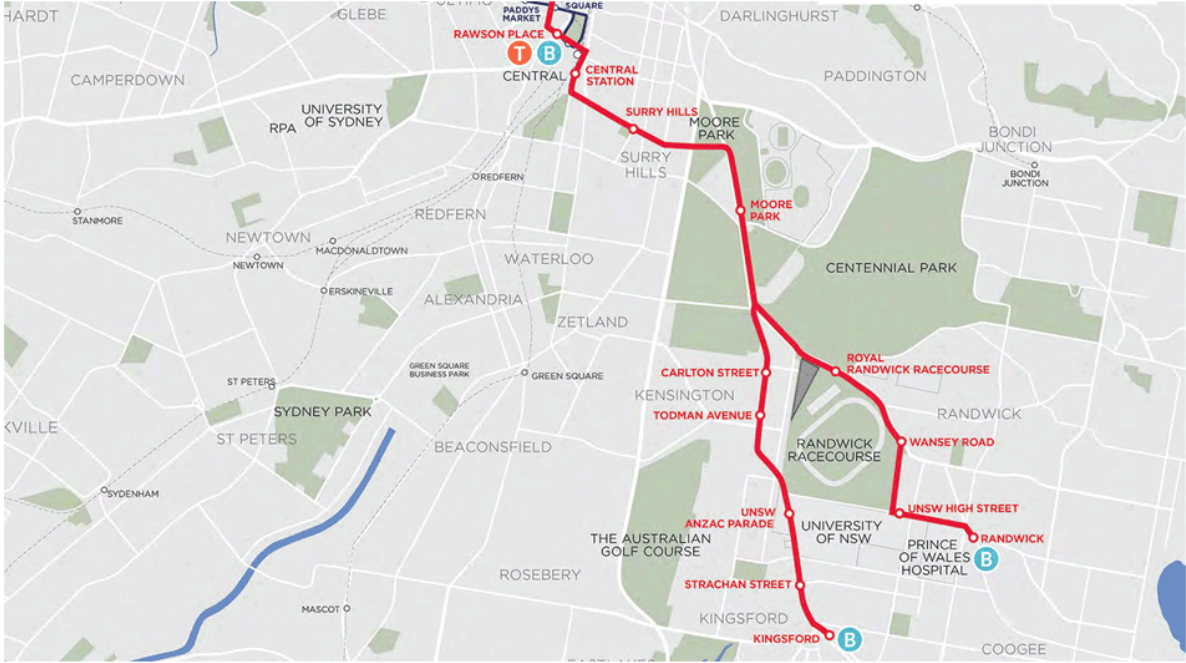
The Directions Paper was prepared as part of the "Botany Bay 2040 Vision". The subject site is located adjacent to a corridor of parklands and green space. It is proposed to enhance connectivity through these spaces via a 'Greenway Connect'. The site can contribute to enhancing connectivity south of Gardeners Road, into the parkland corridor. Other relevant directions include:

- Provide housing that supports a diverse community - low and high income households, single person and large families, and facilitate persons through various stages of their lives and of different abilities
- Provide for a range of active and recreational use opportunities throughout the city
- Create great local streets, with trees and human scale development at the street fronts

Sydney CBD and South East Light Rail

The subject site is approx. within 1 kilometre from the proposed Kingsford Light Rail Station, which will provide connections to Moore Park, Central Station and into Central Sydney.

Construction of the Light Rail line is currently underway, complete in early 2019. This will provide significant improvements to public transport accessibility for this site.



Extract showing Sydney CBD & South East Light Rail terminating at Kingsford, Transport for NSW

Planning context

Botany Bay Local Environmental Plan 2013

75 Gardeners Road

Land Use Zone

The subject site is zoned SP1: Special Activities. The prescribed special activity for this zone is 'Recreation Facility (Outdoor)'. Additional permitted uses are specified under Schedule 1, and include:

- Entertainment facilities
- Food and drink premises
- Function centres
- Recreation areas
- Recreation facilities (indoor)

The objectives of this zone are:

- To provide for special land uses that are not provided for in other zones
- To provide for sites with special natural characteristics that are not provided for in other zones
- To facilitate development that is keeping with the special characteristics of the site or its existing or intended special use, and that minimises any adverse impacts on surrounding land

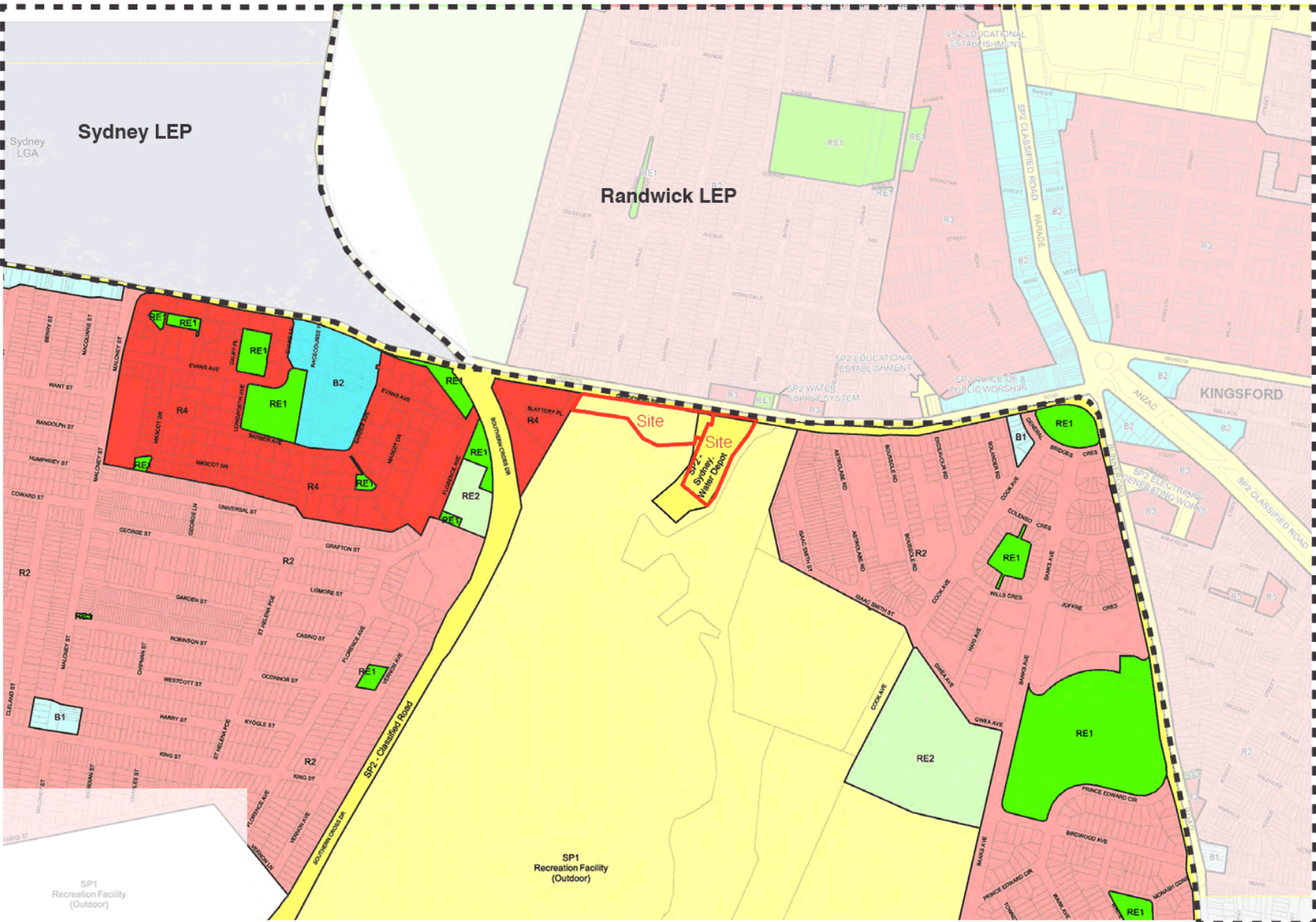
73 Gardeners Road

Land Use Zone

The subject site is zoned SP2: Infrastructure. The prescribed use for this zone is the Sydney Water Depot. Roads are the only use permitted with consent.

The objectives of the zone are:

- To provide for infrastructure and related uses
- To prevent development that is not compatible with or that may detract from the provision of infrastructure



Land Use Zoning

Planning context

Botany Bay Local Environmental Plan 2013

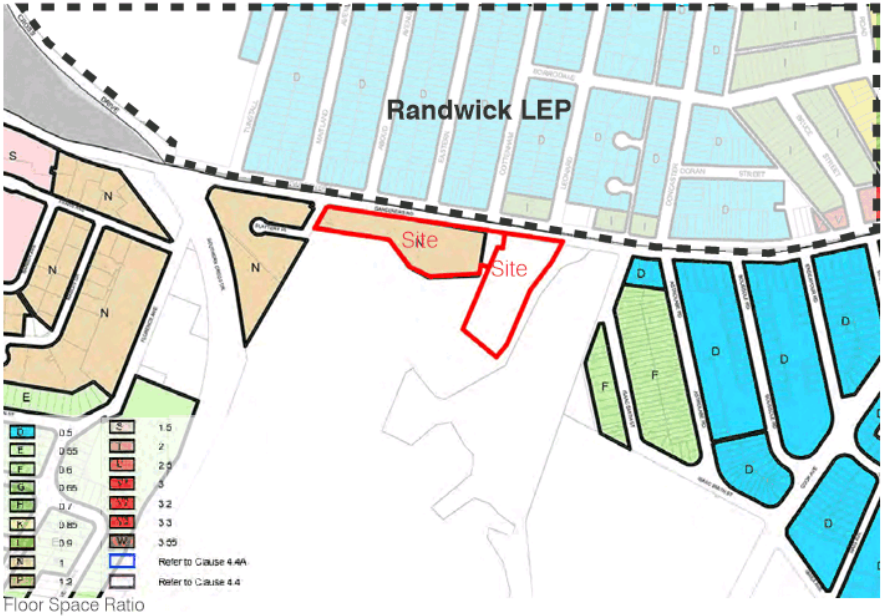
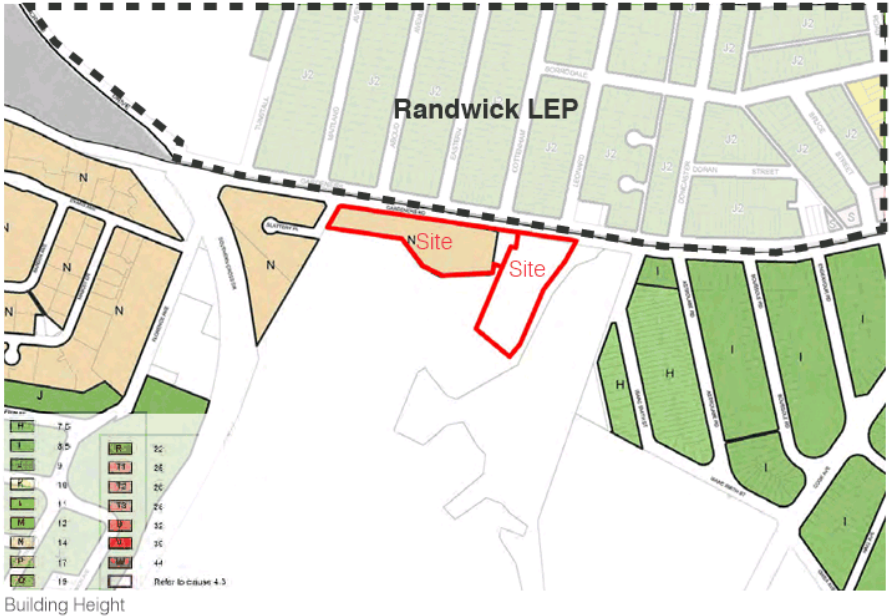
75 Gardeners Road

Building Height
The maximum building height for development on the site is 14 metres.

Floor Space Ratio
The maximum floor space ratio for development on the site is currently 1:1.

Heritage
The site itself is not heritage listed, however is surrounded by a landscape heritage item, being the surrounding golf course and Botany Wetlands.

Wetlands & Terrestrial Biodiversity
The site itself is not identified to have wetlands or terrestrial biodiversity.



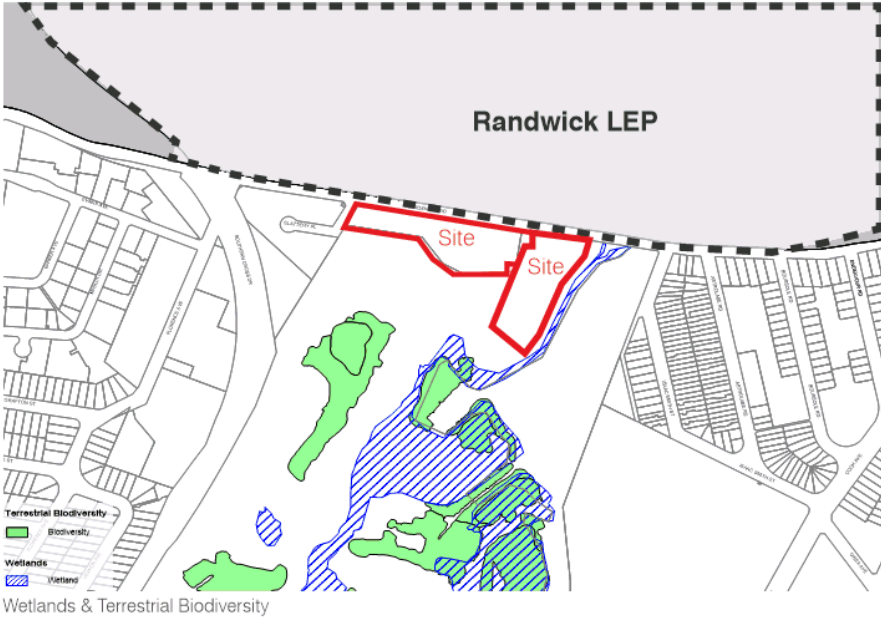
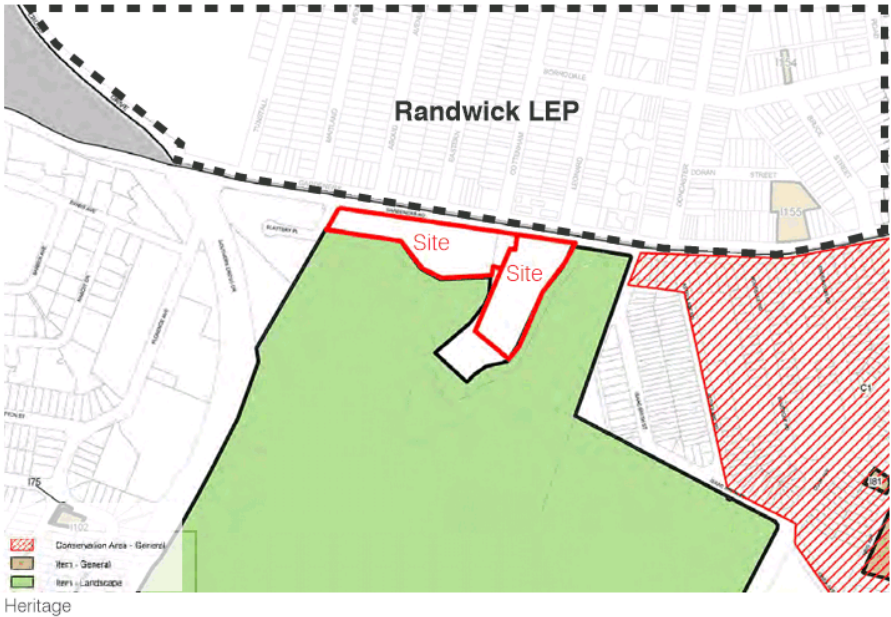
73 Gardeners Road

Building Height
There is no maximum building height for the site due to its designated Land use.

Floor Space Ratio
There is no maximum building height for the site due to its designated Land use.

Heritage
The site itself is not heritage listed, however is surrounded by a landscape heritage item, being the surrounding golf course and Botany Wetlands.

Wetlands & Terrestrial Biodiversity
The site itself is not identified to have wetlands or terrestrial biodiversity. However, the creek line to the east and south of the Sydney Water Depot is identified as "wetland".



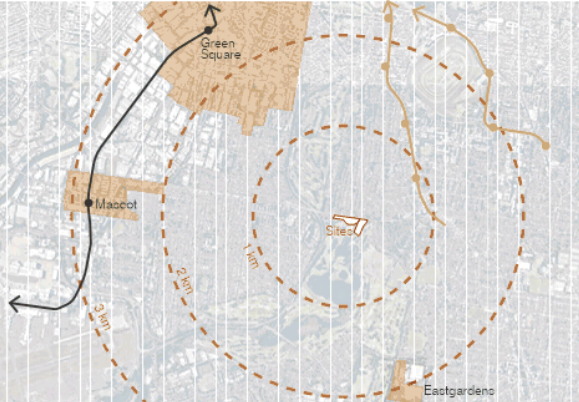
Built form context



'Mascot Central' currently under construction (By Meriton)



Photomontage of approved development at Green Square



Wider built form context map

Wider Built Form Context

The site sits within a 2-3km radius of several recent high density development areas including:

- Green Square Urban Renewal Area.
- The planned Mascot Urban Activation Precinct.
- Planned development at Eastgardens.

A number of high-rise residential towers have recently been approved and constructed around Green Square and Mascot with heights reaching in excess of 20 storeys.

Local Built form Analysis

The residential areas that fringe the immediate area along Gardeners Road to the east and west of the site contain a wide range of building typologies. These range from 1-2 storey detached and semi-detached houses, 3-5 storey walk-ups and taller apartment blocks up to 12 storeys.

The large proportion of the taller buildings appear to have been constructed in within the last 20-30 years.

77-81 Gardeners Road

Directly to the west of 75 Gardeners Road the adjoining site is owned by the NSW Land and Housing Corporation and contains a mix of 1-5 storey social housing buildings.

It is understood that the state government is keen to investigate the potential for redevelopment of this site as part of the 'Communities Plus' initiative. This will likely see proposed building heights significantly greater than the existing 5 storey walk-ups that currently occupy this site.



9 storeys



9 storeys



8 storeys



12 storeys



3 storeys



5 storeys



8 storeys



9 storeys



3 storeys



3 storeys

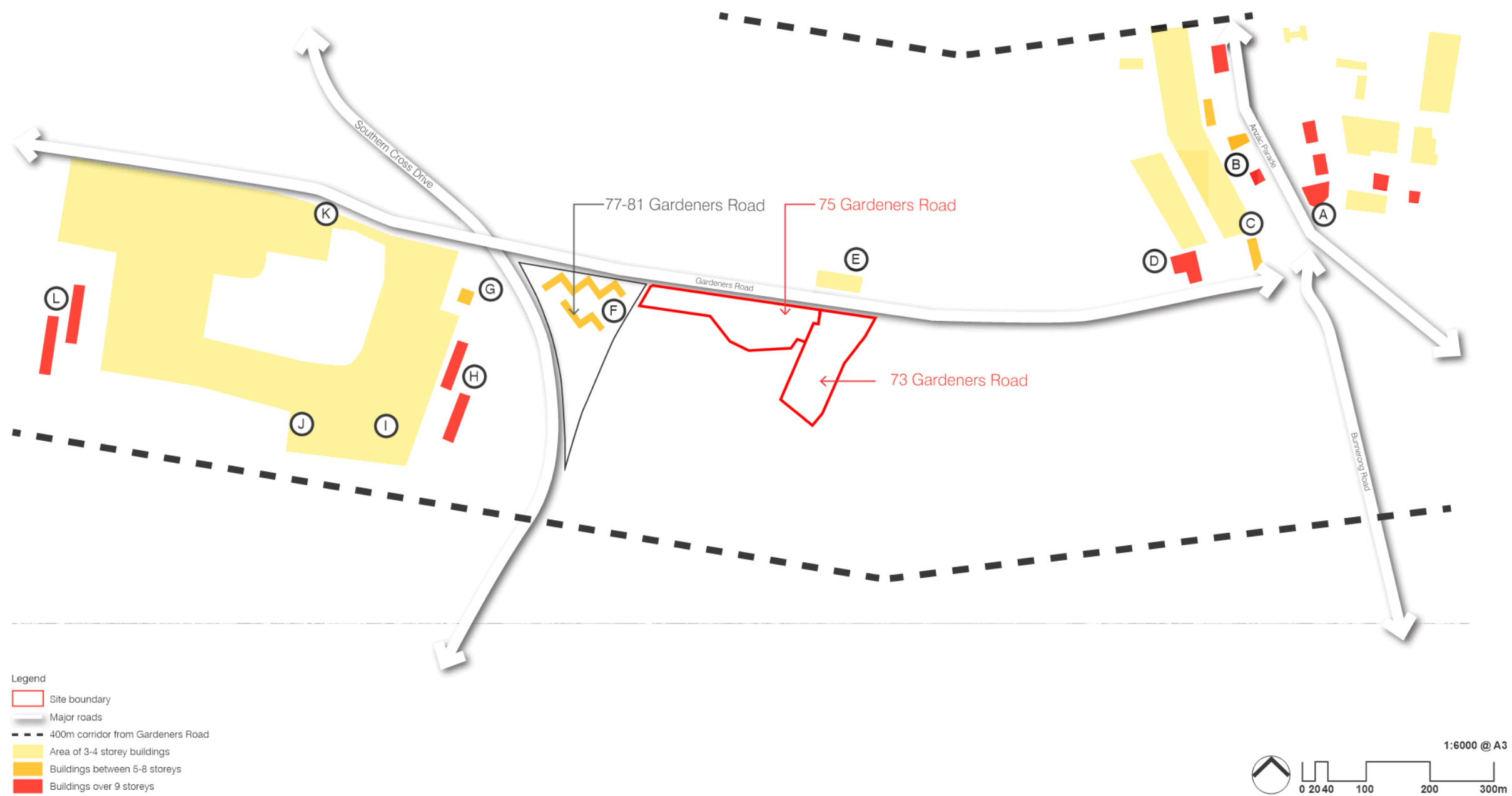


3 storeys



9 storeys

Built form context



Open space context

Private Open Space

The local area surrounding the sites does not at first glance appear to be short of open space. Immediately to the south there are large green spaces however these are occupied by golf courses. Whilst these provide a high amenity setting for any future development they are not freely accessible to the public. Private recreational open spaces in proximity the site include:

- The Lakes Golf Club
- The Australian Golf Club
- Eastlake Golf Club
- David Phillips Sports Complex

Public Open Space

There are currently no public open spaces, parks or play areas within a 5 minute walk of the site. Within a 10-15 minute walk it is possible to access a number of local parks and play areas and sports pitches including:

- Kensington Park
- Eastlakes Reserve
- Bridget Tight Reserve
- Astraloble Park
- Dacey Park
- Rowland Park

Sydney Green Grid and Potential Wetland Links

The Sydney Green Grid forms part of the Greater Sydney Commission's Draft District Plans. The Central District highlights a potential priority project as the Mill Stream and Botany Wetlands Corridor. As shown the map opposite left the route for this comes close to the subject sites.

The Botany Wetlands Plan of Management (Sydney Water 2014) highlights a potential wetlands link that could be accessed through the subject sites.

Opportunities for Public Open Space

The sites are strategically located to provide both improved pedestrian/cycle and green links as part of the wider (Green Grid) network as well as provision of additional local open space amenity in the form of informal green space, play and community facilities (such as BBQ's and shelters).



Kensington Park (John Calopedos Playground)



Kensington Park (Kensington Oval)



Bridget Tight Reserve



Eastlakes Reserve



Astraloble Park



Dacey Gardens

Open space context



Site photos

75 Gardeners Road



1 Site entry on Gardeners Road showing level change



2 Gardeners Road frontage showing retaining wall



3 Existing trees along Gardeners Road frontage



4 View from the southern boundary across golf course



5 Stand of paper bark trees at the low point on the site



6 Open stormwater channel at the low point on site



7 Secondary gated access from Slattery Place



8 Southern boundary to the golf course

Site photos

73 Gardeners Road



1 Site entry on Gardeners Road



2 Gardeners Road frontage showing existing trees



3 Existing trees along Gardeners Road frontage



4 Operational pump house building



5 Western boundary of site and landscape buffer



7 Open grassland to the south of the site




7 Eastern boundary, showing vegetation along the embankment to the stormwater channel

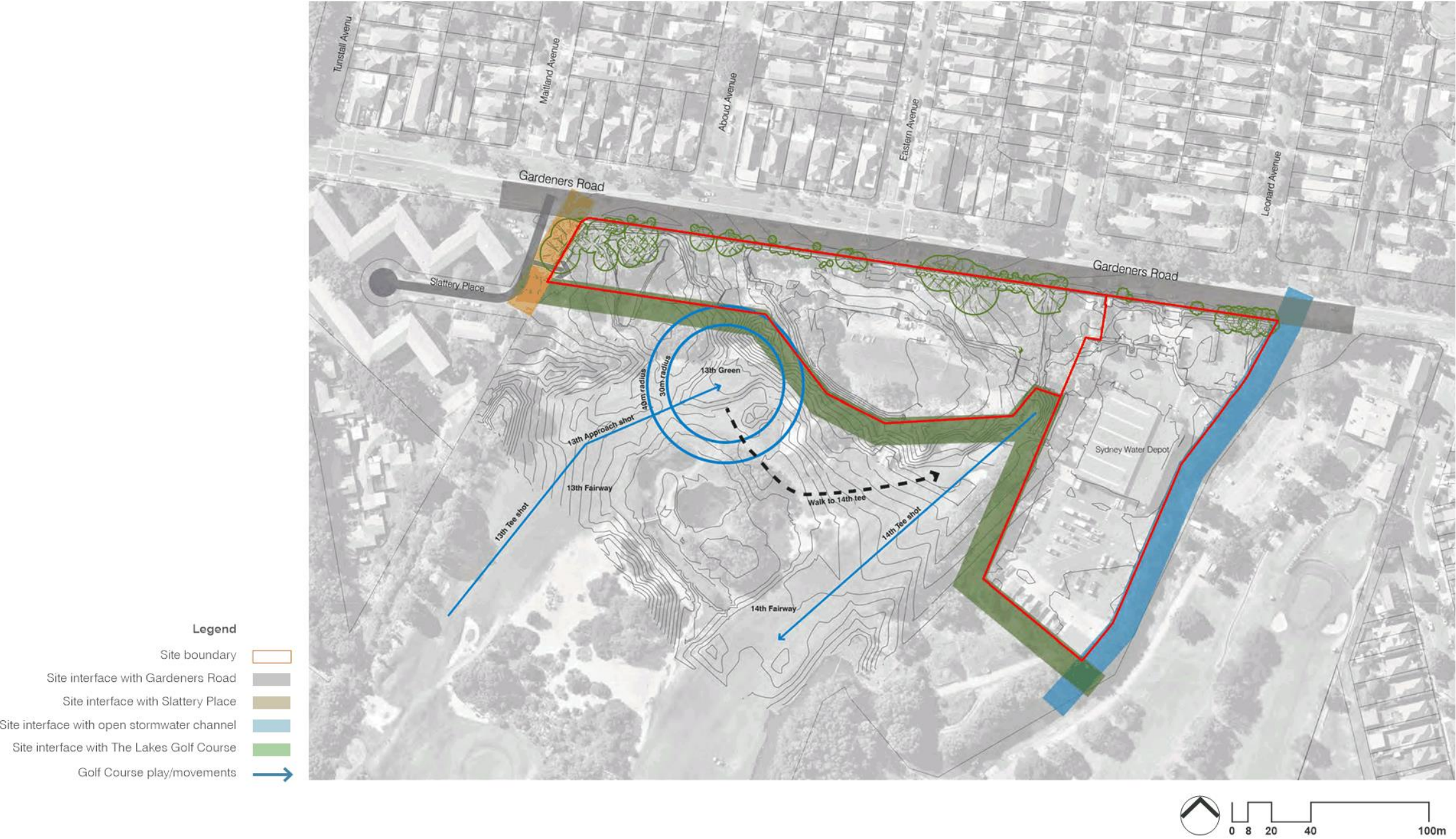


8 Stormwater channel and vegetated embankment outside the eastern site boundary

Site interfaces

1. Gardeners Road	2. Slattery Place	3. Stormwater Channel	4. The Lakes Golf Course
			
<p>Gardeners Road is a busy arterial road that consists of 6 lanes of traffic and a central median.</p> <p>The scale of the road reserve (approx 30m) is such that development along its northern and southern sides is visually separated.</p> <p>The site boundaries along this road are characterised by several mature trees that could be retained to contribute to the visual amenity for existing and future residents, pedestrians and road users.</p> <p>The development proposals will need to consider the effects of road noise and appropriate mitigation including building setbacks and acoustic design features.</p>	<p>The western boundary of the site is onto Slattery Place which is shared with an existing 5 storey public housing development.</p> <p>Slattery Place is a relatively quiet cul-de-sac with on-street parking.</p> <p>Development proposals will need to consider the impacts on the character and scale of the street and adjacent development.</p> <p>The retention of the existing mature boundary trees will help the mitigate any visual impacts of the proposed development on Slattery Place.</p> <p>It should be noted that the NSW Land and Community Housing Corporation are currently investigating opportunities to redevelop this site as part of the 'Communities Plus' initiative. This will likely see significantly increased density and building heights on this site.</p>	<p>Along the outside of the eastern boundary of the site a steep embankment falls towards an open stormwater channel.</p> <p>The channel flows south to the Botany Dams and Wetlands through the adjacent golf course.</p> <p>The development proposal must take into consideration the potential for flood risk and riparian controls for the water way.</p>	<p>The development boundary is closest to the 13th green and the 14th tee (see digram to the right).</p> <p>14th tee - Whilst this tee is close to the boundary of the proposed development the direction of play is away from the development. Grade separation, fencing and vegetation also help to increase safety.</p> <p>13th green - Whilst golf balls are played in the direction of the proposed development it is noted that there is a 40m off-set from the centre of the green to the site boundary. The boundary is elevated from the green by 3-4m which helps to increase safety.</p> <p>It is noted that the approach shot to the 14th green is relativity short which will help to minimise risk to the development.</p> <p>The development proposals will need to minimise overshadowing of the golf course and particularly the 13th green to ensure its ongoing health and condition.</p> <p>Security around the perimeter of the golf course is of primary concern to the golf club.</p>

Site interfaces



Site analysis

75 Gardeners Road

- 1

Site Entry
The existing primary access from Gardeners Road is a signalised intersection. There is a significant level change once entering the site - approx 2-3m up from the kerb level.
- 2

Retaining walls
The boundary to Gardeners Road includes a number of retaining walls that are in close proximity to establish trees.
- 3

Mature trees fronting Gardeners Road
The eastern boundary to Gardeners Road contains a row of mature trees including a number of large Eucalypts which vary in height from 10 - 25m.
- 4

Raised level area of site
The area where the main garden centre facilities currently sit is on the higher flatter ground within the site.
- 5

Slope to site low point
The site slopes towards a low point within its western quarter where there is an open stormwater channel.
- 6

Open stormwater channel
There is an open stormwater feature with 2 channels joining and flowing south towards the golf course. The channels are clogged with litter and the banks are poorly maintained. The channels sit within an area of established Paper Bark trees.
- 7

Gross pollutant trap
There is an existing gross pollutant trap on the southern boundary with the golf course.
- 8

Gated site access
There is a secondary gated access from Slattery Place.
- 9

Landscape Buffer
The southern boundary is characterised by a buffer of native re-vegetation to the golf course that varies in width between 10 and 20m.
- 10

Batter to Southern Boundary
There is a significant level change falling away from the southern boundary to the golf course of approximately 5-7m height.
- 11

Views over the golf course
The elevated position along the southern boundary affords good views south over the golf course from multiple locations.
- 12

Golf green and tees
The 14th green and 15th hole tees are in close proximity to the southern boundary.
- 13

Residential property access
In the north east corner of the site there is a driveway access for 73a Gardeners Road (left-in left-out movements only).

73 Gardeners Road

- 14

Site Entry
There is only 1 existing site entry from Gardeners Road. The entry is not signalised and allows for left-in left-out movements only.
- 15

Boundary trees
On the north east boundary with Gardeners Road there are a number of mature trees which range in height from 5 to 15m.
- 16

Sewer main easement
In the north east corner of the site there is a 3m easement for a high pressure sewer main.
- 17

Access easement
There is a 3m easement that allows for access to an existing sewer pump station.
- 18

Pump house
There is an existing brick building which has some moderate heritage value and is a pump house operated by Sydney Water.
- 19

Existing depot building
At the centre of the site sits the Sydney Water depot. The building is 2 storeys in height with a blue colourbond style finish.
- 20

Car parking
Between Gardeners Road and the depot building the site is occupied by surface car parking on asphalt and concrete.
- 21

Landscape Buffer
To west of the site there is a landscape buffer of tree and shrub planting between The Lakes golf course and the site.
- 22

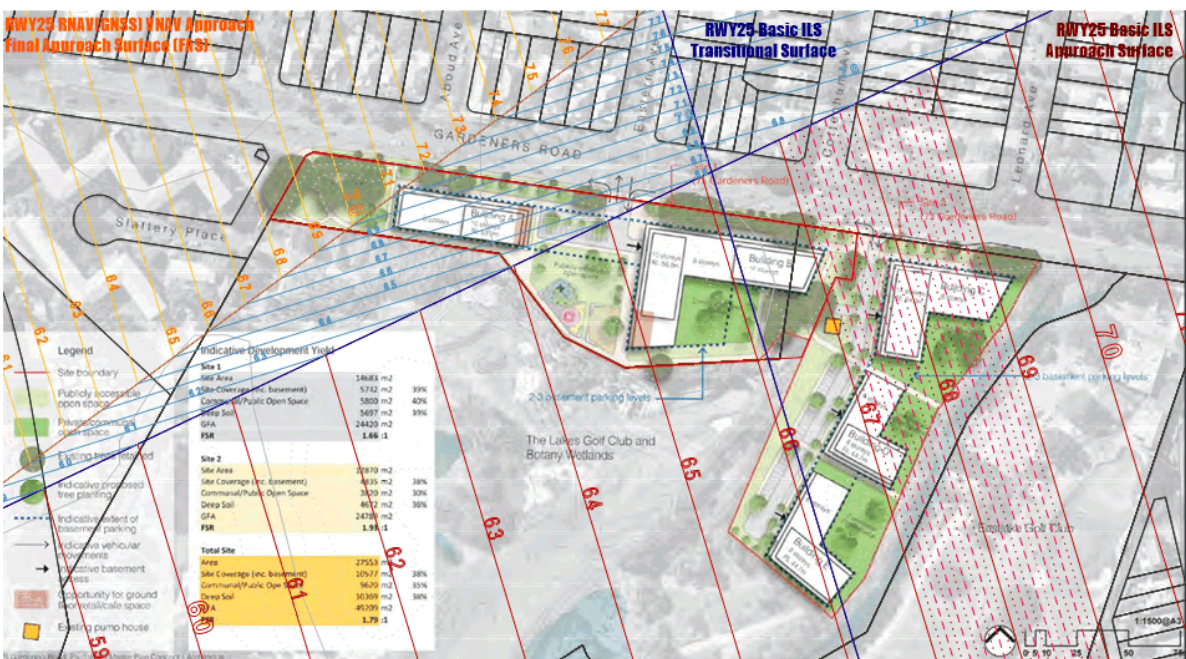
Stormwater channel
Alongside the eastern boundary of the site is a stormwater channel with steep embankments which emerges from two culverts beneath Gardeners Road and flows into the Botany Wetlands.

Site analysis



Specialist input summary

AERONAUTICAL (Strategic Airspace)



Due to proximity to Kingsford Smith Airport, any developments on the site will be subject to the Airports (Protection of Airspace) Regulations 1996, for the purpose of having building heights approved in relation to Sydney Airport's protected airspace. The two fundamental factors of the Airports Regulations that are used for assessment of development heights are the Obstacle Limitation Surfaces (OLS) and the PANS-OPS Surfaces (the latter to protect the actual instrument flight procedures).

The OLS limiting height across the site is 51m Australian Height Datum (AHD). Any proposed development which would exceed this height would need to gain airspace height approval from the federal Department of Infrastructure. An application can be made for each tower building separately, or a single application can be made for the all towers within the development that would exceed this height.

The most constraining height limits due to airspace protection surfaces against obstacles (including PANS-OPS surfaces) are related to approach procedures to Runway 25. These define the height limits that are most likely to be considered by the airport and the aviation agencies as the maximum possible heights for new buildings and cranes on the site. In this case, they are related to the Basic ILS surfaces, which comprise two sloping surfaces across the site (as illustrated above). The PANS-OPS height constraints slope across the site and range from approximately 64m AHD to 72m AHD.

Given the location of the site in relation to the airport and the flight paths, it is also highly likely that the PANS-OPS surface height constraints will also be considered by the aviation authorities as the maximum permissible heights for any cranes that would be required for construction.

For further detail refer to the 'Aeronautical Impact Assessment' prepared by Strategic Airspace - dated 22 September 2017

SITE AUDIT (Ramboll Environ Australia)

Purpose of the report is to determine if the nature and extent of contamination on the site has been adequately characterised for the purpose of future remediation or management planning during redevelopment.

Material used to fill areas of the site through remediation works in 2009 contain anthropogenic material, such as tile, brick, timber, metal and asbestos as bonded fragments of cement sheeting. Friable asbestos (comprising small fragments of asbestos cement sheeting) was identified at one location on the former nursery and three locations on the residential property. The distribution of asbestos in fill material on the depot is a data gap.

The fill material was identified in the west of the site (former mechanical shed area), in the north west of the site (former pot bazaar location) and in the south of the centre of the nursery (former clubhouse location) and across the residential property and depot.

Remediation of fill containing anthropogenic material would be required to make the site suitable for any proposed use.

- Further investigation of the site should be considered prior to remediation to address the data gaps identified in the CSM. The need for and scope of further investigation would be dependent on the proposed development.
- Preparation of a remedial action plan (RAP) specific to any development.
- The RAP should be implemented prior to or during redevelopment of the site.
- Preparation of a Site Audit Statement certifying suitability for the proposed use, at the completion of remediation and validation.
- Groundwater is assessed for its suitability for any proposed use prior to extraction.

For further detail refer to the 'Site Audit Report' prepared by Ramboll Environ Australia - dated 26 June 2017

GEOTECHNICAL (JK Geotechnics)

The purpose of the geotechnical assessment was to complete a walkover inspection of the site and to map relevant surface features. A review of the provided CH2M Hill borehole logs and subsurface information from previous nearby geotechnical investigations were also carried out by JK Geotechnics. Based on the above, preliminary comments and recommendations to address the likely range of geotechnical issues and constraints for the proposal were developed.

The 1:100,000 Geological Map of Sydney indicates the majority of 75-73 Gardeners Road is underlain by transgressive dunes, which comprise 'marine' sands of Quaternary age. The western end of 75 Gardeners Road (where the gully feature is present) is underlain by freshwater swamp, which comprises 'peat, sandy peat and mud'.

Based on the subsurface conditions encountered in the CH2M boreholes, previous investigations completed at the nearby Eastlakes Shopping Centre, and site observations, it is anticipated that the subsurface conditions at the site may comprise the following:

- Sandy fill of variable thickness across the site.
- The natural soils are expected to comprise predominantly fine to medium grained sand and silty sand. The density of the subsurface profile is expected to increase with depth to at least medium dense and possibly dense and very dense.
- At the western end of the site within the gully feature, peat and sandy clay is expected at relatively shallow depth.
- Groundwater is expected between depths of about 1.2m and 8.4m below existing surface levels. Hence groundwater may be at, or very close to, ground surface level within the gully and deepest just behind the crest of the sand 'dune' feature within the central portion of the site.

Bedrock is unlikely to be encountered at this site within at least 20m depth, possibly deeper.

For further detail refer to the 'Geotechnical Assessment' prepared by JK Geotechnics - dated 10 August 2015 (75 Gardeners Road) and 25 September 2017 (73 Gardeners Road)

Specialist input summary

TRAFFIC & TRANSPORT (ARUP)



Traffic counts have been undertaken for the Gardeners Road / Eastern Avenue intersection for the weekday AM and PM peak period and weekend peak period.

The intersection performance of Gardeners Road/ Eastern Avenue has been assessed using RMS approved software SIDRA.

The existing performance of the intersection has been modelled using the traffic volumes from the counts. The results show that the intersection currently operates with spare capacity during both weekday and Saturday peak periods. This indicates the intersection should have the capacity to accommodate additional traffic movements to support the development of the subject site.

Access into 73 Gardeners Road (Site 2) will be via the existing driveway into the Sydney Water depot via Gardeners Road. This will be in the form of a left in /

left out intersection with a deceleration lane provided to facilitate safe and efficient access for drivers entering the site.

The transport assessment has concluded the transport network can accommodate the increased activity associated with the proposal. Transport conditions in the vicinity of the site will significantly improve in future years following the opening of the CBD and South East Light Rail project.

Given the site is located in close proximity to bus stops on Gardeners Road and close to a 10 minute walk of the future light rail stops on Anzac Parade, it is considered that the parking rates specified in the Botany Bay DCP could be reduced as the design progresses. This reduction in parking will contribute to reducing the impact of the development on the wider road network.

For further detail refer to the 'Transport Assessment' prepared by ARUP - dated 25 September 2017

ACOUSTIC (Acoustic Logic)

The assessment of traffic and aircraft noise is conducted with reference to the following documents:

- The City of Botany Bay Council Development Control Plan 2013
- NSW State Environmental Planning Policy (Infrastructure) 2007
- AS2107 - 2000 Acoustics - Recommended design sound level and reverberation times for building interiors
- AS2021 - 2000 Acoustics - Aircraft noise intrusion - Building siting and construction

Traffic Noise Measurements - Traffic measurements were taken along the Gardeners Road façade of the proposed development. Both short term (attended) and long term (unattended) measurements were conducted.

Aircraft Noise Assessment - Aircraft noise levels at the site were determined using AS 2021. The Standard gives aircraft noise levels for various aircraft landing and taking off for locations near airports. The location of the runways was obtained from Sydney Airport 2029 ANEF.

Based on the distance from the site to the runways and an assessment of all the aircraft listed in AS 2021, the Standard predicts that the highest typical aircraft movement will be from a short range take off of a Boeing-767 taking off from the Third Runway. The noise level at the site as indicated by the standard is 76dB(A). This noise level will be used to predict the resultant internal noise levels.

Evaluation of Noise Intrusion - Internal noise levels will primarily be as a result of noise transfer through the windows and doors and roof, as these are relatively light building elements that offer less resistance to the transmission of sound. Any external walls and roof design that are proposed to be of heavy masonry elements will not require upgrading. Any lightweight constructions will need to be reviewed and assessed at a later stage.

For further detail refer to the 'DA Environmental Noise Impact Assessment' prepared by Acoustic Logic - dated 25 September 2017

STORMWATER & CREEK (Northrop)

Both 75 and 73 Gardeners Road have four distinct drainage sub catchments. Drainage to the southeast of 75 Gardeners Road is not clearly defined and Sydney Water have advised of the presence of a 600mm Stormwater pipe in this area, although not picked up in the site survey. 73 Gardeners Road is drained via piped stormwater outlets to the existing Sydney water channel that drains along the eastern boundary of the site.

Any flooding solution developed for 75 Gardeners Road should accommodate or allow for flood mitigation both on the site, and upstream of Gardeners Road. WMA Water have modelled various flood solutions and the results in relation to flood depths and extents are shown in the Report and Drawings in Appendix A. They concluded that amplification or duplication of the western conduit under Gardeners Road would have a beneficial effect. The communal open space areas proposed along the Sydney water channel (eastern boundary) covers an area approximately 2,500m². Reducing existing levels across these extents (by approx. 200-350mm) would sufficiently offset loss to flood storage.

It is understood that there will be a need for further investigation to develop stormwater and flooding strategies and responses for the site as part of a detailed design phase to underpin a Development Application.

For further detail refer to the 'Hydrology, Stormwater and Creek Assessment' prepared by Northrop - dated September 2017

Specialist input summary

HERITAGE (NBRS Partners)



Neither site is identified as a heritage item attached to statutory legislation. Although the sewage pumping station building at 73 Gardeners Road is one of a group of utilitarian buildings demonstrating the development of the South and Western Sewer Ocean Outlet System in the early twentieth century, which is likely to meet the threshold for listing as a heritage item at the local level. The existing pumping station building should be retained, with a grassed area to enhance its setting.

The south boundary of the site adjoins Botany Water Reserves, which is identified as a heritage item on the following registers and has heritage protection under the Heritage Act 1977 and the Environmental Planning and Assessment Act 1979:

- Botany Bay Local Environmental Plan 2013, Item No. 12.
- NSW State Heritage Register, Listing No. 01317.

The Botany Water Reserves is listed as a heritage item (Item No. 4570025) on the Sydney Water s170 Heritage Register. Under the Heritage Act 1977, Sydney Water is obliged to maintain a register of environmental heritage assets that are of state and/or local significance or items that are of potential state and/or local heritage significance.

The additional area has enabled the buildings to be set further apart than in previous schemes for the site, thereby improving solar access and north-south view corridors through the site to the Botany Waters Reserve.

A heritage assessment found that the existing brick building located at 73a Gardeners Road does not demonstrate the identified heritage criteria at a level to warrant listing at state or local level.

For further detail refer to the 'Preliminary Heritage Review' prepared by NBRS Partners - dated 27 September 2017

ECOLOGICAL (ACS Environmental)

The vegetative cover of the subject land is comprised of landscaped tree and shrub planting, the site being almost totally cleared of wooded vegetation prior to 1943. Currently the subject site contains landscaped mature and semi-mature trees of various species of Myrtaceae such as Bangalay and Sydney Red Gum, as well as Swamp Oak and small trees such as Weeping Bottlebrush among others.

None of the assemblages or distributions of trees or shrubs occurring in the subject area represent natural ecological communities confirming previous mapping undertaken by Office of Environment & Heritage (2013) and Botany Council DCP 2013. As such, it is considered that any impacts of potential development on the vegetation would not be significant.

In relation to locally occurring habitat which has been highly modified by clearing prior to 1943 and landscaped with a variety of locally and non-locally occurring indigenous species, as well as exotic ornamentals at the subject site, it is highly unlikely that any of the listed threatened flora species would occur in the surveyed area. Targeted searches for those species where records occur within a 5km radius failed to locate these, or any other threatened flora species at the subject sites.

Opportunistic fauna observations were made within the study site and in the vicinity of the drainage channel that courses alongside the study site at 673 Gardeners Road, Eastlakes.

The study site is rated as poor habitat for fauna due to its proximity to the busy Gardeners Road motorway and the long history of disturbance for commercial purposes. It is considered unlikely that any proposed development at the subject site would impact on the distribution or integrity of natural faunal populations in the area.

For further detail refer to the 'Flora & Fauna Surveys and Ecological Contribution' prepared by ACS Environmental - dated September 2017 (73 Gardeners Road) and November 2015 (75 Gardeners Road)

ABORICULTURAL (Naturally Trees)

A site Arboricultural Assessment has been undertaken which identified all of the existing trees, species, height and spread. The report investigates the impact of the proposed development on trees and provides the following guidelines for appropriate tree management and protective measures:

- A schedule of the relevant trees to include basic data and a condition assessment
- An appraisal of the impact of the proposal on trees and any resulting impact that has on local character and amenity
- A preliminary arboricultural method statement setting out appropriate protective measures and management for trees to be retained.

The TreeAZ method of assessment was used to determine the worthiness of trees in the planning process. Simplistically, trees assessed as potentially important are categorised as 'A' and those assessed as less important are categorised as 'Z'. In the context of new development all 'Z' trees are discounted as a material constraint in layout design. All 'A' trees are materially important and may dictate the design constraints. The information for each tree is recorded in the tree schedule of Appendix 2 of the Report.

If adequate precautions to protect the retained trees are specified and implemented through the arboricultural method statement included in this report, the development proposal will have moderate to high impact on the contribution of trees to local amenity or character.

Tree Preservation Order - The subject trees on the site are legally protected under The City of Botany Bay Council's Tree Preservation Order. It will be necessary to consult the council before any pruning or removal works other than certain exemptions can be carried out.

For further detail refer to the 'Arboricultural Impact Appraisal and Method Statement' prepared by Naturally Trees - dated 15 September 2017

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3 Design principles

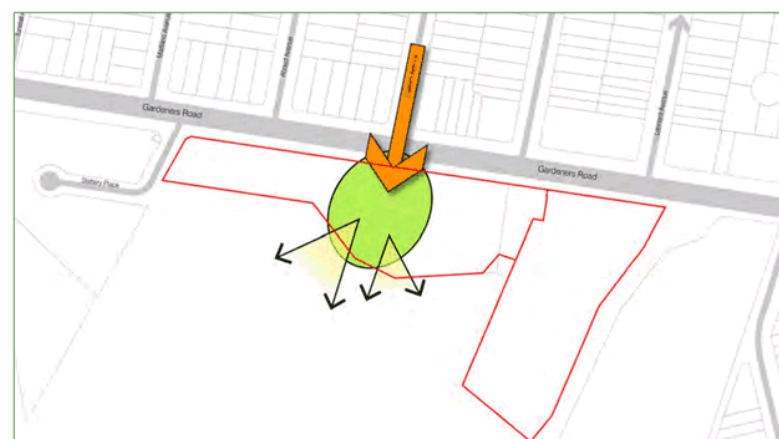
Design principles

Generous landscape set-back



- A 10m landscape setback along the Gardeners Road frontage to both sites.
- Allows for the retention of existing mature trees.
- Provides space for a new shared path set back further from the busy road edge.
- Provides the opportunity for an improved bus stop if required in the future
- Improved landscape amenity along Gardeners Road.

Central open space with views



- Provides a clear view corridor to open space along the axis of Eastern Avenue.
- A public address for the site.
- Additional open space and play to support new and existing communities.
- Public access to high quality views across the Botany Wetlands and golf course to the south.

Retain mature trees



- Retain mature native trees particularly at the site boundaries and along Gardeners Road.
- Ensure continuing 'green' feel of the site and parkland edge character is maintained.
- Maintain the existing stand of mature Paper Bark trees at the western end of the site as a key feature for future open space.

Design principles

Address the public domain



- Ensure new built form addresses the public domain.
- Create internal streets with clear addresses and public domain to all buildings.
- Ground floor apartments should have direct access/front doors to the street.
- Utilise a 2 storey terrace house character/typology for ground floor units fronting public domain.

Defined public and private space



- Clearly define private and communal open space.
- Maximise publicly accessible open space.
- Provide a clear and convenient footpath network.
- Provide a publicly accessible through site link that follows the southern open space boundary of the site.

Maximise solar access



- Orientate buildings to maximise solar access to apartments.
- Locate open space and built form to ensure high levels of solar access particularly to publicly accessible open spaces.



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4 Alternative built form testing

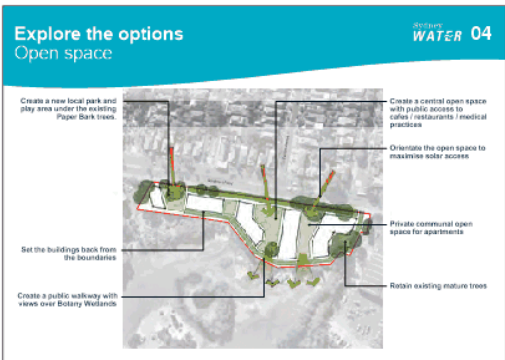
Alternative build form testing

Design process to date

75 Gardeners Road

In 2015 Sydney Water engaged Architectus to develop a master plan and urban design report for the 75 Gardeners Road site to support a planning proposal.

A preferred master plan was developed that considered the site constraints and a number of potential layout options (see Options 1-3 right). The preferred master plan was further developed with Council input along with some feedback from preliminary community consultation undertaken in December 2015 (see sample consultation board below).



Extract from community consultation on 75 Gardeners Road (December 2015)

73 and 75 Gardeners Road

In August 2017 Sydney Water engaged Architectus to review and amend the master plan for 75 Gardeners Road to also include the 73 Gardeners Road.

A number of design options were explored (see opposite page right) for the both sites with a view to retaining the intent of the previous master plan for 75 Gardeners Road and carrying these principles over to 73 Gardeners Road.

75 Gardeners Road

Initial Layout Option 1



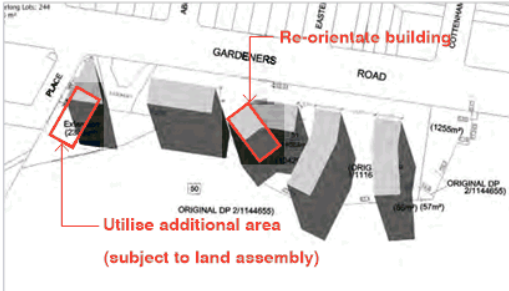
Initial Layout Option 2



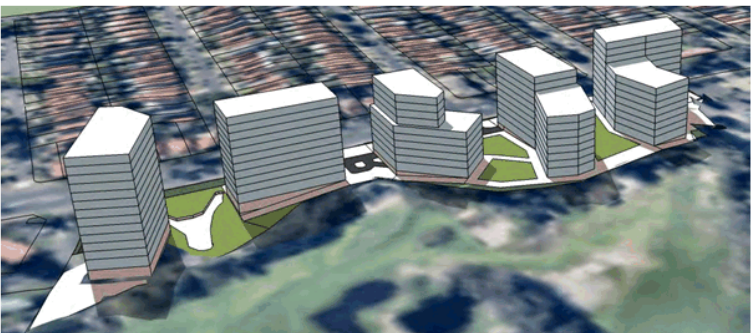
Initial Layout Option 3



Initial Layout Option 3a (Preferred)



Initial council consultation (September 2015)

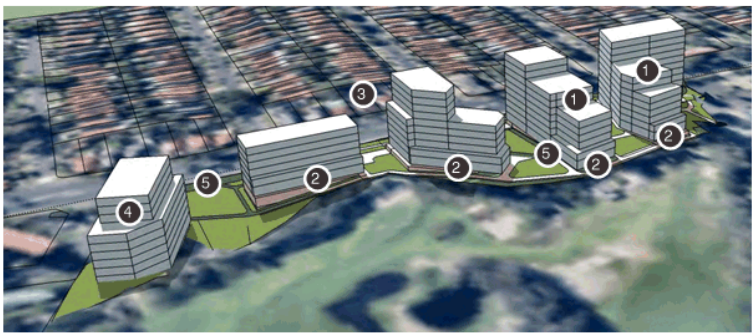


In developing the preferred master plan the team has consulted with the following Council staff:

- Stormwater
- Landscape
- Arborist
- Traffic
- Planning

Council provided comments to the design team who addressed some of the key concerns raised as detailed below.

Key Changes following consultation with Council (October 2015)



- 1 Stepping of building heights towards the golf course.
- 2 2 storey town house frontage to golf course / southern boundary.
- 3 Reduced building height to address overshadowing of golf course infrastructure.
- 4 Reduced building height adjacent to Slattery Place (14 to 9 storeys)
- 5 Footprint adjustments to allow for greater tree retention.

Key Changes following public consultation (June 2016)



- 1 Built form adjusted to provide a large centrally located public open space (approx 2800m²).
- 2 Western building removed to provide improved open space and relationship to existing buildings located on Slattery Place.
- 3 Enlarged public open space in the western portion of the site (approx 1800m²)
- 4 Consolidated built form to maximise open space amenity.

Alternative built form testing

73 and 75 Gardeners Road

Diagram to inform initial site planning discussion with Council



Option 1 - Central access road option (73 Gardeners Road)



Option not preferred due to:

- preference for a better street address for all buildings on 73 Gardeners Road site;
- Does not allow for retention or access to the pumphouse;
- does not allow sufficient space for deceleration lane; and
- requires building over high pressure sewer line.

Option 3 - Preferred option



This was the preferred option due to a good street address, open space amenity and efficient building forms.

Option 2 - Internal road and open space parallel to Gardeners Road



Option was not preferred due to reduced open space amenity and duplication of road infrastructure adjacent to an already wide arterial road (Gardeners Road).



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5 The master plan

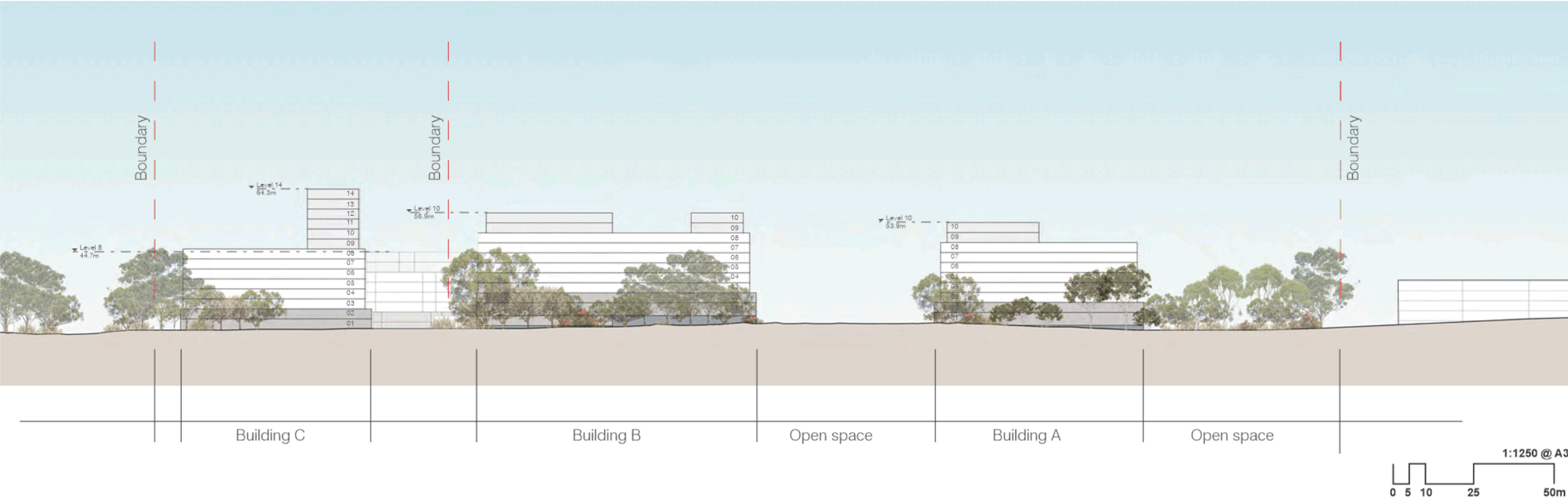
Indicative master plan



Indicative elevation



Elevation 1 (from Gardeners Road)



Indicative street sections

Section 1 (through building A)

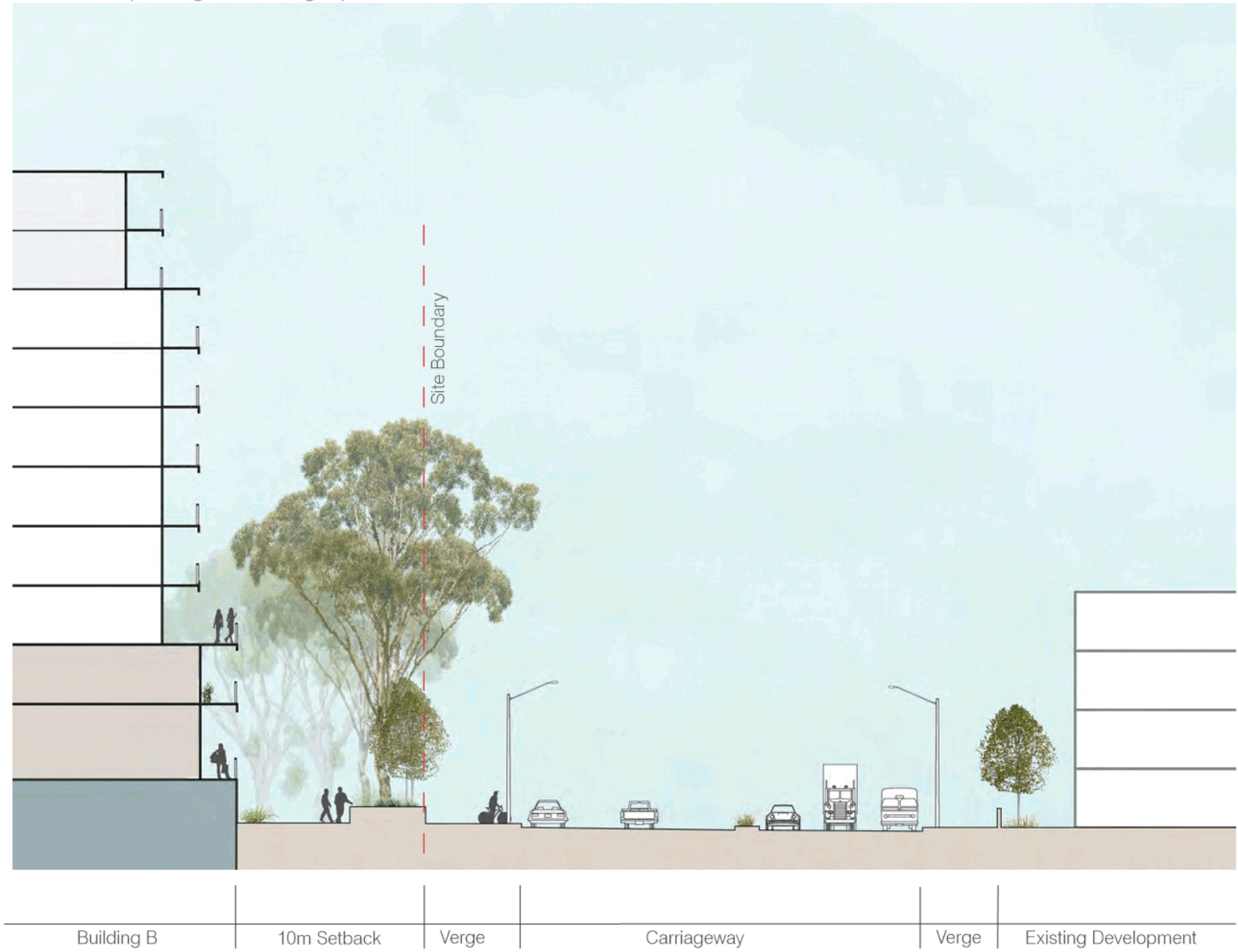


Key Plan

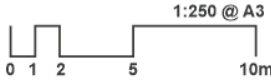
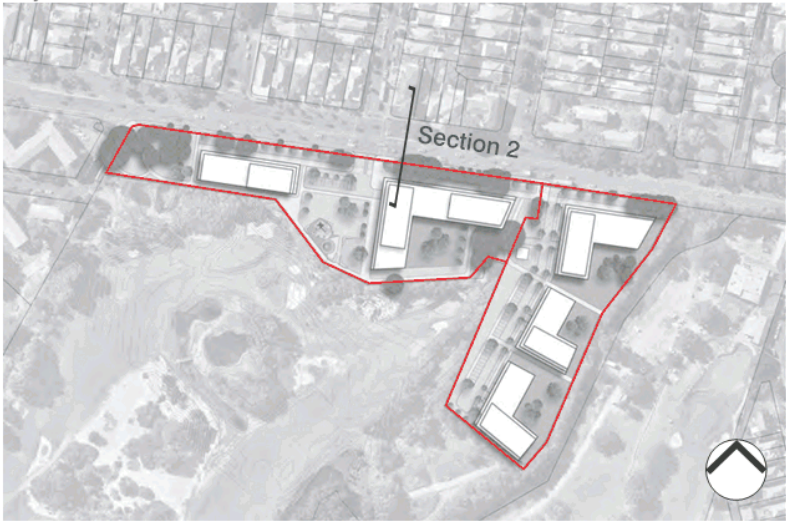


Indicative street sections

Section 2 (through building B)

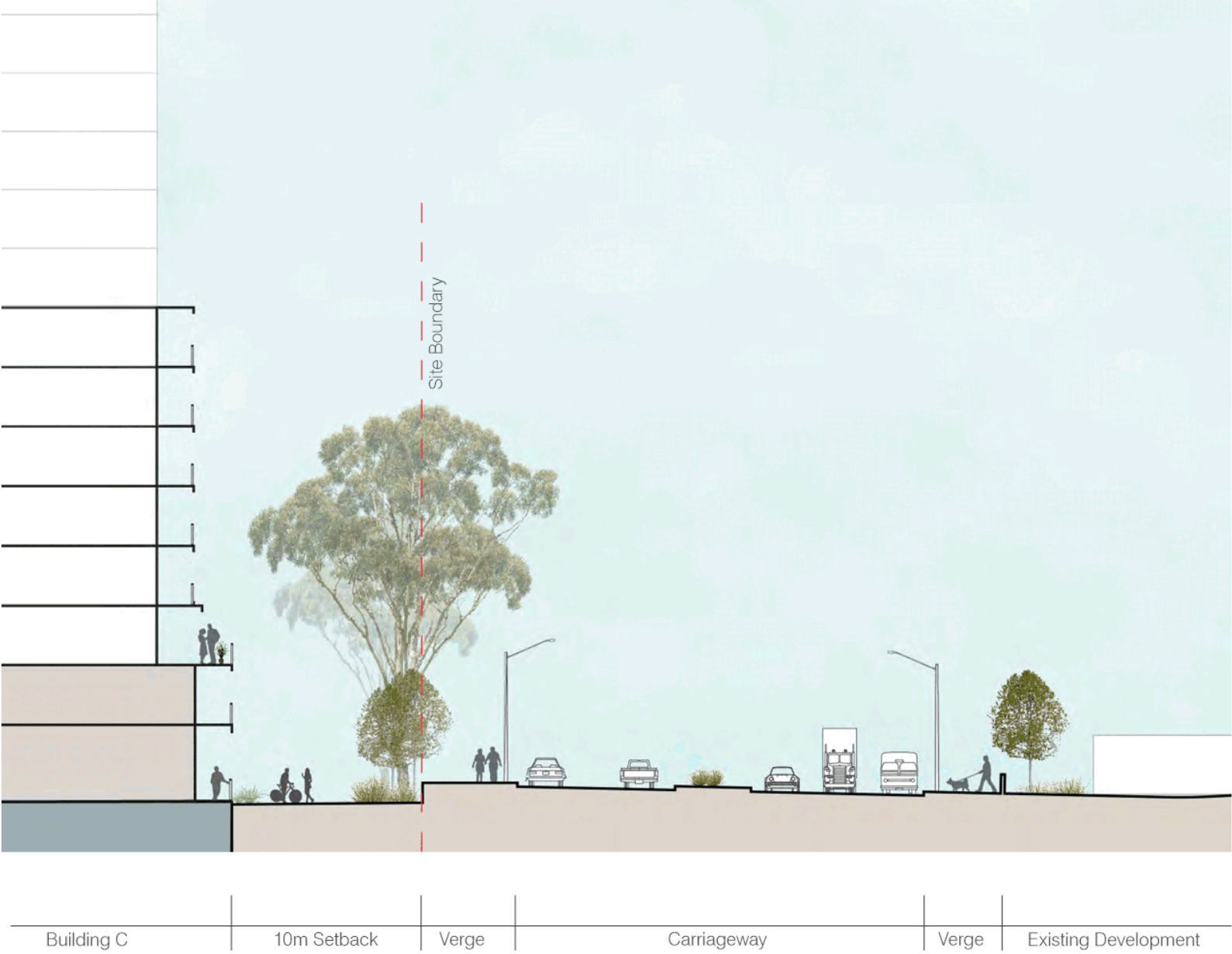


Key Plan

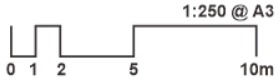
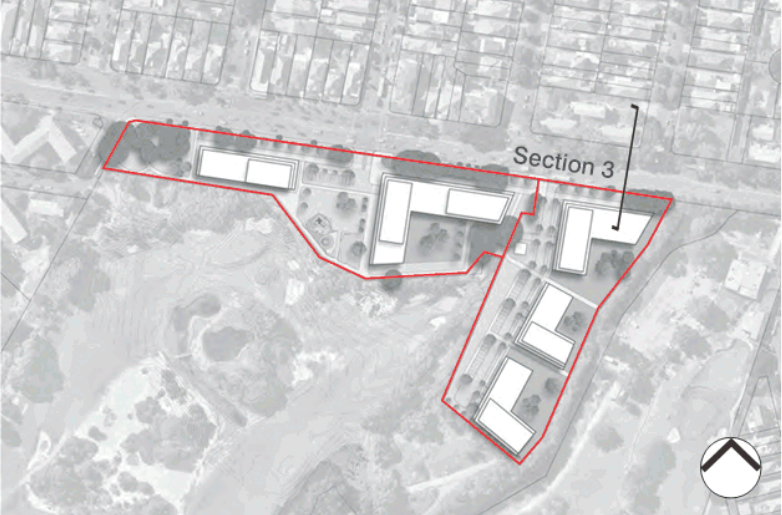


Indicative street sections

Section 3 (Through building C)



Key Plan



3D massing

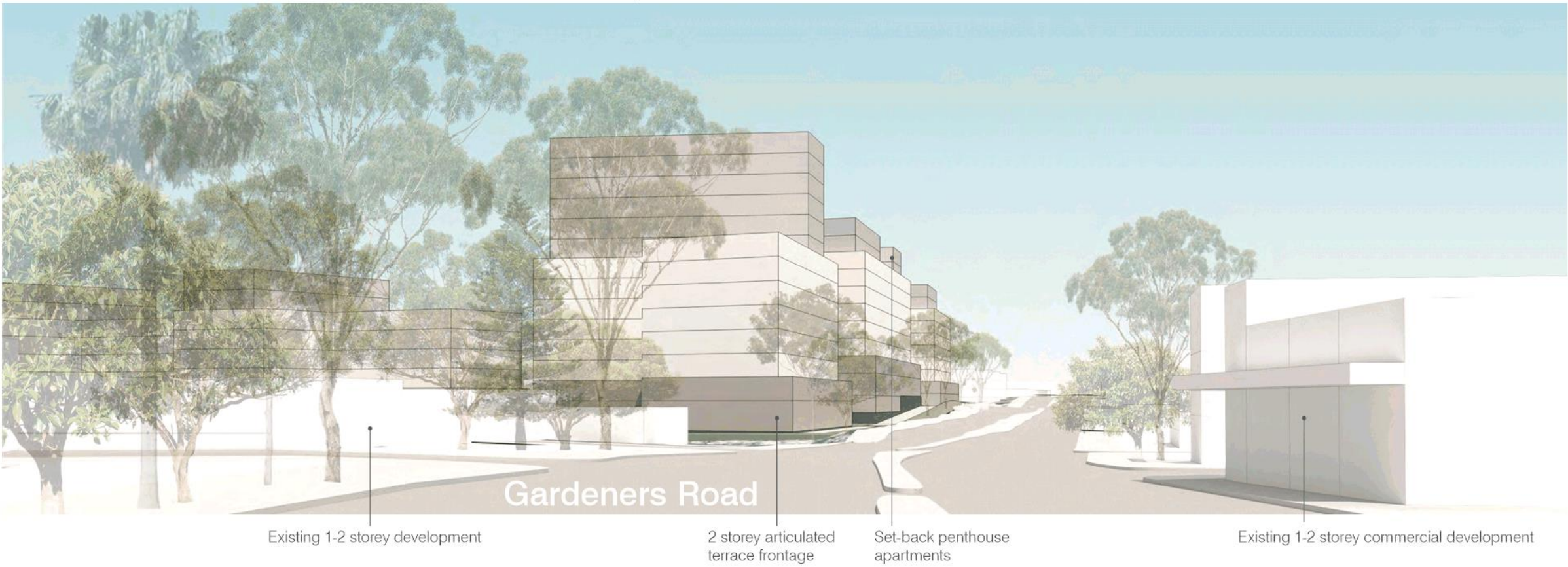
Photo from approximate location



Key Plan



Street view 1 - from Gardeners Road looking west with the development site on the left



3D massing

Photo from approximate location



Key Plan



Street view 2 - from Gardeners Road looking east with the development site on the right



3D massing

Photo from approximate location



Key Plan

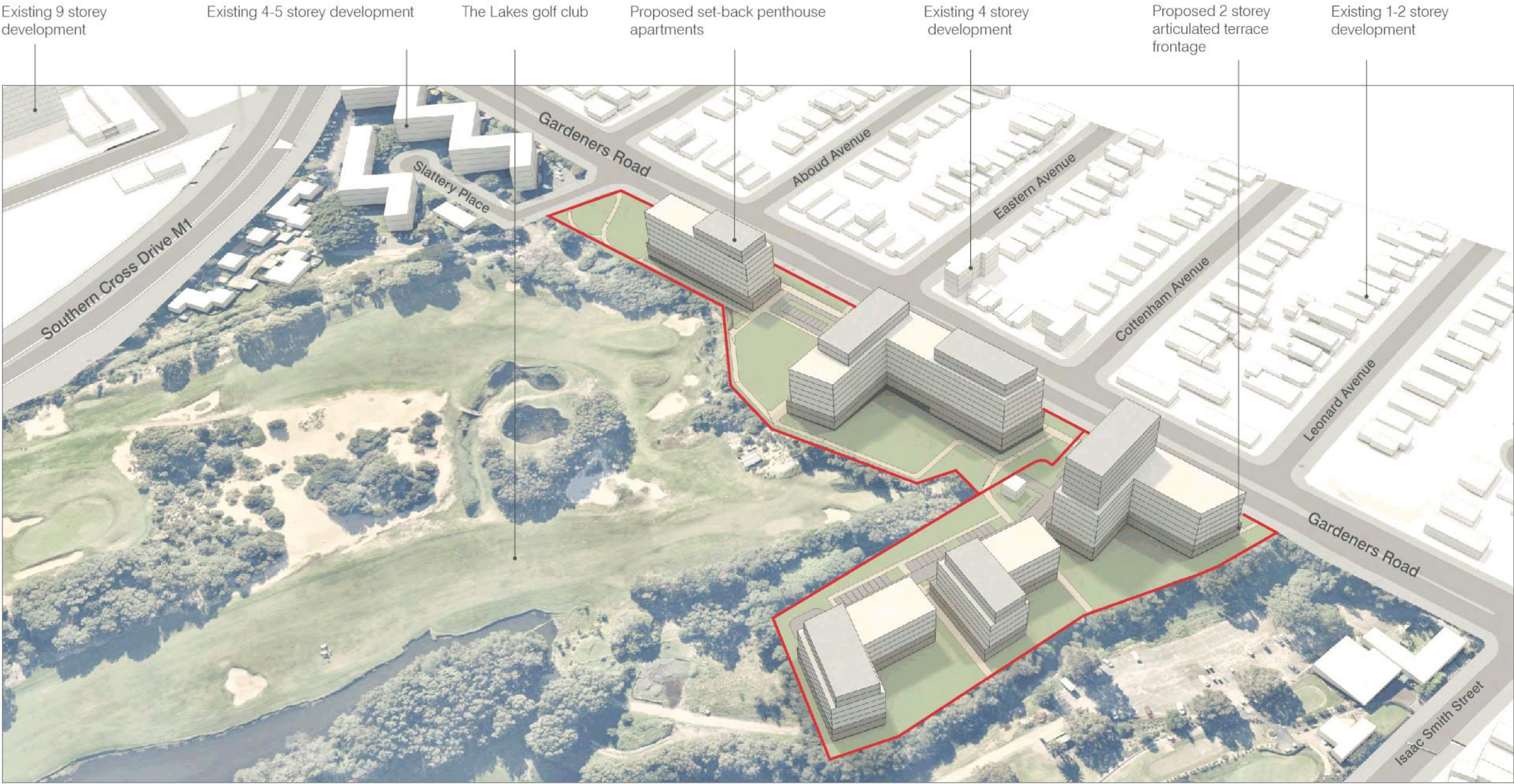


Street view 3 - from Eastern Avenue looking south towards the development



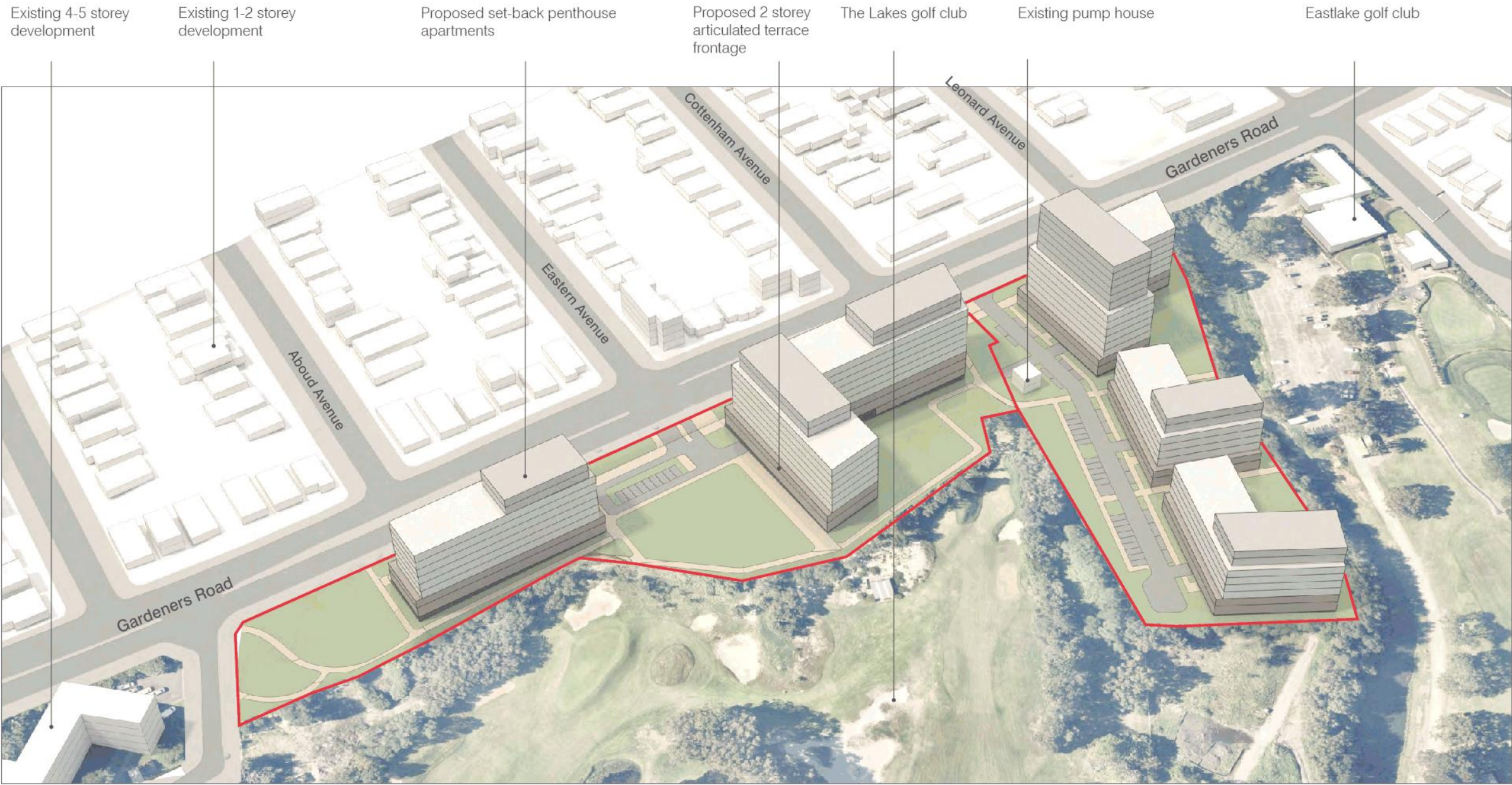
3D massing

Aerial view looking north-west towards the development sites



3D massing

Aerial view looking north-east towards the development sites



Landscape & open space strategy

Landscape Strategy
The master plan has been designed to make the most of the existing landscape assets including mature native trees and views to surrounding open space. Combining these with new open spaces, pedestrian connections and opportunities for new community access and facilities the master plan provides for a high quality parkland setting that will not only be a benefit to future residents but also the local neighbouring communities.

Key Landscape Elements:

- 1 Publicly accessible central green
- 2 Publicly accessible park - 'The Grove'
- 3 Communal residential gardens
- 4 Landscape setback to Gardeners Road
- 5 Shared through-site link
- 6 Opportunity for communal roof gardens
- 7 Publicly accessible linear green



Landscape & open space strategy

1 The Central Green

A central Park with large lawn, seating, childrens play, cafe spill-out space and views over the Botany Wetlands.



2 The Grove

A new publicly accessible park under the existing Paper Bark trees with community facilities such as BBQ's and adventure play equipment.



3 Communal gardens

Communal ground floor gardens for residents to relax, enjoy and look out onto.



4 Landscape setback

Retention of existing mature trees and a generous landscaped setback to gardeners road with a new shared path for improved pedestrian amenity.



5 Through-site link

A shared pedestrian link along the boundary of the site with great views over the golf course.



6 Roof gardens

Opportunities for communal roof gardens/green roofs with wide elevated views over the surroundings.



7 Linear green

Wide landscape setback with informal open lawn areas, tree planting, seating and communal BBQ's providing a green outlook.





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6 Master plan testing

Communal / Public open space

Communal / publicly accessible open space



The master plan exceeds the minimum required area for communal open spaces (25%) by achieving 27% of the total site area (excluding potential roof gardens).

Communal / Publically accessible open space

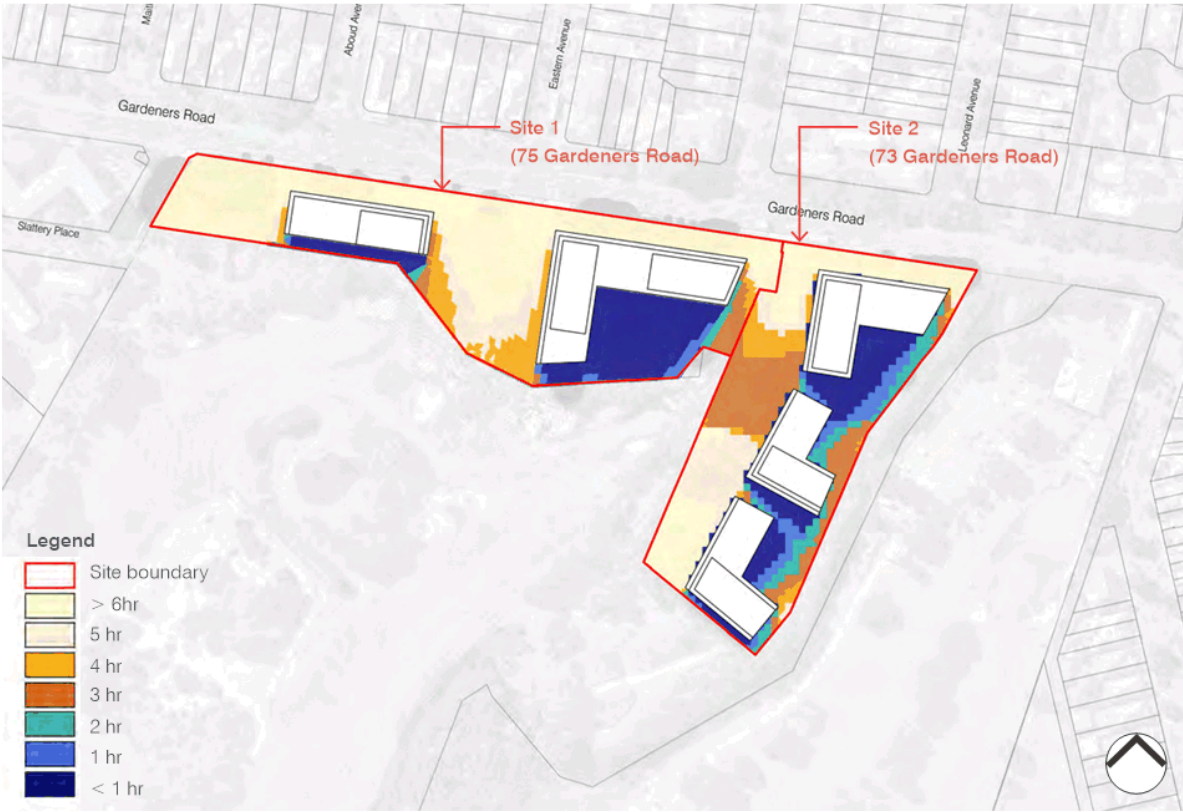
Site 1 (75 Gardeners Road)			
Site area	14,683	m2	
Communal/Public Open Space	4,298	m2	29%
Site 2 (73 Gardeners Road)			
Site area	12,870	m2	
Communal/Public Open Space	3,231	m2	25%
Total Site			
Site area	27,553	m2	
Communal/Public Open Space	7,529	m2	27%

NB. Roof gardens excluded from calculations

It should be noted that final compliance with the requirements of the ADG will be subjected to detailed design as part of any forthcoming Development Applications following the sale of the site by Sydney Water. This will be subject to assessment by Bayside Council as part of a standard Development Assessment process.

71 - 75 Gardeners Road, Eastlakes | Urban Context Report | Architectus

Public domain solar analysis - 21st of June 9am - 3pm



The master plan exceeds the minimum required solar access to communal open spaces (50%) by achieving 2 hours or more to 63% of the communal open space during the winter solstice.

Apartment Design Criteria

Site 1 (75 Gardeners Road)			
Communal/Public Open Space	4,298	m2	
ADG Compliant	3,165	m2	74%
Site 2 (73 Gardeners Road)			
Communal/Public Open Space	3,231	m2	
ADG Compliant	1,608	m2	50%
Total Site			
Site area	7,529	m2	
Communal/Public Open Space	4,773	m2	63%

NB. Roof gardens excluded from calculations

Overshadowing

Winter solstice



9am



12pm

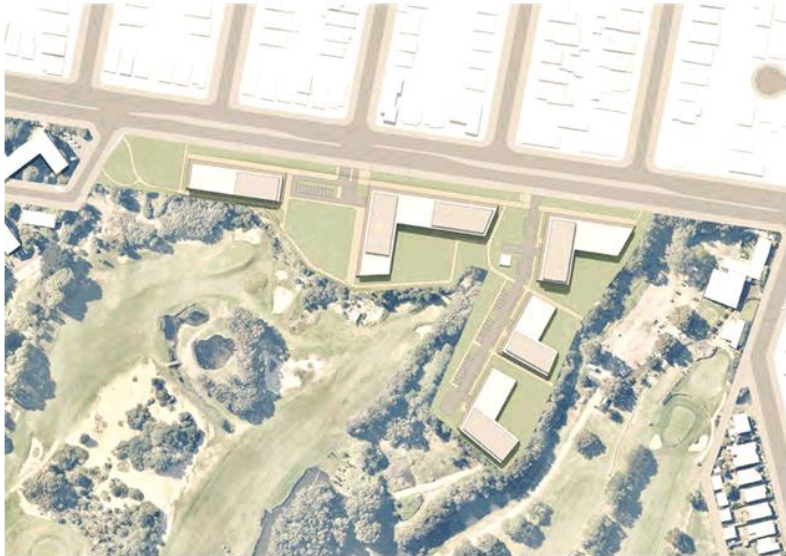


3pm

Summer solstice



9am



12pm



3pm

It should be noted that final compliance with the requirements of the ADG will be subjected to detailed design as part of any forthcoming Development Applications following the sale of the site by Sydney Water. This will be subject to assessment by Bayside Council as part of a standard Development Assessment process.

Building separation and deep soil zones

Building separation



The master plan observes minimum building separation requirements, or greater, in a number of locations as illustrated in the diagram above.

Deep soil zones



The area measurement of deep soil in the proposed master plan measures 32% of the total sites area which exceeds the minimum requirement of 7%.

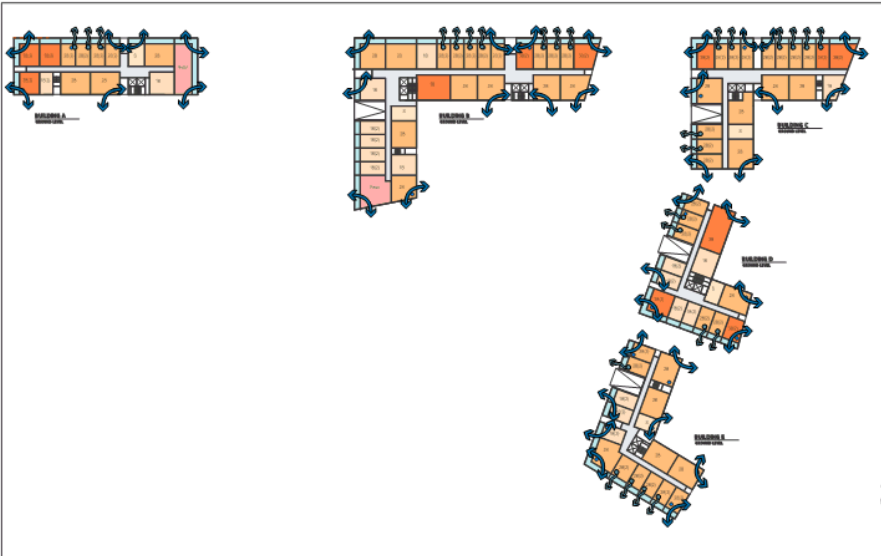
Site 1 (75 Gardeners Road)			
Site area	14,683	m2	
Deep soil area	5,318	m2	36%
Site 2 (73 Gardeners Road)			
Site area	12,870	m2	
Deep soil area	3,416	m2	27%
Total Site			
Site area	27,553	m2	
Deep soil area	8,734	m2	32%

It should be noted that final compliance with the requirements of the ADG will be subjected to detailed design as part of any forthcoming Development Applications following the sale of the site by Sydney Water. This will be subject to assessment by Bayside Council as part of a standard Development Assessment process.

Natural ventilation

Based on indicative floor plans developed for the proposed building envelopes (see right) the master plan achieves 63% of dwellings with natural cross ventilation (minimum required 60%).

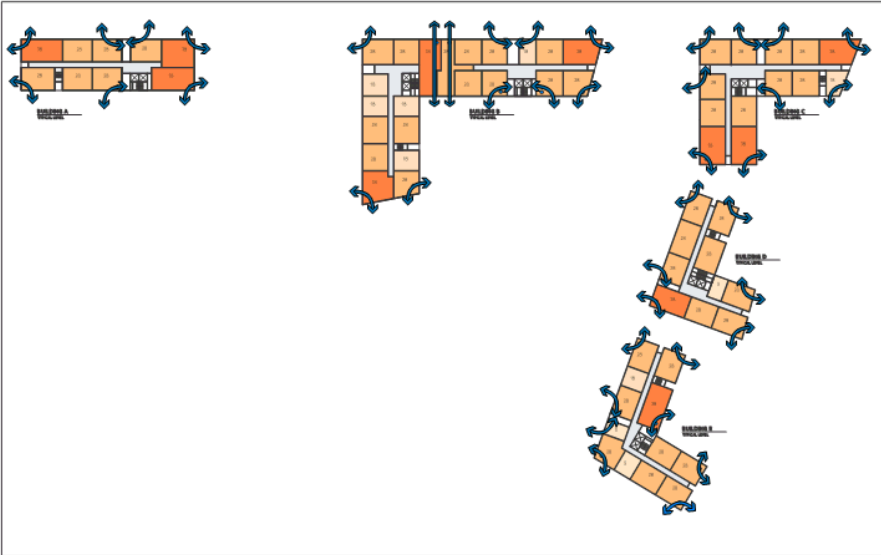
SEPP65 Cross Ventilation Testing						
	Ventilation Study	Apt No.	Cross Ventilation (inc. roof vent)	Storeys	Total Apt No.	Total Cross Ventilation
Building A	Ground Floor	13	8	1	13	8
	Level 1	3	3	1	3	3
	Typical Level	9	7	6	54	42
	Penthouse Level	5	4	2	10	8
Building B	Ground Floor	27	15	1	27	15
	Level 1	10	4	1	10	4
	Typical Level	22	11	6	132	66
	Penthouse Level	12	8	2	24	16
Building C	Ground Floor	20	17	1	20	17
	Level 1	3	2	1	3	2
	Typical Level	13	9	6	78	54
	Penthouse Level	7	4	6	42	24
Building D	Ground Floor	15	9	1	15	9
	Level 1	2	1	1	2	1
	Typical Level	10	6	6	60	36
	Penthouse Level	5	4	2	10	8
Building E	Ground Floor	16	13	1	16	13
	Level 1	3	3	1	3	3
	Typical Level	12	8	6	72	48
	Penthouse Level	5	3	2	10	6
					604	383
% Compliant with standards						63%



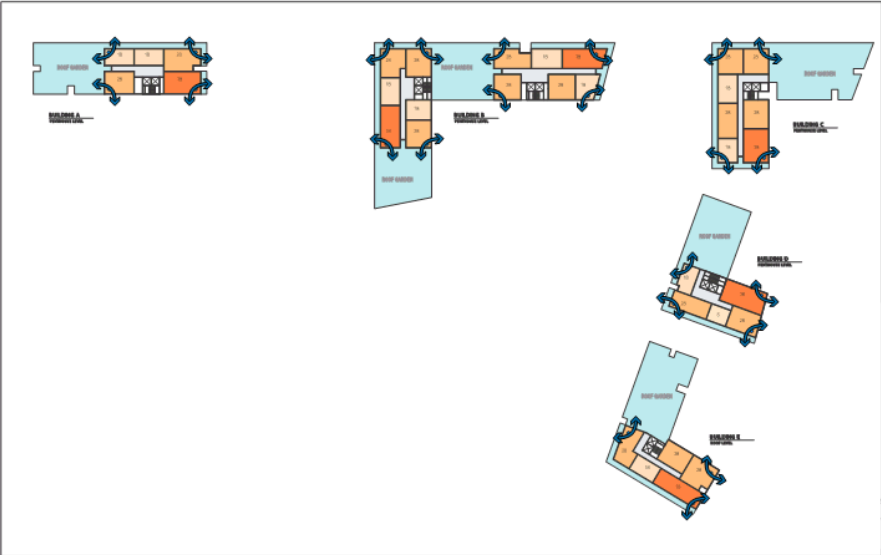
Indicative ground floor



Indicative first floor



Indicative mid Level



Indicative Penthouse

Legend

1 Bedroom

2 Bedroom

3 Bedroom

Corridor

Upper level

Private terrace

Ground floor retail

Cross ventilated

Wind path

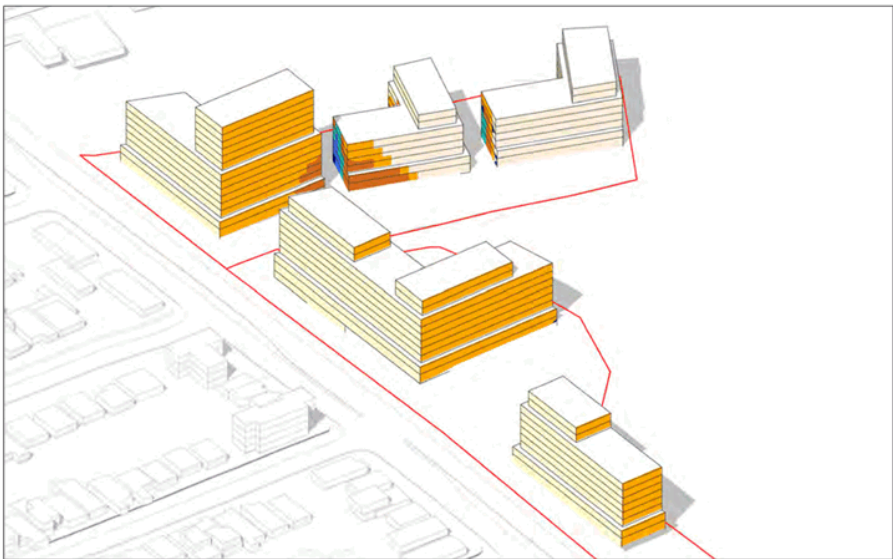
Wind path across multiple stories

It should be noted that final compliance with the requirements of the ADG will be subjected to detailed design as part of any forthcoming Development Applications following the sale of the site by Sydney Water. This will be subject to assessment by Bayside Council as part of a standard Development Assessment process.

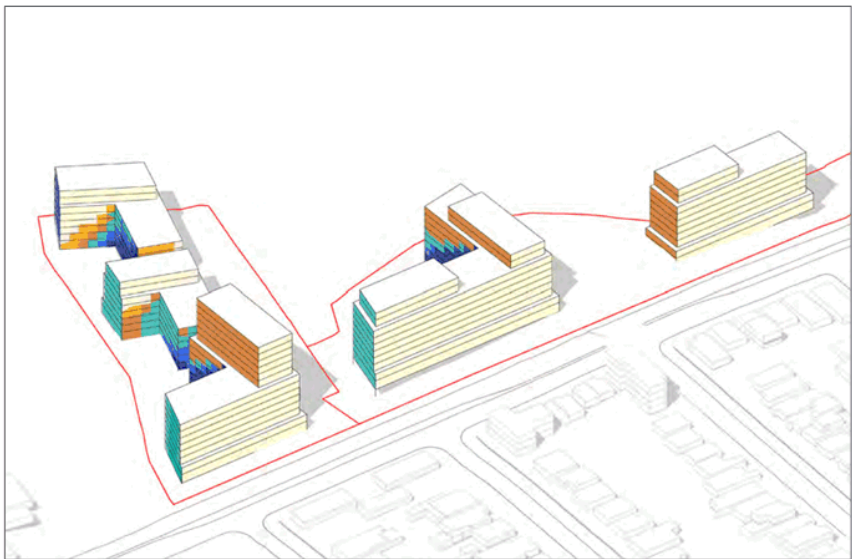
Solar and daylight access

Based on 3d modelling of sun hours to building façades during the winter solstice together with analysis against indicative floor plans the master plan building envelopes are capable of exceeding the minimum requirements (70%) for solar access.

The images and calculations shown (see right and opposite) achieve 80% of apartments with the minimum 2hrs of sunlight to living rooms and private spaces during the winter solstice.

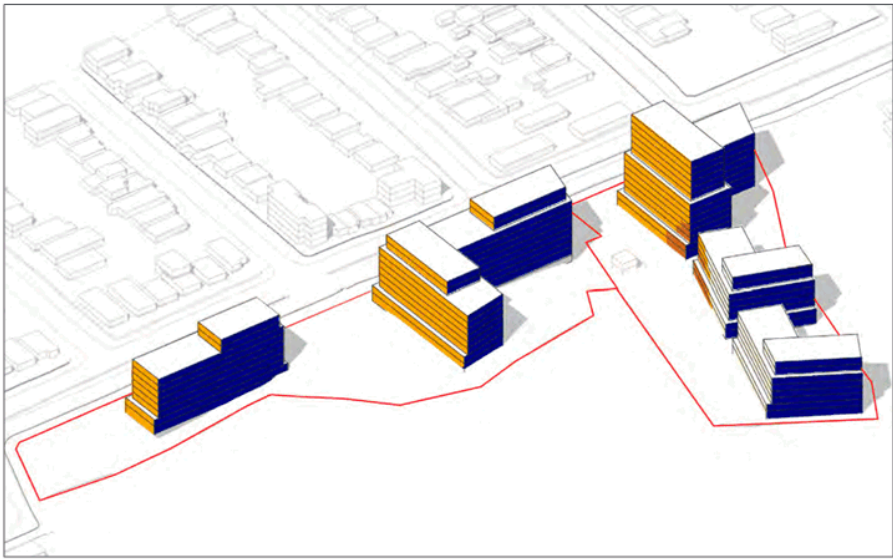


North west view

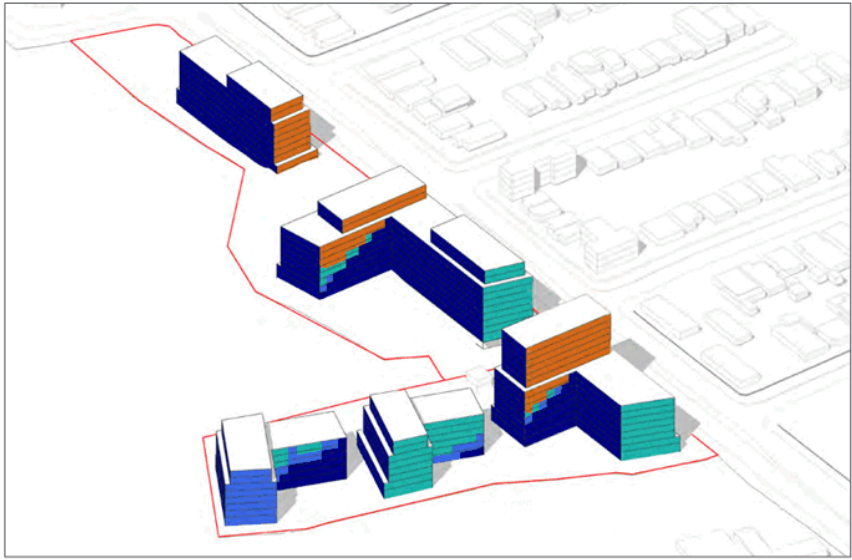


North east view

- Legend**
- > 5 hours
 - > 5 hours
 - 4-5 hours
 - 3-4 hours
 - 2-3 hours
 - 1-2 hours
 - < 1 hour



South West view

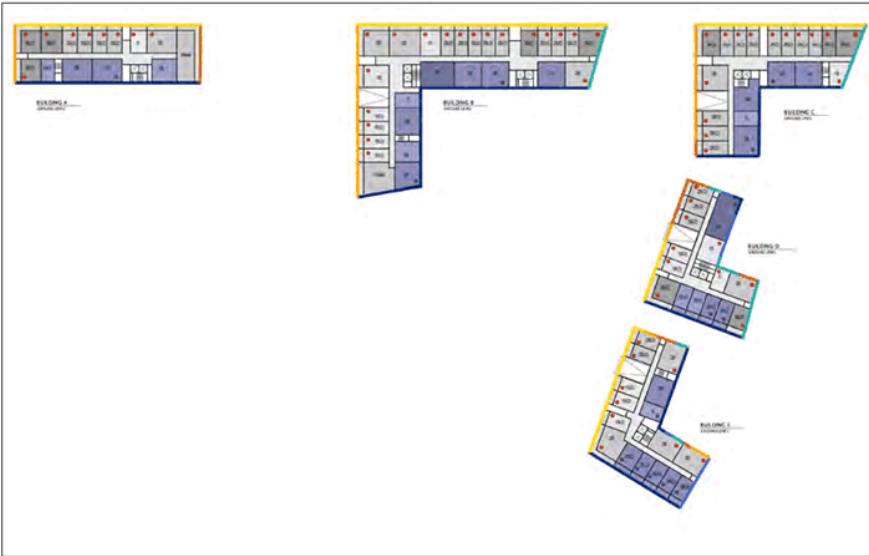


South east view

It should be noted that final compliance with the requirements of the ADG will be subjected to detailed design as part of any forthcoming Development Applications following the sale of the site by Sydney Water. This will be subject to assessment by Bayside Council as part of a standard Development Assessment process.

Solar and daylight access

SEPP65 Solar Access Testing					
Solar Access Study					
	Apt No	Solar Access	Storeys	Total Apt No	Total Solar Access
Building A	Ground Floor	13	9	1	13
	Level 1	3	3	1	3
	Typical Level	9	7	6	54
	Penthouse Level	5	5	2	10
Total				80	64
% Compliant with standards					80%
Building B	Ground Floor	27	19	1	27
	Level 1	10	6	1	10
	Typical Level	22	18	6	132
	Penthouse Level	12	11	2	24
Total				193	155
% Compliant with standards					80%
Building C	Ground Floor	20	15	1	20
	Level 1	3	2	1	3
	Typical Level	13	10	6	78
	Penthouse Level	7	7	2	14
Total				143	119
% Compliant with standards					83%
Building D	Ground Floor	15	10	1	15
	Level 1	2	2	1	2
	Typical Level	10	9	6	60
	Penthouse Level	5	4	2	10
Total				87	74
% Compliant with standards					86%
Building E	Ground Floor	16	9	1	16
	Level 1	3	2	1	3
	Typical Level	12	9	6	72
	Penthouse Level	5	3	2	10
Total				101	71
% Compliant with standards					70%
Overall Total				604	483
% Compliant with standards					80%



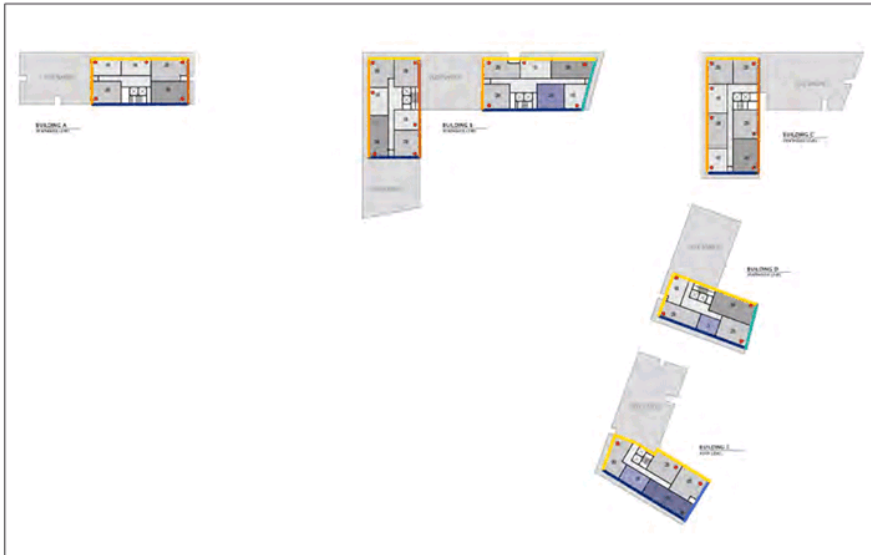
Indicative ground floor



Indicative first floor



Indicative typical mid level floor



Indicative penthouse

- Legend
- > 5 hours
 - 4-5 hours
 - 3-4 hours
 - 2-3 hours
 - 1-2 hours
 - < 1 hour
 - Complies
 - Does not comply



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7 Recommendations

Recommended planning controls

The master plan developed for the site has been used to inform the proposed planning proposal. At this early stage, the master plan is simply indicative of the scale of development for the subject site which would be subject to sale of the sites by Sydney Water, detailed design of proposed buildings and the submission of a Development Application to Bayside Council following the finalisation of the amendments to the planning controls.

The master plan is for indicative purposes only and would be subject to further detailed design. Architectus and Sydney Water would be willing to discuss with Bayside Council the potential for the implementation of a Site Specific Development Control Plan to assist in the guidance and to provide increased certainty for development outcomes on the site. However, it is considered that this should be based on the Design Principles provided within this report. Sufficient flexibility and amendment should be retained within the proposal to ensure that as part of the detailed design development amendments to the master plan can be considered, where appropriate.

Sydney Water proposes to continue the current use of 73 Gardeners Road as a Depot until such time as the site is no longer needed. The timing for the ceasing of operations and subsequent sale of the site is subject to a further Depot Optimisation process currently being undertaken by Sydney Water.

As such, the sale of the sites may not be concurrent, given that 75 Gardeners Road is currently occupied with short term leases and capable of being sold for redevelopment in the short term. However it is intended that both sites will be developed in stages by one entity to ensure consistency and a better planning outcome.

Therefore, given that 73 Gardeners Road will continue is current uses as a Sydney Water Depot in the short term, it is proposed to defer the proposed R4 High Density Residential zone and associated HOB and FSR controls from coming into effect until such time Sydney Water is ready to divest ownership of the site.

As the land at 73 Gardeners Road will be identified as a 'deferred matter' on the relevant LEP maps, the current zoning and development standards will continue to apply. This will allow for the site to be developed in stages by a future purchaser if both sites are purchased concurrently.

Land Use

The proposed land use zone for 73-75 Gardeners Road is R4 High Density Residential which permits (with consent) attached housing, multi-dwelling housing, residential flat buildings, neighbourhood shops and shot top housing. This will provide opportunities for high quality apartment living to accommodate the growing population and allow for renewal of the subject site. It is also proposed to amend the current additional permitted uses listed under Schedule 1 as per the below:

7 Use of certain land at 75 Gardeners Road, Eastlakes

(1) This clause applies to land at 75 Gardeners Road, Eastlakes, being ~~Lot 1, DP 1116853~~ **Lot 51 in DP 1216168** and identified as "7" on the Additional Permitted Uses Map.

(2) Development for the purposes of entertainment facilities, food and drink premises, **and commercial premises** ~~garden centres, hardware and building supplies, landscaping material supplies, recreation areas and recreation facilities (indoor)~~ is permitted with development consent.

Inclusions to the above clause are shown in bold, with exclusions identified with strike through.

Building Heights

The existing maximum building height control restricts development to 14 meters for 75 Gardeners Road, while there are currently no building height controls for 73 Gardeners Road. These controls do not allow for an appropriate level of development density on the site in light of its location and surrounding context, while providing good quality open space for the future residents and broader community. The maximum

building height control for the site is proposed to be amended to permit a range of building heights from 29 metres to 50 metres. It should be noted that the greatest heights are limited to reduced widths along Gardeners Road and that the majority of the development is around 8- storeys, up to 29 metres in height.

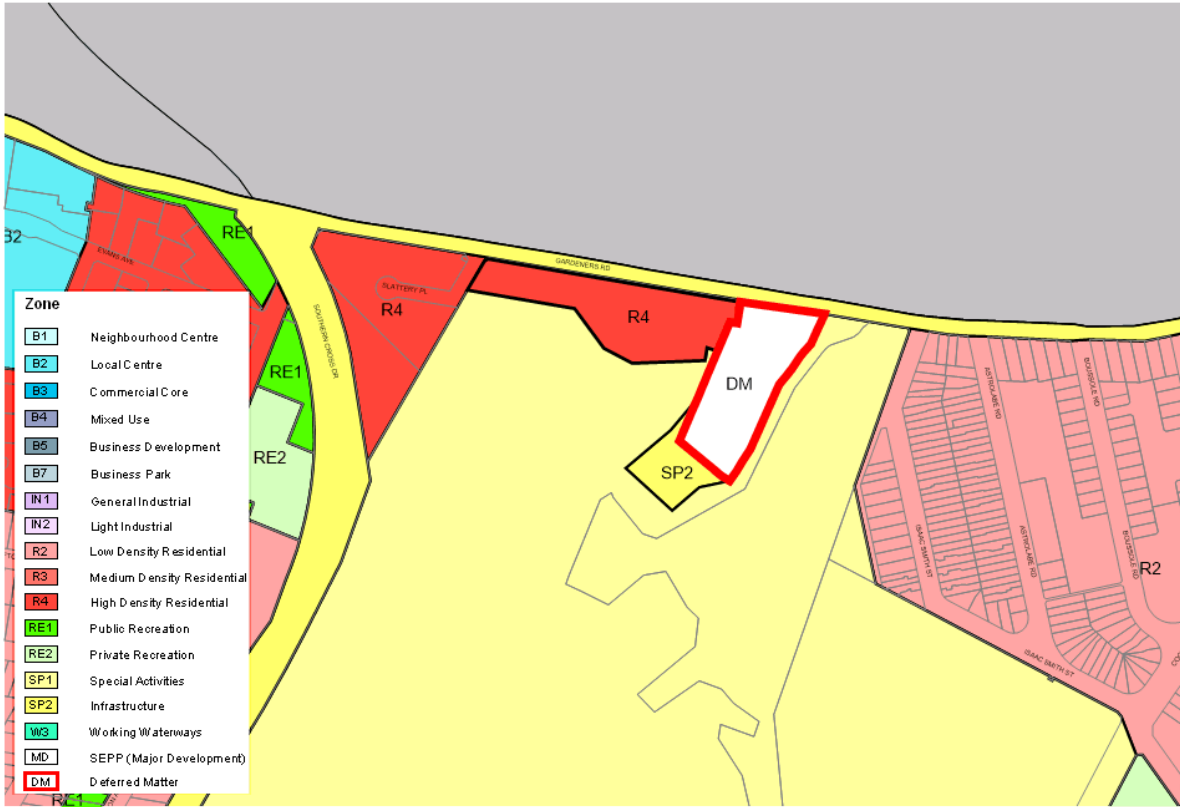
Floor Space Ratio

Under current planning controls, the permissible maximum FSR for 75 Gardeners Road is restricted to 1:1, with no maximum FSR provided for 73 Gardeners Road. Similar to the above restriction, the control does not allow for development of a built form that would allow for the best design outcome including large areas of public and communal open space. The maximum FSR control for the site is proposed to be amended to permit an FSR of 1.65:1 for 75 Gardeners Road and 1.95:1 for 73 Gardeners Road.

Recommended planning controls

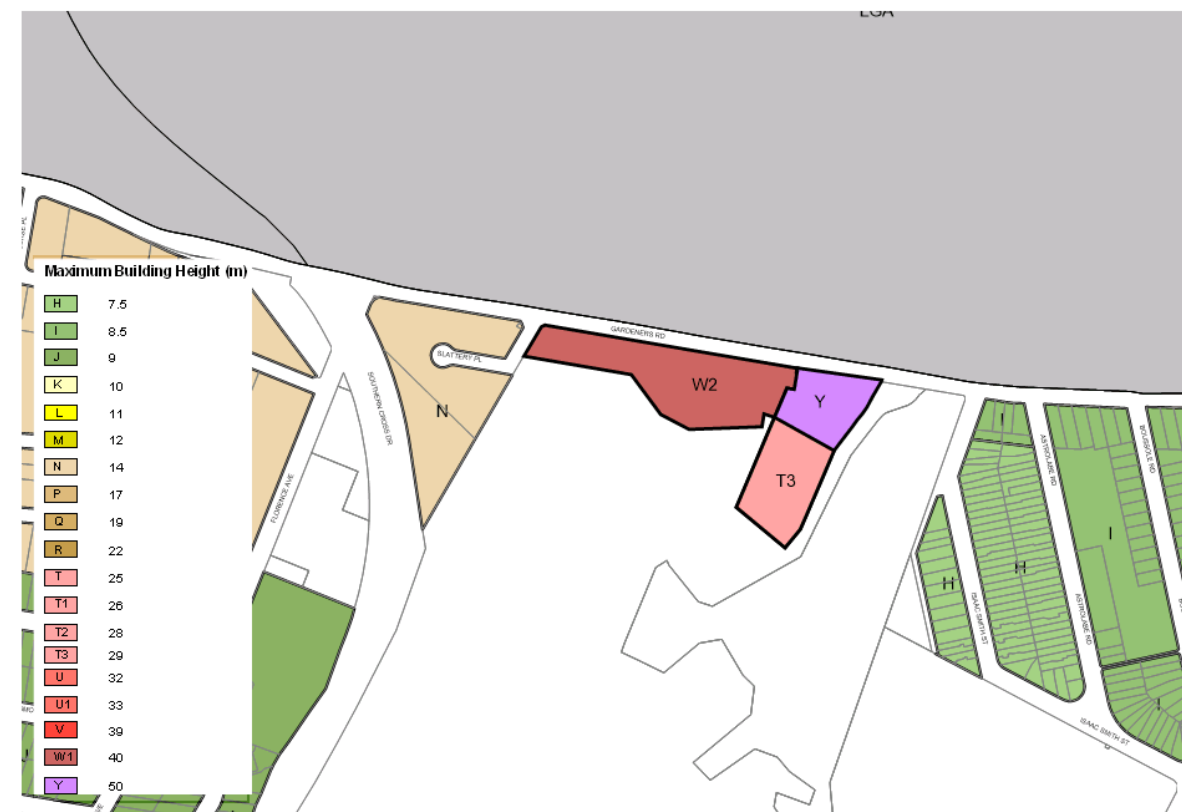


Land Use Zoning

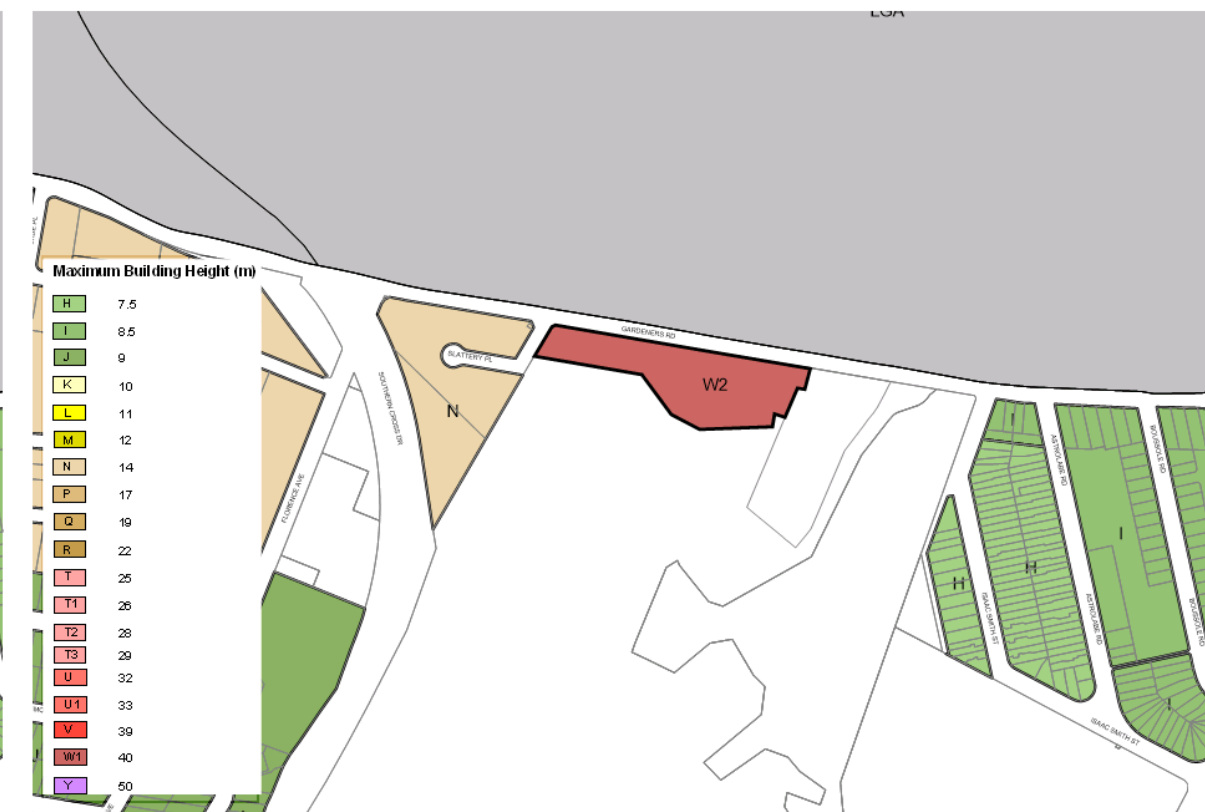


Land Use Zoning - Deferred Matter

Recommended planning controls

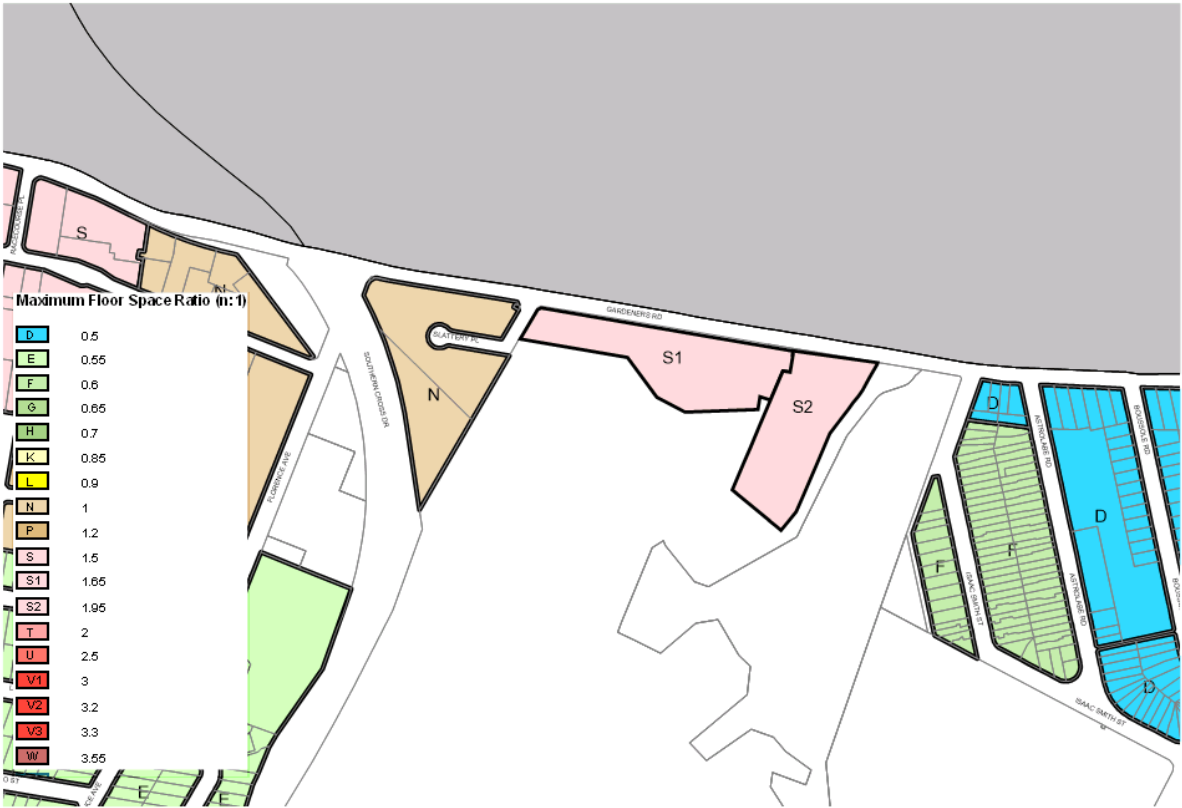


Building Heights

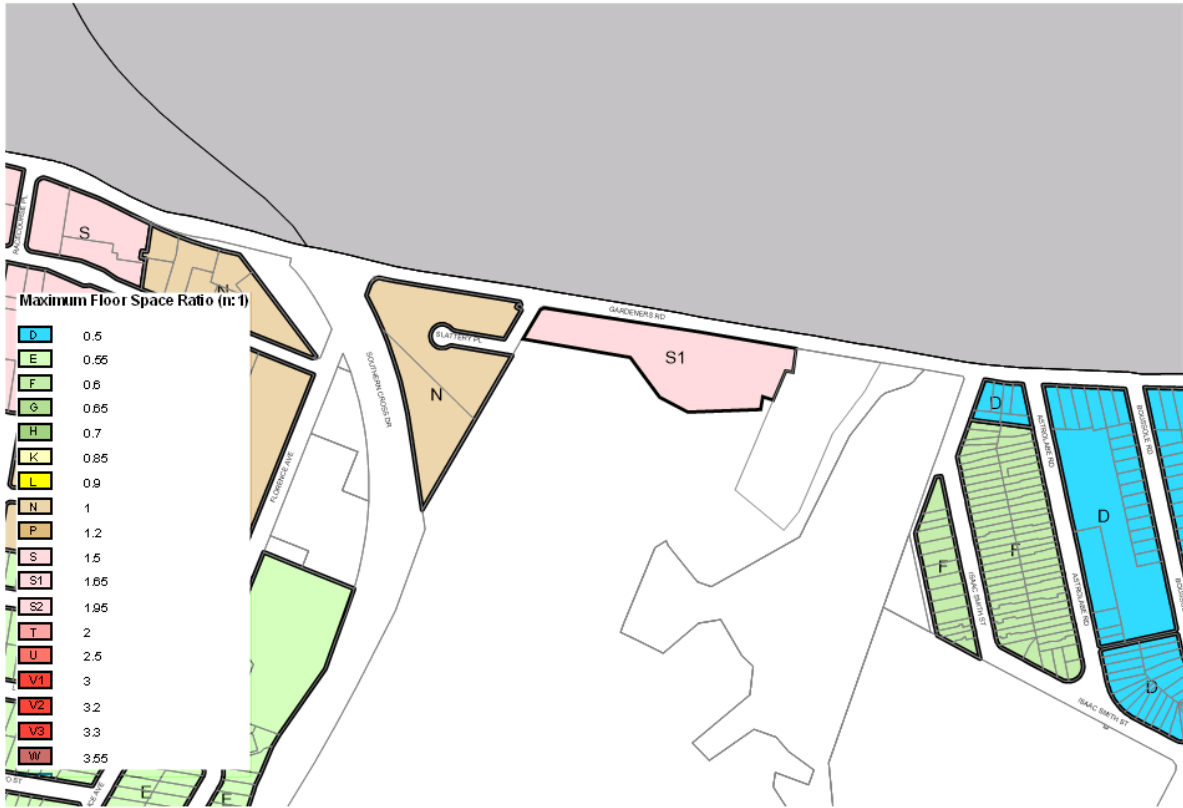


Building Heights - Deferred Matter

Recommended planning controls



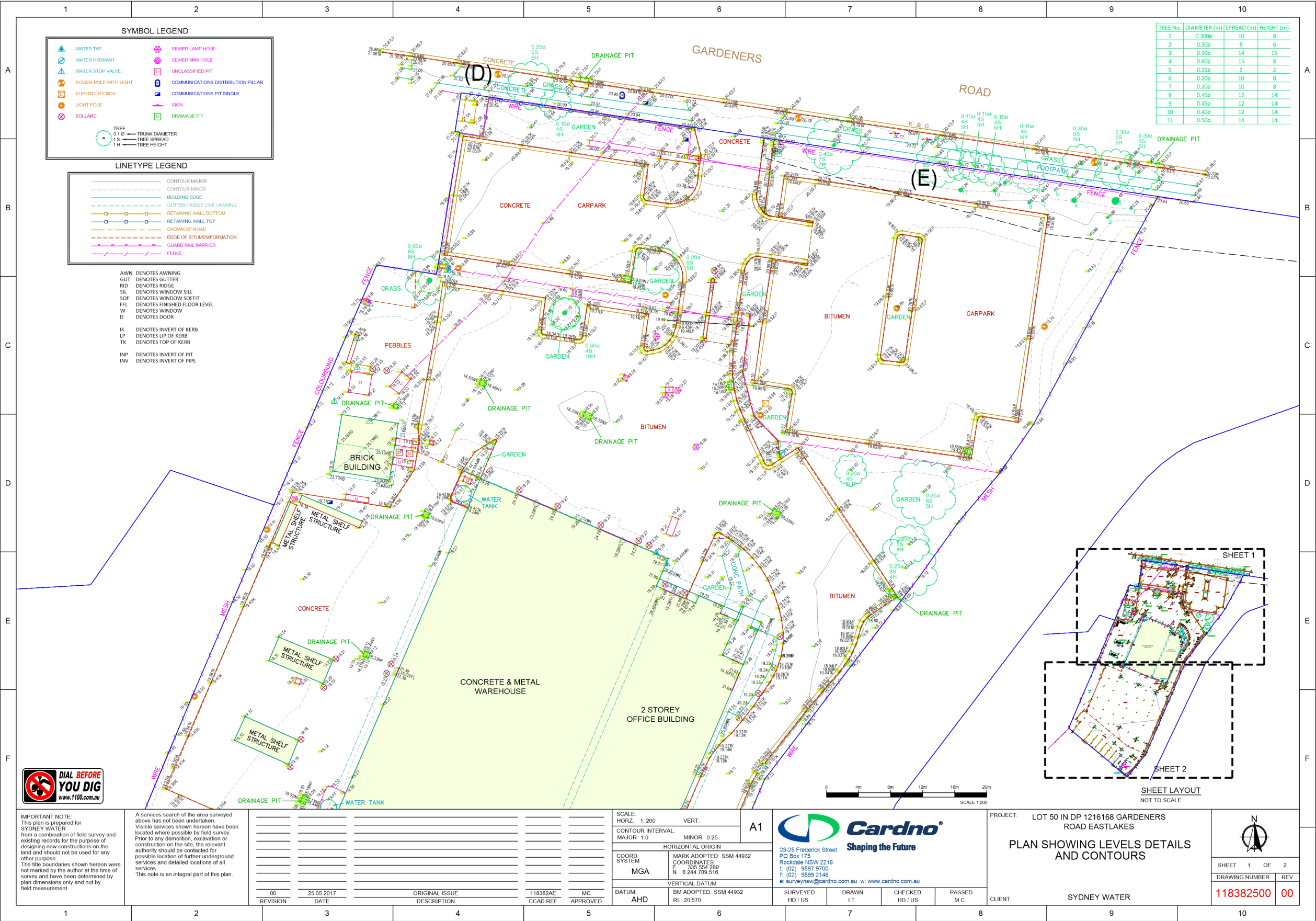
Floor Space Ratio

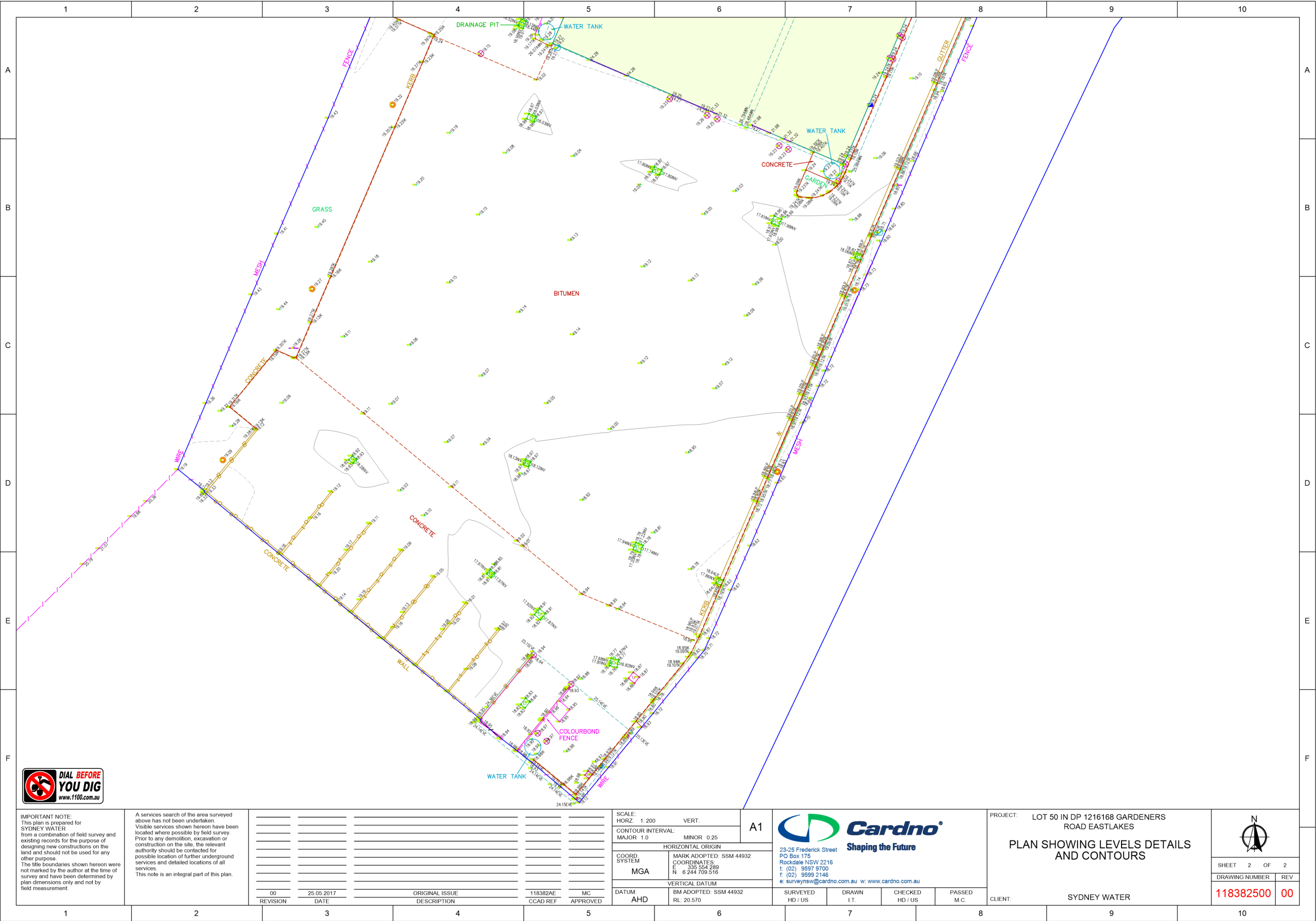


Floor Space Ratio - Deferred Matter

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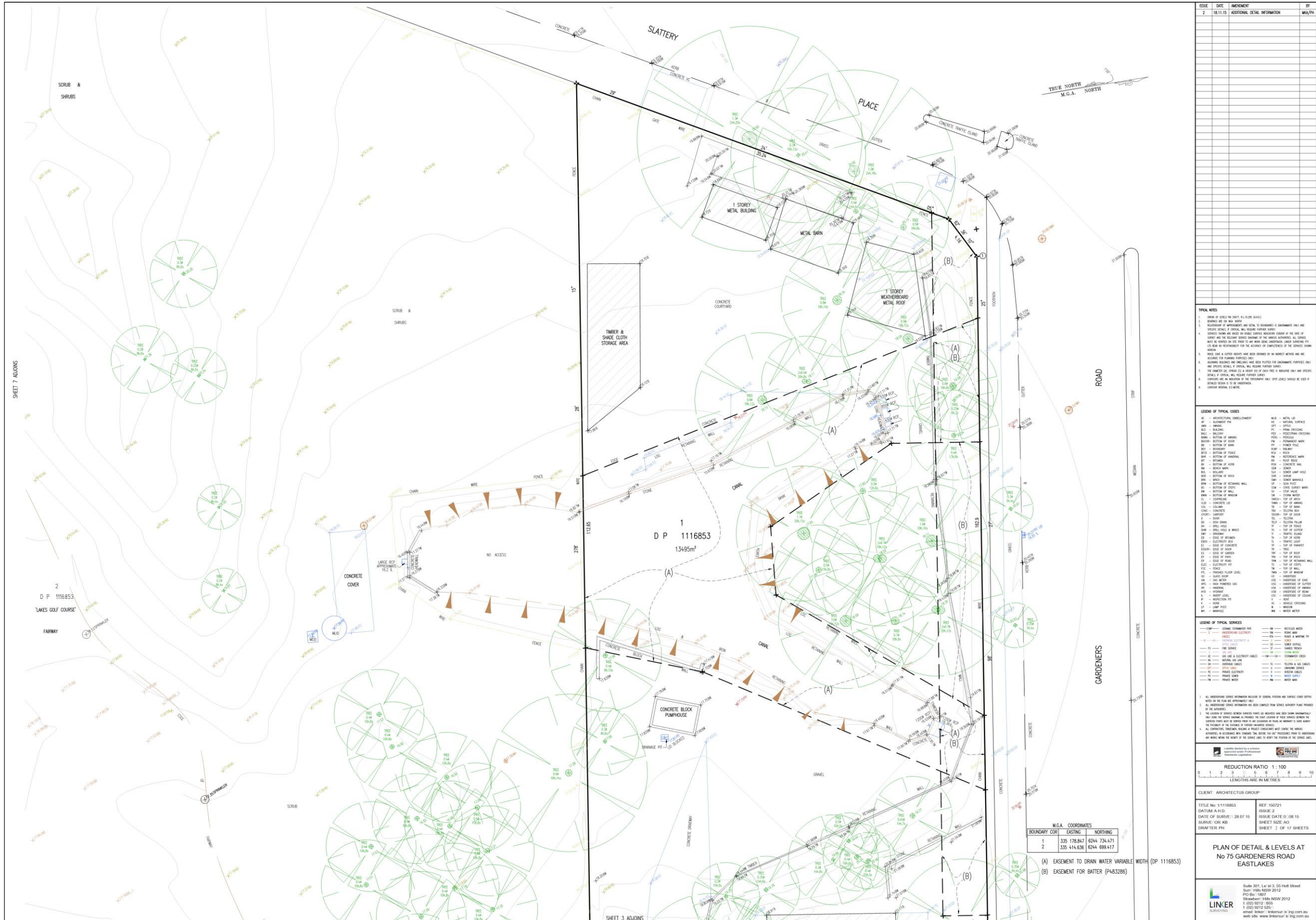
**Attachment B – Site Survey,
Prepared by Linker Surveying,
dated August 2015**

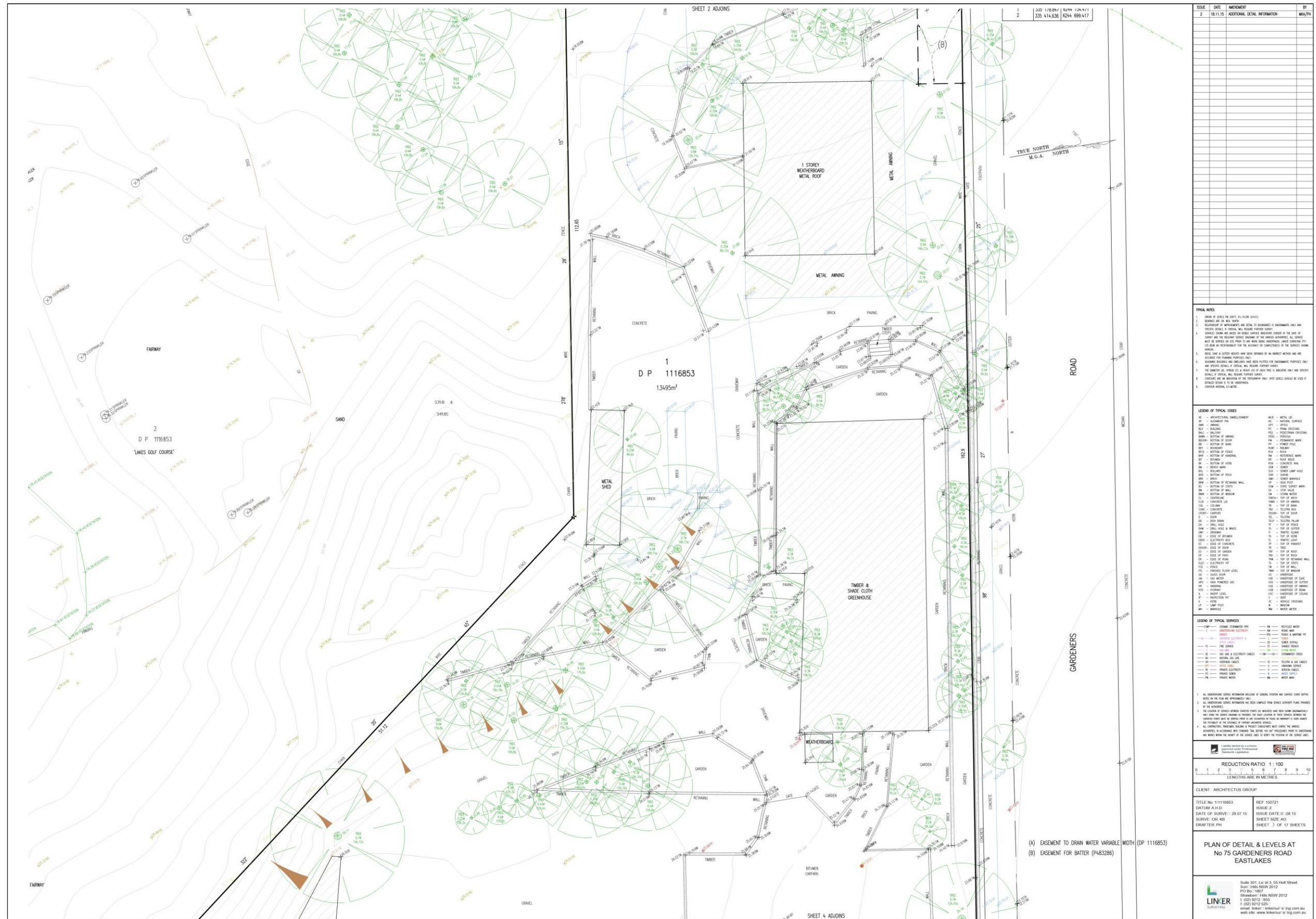




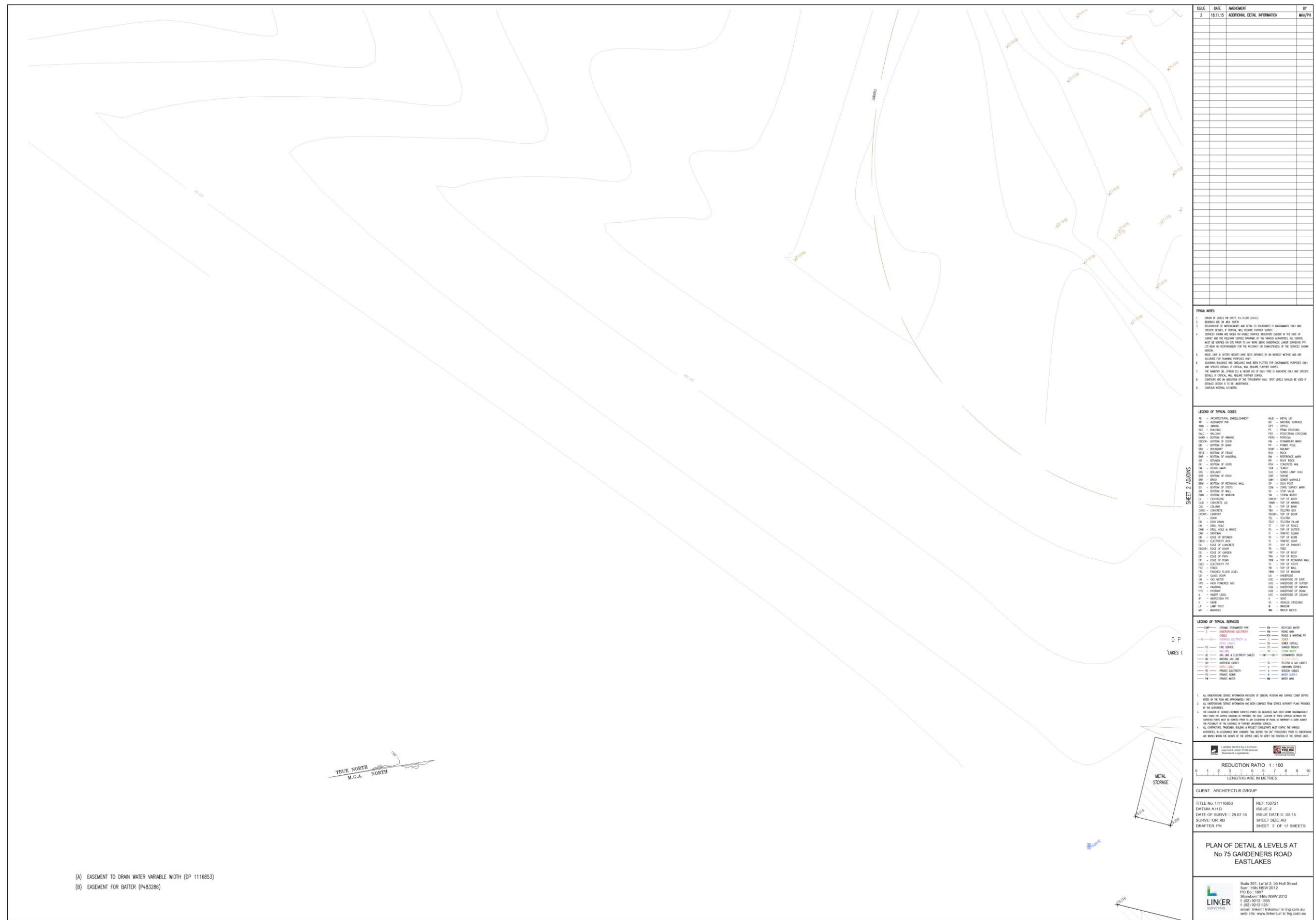
Attachment C – Site Survey,
Prepared by Cardno, dated
May 2017

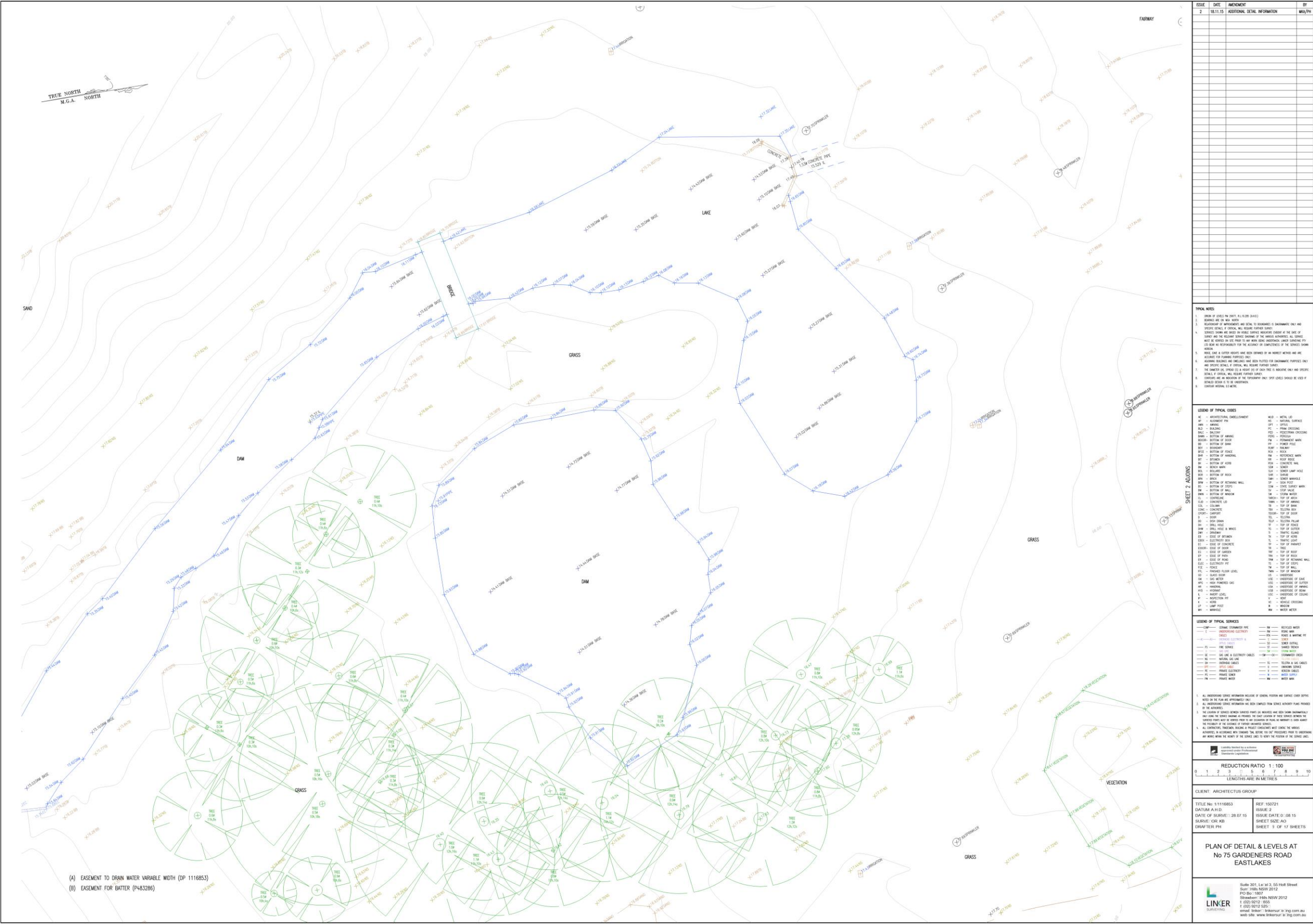


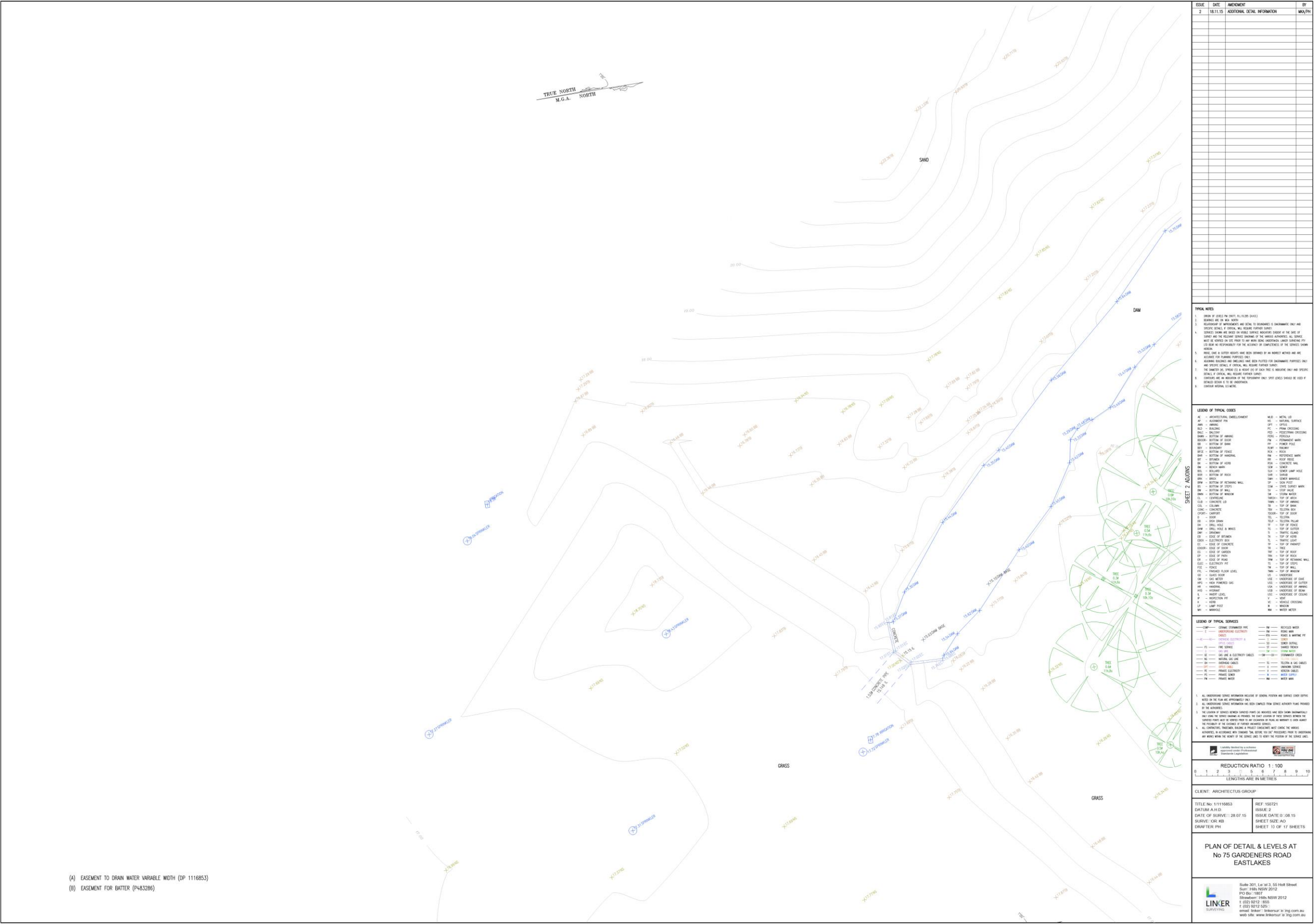


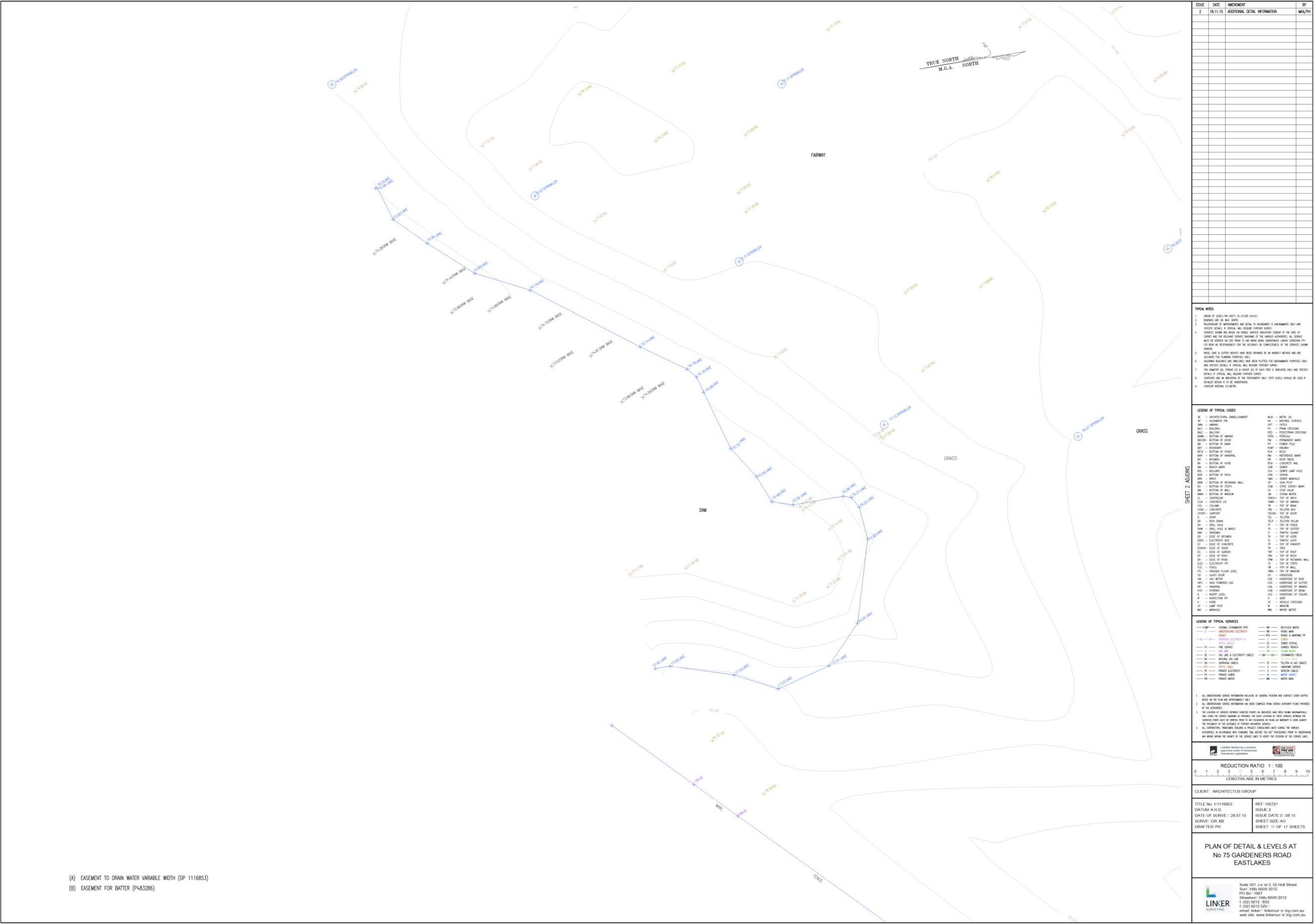


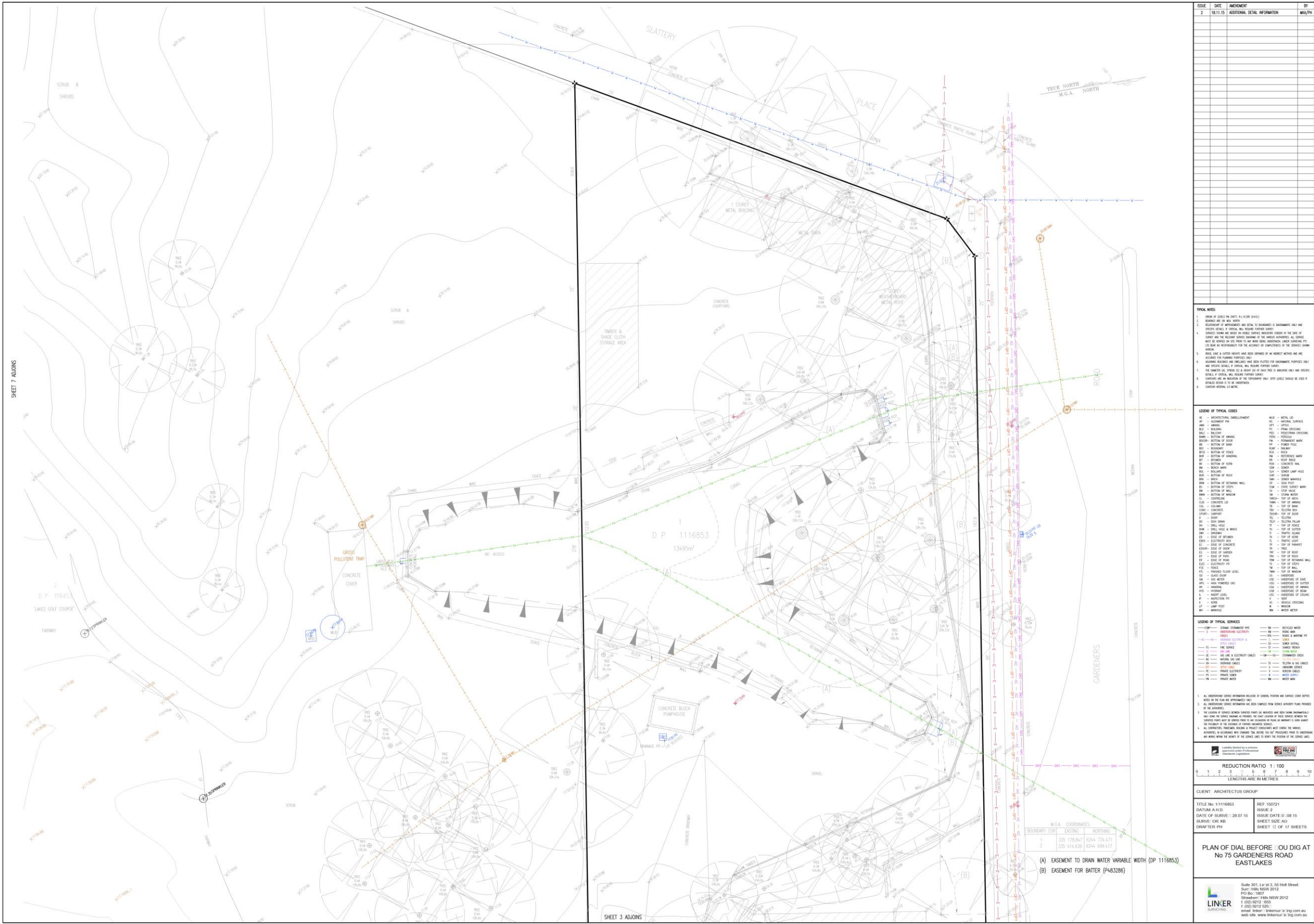


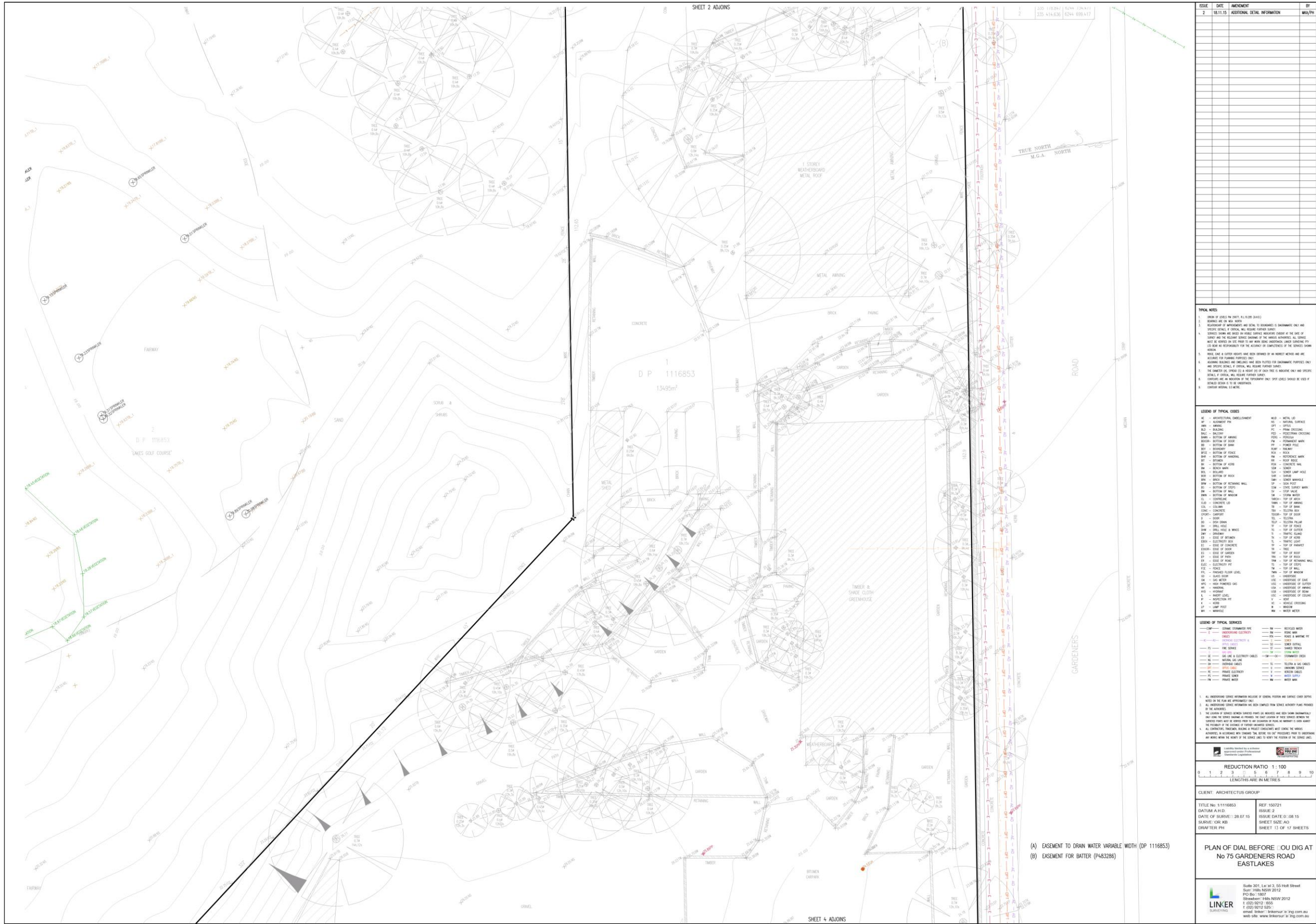


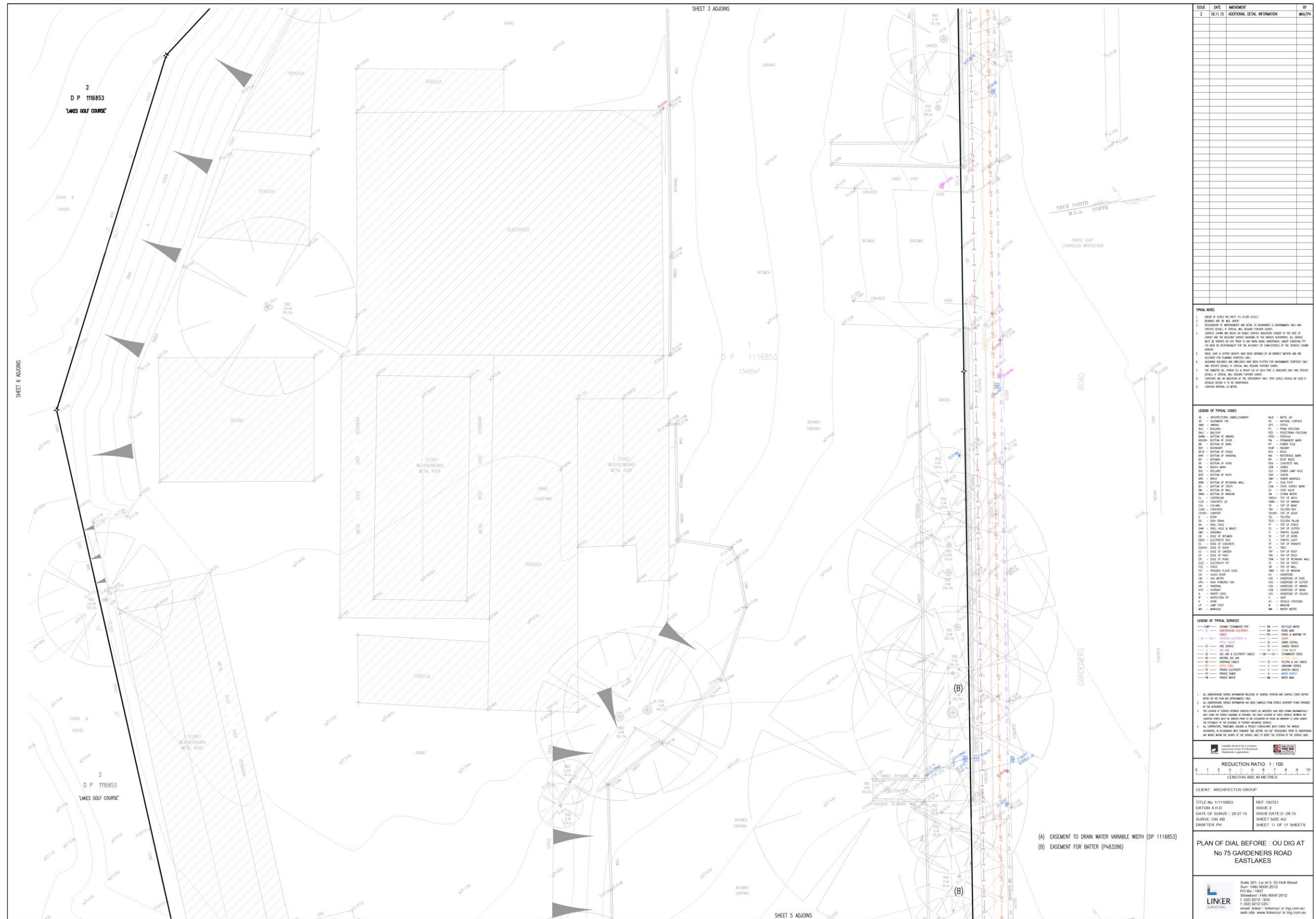


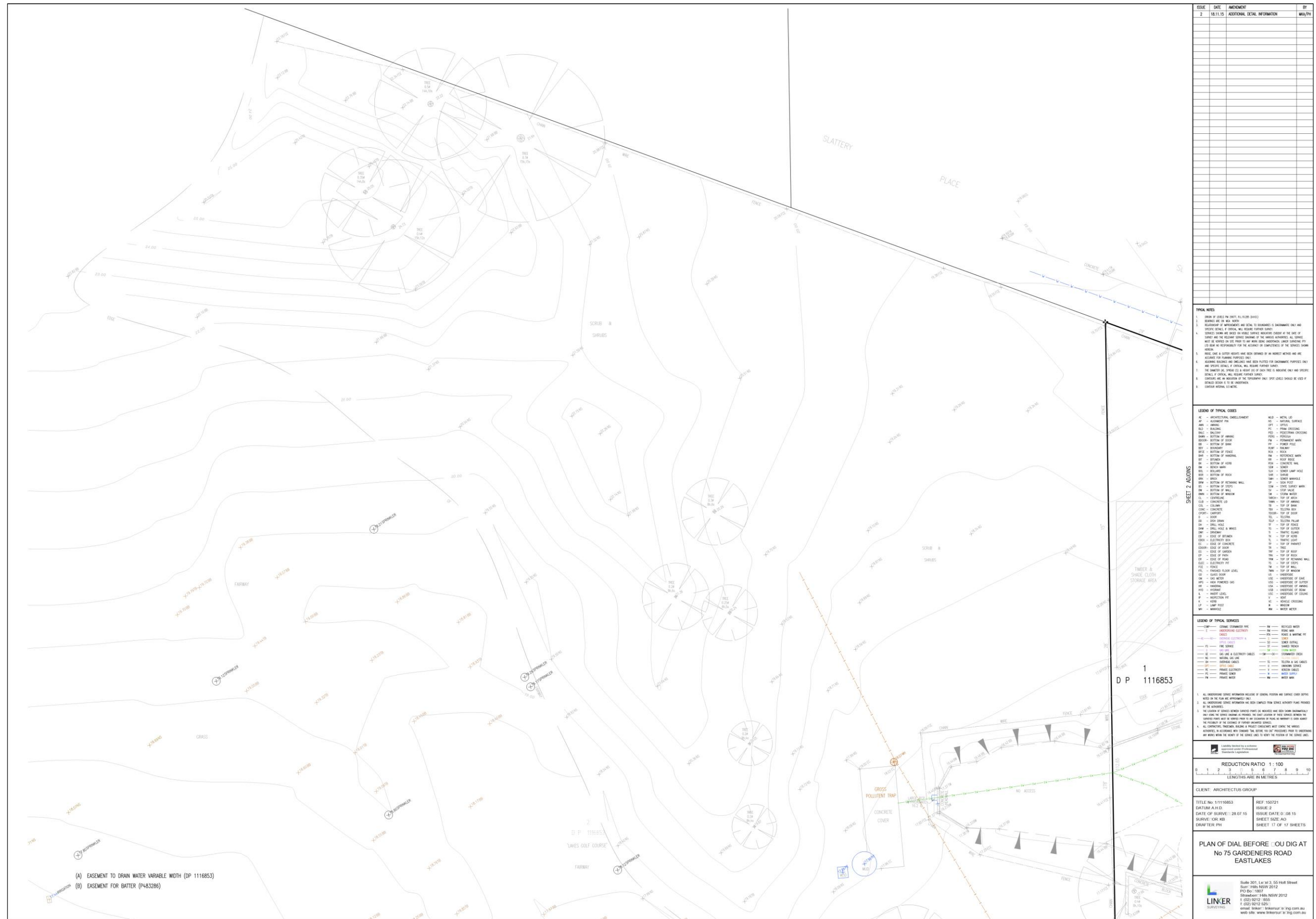












**Attachment D – Site Audit
Statement, prepared by
Ramboll Environ Australia,
dated June 2017**

Prepared for

Sydney Water Corporation

Prepared by

Ramboll Environ Australia Pty Ltd

Date

June 2017

Project Number

AS122114

Audit Number

TO-019

SITE AUDIT REPORT

71-75 GARDENERS ROAD, EASTLAKES





26 June 2017

Sydney Water Corporation
Attn.: Emma Bradbeer
Level 5, 1 Smith Street
Parramatta NSW 2150

Dear Emma,

SITE AUDIT REPORT - 71-75 GARDENERS ROAD, EASTLAKES

I have pleasure in submitting the Site Audit Report for the subject site. The Site Audit Statement, produced in accordance with the NSW *Contaminated Land Management Act 1997*, follows this letter. The Audit was commissioned by Sydney Water Corporation to determine if the nature and extent of contamination at the site has been adequately characterised for the purpose of future remediation, management and redevelopment planning.

This Site Audit Report is not currently required by regulation or legislation and is therefore a non-statutory audit.

Thank you for giving me the opportunity to conduct this Audit. Please call me on 9954 8100 if you have any questions.

Ramboll Environ Australia
Level 3, 100 Pacific Highway
PO Box 560
North Sydney NSW 2060

T +61 2 9954 8100
F +61 2 9954 8150
www.ramboll-environ.com

Yours faithfully,
Ramboll Environ Australia Pty Ltd

A handwritten signature in black ink, appearing to read "Tom Onus".

Tom Onus
EPA Accredited Site Auditor 1505

Ref AS122114

Ramboll Environ Australia Pty Ltd
ACN 095 437 442
ABN 49 095 437 442

NSW Site Auditor Scheme SITE AUDIT STATEMENT



A site audit statement summarises the findings of a site audit. For full details of the site auditor's findings, evaluations and conclusions, refer to the associated site audit report.

This form was approved under the Contaminated Land Management Act 1997 on 31st October 2012. For more information about completing this form, go to Part IV.

PART I: Site audit identification

Site audit statement no. TO-019

This site audit is a **statutory audit/non-statutory audit*** within the meaning of the *Contaminated Land Management Act 1997*.

Site auditor details (as accredited under the *Contaminated Land Management Act 1997*)

Name: Tom Onus Company: Ramboll Environ Australia Pty Ltd

Address: Level 3, 100 Pacific Highway (PO Box 560)

North Sydney NSW

Postcode: 2060

Phone: 02 9954 8100

Fax: 02 9954 8150

Site details

Address: 71-75 Gardeners Road, Eastlakes

Postcode: 2018

Property description (attach a list if several properties are included in the site audit)

Part Lot 50 DP1216168 and Lot 51 DP1216168 (see Attachment 1)

Local Government Area: Botany Bay City Council

Area of site (e.g. hectares): Approximately 2.75 ha

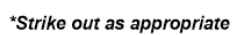
Current zoning: SP1 Special

Activities (recreation Facility) and SP2 Infrastructure.

To the best of my knowledge, the site ~~is~~**is not*** the subject of a declaration, order, agreement or notice under the *Contaminated Land Management Act 1997* or the *Environmentally Hazardous Chemicals Act 1985*.

Declaration/Order/Agreement/Proposal/Notice* no(s): N/A

**Strike out as appropriate*



Site Audit Statement TO-019 - Page 3 of 9

Site audit commissioned by

Name: Emma Bradbeer Company: Sydney Water Corporation

Address: Level 5, 1 Smith Street, Parramatta

Postcode: 2150

Phone: 8849 3766

Fax: N/A

Name and phone number of contact person (if different from above)

N/A

Purpose of site audit☐ ~~A. To determine land use suitability (please specify intended use[s]).~~

OR

☒ B(i) To determine the nature and extent of contamination, and/or☐ ~~B(ii) To determine the appropriateness of an **investigation/remedial action/management plan***, and/or~~☐ ~~B(iii) To determine if the land can be made suitable for a particular use or uses by implementation of a specified **remedial action plan/management plan*** (please specify intended use[s])~~**Information sources for site audit**

Consultancy(ies) which conducted the site investigation(s) and/or remediation

- Australian Water Technologies (AWT)
- Consulting Earth Scientists Pty Ltd (CES)
- ENSR Australia Pty Ltd (ENSR)
- Geotechnique
- AECOM
- Coffey Environments Australia Pty Ltd (Coffey)
- CH2M HILL Australia Pty Ltd (CH2M)
- Parsons Brinckerhoff (PB)
- WSP|Parsons Brinckerhoff (WSP PB).

Title(s) of report(s) reviewed:

- 'Phase 2 Environmental Site Assessment, Daceyville Nursery Site', November 2001, AWT.
- 'Site Management Plan: 75 Gardeners Road, Daceyville', 6 July 2006 (Draft), CES.
- 'Additional Environmental Site Assessment: 73 Gardeners Road, Eastlakes, NSW', dated 16 May 2007, CES.

**Strike out as appropriate*

Site Audit Statement TO-019 - Page 4 of 9

- 'Remediation Action Plan, Daceyville Depot, Gardeners Road, Daceyville, NSW', dated 7 April 2008, ENSR.
- 'Proposed Sewerage Treatment Plant, Gardeners Road, Daceyville - Geotechnical Investigation', dated 2 June 2008, Geotechnique.
- 'Classification of Stockpiled Material, SWC Depot, Daceyville, NSW', dated 28 September 2009, AECOM.
- 'Site Condition Report, Daceyville Depot, Gardeners Road, Daceyville, NSW', dated 18 February 2010, AECOM.
- 'Environmental Management Plan, Daceyville Depot, Gardeners Road, Daceyville, NSW', dated 19 February 2010 and a previous version dated 7 April 2009, AECOM.
- 'Environmental Management Plan, Sydney Water Daceyville Depot, Gardeners Road, Daceyville, NSW', dated 25 May 2015, Coffey.
- 'Stage 1 Detailed Site Investigation, 73-75 Gardeners Road, Eastlakes', 15 July 2015, CH2M.
- '73-75 Gardeners Road, Eastlakes Addendum Stage 2 Detailed Site Investigation - Sydney Water', 28 July 2016, CH2M.
- 'Combined Stage 1 and 2 Detailed Site Investigation, Sydney Water 73 Gardeners Road, Eastlakes NSW', dated 15 April 2016, PB.
- 'Environmental Management Plan, Sydney Water Property, 73 Gardeners Road, Eastlakes NSW', dated 29 September 2016, WSP PB.

Other information reviewed (including previous site audit reports and statements relating to the site)

'Site Audit Report, 0301-0439, Sydney Water Corporation, 75 Gardeners Road, Daceyville NSW', 1 August 2006, James Davis of JBS Environmental Pty Ltd.

'Site Audit Report, 73-75 Gardeners Road, Eastlakes', October 2016, Melissa Porter of Ramboll Environ Australia Pty Ltd.

Site audit report

Title: Site Audit Report – 71-75 Gardeners Road, Eastlakes

Report no. TO-019 (Ramboll Environ Ref: AS122114)

Date: June 2017

**Strike out as appropriate*

PART II: Auditor's findings

Please complete either Section A or Section B, **not** both. *(Strike out the irrelevant section.)*

Use Section A where site investigation and/or remediation has been completed and a conclusion can be drawn on the suitability of land use(s).

Use Section B where the audit is to determine the nature and extent of contamination and/or the appropriateness of an investigation or remedial action or management plan and/or whether the site can be made suitable for a specified land use or uses subject to the successful implementation of a remedial action or management plan.

Section A

☐ I certify that, in my opinion, the site is **SUITABLE** for the following use(s) *(tick all appropriate uses and strike out those not applicable):*

- ☐ Residential, including substantial vegetable garden and poultry
- ☐ Residential, including substantial vegetable garden, excluding poultry
- ☐ Residential with accessible soil, including garden (minimal home-grown produce contributing less than 10% fruit and vegetable intake), excluding poultry
- ☐ Day care centre, preschool, primary school
- ☐ Residential with minimal opportunity for soil access, including units
- ☐ Secondary school
- ☐ Park, recreational open space, playing field
- ☐ Commercial/industrial
- ☐ Other *(please specify)*

subject to compliance with the following environmental management plan *(insert title, date and author of plan)* **in light of contamination remaining on the site:**

OR

☐ I certify that, in my opinion, the site is **NOT SUITABLE** for any use due to the risk of harm from contamination.

Overall comments:

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Section B

Purpose of the plan¹ which is the subject of the audit is to determine if the nature and extent of contamination has been adequately characterised for the purpose of future remediation or management planning during redevelopment of the site.

I certify that, in my opinion:

- ☒ the nature and extent of the contamination HAS/HAS-NOT* been appropriately determined

AND/OR

- ☐ the investigation/remedial action plan/management plan* IS/IS-NOT* appropriate for the purpose stated above

AND/OR

- ☐ the site CAN BE MADE SUITABLE for the following uses (tick all appropriate uses and strike out those not applicable):

- ☐ Residential, including substantial vegetable garden and poultry
- ☐ Residential, including substantial vegetable garden, excluding poultry
- ☐ Residential with accessible soil, including garden (minimal home-grown produce contributing less than 10% fruit and vegetable intake), excluding poultry
- ☐ Day care centre, preschool, primary school
- ☐ Residential with minimal opportunity for soil access, including units
- ☐ Secondary school
- ☐ Park, recreational open space, playing field
- ☐ Commercial/industrial
- ☐ Other (please specify)

if the site is remediated/managed* in accordance with the following remedial action plan/management plan* (insert title, date and author of plan)

subject to compliance with the following condition(s):

¹ For simplicity, this statement uses the term 'plan' to refer to both plans and reports.

* Strike out as appropriate

Overall comments

The site comprises a former nursery, a residential building and a Sydney Water works depot.

The structures on the nursery have been demolished. The nursery previously contained a clubhouse near the centre of the site that was destroyed by fire prior to 1976. The depot was remediated during redevelopment in 2009, with a capping layer placed over contaminated fill material to make it suitable for ongoing use as a depot.

Material used to fill areas of the site contains anthropogenic material, such as tile, brick, timber, metal and asbestos as bonded fragments of cement sheeting. Friable asbestos (comprising small fragments of asbestos cement sheeting) was identified at one location on the former nursery and three locations on the residential property. The distribution of asbestos in fill material on the depot is a data gap.

The fill material was identified in the west of the site (former mechanical shed area), in the northwest of the site (former pot bazaar location) and in the south of the centre of the nursery (former clubhouse location) and across the residential property and depot. The material has not been well delineated vertically and laterally in some areas. Remediation of fill containing anthropogenic material would be required to make the site suitable for any proposed use.

There were isolated instances of volatile contaminants exceeding the human health criteria for vapour intrusion. These were in the west of the site beneath the former mechanical shed and in the south of the depot. Further investigation of the nursery area by CH2M did not identify significantly elevated lead concentrations. Further investigation of the depot by CES did not identify lead concentrations significantly exceeding the human health criteria, however the location of the previous exceedance was not targeted for further investigation. It is understood that these areas are currently paved with asphalt, therefore the contamination is expected to present a low risk under current site conditions. Further investigation and/or remediation would be required in the event of a change in the site surfacing in these areas or a change in land use.

The Auditor recommends that the following be undertaken should the site be redeveloped:

- Further investigation of the site should be considered prior to remediation to address the data gaps identified in the CSM. The need for and scope of further investigation would be dependent on the proposed development.
- Preparation of a remedial action plan (RAP) specific to any development.
- The RAP should be implemented prior to or during redevelopment of the site.
- Preparation of a Site Audit Statement certifying suitability for the proposed use, at the completion of remediation and validation.
- Groundwater is assessed for its suitability for any proposed use prior to extraction.

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PART III: Auditor's declaration

I am accredited as a site auditor by the NSW Environment Protection Authority under the *Contaminated Land Management Act 1997* (Accreditation No. 1505).

I certify that:

- I have completed the site audit free of any conflicts of interest as defined in the *Contaminated Land Management Act 1997*, and
- with due regard to relevant laws and guidelines, I have examined and am familiar with the reports and information referred to in Part I of this site audit, and
- on the basis of inquiries I have made of those individuals immediately responsible for making those reports and obtaining the information referred to in this statement, those reports and that information are, to the best of my knowledge, true, accurate and complete, and
- this statement is, to the best of my knowledge, true, accurate and complete.

I am aware that there are penalties under the *Contaminated Land Management Act 1997* for wilfully making false or misleading statements.

Signed...



Date...

26 June 2017

PART IV: Explanatory notes

To be complete, a site audit statement form must be issued with all four parts.

How to complete this form

Part I identifies the auditor, the site, the purpose of the audit and the information used by the auditor in making the site audit findings.

Part II contains the auditor's opinion of the suitability of the site for specified uses or of the appropriateness of an investigation, or remedial action or management plan which may enable a particular use. It sets out succinct and definitive information to assist decision-making about the use(s) of the site or a plan or proposal to manage or remediate the site.

The auditor is to complete either Section A or Section B of Part II, **not** both.

In **Section A** the auditor may conclude that the land is *suitable* for a specified use(s) OR *not suitable* for any beneficial use due to the risk of harm from contamination.

By certifying that the site is *suitable*, an auditor declares that, at the time of completion of the site audit, no further remediation or investigation of the site was needed to render the site fit for the specified use(s). Any **condition** imposed should be limited to implementation of an environmental management plan to help ensure the site remains safe for the specified use(s). The plan should be legally enforceable: for example a requirement of a notice under the *Contaminated Land Management Act 1997* (CLM Act) or a development consent condition issued by a planning authority. There should also be appropriate public notification of the plan, e.g. on a certificate issued under s.149 of the *Environmental Planning and Assessment Act 1979*.

Auditors may also include **comments** which are key observations in light of the audit which are not directly related to the suitability of the site for the use(s). These observations may cover aspects relating to the broader environmental context to aid decision-making in relation to the site.

In **Section B** the auditor draws conclusions on the nature and extent of contamination, and/or suitability of plans relating to the investigation, remediation or management of the land, and/or whether land can be made suitable for a particular land use or uses upon implementation of a remedial action or management plan.

By certifying that a site *can be made suitable* for a use or uses if remediated or managed in accordance with a specified plan, the auditor declares that, at the time the audit was completed, there was sufficient information satisfying guidelines made or approved under the CLM Act to determine that implementation of the plan was feasible and would enable the specified use(s) of the site in the future.

For a site that *can be made suitable*, any **conditions** specified by the auditor in Section B should be limited to minor modifications or additions to the specified plan. However, if the auditor considers that further audits of the site (e.g. to validate remediation) are required, the auditor must note this as a condition in the site audit statement.

Auditors may also include **comments** which are observations in light of the audit which provide a more complete understanding of the environmental context to aid decision-making in relation to the site.

In **Part III** the auditor certifies his/her standing as an accredited auditor under the CLM Act and makes other relevant declarations.

Where to send completed forms

In addition to furnishing a copy of the audit statement to the person(s) who commissioned the site audit, statutory site audit statements must be sent to:

EPA (NSW)
Contaminated Sites Section
PO Box A290, SYDNEY SOUTH NSW 1232
nswauditors@epa.nsw.gov.au

AND

the **local council** for the land which is the subject of the audit.

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- Attachment 1: Site Location
- Attachment 2: Site Survey
- Attachment 3: Former Site Layout
- Attachment 4: Former Nursery Layout
- Attachment 5: Residential Property Investigation Locations
- Attachment 6: Depot Former Layout and Investigation Locations

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- Attachment 7: Depot Current Layout
- Attachment 8: AWT Site Investigation Locations
- Attachment 9: Nursery Exceedances of Adopted Criteria
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- Attachment 11: CH2M Stage 2 DSI Investigation Locations
- Attachment 12: Depot Imported Material Locations

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LIST OF ABBREVIATIONS

Measures

%	per cent
µg/L	Micrograms per Litre
µg/m ³	Micrograms per Cubic Metre
ha	Hectare
km	Kilometres
m	Metre
mAHD	Metres Australian Height Datum
mbgl	Metres below ground level
mg/kg	Milligrams per Kilogram
mg/L	Milligrams per Litre
mg/m ³	Milligrams per Cubic Metre
mm	Millimetre
m ²	Square Metres
m ³	Cubic Metres
ng/L	Nanograms per Litre
ppm	Parts Per Million

General

ABC	Added Background Concentrations
ACL	Added Contaminant Limit
ACM	Asbestos Containing Material
ADWG	Australian Drinking Water Guidelines
AF	Asbestos Fines
AHD	Australian Height Datum
ANL	Australian Native Landscapes
ANZECC	Australian and New Zealand Environment and Conservation Council
ASS	Acid Sulfate Soil
AST	Aboveground Storage Tank
AWT	Australian Water Technologies
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes & Naphthalene
CES	Consulting Earth Scientists Pty Ltd
CH2M	CH2M HILL Australia Pty Ltd
CLM Act	NSW Contaminated Land Management Act 1997
COC	Chain of Custody
Coffey	Coffey Environments Australia Pty Ltd
Council	Botany Bay City Council
CSM	Conceptual Site Model
DP	Deposited Plan
DQI	Data Quality Indicator
DQO	Data Quality Objective
EIL	Ecological Investigation Level
EMP	Environmental Management Plan
ENSR	ENSR Australia Pty Ltd
EPA	Environment Protection Authority (NSW)
ESL	Ecological Screening Level
FA	Fibrous Asbestos
GIL	Groundwater Investigation Level
HIL	Health Investigation Level
HSL	Health Screening Level
IAA	Interim Audit Advice
ISQG	Interim Sediment Quality Guideline
LCS	Laboratory Control Sample
LEP	Local Environment Plan
Mercury	Inorganic mercury unless noted otherwise
Metals	As: Arsenic, Cd: Cadmium, Cr: Chromium, Cu: Copper, Ni: Nickel, Pb: Lead, Zn: Zinc, Hg: Mercury
ML	Management Limits
MS	Matrix Spike
NATA	National Association of Testing Authorities
NC	Not Calculated
ND	Not Detected

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NEHF	National Environmental Health Forum
NEPM	National Environment Protection Measure
NHMRC	National Health and Medical Research Council
NL	Non-Limiting
n	Number of Samples
OCPs	Organochlorine Pesticides
OEH	Office of Environment and Heritage
OPPs	Organophosphorus Pesticides
PAHs	Polycyclic Aromatic Hydrocarbons
PB	Parsons Brinckerhoff
PCBs	Polychlorinated Biphenyls
pH	A measure of acidity, hydrogen ion activity
PID	Photoionisation Detector
PQL	Practical Quantitation Limit
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance/Quality Control
RAP	Remediation Action Plan
RPD	Relative Percent Difference
SAQP	Sampling Analysis and Quality Plan
SAR	Site Audit Report
SAS	Site Audit Statement
SILs	Soil Investigation Levels
SVOCs	Semi Volatile Organic Compounds
SWL	Standing Water Level
TCLP	Toxicity Characteristic Leaching Procedure
TPHs	Total Petroleum Hydrocarbons
TRHs	Total Recoverable Hydrocarbons
TV	Trigger Value
USEPA	United States Environmental Protection Agency
VENM	Virgin Excavated Natural Material
VOCs	Volatile Organic Compounds
WSP PB	WSP Parsons Brinckerhoff
-	On tables is "not calculated", "no criteria" or "not applicable"

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1. INTRODUCTION

A site contamination audit has been conducted in relation to the site at 71-75 Gardeners Road, Eastlakes. The site comprised a Sydney Water Corporation (Sydney Water) works depot, former nursery and residential property.

The Audit was conducted to provide an independent review by an EPA Accredited Auditor of the nature and extent of any contamination of the land i.e. a "Site Audit" as defined in Section 4 (1) (b) (i) of the *NSW Contaminated Land Management Act 1997* (the CLM Act).

It is understood that Sydney Water plan to divest the site.

1.1 Background

The site comprises a works depot in the east of the site (referred to as 71 Gardeners Road), a residential property in the centre of the site (73 Gardeners Road) and a former nursery in the west of the site (75 Gardeners Road).

The nursery was subject to a previous site audit in August 2006 by James Davis as detailed in:

- 'Site Audit Report, 0301-0439, Sydney Water Corporation, 75 Gardeners Road, Daceyville NSW', 1 August 2006, James Davis of JBS Environmental Pty Ltd.
- Site Audit Statement, SAS No. 0301-0439, signed 1 August 2006.

The audit was undertaken to determine the suitability of a portion of the site for commercial use and permissible recreational open space land use. The area under Audit comprised the former nursery, however excluded the residential property located to the east. Based on the results of a Phase 2 Environmental Site Assessment (AWT, 2001), the SAS certified that the site is suitable for secondary school, open space and commercial/industrial uses subject to compliance with an environmental management plan (EMP). The EMP (CES, 2006) was prepared for management of lead contaminated fill material identified at one location in the car park in the northeast of the former nursery.

The nursery and residential property were subject to a previous site audit by Melissa Porter in October 2016 (MP 067), as detailed in:

- 'Site Audit Report 73-75 Gardeners Road, Eastlakes' referenced as MP 067, dated 4 October 2016, Melissa Porter of Ramboll Environ Australia Pty Ltd.
- Site Audit Statement SAS No. MP067, signed 4 October 2016.

The SAS concluded that the nature and extent of contamination had been appropriately determined on the former nursery and residential property. Further investigation of the residential property was subsequently undertaken by PB (2016) and an EMP prepared (WSP PB, 2016). The site investigation reports relevant to the nursery and residential property have therefore been reviewed as part of this Audit.

The depot portion of the site was subject to a previous audit by Tony Scott, however was not completed. Correspondence from Tony Scott was provided, which detailed comments on various reports prepared for the depot. The following correspondence from Tony Scott was reviewed as part of this Audit:

- 'Site Auditor Comments – HLA ENSR Position Paper Daceyville Depot', 23 October 2007
- 'Site Auditor – Review of AWT (2001), CES (2005) and Addendum to Position Paper (2007)', 21 February 2008
- 'Site Auditor Review of ENSR (2008a) and ENSR (2008b), Daceyville Depot, NSW', 27 June 2008
- 'Sydney Water Daceyville Site', 7 July 2008
- 'Site Auditor Review of RAP ENSR (2009) and EMP ENSR (2009), Daceyville Depot, NSW', 12 May 2009

- 'Sydney Water Daceyville Site Environmental Management Plan', 21 December 2009
- 'Site Auditor Review of Revised RAP AECOM (2010) and EMP AECOM (2010), Daceyville Depot, NSW', 19 March 2010

1.2 Scope of the Audit

Details of the Audit are:

Requested by:	Emma Bradbeer on behalf of Sydney Water Corporation
Request/Commencement Date:	23 May 2017
Auditor:	Tom Onus
Accreditation No.:	1505

The scope of the Audit included:

- Review of the following reports:
 - 'Phase 2 Environmental Site Assessment, Daceyville Nursery Site', November 2001, Australian Water Technologies (AWT) (*the AWT Phase 2 ESA*).
 - 'Site Management Plan: 75 Gardeners Road, Daceyville', 6 July 2006 (Draft), Consulting Earth Scientists Pty Ltd (CES).
 - 'Additional Environmental Site Assessment: 73 Gardeners Road, Eastlakes, NSW', dated 16 May 2007, CES.
 - 'Remediation Action Plan, Daceyville Depot, Gardeners Road, Daceyville, NSW', dated 7 April 2008, ENSR Australia Pty Ltd (ENSR).
 - 'Proposed Sewerage Treatment Plant, Gardeners Road, Daceyville - Geotechnical Investigation', dated 2 June 2008, Geotechnique.
 - 'Classification of Stockpiled Material, SWC Depot, Daceyville, NSW', dated 28 September 2009, AECOM.
 - 'Site Condition Report, Daceyville Depot, Gardeners Road, Daceyville, NSW', dated 18 February 2010(a), AECOM.
 - 'Environmental Management Plan, Daceyville Depot, Gardeners Road, Daceyville, NSW', dated 19 February 2010(b) and a previous version dated 7 April 2009, AECOM.
 - 'Environmental Management Plan, Sydney Water Daceyville Depot, Gardeners Road, Daceyville, NSW', dated 25 May 2015, Coffey Environments Australia Pty Ltd (Coffey).
 - 'Stage 1 Detailed Site Investigation, 73-75 Gardeners Road, Eastlakes', 15 July 2015, CH2M HILL Australia Pty Ltd (CH2M) (*the Stage 1 DSI*).
 - '73-75 Gardeners Road, Eastlakes Addendum Stage 2 Detailed Site Investigation - Sydney Water', 28 July 2016, CH2M (*the Stage 2 DSI*).
 - 'Combined Stage 1 and 2 Detailed Site Investigation, Sydney Water 73 Gardeners Road, Eastlakes NSW', dated 15 April 2016, Parsons Brinckerhoff (PB) (*PB Stage 1 and 2 DSI*).
 - 'Environmental Management Plan, Sydney Water Property, 73 Gardeners Road, Eastlakes NSW', dated 29 September 2016, WSP|Parsons Brinckerhoff (WSP PB).
- Review of the SAR and SAS prepared by James Davis (SAS No. 0301-0439) and Melissa Porter (MP067).
- A site visit by the Auditor on 21 June 2017.
- Discussions with Sydney Water.

The investigations were completed prior to the Auditor's engagement and no discussion with the consultants was undertaken.

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Given the Audit was undertaken to confirm the nature and extent of contamination, an assessment of the adequacy of the various EMPs prepared for different areas of the site (CES 2006, AECOM 2009, Coffey 2015 and WSP PB 2016) was not undertaken.

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2. SITE DETAILS

2.1 Location

The site locality is shown on Attachment 1, Appendix A.

The site details are as follows:

Street address:	71-75 Gardeners Road, Eastlakes NSW 2018
Identifier:	Part Lot 50 DP1216168 and Lot 51 DP1216168
Local Government:	Botany Bay City Council
Owner:	Sydney Water
Site Area:	Approximately 2.75 ha

The boundaries of the site are defined by Gardeners Road to the north, Slattery Place to the west, Mill Stream to the east and a golf course to the south. A survey figure of the site is presented as Attachment 2 in Appendix A.

2.2 Zoning

The Auditor reviewed the Botany Bay Local Environmental Plan 2013, which gives the zoning of the former nursery as SP1 Special Activities (Recreation Facility) and the residential property and depot as SP2 Infrastructure (Sydney Water Depot).

2.3 Adjacent Uses

The site is located within an area of mixed residential and recreational use (Attachment 3, Appendix A). The surrounding site use includes:

- North: Gardeners Road, then residential properties.
- East: Mill Stream, then Eastlakes Golf Club, then residential properties.
- South: The Lakes Golf Club.
- West: Slattery Place, then residential properties.

Nearby sensitive receptors include Mill Stream and surface water features of the adjacent golf courses.

AWT reported that areas to the south of the site had historically been subject to sand mining and filling. These areas are located downgradient of the site and are therefore not considered to be potential sources of contamination to the site. No other potential offsite sources of contamination were identified in close proximity to the site.

2.4 Site Condition

The condition of the different areas of the site based on consultant reports and Auditor observations during the site visit on 21 June 2017 is provided below.

Former Nursery

Following demolition of buildings on the former nursery in 2016, CH2M (2016) reported the following with respect to the condition:

- The site is undulating, with a crest located near the centre of the site. The western portion of the site slopes down to an open stormwater channel and then slopes back up to the western boundary of the site at Slattery Place.
- The open stormwater channel in the west of the site is concrete lined. It flows towards surface water features in the golf courses to the south of the site.
- A groundwater abstraction bore was located in the west of the site, adjacent to the stormwater channel.

- An asphalt paved car park was present in the northwest of the site.

The layout of the former nursery prior to demolition of buildings is presented in Attachment 4, Appendix A.

At the time of the Auditor's site visit on 21 June 2017, a portion of the site comprising the former nursery was being used as a works depot by a telecommunication company. The depot included a small demountable office, vehicles, skip bins of water and stockpiles of different materials (concrete pieces, roadbase, sandstone, asphalt, sand and gravel, crushed concrete, brick and tile). The remainder of the former nursery was vacant and included landscaped gardens, asphalt and concrete paving, and retaining walls.

Residential Property

PB (2016) reported the following during their investigation of the residential property in October 2015:

- The residential property comprises a single storey brick building, garden shed and paved and grassed areas. A caravan and temporary 'lean-to' were in the south of the site. The property was fenced.
- Fragments of asbestos containing material (ACM) were noted on the ground surface in the south of the site.

The layout of the residential property is presented in Attachment 5, Appendix A.

At the time of the Auditor's site visit on 21 June 2017, the residential property was not occupied. The building and other structures remained around the building and in the south of the site. The site surface was obscured by leaf litter, long grass and weeds. A retaining wall was present along the western boundary of the property. It had collapsed in one area, revealing approximately 0.5 m of fill material comprising sand, gravel, mulch, plastic, asphalt and Styrofoam.

Depot

The AECOM (2010a) validation report and Coffey (2015) EMP noted the following features on the depot following its redevelopment in 2009:

- Two car park were present in the north of the site either side of an access road from Gardeners Road.
- Two storey office and amenities building, with an attached warehouse was present near the centre of the site.
- Open storage areas paved with concrete and asphalt in the south and west of the site. Material stored in these areas were not specified.
- A sewage pumping station is present in the northwest of the site. The surrounding ground surface was gravel.
- Landscaped areas were present around carparks in the north of the site and along the eastern and western boundaries.
- The depot has been capped with new buildings, bitumen and concrete paving, and 350 mm of imported material and a marker mesh in landscaped areas.
- The stormwater canal to the east of the site is concrete lined for the northern 40 m adjoining the site. The canal discharged to Lachlan Swamp, which discharges into Mill Pond. Geotechnique (2008) reported that the canal was "...about 12 m wide and 3.5 m deep with bank slopes of about 45 to 60 degrees".

The layout of the depot prior to remediation and redevelopment is presented in Attachment 6, Appendix A. The layout following redevelopment is presented in Attachment 7, Appendix A.

Prior to the redevelopment, the depot extended further south. CES reported that the portion of the former depot area located off-site to the south was vacant except for stockpiles of waste material.

At the time of the Auditor's site visit on 21 June 2017, the depot was in use and had a layout similar to that described by AECOM and Coffey. Material storage bays in the south of the site were concrete paved and contained sand, roadbase, topsoil, asphalt or fill. A truck wash and dangerous good store were present in the southeast corner.

2.5 Proposed Development

The site is currently zoned SP1 Special Activities (Recreation Facility) and SP2 Infrastructure under the Botany Bay Local Environmental Plan 2013.

The future use of the site is unknown. CH2M (2016) report that the future use may include medium density residential land use. Given the surrounding residential land use, the 'residential with minimal access to soil' exposure scenario was adopted for the Audit.

3. SITE HISTORY

AWT (2001) summarised the site history of the nursery, PB (2016) summarised the site history of the residential property and CES (2007) summarised the site history of the depot. The site histories were typically based on historical aerial photographs, planning certificates, NSW EPA records, WorkCover dangerous goods records, Certificates of Title and Sydney Water records.

The Auditor's summary of the site history is presented in Table 3.1.

Table 3.1: Site History	
Date	Activity
1908-1913	Private individuals own the land and the activities at the site are unknown.
1913/1914	The Minister of Public Works resumes the land.
1926	The Metropolitan Water Sewage and Drainage Board (now Sydney Water) become the registered proprietor.
1926-1970	<p>The nursery area of the site is leased to the Lakes Golf Club and was the location of the club house and pro-shop.</p> <p>The 1930 aerial photograph showed the residential property and depot were vacant. The 1943 aerial photograph shows the residential building is present, and is surrounded by numerous smaller structures to the south and east (including within a portion of the area currently occupied by the depot). The structures appear to be sheds and/or equipment associated with the depot. The depot portion of the site was used as a sewage pumping station, offices and for storage of materials and equipment. The east of the site was vegetated and included Mill Stream to the east.</p> <p>Aerial photographs from 1951, 1961 and 1970 appeared to show the depot area expanding to the south through filling. The residential property appeared to remain part of the depot facility during this period.</p>
1970-1976	The Jockey and Associates Club leased the club house and surrounding land. The club house was destroyed by fire prior to 1976 and the lease was terminated.
1976-2015	<p>The nursery area of the site was leased to Panama Developments Pty Ltd and remained vacant until 1982.</p> <p>At some time between 1982 and 1999 the western portion of the site was developed for use as a nursery.</p> <p>Aerial photographs from 2001-2009 showed that the depot portion of the site included a number of structures and a car park in the north, a storage area in the central area and vacant area in the south that often contained a large stockpile. CES report that the buildings were an office and amenities.</p>
2009	Redevelopment of the depot appeared to commence in the 2009 aerial photograph and was complete by the 2011 aerial photograph. The resulting site layout appeared to be the current layout.
2015-2017	<p>The western portion of the site was vacated by the nursery and buildings demolished in late 2015 and early 2016.</p> <p>The depot was occupied at the time of the Auditor's site visit in June 2017. A portion of the former nursery was being used as a works depot, with the remainder vacant. The residential property was vacated.</p>

The summary indicates that the western portion of the site has been used for recreational purposes (club house) and as a nursery for the last 90 years, whilst the eastern portion of the site has remained a depot with changes to the layout over time, particularly as a result of redevelopment in 2009.

Prior to redevelopment of the depot, CES report that it included three office buildings in the north with an adjacent car park. A sewage pumping station was present in the northwest of the site (which remains). The centre of the site was asphalt sealed and used to temporarily store stockpiles of raw materials and asphalt. A concrete pit (6x2 m) of unknown use was present along the western boundary, however there was no evidence of staining or contamination. The old depot layout extended off-site to the south and was vacant except for stockpiles of waste material (Attachment 3, Appendix A).

CES (2007) report that a 2,000 litre diesel aboveground storage tank (AST) was previously located in the southern portion of the depot. The AST was decommissioned and removed in 1996. Remediation and validation of the AST area was not reported.

3.1 Auditor's Opinion

The Auditor considers that the site history is broadly understood. There were no indicators of significant industrial uses on-site and surrounds that would have the potential to contaminate the site. The uncertainties include filling history, the demolition of the club house that was destroyed by fire, remediation and validation of the AST, and sources of contamination associated with former activities and operations on the depot.

Historical fuel and equipment storage on the depot and activities with the potential to impact the site were not identified in the site history. It is therefore not known if site investigations have adequately characterised potential point sources of contamination. The sampling density undertaken on the depot was considered sufficient to identify significant widespread contamination, however may not have identified hotspots related to points sources of contamination.

4. CONTAMINANTS OF CONCERN

On the depot portion of the site, CES (2007) identified total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs) and metals as contaminants of concern in fill material based on previous investigations by AWT and CES (reports not provided to the Auditor for review). Other contaminants, including benzene, toluene, ethylbenzene and xylene (BTEX), organochlorine pesticides (OCPs), organophosphorus pesticides (OPPs), polychlorinated biphenyls (PCB) and asbestos had been previously assessed and not found to be contaminants of concern in fill material.

Sources of contamination associated with the depot were not identified by CES (2007). CES (2007) considered that PAHs identified in fill material were associated with "...ash, slag and black coal-like fragments" rather than activities or operations on the depot.

CH2M (2015b) and PB (2016) provided a list of the contaminants of concern and potentially contaminating activities associated with the nursery and residential property. These have been tabulated in Table 4.1.

Table 4.1: Nursery Contaminants of Concern		
Area	Activity	Potential Contaminants
Various areas of the site	Fill material from unknown sources	Metals, petroleum hydrocarbons (total recoverable hydrocarbons (TRH) and BTEX), PAHs, OCPs, OPPs, PCBs and asbestos
Former club house	Destroyed by fire and demolished	Metals, PAHs, PCBs and asbestos
Various areas of the site	Use of pesticides and herbicides	OCPs, OPPs and herbicides
Former mechanical shed in the west of the nursery	Storage of oil, paint and diesel	Petroleum hydrocarbons (TRH and BTEX), PAHs, metals
Maintenance area near the centre of the nursery	Maintenance of shopping carts	Petroleum hydrocarbons (TRH and BTEX)
Hazardous building materials on the residential property	Deterioration of buildings	Asbestos and lead

4.1 Auditor's Opinion

The Auditor considers that the analyte list used by AWT, CH2M and PB for assessment of the nursery and residential property adequately reflects the site history and condition.

The analyte list used by CES to assess fill material on the depot was limited based on the results of previous investigations. Previous investigations included asbestos analysis at a low density (5 fill samples) and identified asbestos in one borehole (D20) at a depth of 1 mbgl. Logs of boreholes undertaken during previous investigations were not provided, however it is assumed that the sample was from fill material given the presence of fill to depths of 2-3 mbgl in nearby areas. Asbestos was not identified as a contaminant of concern by CES and samples of fill material were not assessed for asbestos. It is also noted that asbestos was subsequently identified in landscaped areas during remediation of the site by AECOM (2010a).

5. STRATIGRAPHY AND HYDROGEOLOGY

Following a review of the reports provided, a summary of the site stratigraphy and hydrogeology was compiled as follows.

5.1 Stratigraphy

CH2M (2016) reported that the geology of the site comprises Botany Sands underlain by Hawkesbury Sandstone. Botany Sand was described as consisting of four units, which largely comprised sand with some silt, clay and discontinuous peat lenses at depths. The geology was consistent with that reported by other consultants.

AECOM (2010a) reviewed the Soil landscape series sheet, which indicated that the site is underlain by Aeolian Tuggerah soil (coastal dune fields) and disturbed terrain.

CES (2007) reviewed the acid sulfate soil (ASS) risk map, which reported no known occurrences of ASS. Limited investigation of the depot by CES identified potential ASS as being present. Investigation of ASS on the residential property and nursery was not undertaken.

The sub-surface profile of the site based on investigations of the nursery, residential property and depot is summarised in Table 5.1.

Table 5.1: Stratigraphy	
Depth (mbgl)	Subsurface Profile
Variable, range 0.1 – 4, typically <1 mbgl on the nursery, 0.3 mbgl on the residential property and 3 mbgl on the depot.	<p>Fill material was present across the majority of the site.</p> <p>On the nursery it comprised sand and sandstone. It included roadbase gravels, tile, brick, timber and metal in south of the site near the former clubhouse and in the northwest of the site (east of the stormwater channel). Fragments of ACM were noted in fill material in these areas. Plastic, PVC pipe, hessian and glass were noted at one location in the west of the nursery.</p> <p>Fill material on the residential property typically comprised silty sand. Ash, tile, bitumen, cement, bricks and glass was identified in three locations. ACM was observed on the ground surface in the south of the property.</p> <p>Fill material on the depot prior to remediation and redevelopment was variable and consisted of sand, clay, silt, gravel, bitumen, ash, sandstone, coal, concrete, bricks, metal, terracotta, plastic, timber, slag, shale, charcoal, glass and carbonaceous materials. CES identified significant layering in the fill material, which varied in composition and thickness. Field logs from previous investigations of the depot were not provided.</p> <p>Following remediation in 2009, the depot was capped. The capping layer composition and thickness varied across the site, however generally comprised: 350 mm of bitumen paving and underlying roadbase; 350 mm of concrete paving and underlying roadbase; or 350 mm of imported material and a marker mesh in landscaped areas.</p>
Variable depending on the thickness of overlying fill material, extends to 37 mbgl	Natural sand with sporadic peat layers
37 mbgl to depth	Sandstone bedrock

mbgl – metres below ground level

5.2 Hydrogeology

AWT (2001) and CES (2007) reported that the site is located within the Botany Sands aquifer, which is mainly unconfined, although peat, clay and indurated ferruginous layers produce semi-confined and confined groundwater in some areas.

A search of registered bores by PB (2016) identified 45 within 500 m of the site, with most registered for domestic or recreational use to the northwest of the site. A bore for irrigation purposes was located on the site at the former nursery.

Groundwater monitoring wells installed on the former nursery identified groundwater at a depth of approximately 5-10 m below ground level (mbgl), with the groundwater flow direction considered to be southerly by AWT and easterly by CH2M.

Groundwater on the depot was present at between 2.5 and 4.4 mbgl (approximately 15.0-15.9 mAHD), with a groundwater flow direction towards the adjacent Mill Stream to the east and south. AECOM (2010a) reported that groundwater levels were "...relatively stable, with minor fluctuations". CES (2007) undertook hydraulic conductivity testing at two wells (BH102 and BH106) and presented results of 7.7×10^{-5} ms to 8×10^{-4} ms, which were considered typical for sand.

CES (2007) report that the regional groundwater flow was towards Botany Bay in the south, with local flow direction influenced by topography and surface drainage features.

Parameters measured during sampling events on the nursery identified groundwater to be slightly acidic (pH 5.5-6.5), aerobic (dissolved oxygen 1.7-5.6 mg/L), oxidising (269-320 mV) and with low salinity (<0.5 mS/cm). Groundwater on the depot was found to be similar, with slightly higher electrical conductivity (up to 2 mS/cm) and low dissolved oxygen reported (0.1-2.1 mg/L).

The stormwater channel in the west of the site is concrete lined. During sampling by AWT it was reported to be isolated pools of water. During the Stage 1 DSI, the channel contained slow flowing water. At the time of the Auditor's site visit (June 2017), it was isolated pools of water.

Mill Stream to the east of the site is concrete lined for the northern 40 m. AECOM (2010a) reported that Mill Stream received stormwater from upgradient areas, and had an oily-sheen and debris/detritus following rainfall events.

The stormwater channels flow towards surface water features on the golf courses to the south of the site.

5.3 Auditor's Opinion

The Auditor considers that the depth and lateral extent of fill material was not well delineated in some areas, which is likely to result in some uncertainty regarding the volume of material requiring management and/or remediation.

The Auditor considers that the hydrogeology reported is sufficient to characterise the site.

6. EVALUATION OF QUALITY ASSURANCE AND QUALITY CONTROL

The Auditor has assessed the overall quality of the data by review of the information presented in the referenced reports, supplemented by field observations. The data sources are summarised in Table 6.1.

Table 6.1: Summary of Investigations		
Investigations	Field Investigations	Analytical Data Obtained
AWT (2001)	Investigation of the former nursery by pushtube drilling, hand auger and hollow flight auger at 24 locations (N1-N21) (Attachment 8, Appendix A). Groundwater monitoring at three wells (GN1-GN3) and surface water sampling from the stormwater drain at one location (SW1).	Soil: TPH, BTEX, PAHs, metals, OCP and PCB Water: nutrients, cations, anions, metals, OCP, PAHs, TPH and BTEX
CES (2007) Additional Environmental Site Assessment	Investigation of the depot by pushtube drilling at five locations (BH101-BH105) (Attachment 6, Appendix A), with a further five locations offsite to the southwest (BH106-BH110). The locations were converted into groundwater monitoring wells. Groundwater monitoring from five existing (GD1, GD5, BH12, BH14, BH22) and ten new wells (BH101-BH110) located on the depot and offsite to the southwest (Attachment 6, Appendix A). Surface water sampling from Mill Stream at an upstream and downstream location (SW1 and SW2).	Soil: TPH, BTEX, PAHs and metals Water: TPH, PAHs and metals
Geotechnique (2008) Geotechnical Investigation	Geotechnical boreholes (8) and test pits (6) undertaken on the depot.	No samples were collected for analysis.
AECOM (2010) Site Condition Report	Validation of virgin excavated natural material (VENM) imported to the depot from construction sites. A stockpile of material present on the site was validated for reuse onsite (SP1-SP8). Assessment of fill material in landscaped areas (SS1-SS4). Groundwater monitoring from ten wells (GD3, GD5, BH12, BH101, BH102, BH105-BH108 and BH110) located on the depot and offsite to the southwest (Attachment 6, Appendix A).	Soil: Typically TPH, BTEX, PAHs, asbestos, metals, OCP, OPP and PCB. Water: TPH, BTEX and PAHs

CH2M (2015b) Stage 1 DSI	Investigation of the former nursery and residential property by boreholes (EL01-EL45) (Attachment 9, Appendix A). Surface water from one location within the stormwater drain (SW01) on the nursery (Attachment 10, Appendix A). Sediment from two locations within the stormwater drain (SS01 and SS02) on the nursery (Attachment 10, Appendix A). Groundwater from five wells (GN1A, GN2A, GN3A, GN4 and GN5) and the bore (BS01) on the nursery (Attachment 10, Appendix A).	Soil: TRH, BTEX, PAHs, asbestos, metals, OCP, OPP, PCB, phenol and herbicides Water: TRH, BTEX, PAHs, metals, OCPs, PCBs and inorganics Sediment: TRH, BTEX, PAHs, metals and phenol
CH2M (2016) Stage 2 DSI	Investigation of the former nursery and residential property by test pits and surface samples at 51 locations (EL46-EL96) (Attachment 11, Appendix A). Groundwater at four locations (GN1A, GN2A, GN4 and GN5) on the nursery (Attachment 11, Appendix A).	Soil: TRH, BTEX, PAHs, asbestos and metals Water: TRH, BTEX, PAHs, metals, OCPs, OPPs, PCBs, phenols and inorganics
PB (2016) Stage 1 and 2 DSI	12 hand auger locations (HA02-HA05, HA07-HA10 and HA12-HA15) on the residential property (Attachment 5, Appendix A).	TRH, BTEX, PAHs, asbestos, metals, OCP, OPP, PCB and herbicides

The Auditor's assessment follows in Tables 6.2 and 6.3.

Table 6.2: QA/QC – Sampling and Analysis Methodology Assessment	
Sampling and Analysis Plan and Sampling Methodology	Auditor's Opinion
<p>Data Quality Objectives (DQO)</p> <p>AWT and CES defined specific DQOs in accordance with the seven step process outlined in DEC (2006) <i>Guidelines for the NSW Site Auditor Scheme</i>.</p> <p>CH2M defined DQOs for the Stage 1 DSI in the SAQP (2015a) and for the Stage 2 DSI in the investigation report (2016).</p> <p>PB (2016) defined DQOs for the Stage 1 and 2 DSI.</p> <p>ENSR (2008) defined DQOs for the remediation of the depot.</p>	These were considered appropriate for the investigations and validation conducted.
<p>Sampling pattern and locations</p> <p><i>Soil</i>: AWT investigation locations were spaced to gain coverage of the majority of the site (Attachment 8, Appendix A). The residential property in the east of the site was not included in the AWT investigation.</p> <p>CH2M investigation locations were a combination of grid based and targeted to areas of potential concern,</p>	In the Auditor's opinion these investigation locations adequately target the main areas of concern and adequate coverage of other areas of the site.

Table 6.2: QA/QC – Sampling and Analysis Methodology Assessment

Sampling and Analysis Plan and Sampling Methodology	Auditor's Opinion
<p>including sheds, maintenance areas, former clubhouse and retaining walls (Attachments 10 and 11, Appendix A).</p> <p>PB investigation locations were in accessible areas of the residential property not previous targeted by CH2M (Attachment 5, Appendix A).</p> <p>CES collected soil samples from the depot using a judgemental sampling pattern. The locations were predominantly along the property boundaries and offsite to the southwest (Attachment 6, Appendix A).</p> <p>AECOM collected samples from fill material within landscaped areas prior to capping, and from material proposed for importation to the depot for use in the capping layer.</p> <p><i>Groundwater:</i> Monitoring wells were spaced across the site at an adequate density, including upgradient and downgradient locations.</p> <p>Groundwater on the residential property was not investigated.</p>	
<p>Sampling density</p> <p><i>Soil:</i> The site is approximately 2.75 ha. The EPA (1995) <i>Sampling Design Guidelines</i> require a minimum of 40 locations for site characterisation based on hotspot detection. A total of approximately 142 samples have been undertaken across the site, comprising: 24 locations on the nursery by AWT; 96 locations on the nursery and residential property by CH2M; 12 locations on the residential property by PB and 10 locations on the depot by CES.</p> <p>Stockpile sampling undertaken by AECOM was at a rate of 1/50 m³ for material proposed for reuse on the depot during redevelopment, and 1/500-650 m³ for VENM material proposed for importation to the depot.</p> <p>Sediment samples were collected from the stormwater channel in the west of the site. The channel was reported to be concrete lined, therefore the sample is assumed to have been collected from sediment accumulated in the channel.</p> <p><i>Groundwater:</i> A total of 5 groundwater wells were installed at the nursery. A total of 19 wells were installed on the depot, however only ten remained at the time of the final groundwater monitoring event in 2009. No wells were installed on the residential property.</p> <p><i>Surface water:</i> AWT and CH2M collected one surface water sample from water within the stormwater channel</p>	<p>The sampling density on the depot portion of the site was low (5 locations on 1.3 ha), however previous investigations by AWT and CES included approximately 60 locations. The results of these investigations were summarised by CES (2007), however complete reports were not provided for review. The total sampling density (65 locations) exceeded the minimum required for hotspot detection (25 locations).</p> <p>The sampling density and rate of analysis for asbestos on the depot was low and represents a data gap.</p> <p>Recycled aggregate (DGB20 and DGB40), landscaping material (topsoil and mulch) and quarried material were not analysed by AECOM prior to or following importation to the site.</p> <p>The sampling density for other areas of the site, and for groundwater, sediment and surface water was considered adequate.</p>

Table 6.2: QA/QC – Sampling and Analysis Methodology Assessment

Sampling and Analysis Plan and Sampling Methodology	Auditor's Opinion
in nursery. CES collected surface water samples from upstream and downstream locations in Mill Stream.	
<p>Sample depths</p> <p>Samples were collected and analysed from a range of depths, with the primary intervals being within the shallow fill (0-0.2 mbgl) and 0.5 m intervals and from underlying natural material.</p> <p>PB collected samples from a depth of up to 1 mbgl on the residential property, however samples selected for analysis were typically from the ground surface or 0.3 mbgl.</p>	<p>In the Auditor's opinion, this sampling strategy was largely adequate to characterise the primary material types present on site.</p> <p>Fill material on the depot had significant layering (up to 13 layers over 3 m), with variable composition and thickness. Three to four samples were collected per borehole by CES, with one to two analysed by the laboratory. The sample depths are therefore not sufficient to characterise all fill material on the depot.</p>
<p>Well construction</p> <p>AWT wells were installed to depths of 8-12 mbgl, with 4 or 6 m screen intervals. The wells were constructed of 50 mm uPVC. A bentonite seal of approximately 1 m thick was placed above the screen.</p> <p>CH2M installed five wells (GN1-GN5), three replacing the AWT wells that were lost or destroyed, plus two additional wells (GN4 and GN5). The wells were installed to depths of 4-10 mbgl, with 3 m screen intervals. Wells were constructed of 50 mm PVC screen and casing. The annulus was filled with 2 mm filter sand around the screen, with 0.5 m of bentonite pellets used to seal the well and cement slurry used to backfill the well to the ground surface.</p> <p>CES installed five wells on the site (BH101-BH105) and five wells offsite to the southwest (BH106-BH110). Wells were constructed of 40 mm uPVC pipe, with 1.5 m stainless steel screen intervals typically installed at a depths of either 2-3.5 mbgl or 3.5-4 mbgl. The screen interval was backfilled with gravel to 0.5-1 m above the screen. Bentonite chips were used to fill the well to the ground surface.</p>	<p>In the Auditor's opinion the well construction was acceptable.</p>
<p>Sample collection method</p> <p><i>Soil:</i> AWT predominantly collected soil samples by pushtube, with some samples collected by hand auger and hollow flight auger.</p> <p>During the CH2M Stage 1 DSI, soil samples were collected by hand auger for the first 1.2 mbgl, with deeper bores advanced by pushtube or solid stem auger. Pushtubes were fitted with clear PVC sleeves and sand</p>	<p>Sample collection by auger and test pit has the potential to result in loss of volatiles. Volatiles were contaminants of concern at the shed and maintenance areas, however were not detected above the PQL. The sampling methods are unlikely to have resulted in significant volatile loss.</p>

Table 6.2: QA/QC – Sampling and Analysis Methodology Assessment

Sampling and Analysis Plan and Sampling Methodology	Auditor's Opinion
<p>catchers to prevent loss of sample. During the CH2M Stage 2 DSI, samples were mostly collected by test pit excavation, with some surface soil samples collected using hand tools.</p> <p>Sampling undertaken by PB was by hand auger.</p> <p>CES (2007) collected soil samples by pushtube.</p> <p>AECOM collected soil samples by hand using disposable gloves.</p> <p><i>Sediment:</i> Samples were collected using a petite ponar sampling mechanism.</p> <p><i>Groundwater:</i> AWT purged wells with a submersible pump. The method of sample collection was not reported, however is likely to have been via the submersible pump.</p> <p>CH2M collected samples by low flow peristaltic with dedicated sample tubing during the Stage 1 DSI and Micropurge sampling kit during the Stage 2 DSI.</p> <p>AECOM collected groundwater samples using low flow methodology, comprising either micro-purge pump or peristaltic pump with dedicated tubing.</p> <p><i>Surface Water:</i> Grab samples were collected from surface water features on the site.</p>	Overall the sample collection method was found to be acceptable.
<p>Decontamination procedures</p> <p>AWT report that all soil and groundwater sampling equipment was washed in a solution of detergent and rinsed with deionised water between samples.</p> <p>CH2M report that a new set of gloves were used to collect each sample. Reusable sampling equipment was decontaminated with a solution of Decon 90 and tap water.</p> <p>PB report that dedicated disposable nitrile gloves were worn for each sample. Decontamination of the hand auger was not expressly reported, however PB report that it was "<i>undertaken after each sampling episode where equipment used was not dedicated</i>".</p> <p>CES report that disposable nitrile gloves and push tube liners were used to collect soil samples.</p> <p>AECOM used disposable nitrile gloves for soil sampling. Dedicated sample tubing and bladder were used for groundwater sampling.</p>	Acceptable
<p>Sample handling and containers</p> <p>Samples were placed into prepared and preserved sampling containers provided by the laboratory and chilled during storage and subsequent transport to the</p>	Acceptable

Table 6.2: QA/QC – Sampling and Analysis Methodology Assessment

Sampling and Analysis Plan and Sampling Methodology	Auditor's Opinion
<p>labs. Samples for asbestos analysis were placed in plastic zip-lock bags.</p> <p>The laboratory noted that some samples supplied for asbestos analysis by CH2M were less than 500 mL, however they also noted that samples were sub-sampled for analysis.</p> <p>Groundwater samples to be analysed for heavy metals were field filtered.</p>	
<p>Chain of Custody (COC)</p> <p>Completed chain of custody forms were provided in the reports.</p>	Acceptable
<p>Detailed description of field screening protocols</p> <p><i>Soil:</i> Field screening for volatiles was undertaken by AWT, CH2M, PB, CES and AECOM using a photoionisation detector (PID). PB and CES report that a duplicate sample was placed in a zip lock bag for screening. The field screening procedure was not reported by AWT and CH2M.</p> <p>Field screening for ACM was undertaken by CH2M and PB in accordance with the NEPM (2013) methodology. A 10 L sample of soil was collected and screened through a 7 mm sieve, with the collected ACM weighed to quantify asbestos content. Field screening for asbestos was not undertaken by AWT, CES and AECOM as they were prior to release of NEPM (2013).</p> <p><i>Groundwater:</i> Field parameters were measured during well sampling by AWT, CH2M and AECOM. Measurement of parameters during well development by AWT and CH2M was not reported.</p>	Acceptable given the analytical results and observations were consistent with field screening results.
<p>Calibration of field equipment</p> <p>AWT did not report calibration of the PID and water quality meter during the Phase 2 ESA.</p> <p>CH2M provide equipment calibration records from the equipment rental company for the water quality meter and PID. Field check records were provided for the PID during the Stage 2 DSI.</p> <p>PB report that the PID was calibrated at the beginning of each day. Records were not provided.</p> <p>CES report that calibration of the PID was undertaken. Records for calibration of the PID were provided.</p> <p>AECOM provided field calibration records for the water quality meter and PID. A certificate from the equipment supplier was also provided in most instances.</p>	Acceptable given that the AWT and PB field results are largely consistent with laboratory analytical results and investigations by CH2M.
Sampling logs	Acceptable

Table 6.2: QA/QC – Sampling and Analysis Methodology Assessment

Sampling and Analysis Plan and Sampling Methodology	Auditor's Opinion
<p>Soil logs are provided within the AWT, CH2M, PB and CES reports, indicating sample depth, PID readings and lithology.</p> <p>Groundwater field sampling records were not provided by AWT, however field parameters and depth to groundwater were provided in summary tables.</p> <p>CH2M and AECOM provided groundwater field sampling records indicating SWL, field parameters, methodology and observations.</p>	

Table 6.3: QA/QC – Field and Lab Quality Assurance and Quality Control

Field and Lab QA/QC	Auditor's Opinion
<p>Field quality control samples</p> <p>Field quality control samples generally including trip blanks, trip spikes, rinsate blanks, field intra-laboratory and inter-laboratory duplicates were undertaken.</p> <p>AWT report that field duplicates for metals were homogenised in a stainless steel tray. Duplicates for organic compounds were placed directly into sample containers.</p> <p>No trip spikes were analysed by AWT. This was not considered to affect the usability of the data since volatile compounds (including BTEX and TRH C₆-C₁₀) were not detected in the soil samples analysed.</p> <p>CES did not collect rinsate blanks as dedicated and disposable equipment was used.</p> <p>AECOM did not collect trip blanks and trip spikes. It is not clear why the rinsate was collected given that disposable sampling equipment was used.</p>	<p>Overall, considered acceptable given the contaminants of concern, methodology adopted and results presented.</p>
<p>Field quality control results</p> <p>The results of field quality control samples were generally within appropriate limits. The following exceptions were noted:</p> <ul style="list-style-type: none"> Relative Percent Differences (RPDs) for soil duplicate samples for metals ranged from 0 to 180%. AWT reported that the exceedances were a result of low contaminant concentrations and difficulties in collecting representative samples from fill material. Elevated RPDs for PAHs were reported for soil duplicates and triplicates during the Stage 2 DSI. These were typically in samples with low contaminant concentrations. 	<p>Overall, in the context of the dataset reported, the issues identified are not considered significant and the field quality control results are acceptable.</p>

Table 6.3: QA/QC – Field and Lab Quality Assurance and Quality Control

Field and Lab QA/QC	Auditor's Opinion
<ul style="list-style-type: none"> Zinc (0.014 mg/L) was detected in a rinsate blank during the AWT investigation. Zinc was also detected in rinsate and trip blanks analysed during the Stage 1 DSI. Copper was detected in the trip blanks, but not in the rinsate blanks. Elevated RPDs were reported for DDE, benz(a)anthracene and benzo(g,h,i)perylene in soil duplicates and triplicates during the PB Stage 1 and 2 DSI. These were attributed to low concentrations. Elevated RPDs were reported by CES in duplicate and triplicate samples for TPH, PAHs and nickel. CES considered these to be due to heterogeneity of the fill material and the highest result was adopted. 	
<p>NATA registered laboratory and NATA endorsed methods</p> <p>Laboratories used included the following:</p> <ul style="list-style-type: none"> AWT - AWT (metals) and Amdel (organics). CH2M - SGS (primary) and Envirolab (secondary). PB - ALS (primary) and Envirolab (secondary). CES - ALS (primary) and LabMark (secondary). AECOM - LabMark (primary) and ALS (secondary). <p>Laboratory certificates were NATA stamped. Analysis of soil samples for asbestos in accordance with the NEPM (2013) requirements was not NATA accredited.</p>	Acceptable
<p>Analytical methods</p> <p>Analytical methods references and descriptions were included in the laboratory test certificates.</p>	Acceptable
<p>Holding times</p> <p>Review of the COCs and laboratory certificates indicate that the holding times had generally been met.</p> <p>CH2M report that pH was outside of holding time by two days in 13 samples. VOC and SVOC analysis was outside the holding time by one day for one sample (EL55_0.1) during the Stage 2 DSI. The non-conformance was considered minor and on a non-critical sample.</p>	<p>Acceptable</p> <p>The Auditor notes that VOC and SVOC results for sample EL55_0.1 were not included in the data set.</p>
<p>Practical Quantitation Limits (PQLs)</p> <p><i>Soil:</i> PQLs were less than the threshold criteria for the contaminants of concern.</p> <p><i>Groundwater:</i> The following trigger values were less than the PQLs:</p> <ul style="list-style-type: none"> Mercury 0.1 µg/L, trigger value 0.06 µg/L Cadmium 0.1 µg/L, trigger value 0.06 µg/L 	<p><i>Soil:</i> Overall the soil PQLs are acceptable.</p> <p><i>Groundwater:</i> The elevated PQLs were only marginally elevated above the trigger values. Overall these discrepancies do not materially affect the outcome of the audit.</p>

Table 6.3: QA/QC – Field and Lab Quality Assurance and Quality Control

Field and Lab QA/QC	Auditor's Opinion
<ul style="list-style-type: none"> Anthracene 0.1-1 µg/L, trigger value 0.01 µg/L Phenanthrene 0.1-1 µg/L, trigger value 0.6 µg/L Benzo(a)pyrene 0.1-1 µg/L, trigger value 0.1 µg/L 	
<p>Laboratory quality control samples</p> <p>Laboratory quality control samples including laboratory control samples, matrix spikes, surrogate spikes, blanks, internal standards and duplicates were undertaken by the laboratory.</p> <p>No quality control samples were undertaken during asbestos analysis.</p>	Acceptable
<p>Laboratory quality control results</p> <p>The results of laboratory quality control samples were generally within appropriate limits, with the following exceptions:</p> <ul style="list-style-type: none"> Elevated RPDs for PAHs and metals were reported in soil laboratory duplicates with low concentrations. The laboratories cited heterogeneity of the samples as the reason for the elevated RPDs. Low matrix spike recoveries for mercury and zinc were reported during analysis for the CH2M Stage 1 ESA. A marginally elevated surrogate recovery (131%) was reported in one sample during the PB Stage 1 and 2 DSI. CES reported low laboratory control sample recovery for PAHs and high surrogate recoveries for volatile TRH/BTEX in three samples. 	In the context of the dataset reported, the issues identified are not considered significant and the laboratory quality control results are acceptable.
<p>Data Quality Indicators (DQI) and Data Evaluation (completeness, comparability, representativeness, precision, accuracy)</p> <p>AWT undertook a QA/QC data evaluation against the five category areas and concluded that the data was adequately precise, accurate, representative, comparable and complete.</p> <p>CH2M undertook a QA/QC data evaluation against the five category areas during the Stage 1 DSI and Stage 2 DSI and concluded that <i>"the data is considered to be of sufficient quality to meet the objectives of the investigation"</i>.</p> <p>PB undertook a QA/QC data evaluation against the five category areas. Based on the review they concluded that <i>"...the data were considered representative and appropriate for use in this assessment"</i>.</p> <p>CES undertook a data usability assessment against the five category areas and concluded <i>"...that data are of acceptable quality for this assessment"</i>.</p>	An assessment of the data quality with respect to the five category areas has been undertaken by the auditor and is summarised below.

Table 6.3: QA/QC – Field and Lab Quality Assurance and Quality Control

Field and Lab QA/QC	Auditor's Opinion
During the GME, AECOM assessed QA/QC data against the five category areas. A number of minor issues were identified. They did not provide an overall conclusion on the quality of the data. During validation of remediation, AECOM undertook an assessment of the QA/QC data and concluded that <i>"...the reported results are considered to be reliable and representative of the stockpiled material and the overall quality of the analytical data produced is acceptably reliable for the purpose of the investigation"</i> .	

In considering the data as a whole the Auditor concludes that:

- The data is likely to be representative of the different material types present and the overall site conditions.
- The data is not complete. Data gaps identified include the low density of asbestos analysis of fill material on the depot. Imported recycled aggregate, landscaping material and quarried material was not analysed.
- There is a reasonable degree of confidence that data is comparable for each sampling and analytical event. Some sampling methodology varied between the different investigations, however this is not considered to have resulted in significant uncertainty in the data.
- The data is considered to be of sufficient precision. The analytical results of field and laboratory duplicates indicate that fill material is heterogeneous.
- The data is likely to be accurate.

7. ENVIRONMENTAL QUALITY CRITERIA

The Auditor has assessed **soil** data with reference to criteria from National Environmental Protection Council (NEPC) *National Environmental Protection (Assessment of Site Contamination) Measure 1999*, as Amended 2013 (NEPM, 2013).

Based on the likely future land use (medium to high density residential), the Tier 1 (screening) criteria for 'residential with minimal opportunities for soil access' or an Urban Residential setting were referred to.

- Human Health Assessment
 - Health Based Investigation Levels (HIL B)
 - Soil Health Screening Levels (HSL A and HSL B) for Vapour Intrusion. The most conservative criteria were adopted i.e. assumed depth to source <1 m and sand.
 - CRC CARE (2011) Direct Contact (HSL B and intrusive maintenance worker)
 - Asbestos Health Screening Levels (HSL B).
- Terrestrial Ecological Assessment
 - Ecological Screening Levels (ESL Urban Residential) assuming coarse soil.
 - Ecological Investigation Levels (EIL Urban Residential). Site specific EILs have been derived assuming the contamination is "aged", low traffic volume, 1% clay content and using a site specific pH value of 7. The most conservative cation exchange capacity (CEC) value was adopted.
- Management Limits (ML Residential) assuming coarse soil.
- Aesthetics
 - The Auditor has considered the need for remediation based on the 'aesthetic' contamination as outlined in the NEPM (2013).

The Auditor has assessed the **groundwater** and **surface water** data provided with reference to Tier 1 (screening) criteria from the following:

- Human Health Assessment
 - NEPM (2013) Groundwater Health Screening Levels (HSL A and HSL B) for vapour intrusion (sand, 4 to <8 m)
 - ADWG (2011) criteria with a factor of 10 for recreational use (for non-volatiles).
- Ecological Assessment
 - Groundwater Investigation Levels (GILs) listed in NEPM (2013) for protection of aquatic ecosystems referenced in ANZECC (2000) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Trigger values (TVs) provided are concentrations that, if exceeded, indicate a potential environmental problem at the point of use and 'trigger' further investigation. The freshwater 95% level of protection was adopted. Some have been modified based on bioaccumulation or acute-toxicity or potential toxicity to particular species.

Registered bores identified within 500 m of the site are for domestic, recreational or irrigation purposes. Groundwater may therefore be used for these purposes, however potable use is considered unlikely given that a reticulated water supply is present in the area. The NHMRC and NRMCC (2011) *Australian Drinking Water Guidelines* have therefore not been adopted.

Criteria for **asbestos** are provided in the NEPM (2013). Criteria considered by the Auditor are for residential B and are summarised as follows:

- Less than 0.04% asbestos as asbestos containing material (ACM)

- Less than 0.001% asbestos as asbestos fines (AF) or fibrous asbestos (FA)
- No visible asbestos on the surface

The Auditor has assessed the **sediment** data against the ANZECC (2000) sediment quality guidelines in accordance with the decision tree in Figure 3.5.1 of the guidelines. ANZECC (2000) provides Interim Sediment Quality Guideline (ISQG)-Low (less than 10% probability of effects) and ISQG-High concentrations (> 50% probability of effects). The criteria apply to 'slightly to moderately' and highly disturbed ecosystems.

The ANZECC (2000) assessment uses a decision process where:

- The concentrations are initially compared to the ISQG low concentrations; if above these
- The concentrations are compared to background sediment concentrations; if above these
- Factors controlling bioavailability need to be considered before the process continues (factors include solid phase speciation and pore water concentration).

Given that bioavailability studies have not been completed, where the concentrations detected are above the ISQG-low values, it is not possible to reach a conclusion about the risk to the ecosystem using the ANZECC (2000) guidelines.

The environmental quality criteria referenced by the Auditor are largely consistent with those adopted by CH2M and PB, however they adopted criteria protective of residents with accessible soil.

The criteria adopted by AWT, CES and AECOM referenced the superseded NEPM (1999) and NSW EPA (1994) *Guidelines for Assessing Service Station Sites*. The Auditor has referred to the adopted guidelines above in interpreting the AWT, CES and AECOM results.

8. EVALUATION OF SOIL ANALYTICAL RESULTS

The analytical results from the investigations summarised in Table 6.1 have been assessed against the environmental quality criteria. Analytical results were separated based on the material type and area.

8.1 Former Nursery

The results of investigations of the former nursery area by AWT and CH2M are summarised in Table 8.1 (fill material) and Table 8.2 (natural material). The investigation locations are shown on Attachments 9-11 in Appendix A.

Table 8.1: Evaluation of Fill Material Analytical Results – Former Nursery – Summary Table (mg/kg)					
Analyte	n	Detections	Maximum	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
Asbestos as AF&FA (%)	14	1	0.017%	1	-
Asbestos as ACM (%)	6	6	0.236%	4	-
Arsenic	95	51	47	0	0
Cadmium	95	44	1.54	0	-
Total Chromium	95	94	174	0	0
Copper	95	95	540	0	3
Lead	95	94	4,880	1	1
Mercury (inorganic)	95	77	110	0	-
Nickel	95	92	161	0	21
Zinc	95	95	390	0	2
TRH (C ₆ -C ₁₀ - BTEX)	66	1	5	0	0
TRH (>C ₁₀ -C ₁₆ - naphthalene)	66	3	3,600	0	1
TRH (>C ₁₆ -C ₃₄)	66	11	2,900	1	3
TRH (>C ₃₄ -C ₄₀)	66	4	160	0	0
BTEX	62	0	<PQL	0	0
Naphthalene	74	0	<PQL	0	0
Total PAHs	66	35	21	0	-
Carcinogenic PAHs	66	27	3.1	0	-
Benzo(a)pyrene	66	27	2.1	-	5
OCP	16	0	<PQL	0	0
OPP	9	0	<PQL	0	-
Phenol	9	0	<PQL	0	-
PCB	17	0	<PQL	0	-
Herbicides	8	0	<PQL	-	-

n number of samples
- No criteria available/used

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Ramboll Environ

NL Non-limiting
<PQL Less than the practical quantitation limit

Analytical results for natural material in the nursery portion of the site are summarised in Table 8.2.

Table 8.2: Evaluation of Natural Soil Analytical Results – Former Nursery – Summary Table (mg/kg)					
Analyte	n	Detections	Maximum	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
Asbestos as AF&FA (%)	0	-	-	0	-
Asbestos as ACM (%)	0	-	-	0	-
Arsenic	45	25	24	0	0
Cadmium	45	18	0.3	0	-
Total Chromium	45	43	20	0	0
Copper	45	38	31.4	0	0
Lead	45	40	75	0	0
Mercury (inorganic)	45	26	3.7	0	-
Nickel	45	37	54.2	0	1
Zinc	45	41	160	0	0
TRH (C ₆ -C ₁₀ - BTEX)	20	0	<PQL	0	0
TRH (>C ₁₀ -C ₁₆ - naphthalene)	20	0	<PQL	0	0
TRH (>C ₁₆ -C ₃₄)	20	2	220	0	0
TRH (>C ₃₄ -C ₄₀)	20	0	<PQL	0	0
BTEX	19	0	<PQL	0	0
Naphthalene	17	0	<PQL	0	0
Total PAHs	17	5	23.9	0	-
Carcinogenic PAHs	17	5	2.7	0	-
Benzo(a)pyrene	17	5	2.1	-	2
OCP	1	0	<PQL	0	0
PCB	1	0	<PQL	0	-

n number of samples
- No criteria available/used
NL Non-limiting
<PQL Less than the practical quantitation limit

In reviewing the analytical results, the Auditor notes the following:

- Fill material at the nursery is variable and appears to be from a number of different sources.
- Fill material containing anthropogenic material such as brick, concrete and tile typically contained elevated concentrations of metals and PAHs and fragments of ACM. The material

was identified in the west (former mechanical shed), in the northwest beneath the old pot bazaar, and in the south of the central area (former clubhouse).

- ACM concentrations above the adopted criteria were identified in fill material in the south and northwest of the site. Field quantification of ACM was undertaken at a low density, and is likely to be present throughout material containing anthropogenic material in these areas. Field quantification of asbestos was not undertaken in the west of the site as no fragments of ACM were observed during the test pit investigation. Given the presence of anthropogenic material in the west of the site, there is considered to be high likelihood of some ACM.
- Friable asbestos was detected in one sample of fill material collected from the south of the central area (former clubhouse). The asbestos was present as asbestos fines and fibrous asbestos (AF and FA) measuring >2 mm to <7 mm.
- Elevated semi-volatile TRH concentrations were reported in shallow fill material (0.4 mbgl) in the west of the former nursery beneath the former mechanical shed and battery storage area. The F2 concentration (TRH C₁₀-C₁₆ minus naphthalene) exceeded the HSL (110 mg/kg) for vapour intrusion. The TRH concentration was less than the direct contact HSLs, being 4,200 mg/kg for medium density residential and 62,000 mg/kg for intrusive maintenance workers. The extent of the contamination has not been well defined to the east and south, however is likely to be fairly localised considering the potential source.
- A significantly elevated lead concentration (4,880 mg/kg) was reported in a sample of fill material collected by AWT in the carpark (N2). The lead exceeds the HIL by more than 250%. Further investigation of the area by CH2M did not identify significantly elevated lead concentrations and were less than the human health criteria.
- Concentrations of benzo(a)pyrene and some metals (copper, lead, nickel and zinc) exceeded the adopted ecological criteria in material also containing anthropogenic material and ACM that would not be suitable for use.
- Fill material in other areas of the former nursery comprised sand and sandstone, with no or limited anthropogenic material. This material did not contain contaminant concentrations exceeding the adopted human health criteria and no fragments of ACM were observed.
- Natural sand underlying the fill material had low metals concentrations, with a limited number of PAH detections below the adopted human health criteria. It is not clear if this represents cross contamination from overlying fill material or leaching through the soil profile. It is noted that samples of natural material containing PAHs were collected during the Stage 1 DSI and were often collected from the interface with overlying fill material. CH2M undertook testing of leachability for waste disposal, however this was undertaken using acidic conditions and is therefore not representative of conditions on the site.

8.2 Residential Property

The results of investigations of the residential property by CH2M and PB are summarised in Table 8.3 (fill material) and Table 8.4 (natural material). The investigation locations are shown on Attachment 5 in Appendix A.

Table 8.3: Evaluation of Fill Material Analytical Results – Residential Property – Summary Table (mg/kg)

Analyte	n	Detections	Maximum	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
Asbestos as FA&FA (%)	17	3	0.004%	3	0
Asbestos as ACM (%)	12	5	0.3%	5	0
Arsenic	16	7	17	0	0

Table 8.3: Evaluation of Fill Material Analytical Results – Residential Property – Summary Table (mg/kg)					
Analyte	n	Detections	Maximum	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
Cadmium	16	3	5	0	-
Total Chromium	16	15	39	0	0
Copper	16	16	1,000	0	4
Lead	16	16	539	0	0
Mercury (inorganic)	16	13	0.94	0	-
Nickel	16	15	34	0	0
Zinc	16	16	871	0	6
TRH (C ₆ -C ₁₀ - BTEX)	16	0	<PQL	0	0
TRH (>C ₁₀ -C ₁₆ - naphthalene)	16	0	<PQL	0	0
TRH (>C ₁₆ -C ₃₄)	16	6	380	0	2
TRH (>C ₃₄ -C ₄₀)	16	2	210	0	0
Benzene	16	0	<PQL	0	0
Toluene	16	0	<PQL	0	0
Ethylbenzene	16	0	<PQL	0	0
Xylenes	16	1	0.8	0	0
Naphthalene	15	0	<PQL	0	0
Total PAHs	15	14	30.9	0	-
Carcinogenic PAHs	15	9	5	1	-
Benzo(a)pyrene	15	9	3.4	-	6
OCP	12	3	0.79*	0	0
OPP	12	0	<PQL	0	-
Phenol	1	0	<PQL	0	-
PCB	12	0	<PQL	0	-
Herbicides	12	0	<PQL	-	-

n number of samples
 - No criteria available/used
 NL Non-limiting
 <PQL Less than the practical quantitation limit
 * Detections were DDT+DDE+DDD

Analytical results for natural material are summarised in Table 8.2.

Table 8.4: Evaluation of Natural Soil Analytical Results – Residential Property – Summary Table (mg/kg)					
Analyte	n	Detections	Maximum	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
Asbestos as FA&FA (%)	1	0	<PQL	0	-
Asbestos as ACM (%)	1	0	<PQL	0	-
Arsenic	13	1	13	0	0
Cadmium	13	0	<PQL	0	-
Total Chromium	13	8	12	0	0
Copper	13	8	38	0	0
Lead	13	8	139	0	0
Mercury (inorganic)	13	3	0.1	0	-
Nickel	13	6	7	0	0
Zinc	13	11	247	0	0
TRH (C ₆ -C ₁₀ - BTEX)	13	0	<PQL	0	0
TRH (>C ₁₀ -C ₁₆ - naphthalene)	13	0	<PQL	0	0
TRH (>C ₁₆ -C ₃₄)	13	2	1600	0	1
TRH (>C ₃₄ -C ₄₀)	13	1	600	0	0
BTEX	13	0	<PQL	0	0
Naphthalene	13	0	<PQL	0	0
Total PAHs	13	6	23.8	0	-
Carcinogenic PAHs	13	2	3.3	1	-
Benzo(a)pyrene	13	2	2.5	-	1
OCP	11	0	<PQL	0	0
OPP	11	0	<PQL	0	-
PCB	11	0	<PQL	0	-
Herbicides	1	0	<PQL	-	-

n number of samples
 - No criteria available/used
 NL Non-limiting
 <PQL Less than the practical quantitation limit

In reviewing the analytical results, the Auditor notes the following:

- Fill material on the residential property was typically 0.3 m thick and comprised silty sand with occasional ash, glass, brick, concrete, tile and ACM. The anthropogenic material was mostly identified in the south of the residential property and typically contained elevated concentrations of metals and PAHs and bonded and friable asbestos as fragments of ACM and AF&FA.
- Asbestos concentrations were above the adopted criteria in fill material. Field quantification of ACM and laboratory analysis for AF&FA identified concentrations exceeding the criteria in the

west and south of the site where anthropogenic material was observed in fill material (Attachment 5, Appendix A). The laboratory reported that bonded and friable fragments of ACM were identified in soil samples.

- Asbestos is associated with fill material containing anthropogenic material. There is a high likelihood of asbestos being present where fill material containing anthropogenic material is present. Asbestos was also identified in building material in the structures present on the site.
- Elevated TRH >C₁₆-C₃₄ concentrations were reported in fill and natural sand from the south of the residential property. The reported concentrations exceeded the ecological criteria (300 mg/kg), however were less than the management limits (2,500 mg/kg). The source of the elevated TRH concentrations is not known.
- Carcinogenic PAHs exceeded the human health criteria in fill material (HA13) and natural soil (HA10) in the south of the site. The sample of natural material was collected from the interface with overlying fill material. It is not clear if this represents cross contamination from overlying fill material or leaching through the soil profile. CH2M and PB undertook testing of leachability for waste disposal, however this was undertaken using acidic conditions and is therefore not representative of conditions on the site.
- Concentrations of benzo(a)pyrene and some metals (copper and zinc) exceeded the adopted ecological criteria. Detections were often in material also containing anthropogenic material and ACM that would not be suitable for use.
- OCPs were detected in samples of fill material on the residential property. The reported concentrations were orders of magnitude below the human health and ecological criteria.

8.3 Depot

Investigation of the site was undertaken by CES (2007) in 2006, with additional investigations undertaken by AWT and CES however the reports were not provided to the Auditor for review. A summary was provided by CES (2007), which has been considered in assessing the analytical results for the depot below.

Remediation and validation of the depot was undertaken during redevelopment in 2009. Remediation involved capping of contaminated fill material to make the depot suitable for ongoing commercial/industrial land use. Capping comprised new buildings, bitumen and concrete paving, and 350 mm of imported material and a marker mesh in landscaped areas.

The results of the CES investigation undertaken prior to remediation and redevelopment of the depot are presented in Table 8.5 below. The results are considered to be representative of material present below the capping layer. The investigation locations are shown on Attachment 6 in Appendix A.

Analyte	N	Detections	Maximum	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
Asbestos	4	1	Detection	-	-
Arsenic	24	7	19	0	0
Cadmium	24	6	3	0	-
Total Chromium	24	23	25	0	0
Copper	24	21	344	0	0
Lead	24	22	1,510	1	1
Mercury (inorganic)	24	15	1.1	0	-

Table 8.5: Evaluation of Fill Material Analytical Results – Depot – Summary Table (mg/kg)

Analyte	N	Detections	Maximum	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
Nickel	24	21	20	0	0
Zinc	24	21	1,220	0	5
TPH (C ₆ -C ₉)	17	1	8	0	0
TPH (C ₁₀ -C ₁₄)	17	4	900	2	2
TPH (C ₁₅ -C ₂₈)	17	11	25,200	5	5
TPH (C ₂₉ -C ₃₆)	17	12	11,700	5	5
Benzene	13	1	3	1	0
Toluene	13	1	1.5	0	0
Ethylbenzene	13	1	0.6	0	0
Xylenes	13	1	3.8	0	0
Naphthalene	24	4	23.7	1	0
Total PAHs	24	23	2,704	3	-
Carcinogenic PAHs	24	20	316	8	-
Benzo(a)pyrene	24	20	213	-	19

n number of samples
 - No criteria available/used
 NL Non-limiting
 <PQL Less than the practical quantitation limit
 * Detections were DDT+DDE+DDD

Analytical results for material used in capping layers beneath concrete and asphalt hardstand are summarised in Table 8.6. The results include material stockpiled on the depot that was reused onsite to backfill service trenches, and imported VENM from development sites. AECOM did not sample material imported to the site from commercial suppliers, including recovered aggregate, quarried products, topsoil and mulch.

The thickness and composition of the capping layer varied depending on the proposed use of the area. The extent of the different capping layers is shown on Attachments 7 and 12 in Appendix A.

Table 8.6: Evaluation of Capping Material – Depot – Summary Table (mg/kg)

Analyte	n	Detections	Maximum	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
Asbestos	20	0	Not detected	-	-
Arsenic	20	12	8	0 / 500	0 / 100
Cadmium	20	0	<PQL	0 / 150	-
Total Chromium	20	20	19	0 / 500	0 / 190
Copper	20	12	32	0 / 30000	0 / 560

Table 8.6: Evaluation of Capping Material – Depot – Summary Table (mg/kg)					
Analyte	n	Detections	Maximum	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
Lead	20	20	22	0	0
Mercury (inorganic)	20	2	0.07	0	-
Nickel	20	6	23	0	0
Zinc	20	15	124	0	0
TRH (C ₆ -C ₁₀ - BTEX)	20	0	<PQL	0	0
TRH (>C ₁₀ -C ₁₆ - naphthalene)	20	0	<PQL	0	0
TRH (>C ₁₆ -C ₃₄)	20	0	<PQL	0	0
TRH (>C ₃₄ -C ₄₀)	20	0	<PQL	0	0
BTEX	20	0	<PQL	0	0
Naphthalene	20	0	<PQL	0	0
Total PAHs	20	1	1.6	0	-
Carcinogenic PAHs	20	2	0.5	0	-
Benzo(a)pyrene	20	0	<PQL	-	0
OCP	20	0	<PQL	0	0
OPP	20	0	<PQL	0	-
PCB	20	0	<PQL	0	-

n number of samples
 - No criteria available/used
 NL Non-limiting
 <PQL Less than the practical quantitation limit

In reviewing the analytical results, the Auditor notes the following:

- Fill material on the depot was typically >3 m thick and variable in composition. It was variously noted to consist of sand, clay, silt, gravel, bitumen, ash, sandstone, coal, concrete, bricks, metal, terracotta, plastic, timber, slag, shale, charcoal, glass and carbonaceous materials.
- Asbestos was detected in one sample (SS1) of fill material within a landscaped area in the northeast of the depot. The sample contained a fragment of ACM. Previous investigations included asbestos analysis at a low density (5 fill samples) and identified asbestos in one borehole (D20) in the south of the depot at a depth of 1 mbgl. Fragments of ACM were not noted in the borehole logs, however the investigation methodology (pushtube) would have limited the potential to observe fragments of ACM. Test pits undertaken by Geotechnique did not note observations of ACM fragments, however these were undertaken for geotechnical purposes. Given the presence of anthropogenic material, the low sampling density for asbestos and the investigation methodology adopted, there is a high likelihood of asbestos being present in fill material on the depot.
- Fill material contained elevated concentrations of some metals, particularly lead and zinc. Lead exceeded the adopted human health criteria (1,200 mg/kg) in a sample of fill material from BH105 in the south of the site, which was noted to be "gravel, black, PAH odour". Previous investigation by AWT and CES identified an elevated lead concentration

(6,840 mg/kg) in the southwest of the site at a depth of 0.3 mbgl. Other samples were less than the human health criteria, however a number of exceedances of the ecological criteria were reported for nickel, zinc and lead.

- The highest TPH and PAH concentrations and the only detections of BTEX were in the sample of fill material from BH105. The benzene, naphthalene and TPH C₁₀-C₁₄ concentrations exceeded the human health criteria for vapour intrusion (assuming the source is between 0 and 1 mbgl). Concentrations of total PAHs and carcinogenic PAHs exceeded the human health criteria for direct contact and ingestion. The source of the volatile hydrocarbons was not identified by CES, however the Auditor does not consider it to be indicative of widespread contamination given that previous investigation of the depot by AWT did not identify volatile contaminants above the detection limit (including one location adjacent to BH105), and groundwater investigations have not identified elevated concentrations of BTEX and TPH C₆-C₁₀.
- Elevated TPH and PAH concentrations were also reported in shallow fill material and deeper natural soil in BH103 and BH104 in the southeast of the depot. The borehole logs report that the samples of natural material were from clayey silt at the depth where groundwater was intercepted and appears to be associated with peaty materials. The samples were from approximately 0.5 m below the interface with overlying fill material. Previous investigations by AWT and CES also identified elevated PAH concentrations in samples of fill material across the depot, from the ground surface to depths of up to 4 mbgl.
- Fill material was not analysed by CES for OCPs, OPPs and PCBs, however previous investigations typically did not detect them at concentrations above the PQL.
- Roadbase used beneath concrete and asphalt in capping layers was recycled material. AECOM inspected the source site and did not note odours, staining or anthropogenic inclusions (including ACM). Test results provided by the product supplier (Boral) indicate that metals and foreign material. Samples of material imported to the site were not collected for analysis.
- Imported VENM from quarries and construction sites used beneath concrete and asphalt capping layers. The material was inspected upon importation and noted to be free from visual evidence of contamination. Sampling of material from construction sites indicated that it was VENM. Samples of VENM imported from quarries were not collected for analysis.
- Imported topsoil and mulch used in landscaped areas was sourced from Australian Native Landscapes (ANL). The material was not sampled for analysis and records of inspections of imported material were not provided by AECOM (2010a).

8.4 Auditor's Opinion

The Auditor is satisfied that the site has been adequately characterised to allow planning for remediation/management to allow future medium density residential land use. The major source of contamination on the site is fill material containing anthropogenic material (including asbestos fragments) and elevated concentrations of some contaminants, particularly PAHs and TPHs on the depot portion of the site. Asbestos, as bonded and friable fragments of ACM, was identified in fill material on the nursery, residential property and depot. The extent of asbestos contamination on the depot is a data gap, however is likely to be present where fill material containing anthropogenic material is present. The vertical and lateral extent of fill material has not been precisely delineated in some areas, however is largely known.

Imported recycled aggregate and landscaping material was not sampled upon importation to the depot during remediation and redevelopment in 2009. The contamination status of the material represents a data gap.

9. EVALUATION OF SEDIMENT ANALYTICAL RESULTS

CH2M collected two samples (SS01 and SS02) of sediment from the stormwater drain within the nursery during the Stage 1 DSI (Attachment 10, Appendix A). The samples were analysed for metals, TRH, BTEX and PAHs. The analytical results are summarised in Table 9.1.

Table 9.1: Evaluation of Sediment Analytical Results – Summary Table (mg/kg)					
Analyte	n	Detections	Maximum	n > ISQG Low (ANZECC, 2000)	n > ISQG High (ANZECC, 2000)
Arsenic	2	1	6	0	0
Cadmium	2	1	0.5	0	0
Total Chromium	2	2	19	0	0
Copper	2	2	83	1	0
Lead	2	2	170	1	0
Mercury (inorganic)	2	1	0.09	0	0
Nickel	2	2	12	0	0
Zinc	2	2	280	1	0
TRH (C ₆ -C ₁₀ - BTEX)	2	1	57	-	-
TRH (>C ₁₀ -C ₁₆ - naphthalene)	2	1	260	-	-
TRH (>C ₁₆ -C ₃₄)	2	1	1,200	-	-
TRH (>C ₃₄ -C ₄₀)	2	1	450	-	-
BEX	2	0	<PQL	-	-
Toluene	2	1	2.4	-	-
Naphthalene	2	0	<PQL	0	0
Benzo(a)pyrene	2	1	0.6	1	0
Benz(a)anthracene	2	1	0.6	1	0
Chrysene	2	1	0.7	1	0
Fluoranthene	2	2	1	1	0
Phenanthrene	2	1	0.3	1	0
Pyrene	2	2	1.1	1	0
Total PAHs	2	1	7.4	1	0

n number of samples
 - No criteria available/used
 NL Non-limiting
 <PQL Less than the practical quantitation limit

Concentrations of copper, lead, zinc and select PAHs exceed the ISQG Low guideline value, however are below the upper value. ANZECC (2000) requires reported concentrations to be assessed against background concentrations, followed by an examination of factors controlling bioavailability. This was not undertaken by CH2M.

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9.1 Auditor's Opinion

The Auditor notes that the drain is concrete lined, and considers that the elevated contaminant concentrations identified in the sediment are likely to be largely from up gradient sources and representative of background concentrations.

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10. EVALUATION OF WATER ANALYTICAL RESULTS

10.1 Groundwater

Groundwater monitoring has been undertaken on the depot and nursery by AWT (both), CES (depot), AECOM (depot) and CH2M (nursery).

The groundwater monitoring well network varied over the investigations, with wells installed by AWT on the nursery (GN1-GN3) (Attachment 8, Appendix A) and depot (GD1-GD5) (Attachment 6, Appendix A). The nursery wells could not be located by CH2M and were therefore replaced (GN1-GN5) (Attachment 10, Appendix A). CES installed additional wells on the depot (BH1, BH12, BH14, BH22 and BH101-BH105), and offsite to the southwest of the depot (BH106-BH110) (Attachment 6, Appendix A).

The results of the most recent monitoring rounds undertaken on the nursery (CH2M) and depot (AECOM) are summarised below in Table 10.1. The results of previous monitoring rounds undertaken by AWT and CES are discussed below.

Table 10.1: Evaluation of Groundwater Analytical Results – Summary Table (µg/L)								
Analyte	Nursery (CH2M, 2016) April 2016				Depot (AECOM, 2010a) February 2009			
	n	Detections	Max.	n > Adopted Criteria	n	Detections	Max.	n > Adopted Criteria
Arsenic	4	0	<PQL	0	0	-	-	-
Cadmium	4	0	<PQL	0	0	-	-	-
Total Chromium	4	0	<PQL	0	0	-	-	-
Copper	4	0	<PQL	0	0	-	-	-
Lead	4	0	<PQL	0	0	-	-	-
Mercury	4	0	<PQL	0	0	-	-	-
Nickel	4	4	16	2	0	-	-	-
Zinc	4	4	17	3	0	-	-	-
TRH C ₆ -C ₁₀	4	0	<PQL	0	10	0	<PQL	0
TRH C ₁₀ -C ₄₀	4	0	<PQL	0	10	0	<PQL	0
BTEX	4	0	<PQL	0	10	0	<PQL	0
Fluoranthene	4	0	<PQL	0	10	1	2	1
Other PAHs	4	0	<PQL	0	10	0	3	0
Phenols	4	0	<PQL	0	0	-	-	-
OCP	4	0	<PQL	0	0	-	-	-
OPP	4	0	<PQL	0	0	-	-	-
PCB	4	0	<PQL	0	0	-	-	-
Nitrate	4	3	6,000	0	0	-	-	-
Nitrite	4	1	9	-	0	-	-	-
Nitrogen	4	4	7,600	4	0	-	-	-
Cyanide	4	0	<PQL	-	0	-	-	-
Phosphorus	4	0	<PQL	0	0	-	-	-

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n	number of samples
Max.	Maximum concentration
-	No criteria available/used
PQL	Practical quantitation limit
NL	Non-limiting

In assessing the analytical results, the Auditor makes the following observations:

- Contaminant concentrations were less than the human health criteria for vapour intrusion and recreational use. Elevated TPH C₁₀-C₃₆ and PAH concentrations were reported in historical groundwater monitoring on the depot, however results were less than the human health criteria. The highest results were reported in BH22 on the depot, which was lost or destroyed and therefore not able to be sampled by AECOM. Wells located upgradient and downgradient of BH22 were sampled and did not contain detectable concentrations of TRH and PAHs.
- Historical groundwater monitoring on the depot did not detect VOCs, BTEX or volatile TPH.
- Concentrations of some metals (copper, nickel and zinc) and nutrients (nitrogen and phosphorus) exceeded the ecological criteria in wells located on the nursery. In most instances these were marginally above the adopted criteria. Fill material and fertilisers are potential sources of contamination. Given that concentrations in wells located on the expected up gradient and down gradient boundaries of the site were similar, the results are considered to be indicative of regional groundwater conditions in an urban environment. The potential for significant groundwater contamination is considered to be low.
- Metals and nutrients were not analysed by AECOM during sampling of wells located on the depot. Previous monitoring for metals by AWT and CES identified concentrations of some metals (mostly copper, nickel and zinc) exceeding the ecological criteria. The results were of a similar range to those reported on the nursery.
- The groundwater analytical results are not considered to present a risk to future site users if the site were to be developed for residential use with minimal soil access.

10.2 Surface Water

AWT collected a surface water sample (SW1) from water present as small pools in the stormwater drain on the former nursery (Attachment 8, Appendix A) and from upstream and downstream locations in the stormwater canal to the east of the site (Mill Stream). The nursery sample contained elevated levels of nitrogen (3.6 mg/L) and total phosphorus (0.63 mg/L) and some metals (copper, lead and zinc) marginally above the guidelines concentrations. Naphthalene was detected at a low concentration (3 µg/L) in the upstream location of Mill Stream, which was less than the ecological criteria.

CH2M collected a surface water sample (SW01) from the stormwater drain on the nursery during the Stage 1 DSI (Attachment 10, Appendix A). The sample was analysed for metals, TRH, BTEX, PAHs, OCPs and PCB. Low concentrations of TRH C₁₀-C₁₆, arsenic, copper, nickel, zinc, phosphorus, potassium and nitrogen were reported. Concentrations of copper and zinc marginally exceeded the freshwater guideline concentrations.

CES collected surface water samples from Mill Stream to the east of the site at an upstream (SW2) and downstream (SW1) location (Attachment 6, Appendix A). Samples were analysed for total metals, TPH, BTEX, OCPs and PAHs. Copper and zinc concentrations marginally exceeded the freshwater guideline concentrations, and were fairly consistent between upstream and downstream samples. Concentrations of TPH, OCP and other PAHs were less than the detection limit.

10.3 Auditor's Opinion

In the Auditor's opinion, the groundwater and surface water monitoring undertaken was adequate to assess the potential for contamination from on-site sources. The results appear to be consistent with the site history and no significant contamination was identified.

Elevated semi-volatile TPH and PAH concentrations were reported in groundwater on the depot during historical monitoring. The results reported did not exceed criteria protective of human

health, and the most recent groundwater monitoring round undertaken on the depot did not identify PAHs or TRH above the PQL. The source of the elevated PAHs is likely to be fill material present on the depot. The results may represent PAHs adsorbed to colloidal particles, which is supported by the fact that concentrations were less than the PQL during the most recent monitoring round by AECOM when low flow methodology was adopted to minimise disturbance of sediment in the well.

Elevated concentrations of metals and nutrients were identified, however these are considered to be representative of urban water quality and are not considered to present a risk to future occupants of the site.

11. EVALUATION OF CONCEPTUAL SITE MODEL

A conceptual site model (CSM) is a representation of the source, pathway and receptor linkages at a site. A CSM encompassing the entire site has not been prepared by the consultants.

CH2M developed a CSM for the former nursery and residential property and PB (2016) presented a CSM for the residential property. A CSM has not been prepared for the depot, however the Coffey (2015) EMP presents a summary of contamination present on the depot, exposure pathways and receptors based on ongoing use of the site as a depot.

Table 11.1 provides the Auditors summary and review of the CSM.

Table 11.1: Review of the Conceptual Site Model		
Element of CSM	Consultant	Auditor Opinion
Contaminant source and mechanism	<p>Not identified by CH2M with respect to the nursery and residential property.</p> <p>PB identified uncontrolled fill materials and weathering of hazardous building materials as likely sources on the residential property.</p> <p>Coffey identified fill material containing fragments of bitumen, ash, coal, slag, and charcoal as the source of contamination on the depot. Contamination in natural soil may be associated with peaty material.</p>	<p>The Auditor considers these to include:</p> <ul style="list-style-type: none"> Leaks or spills from the items stored in the former mechanical shed located in the west of the site resulting in elevated TRH in underlying fill material. Fill material containing anthropogenic material and ACM. Demolition waste from the former clubhouse present in the central south of the site, including ACM. Weathering of hazardous building materials. Activities on the depot prior to redevelopment were not identified by consultants as potential sources of contamination, however an AST was previously present and undocumented storage of other chemicals may have occurred. Peat was identified as a potential source of elevated PAH and TPH concentrations in natural soil on the depot.
Affected media	CH2M, PB and Coffey identified fill material as the affected media.	Fill material is impacted with fragments of ACM on the nursery, residential property and depot. Fill on the depot is also impacted with PAHs and TPH, with volatile

Table 11.1: Review of the Conceptual Site Model		
Element of CSM	Consultant	Auditor Opinion
		<p>hydrocarbons identified at one location.</p> <p>Underlying natural sand was typically not impacted, however elevated PAH and TPH concentrations were reported in peaty material.</p> <p>Assessment of sediment, surface water and groundwater identified elevated concentrations of metals, however these are considered representative of the urban environment rather than contamination from the site. Elevated concentrations of PAHs and TPH in groundwater on the depot were considered to represent adsorption to colloidal particles.</p>
Receptor identification	<p>Receptors identified by CH2M based on future residential development included: local flora and fauna; site workers; and future residents.</p> <p>PB identified residential users of the site and construction works as receptors.</p> <p>Coffey identified the receptors on the depot as maintenance workers and construction workers whilst the EMP is enforced.</p>	<p>The receptors identified by CH2M and PB are appropriate.</p> <p>The receptors identified by Coffey are based on ongoing commercial/industrial use of the site as a depot and enforcement of the EMP.</p>
Exposure pathways	<p>Exposure pathways identified by CH2M included: direct contact with soils; inhalation of vapour; and inhalation of asbestos fibres.</p> <p>PB identified inhalation of dust, ingestion of soil and dermal contact with soil as exposure pathways.</p> <p>Coffey identified inhalation of dust, dermal contact with soil or groundwater, and ingestion of soil or</p>	<p>The pathways identified are appropriate.</p>

Table 11.1: Review of the Conceptual Site Model		
Element of CSM	Consultant	Auditor Opinion
	groundwater as exposure pathways.	
Presence of preferential pathways for contaminant movement	Not assessed by CH2M, PB and Coffey.	No preferential pathways are obvious based on the current site layout. Preferential pathways should be considered prior to redevelopment of the site.
Evaluation of data gaps	No significant data gaps identified on the nursery. PB noted that the volume of impacted fill material on the residential property was estimated based on the assessment and could be refined following further investigation. Data gaps were not identified by Coffey (2015) with respect to the depot.	The Auditor considers that the lateral and vertical extent of fill has not been determined in all areas of the site. The volume of fill material is therefore considered to be uncertain. Analysis of fill on the depot was undertaken at a low density, particularly for asbestos (which was also not in accordance with current guidelines). The presence, distribution and concentration of asbestos in fill material on the depot is considered a data gap. Imported recycled aggregate and landscaping material was not tested. The contamination status of the imported material is therefore considered a data gap.

12. CONTAMINATION MIGRATION POTENTIAL

The nursery is largely unsealed. Elevated concentrations of metals, PAHs and TRH in fill material may migrate offsite in dust or surface water. The significantly elevated lead concentration identified by AWT in the carpark of the nursery appears to be isolated in extent. Elevated lead concentrations were not identified by CH2M in subsequent investigations in this area. It is understood that the area is currently sealed with asphalt pavement. There is therefore a low potential for migration of lead contamination from this area under current site conditions.

Larger fragments of ACM in fill material have a low potential to migrate as dust or with surface water. Friable asbestos (degraded ACM) was identified in fill material on the residential property and at one sample location on the nursery. The asbestos was identified in surface fill material in unsealed areas of the site and has the potential to migrate as dust or with surface water. If the nursery and residential property were redeveloped, remediation of the fill material would be required to make the site suitable for the proposed use.

Elevated concentrations of lead, PAHs and TRHs, and fragments of ACM identified in fill material on the depot have a low potential to migrate under current site conditions. The site was capped during remediation of the site by AECOM in 2009 and is subject to ongoing management under an EMP (Coffey, 2015). If the depot was redeveloped, remediation or management of the fill material would be required to make the site suitable for the proposed use.

Elevated concentrations of metals and nutrients in sediment, surface water and groundwater were considered to be indicative of the local urban environment. The contaminants are likely to have migrated onto the site from up gradient sources and will continue to migrate through the site to the ultimate receptors (i.e. surface water features within the golf courses to the south of the site).

13. ASSESSMENT OF RISK

Site investigations identified fill containing anthropogenic material in large areas of the site, which included fragments of ACM and AF/FA and elevated contaminant concentrations (mostly lead, TRHs and PAHs). The ACM, AF/FA, lead, TRH and PAH concentrations exceed the adopted human health criteria for residential use. PB considered carcinogenic PAHs and asbestos on the residential property *"...to represent a potential risk to the current residential occupants of the site through direct contact or inhalation of dust during normal use or maintenance of the property"*. Remediation of the fill material on the former nursery, residential property and depot would be required to make the site suitable for medium density residential use.

There were isolated instances of volatile contaminants exceeding the human health criteria for vapour intrusion. These were in the west of the site beneath the former mechanical shed (TRH C₁₀-C₁₆ minus naphthalene) and in the south of the depot (benzene, naphthalene and TRH C₁₀-C₁₆ minus naphthalene). Given that there are no structures present in these areas of the site and the contamination was found to be localised, there is currently a low risk from vapour intrusion. Further investigation would be required to determine the risk in the event of a change in land use. The TRH identified in the south of the depot may also present a risk to construction works, maintenance workers or occupants of a medium density residential development by direct contact.

The elevated lead concentration in the nursery car park and southwest of the depot significantly exceeds the human health criteria for direct contact. Further investigation of the nursery area by CH2M did not identify significantly elevated lead concentrations. Further investigation of the depot by CES did not identify lead concentrations significantly exceeding the human health criteria, however the location of the previous exceedance was not targeted for further investigation. It is understood that these areas are currently paved with asphalt, therefore the contamination is expected to present a low risk under current site conditions. Further investigation and/or remediation would be required in the event of a change in the site surfacing in these areas or a change in land use.

Elevated concentrations of metals, TRH and benzo(a)pyrene in fill material may present a risk to ecological receptors. It is noted that the elevated concentrations also exceeded the human health criteria or were present in fill material containing asbestos, which would require remediation to make the site suitable for any proposed use.

14. COMPLIANCE WITH REGULATORY GUIDELINES AND DIRECTIONS

The Auditor has used guidelines currently approved by the EPA under section 105 of the NSW *Contaminated Land Management Act 1997*.

The investigations were generally conducted in accordance with SEPP 55 Planning Guidelines and reported in accordance with the OEH (2011) *Guidelines for Consultants Reporting on Contaminated Sites*. The checklist included in that document has been referred to. The EPA's *Checklist for Site Auditors using the EPA Guidelines for the NSW Site Auditor Scheme 1998* (December 1999) has also been referred to.

AWT, CES and CH2M do not report whether well licences were obtained from NSW Office of Water. Interim advice from the NSW Office of Water indicates that wells licences are not required.

It is understood that a Notification of 73 Gardeners Road (residential property) was made by Sydney Water to the EPA under s.60 of the Contaminated Land Management Act 1997 (CLM Act) on 7 January 2016. It is not clear why 75 Gardeners Road (the nursery) was not also notified, however may have been due to the fact that it was vacant at the time. Notification of the depot has not occurred.

The Auditor considers that given the investigations completed to date and the current and approved uses that the site can be managed under the planning process. Recommendations are provided by the Auditor in Section 15.

15. CONCLUSIONS AND RECOMMENDATIONS

The investigations undertaken have identified fill material on the former nursery, residential property and depot containing anthropogenic material, including fragments of ACM. Laboratory analysis of fill samples identified elevated concentrations of metals, particularly lead, TRHs and PAHs. Concentrations exceeded the adopted human health criteria, particularly on the depot. Isolated detections of volatile contaminants were identified in the west of the nursery and southwest of the depot.

Groundwater investigations identified elevated concentrations of metals and nutrients, however these are considered to be representative of urban water quality and are not considered to present a risk to future occupants of the site. Elevated concentrations of PAHs identified during historical monitoring on the depot were considered to be representative of contaminated sediment in the wells. Remedial planning would need to consider the potential for PAHs to leach from fill material on the depot.

Due to the investigation methods adopted and the low density of sampling on the depot, asbestos and anthropogenic material is likely to be present at a greater density than indicated by the field observations and analytical results. Sampling of recycled aggregate and landscaping material at the time of importation was not undertaken and represents a data gap.

Based on the information presented in the reports reviewed, including collation of data from previous investigations, the Auditor concludes that the nature and extent of contamination has been adequately determined for the purpose of planning future remediation or management during redevelopment of the site.

The Auditor recommends that the following be undertaken should the site be redeveloped:

- Further investigation of the site should be considered prior to remediation to address the data gaps identified in the CSM. The need for and scope of further investigation would be dependent on the proposed development.
- Preparation of a remedial action plan (RAP) specific to any development.
- The RAP should be implemented prior to or during redevelopment of the site.
- Preparation of a Site Audit Statement certifying suitability for the proposed use, at the completion of remediation and validation.
- Groundwater is assessed for its suitability for any proposed use prior to extraction.

16. OTHER RELEVANT INFORMATION

This Audit was conducted on the behalf of Sydney Water Corporation to provide an independent review by an EPA Accredited Auditor of the nature and extent of any contamination of the land i.e. a "Site Audit" as defined in Section 4 (1) (b) (i) of the NSW *Contaminated Land Management Act 1997* (the CLM Act).

This summary report may not be suitable for other uses. The consultants included limitations in their report. The Audit must also be subject to those limitations. The Auditor has prepared this document in good faith, but is unable to provide certification outside of areas over which the Auditor had some control or is reasonably able to check.

The Auditor has relied on the documents referenced in Section 1 of the Site Audit Report in preparing the Auditors' opinion. If the Auditor is unable to rely on any of those documents, the conclusions of the audit could change.

It is not possible in a Site Audit Report to present all data which could be of interest to all readers of this report. Readers are referred to the referenced reports for further data. Users of this document should satisfy themselves concerning its application to, and where necessary seek expert advice in respect to, their situation.

Sydney Water Corporation
June 2017

71-75 Gardeners Road, Eastlakes

APPENDIX A

ATTACHMENTS

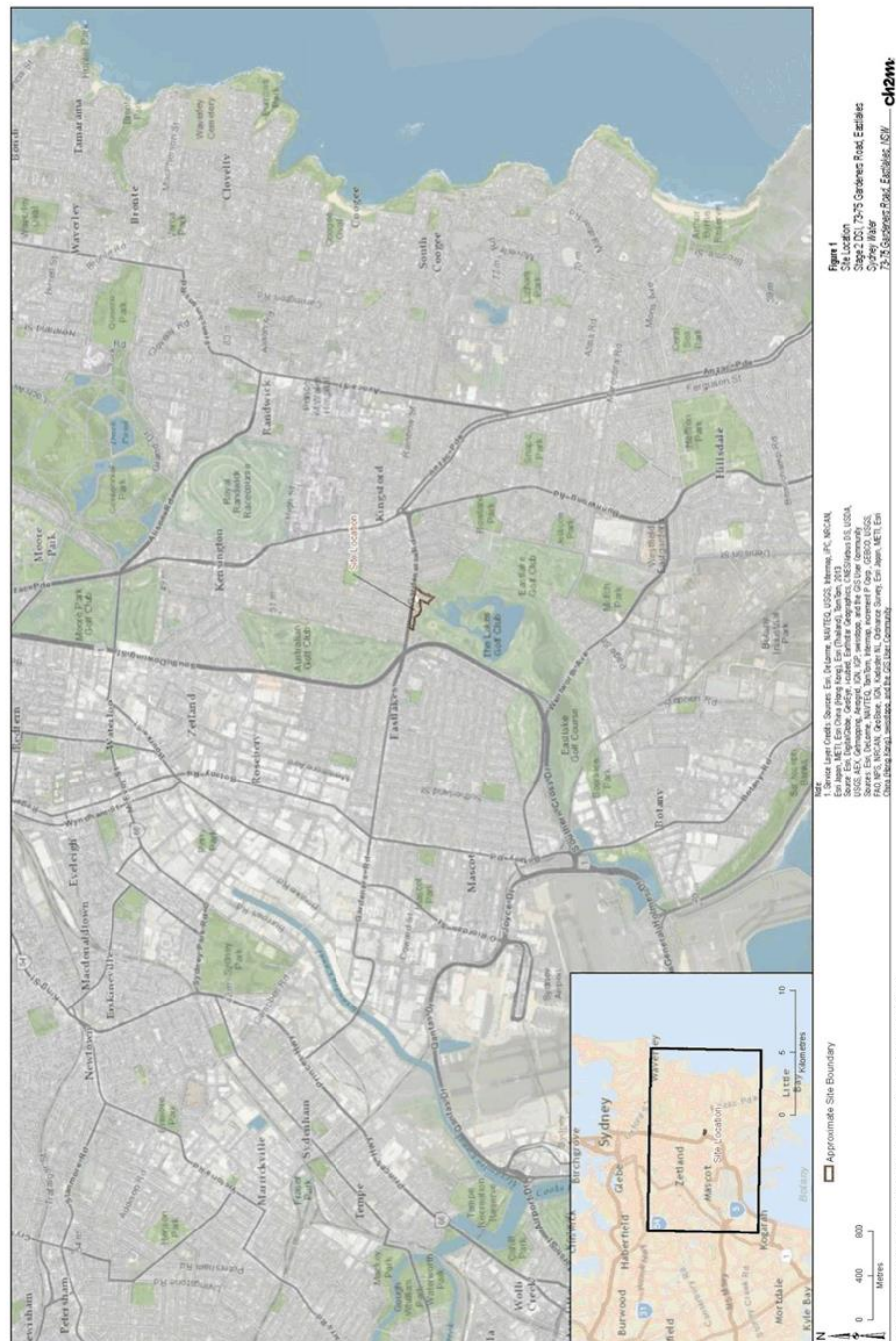
- Attachment 1: Site Location
- Attachment 2: Site Survey
- Attachment 3: Former Site Layout
- Attachment 4: Former Nursery Layout
- Attachment 5: Residential Property Investigation Locations
- Attachment 6: Depot Former Layout and Investigation Locations
- Attachment 7: Depot Current Layout
- Attachment 8: AWT Site Investigation Locations
- Attachment 9: Nursery Exceedances of Adopted Criteria
- Attachment 10: CH2M Stage 1 DSI Investigation Locations
- Attachment 11: CH2M Stage 2 DSI Investigation Locations
- Attachment 12: Depot Imported Material Locations

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Attachment 1: Site Location



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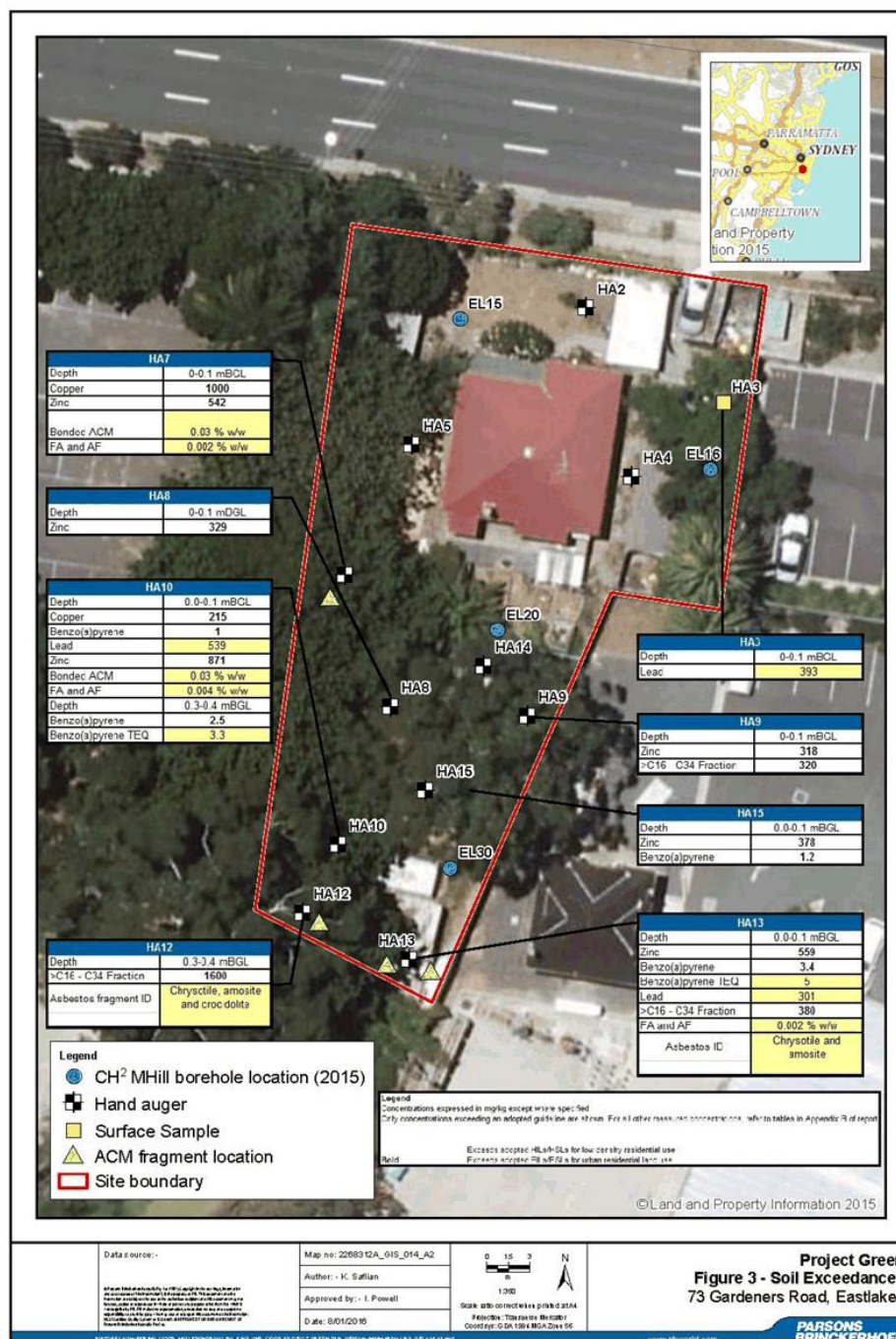
Attachment 3: Former Site Layout



Attachment 4: Former Nursery Layout

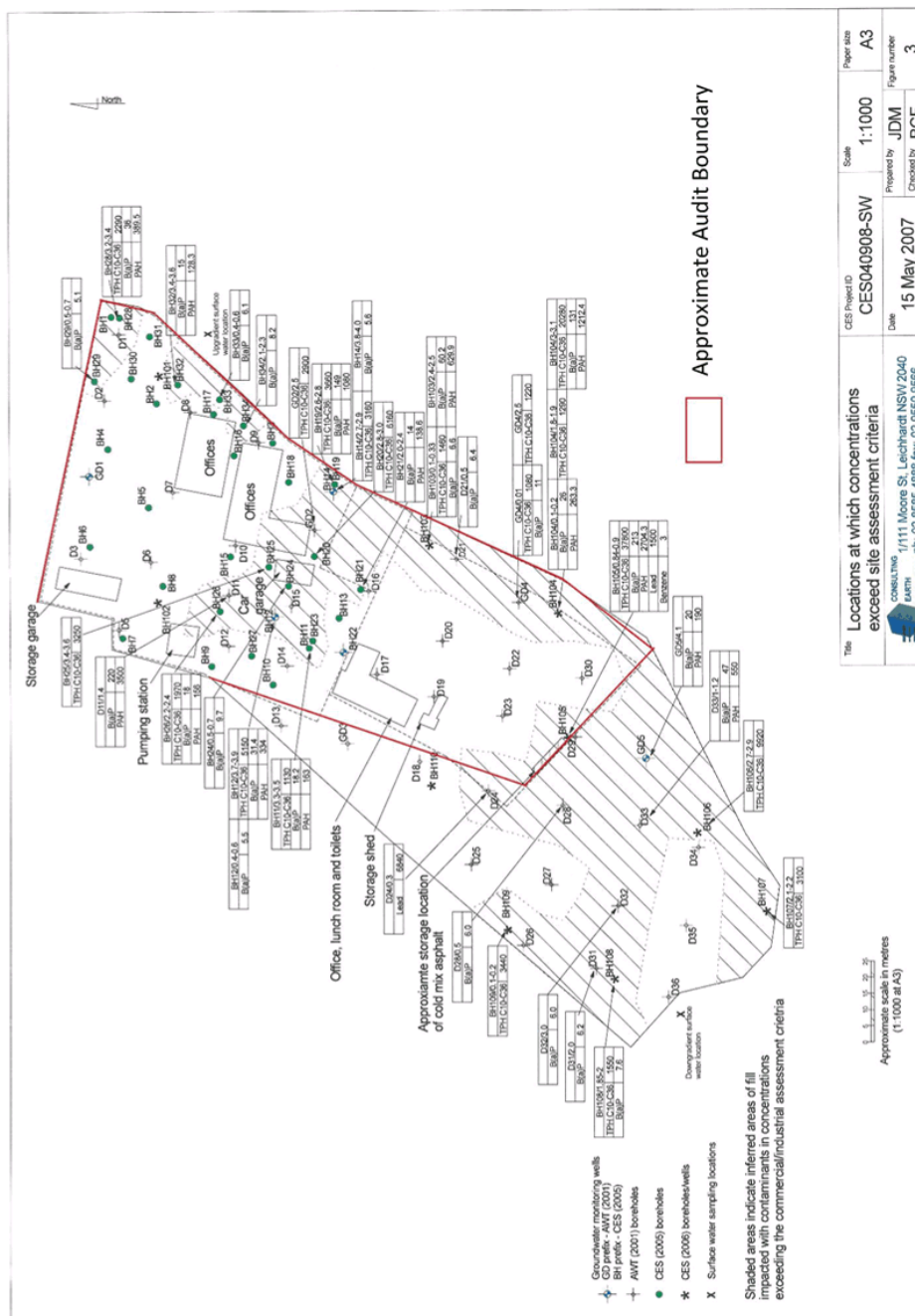


Attachment 5: Residential Property Investigation Locations

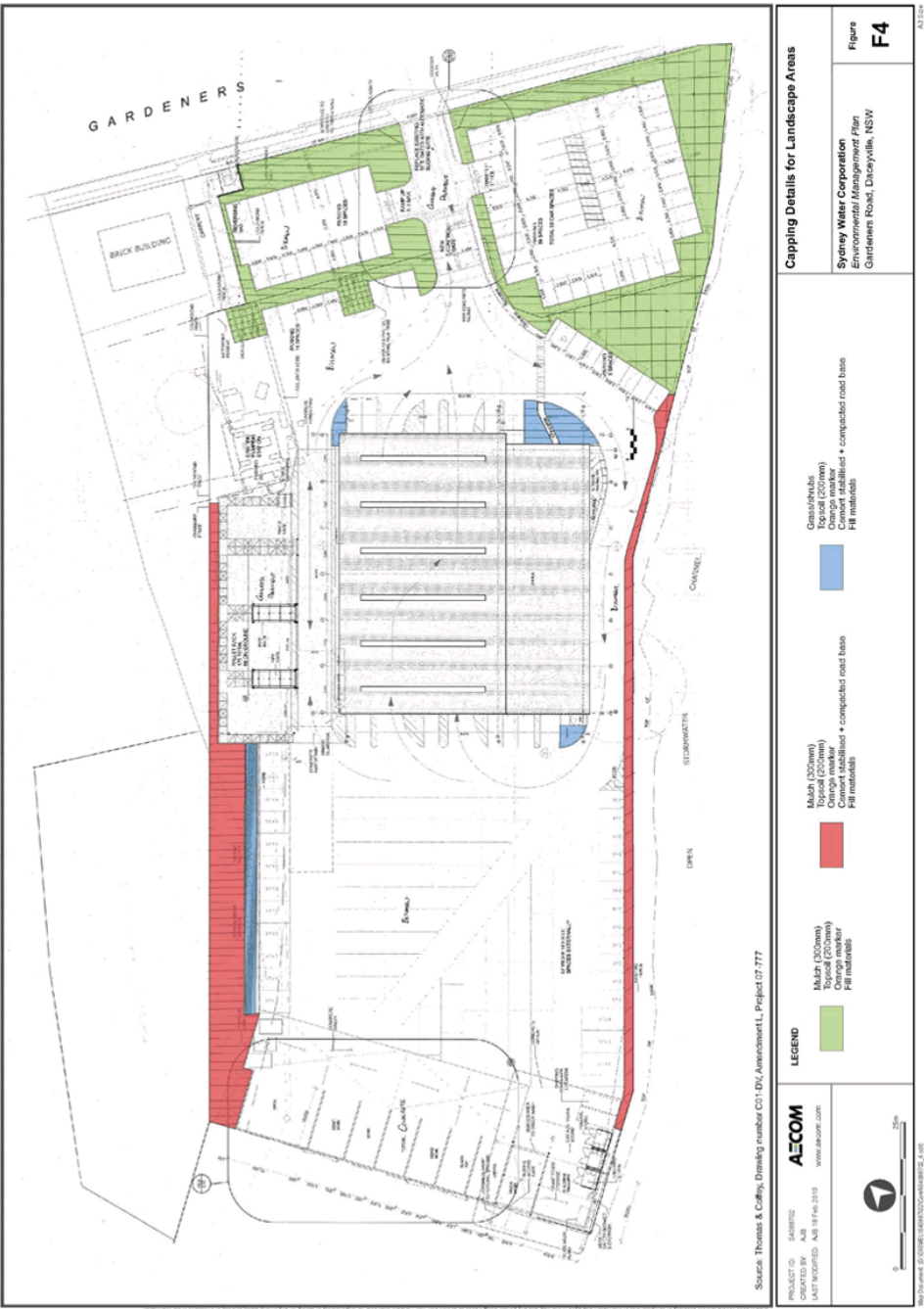


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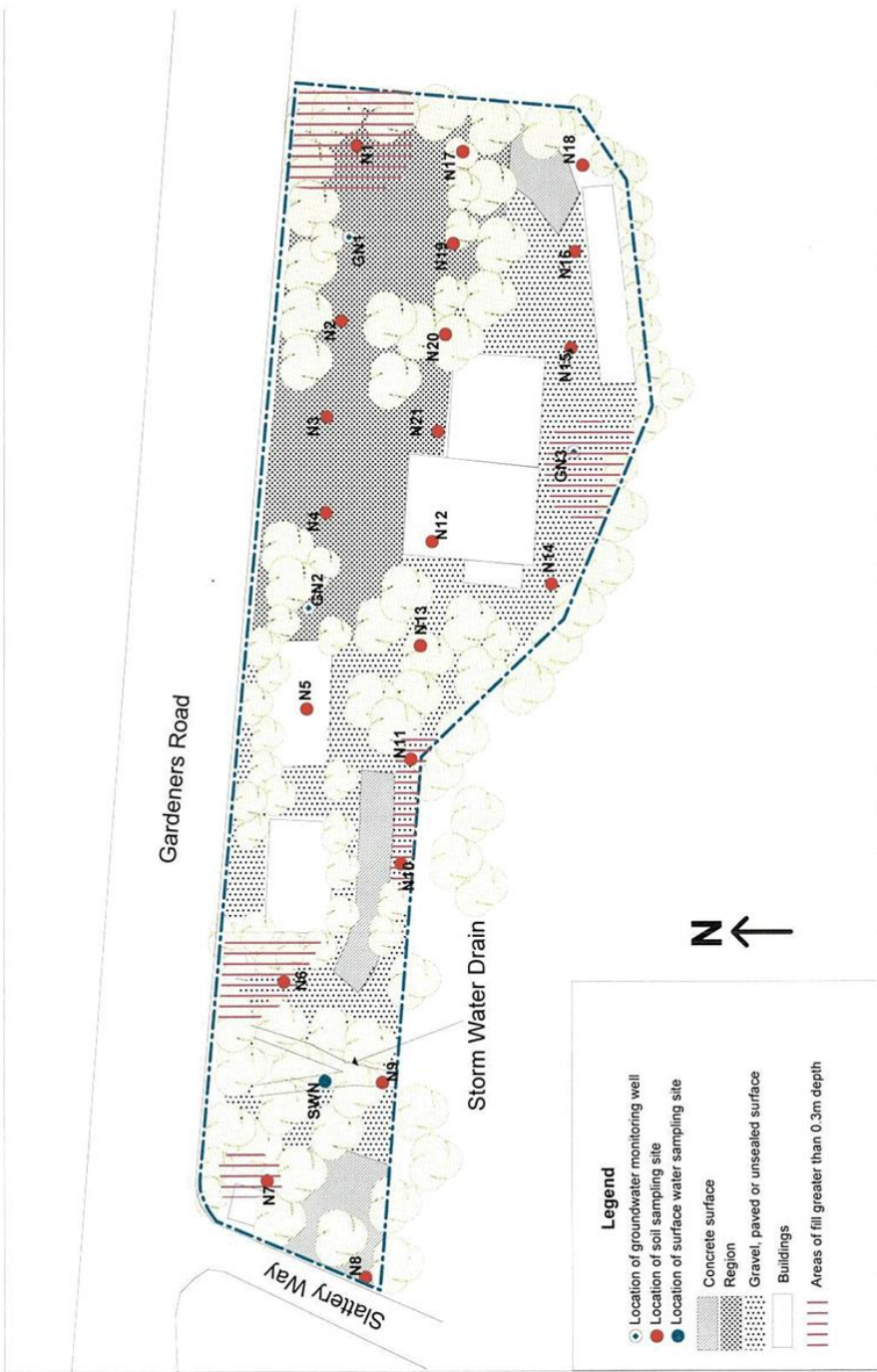
Attachment 6: Depot Former Layout and Investigation Locations



Attachment 7: Depot Current Layout



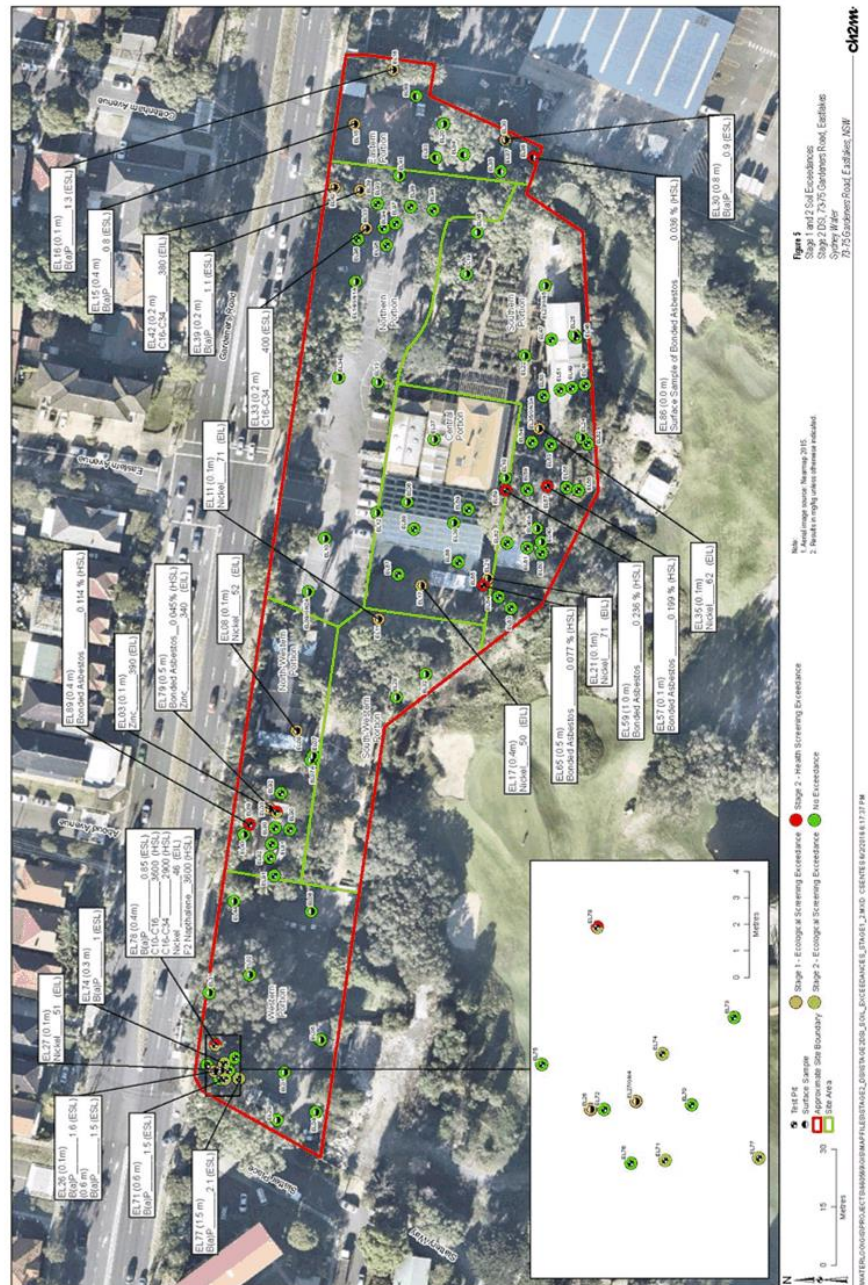
Attachment 8: AWT Site Investigation Locations



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Figure 3. Location of sampling sites

Attachment 9: Nursery Exceedances of Adopted Criteria



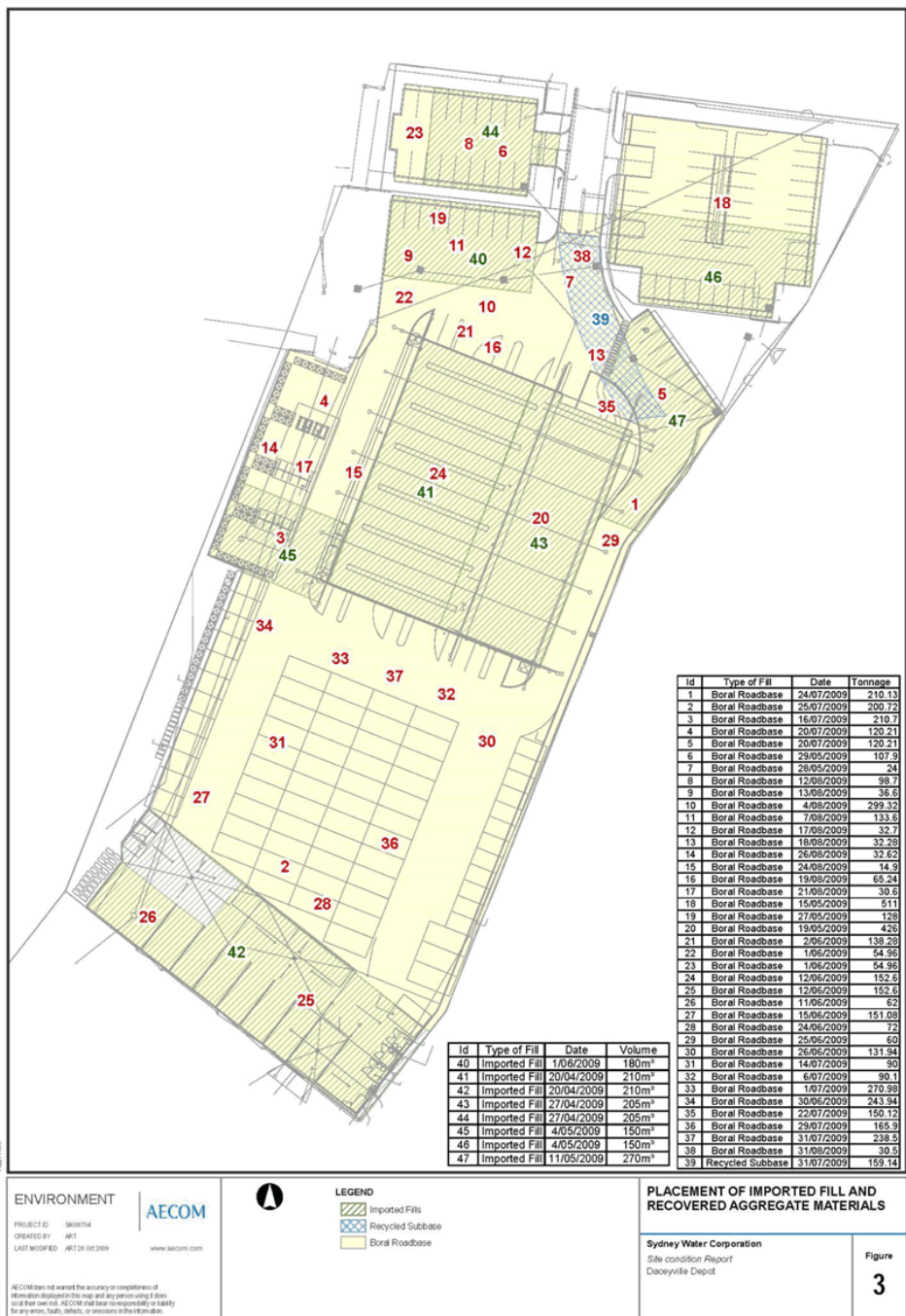
Attachment 10: CH2M Stage 1 DSI Investigation Locations



Attachment 11: CH2M Stage 2 DSI Investigation Locations



Attachment 12: Depot Imported Material Locations



**Attachment E – Transport
Report, Prepared by Arup,
dated September 2017**

Sydney Water
**73 & 75 Gardeners Road,
Eastlakes**
Transport Assessment

Final | 25 September 2017

This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 244786

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ARUP

Sydney Water

73 & 75 Gardeners Road, Eastlakes
Transport Assessment

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Appendices

Appendix A

SIDRA modelling outputs

1 Introduction

Sydney Water have engaged Architectus to prepare a Master Plan for land at 73 and 75 Gardeners Road, Eastlakes for the purposes of informing a Planning Proposal which seek to amend the current planning controls for the site to allow residential development and supporting land uses.

Sydney Water are in the process of divesting surplus land to allow redevelopment and improved utilisation of this land within the Sydney Metropolitan area. For the subject sites, due to their location within the wider context of Eastlakes, it is proposed to seek their rezoning to allow for residential development or other appropriate supporting land uses.

In order to test and demonstrate the suitability of the site for the proposed land uses, a master plan has been prepared by Architectus and considered by Arup. This master plan identifies that the site should be developed for residential with supporting land uses such as small scale shops, retail or similar uses. The proposal will enable the future redevelopment of both sites resulting in approximately 750 units and 1,400 parking spaces, and a range of building heights between 6-14 storeys. No approval is sought for the master plan at this stage as it simply seeks to evidence that the proposed changes to the planning controls are appropriate.

Any future development of the site will be subject to future development applications lodged with Council. Our review of the master plan has identified that the site is suitable for the proposed land uses as residential and supporting land uses including supporting commercial / retail uses.

This transport assessment considers the potential level of traffic generated by the site and the implications for the local road network.

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73 & 75 Gardeners Road, Eastlakes
Transport Assessment

2 Existing Transport Conditions

2.1 Subject site

The site is located on the south side of Gardeners Road, opposite Eastern Avenue (see Figure 1). Current access to the site is via a signalised intersection with Eastern Avenue and Gardeners Road. Vehicles can enter and exit from any approach and the two Gardeners Road approaches have designated turning lanes.



Figure 1 – Subject site

Source: Architectus

2.2 Traffic volumes

Traffic counts have been undertaken for the Gardeners Road / Eastern Avenue intersection for the weekday AM and PM peak period and weekend peak period. Weekday AM peak period traffic counts were taken between 8:00am and 9:00am (see Figure 2) and the PM peak period traffic counts between 5:15pm and 6:15pm (see Figure 3). The weekend peak period was taken on a Saturday afternoon between 12:00-1:00pm (Figure 4).

It should be noted this traffic count was undertaken while the Gardens R Us site was operational.

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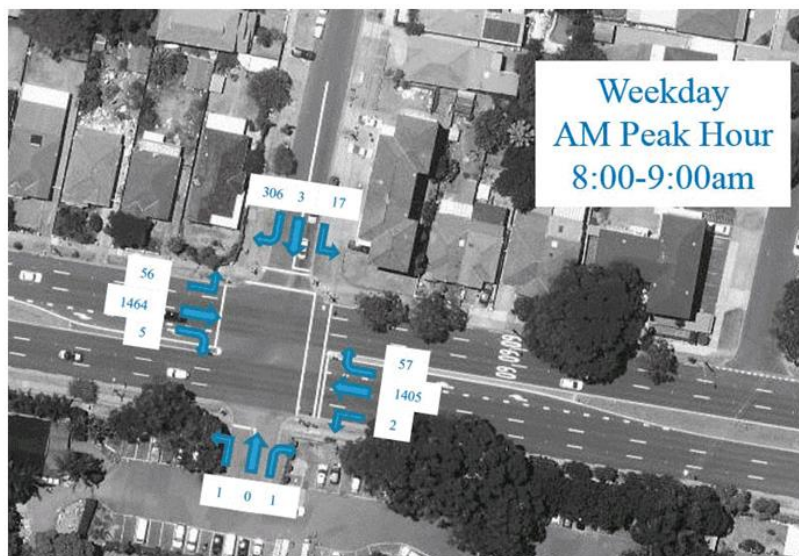
73 & 75 Gardeners Road, Eastlakes
Transport Assessment

Figure 2 Weekday AM peak hour traffic counts

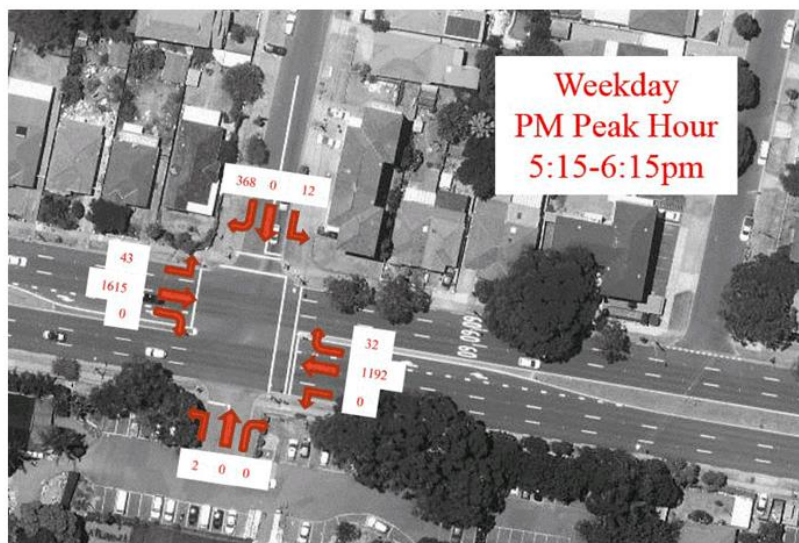


Figure 3 Weekday PM peak hour traffic counts

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73 & 75 Gardeners Road, Eastlakes
Transport Assessment

Figure 4 Saturday peak hour traffic counts

2.3 Road Network Performance

The intersection performance of Gardeners Road / Eastern Avenue has been assessed using RMS approved software SIDRA.

In urban areas, the traffic capacity of the major road network is generally a function of the performance of key intersections. This performance is quantified in terms of Level of Service (LOS), is based on the average delay per vehicle. LOS ranges from A = very good to F = unsatisfactory.

Another common measure of intersection performance is the degree of saturation (DOS), which provides an overall measure of the capability of the intersection to accommodate additional traffic. A DOS of 1.0 indicates that an intersection is operating at capacity. The desirable maximum degree of saturation for an intersection is 0.9.

The existing intersection performance is assessed in this report in terms of the following three factors for each intersection.

- Degree of Saturation
- Average Delay (Seconds per vehicle)
- Level of Service

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73 & 75 Gardeners Road, Eastlakes
Transport Assessment

The existing performance of the intersection has been modelled using the traffic volumes from section 2.2, with the results presented in Table 1. The results show that the intersection currently operates with spare capacity during both weekday and Saturday peak periods.

Table 1 SIDRA Intersection results for the existing conditions

Scenario	Traffic Volume (veh/hr)	AVD (s)	LoS	DoS
Weekday AM Peak Hour	3,493	13.9	B	0.84
Weekday PM Peak Hour	3,441	18.1	B	0.88
Saturday Peak Hour	3,043	9.5	A	0.72

LOS - Intersection Traffic Level of Service, DOS - Degree of Saturation, AVD - Average Delay per vehicle

2.4 Parking Conditions

On-street parking is provided on Gardeners Road during off-peak periods, with all day parking available on local streets north of Gardeners Road.

2.5 Pedestrian and Bicycle Accessibility

The site is not located in an area that attracts significant pedestrian activity, although this may increase following the completion of the Sydney CBD and South East light rail project. The major pedestrian generators and attractors in the vicinity of the study are as follows:

- Kingsford shops at the Anzac Parade / Gardeners Road / Rainbow Street intersection, 1km east of the site. This is the end of the proposed Sydney CBD and South East light rail.
- Greek Orthodox Church, 600m east on Anzac Parade
- St Spyridon College Primary, 600m east on Anzac Parade
- The Lakes Golf Course, bordering the site to the south
- Eastlakes Shopping Centre
- Eastlakes Golf Club

There are footpaths running the length of Gardeners Road on each side, and signalised pedestrian crossings are provided at the intersection with Eastern Avenue. Pedestrian facilities are limited in some areas, with footpaths overgrown in areas and uneven surfaces (see Figure 5).

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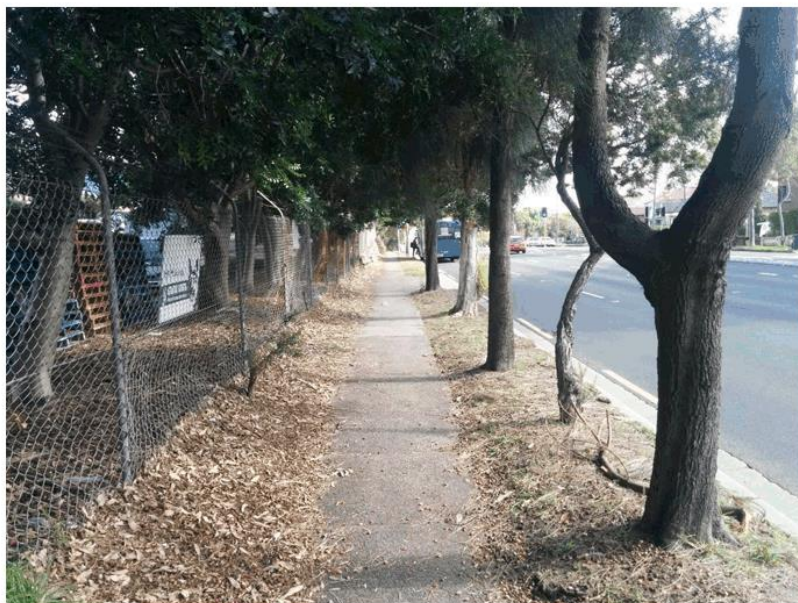
73 & 75 Gardeners Road, Eastlakes
Transport Assessment

Figure 5 - South side of Gardeners Road, 100m east of site.

There are limited cycle paths in the vicinity. The closest existing paths (Figure 6) are along Houston Road, around 800m to the east of the site, and along Southern Cross Drive (overpass 500m to west of site, wide shoulder often used by cyclists).

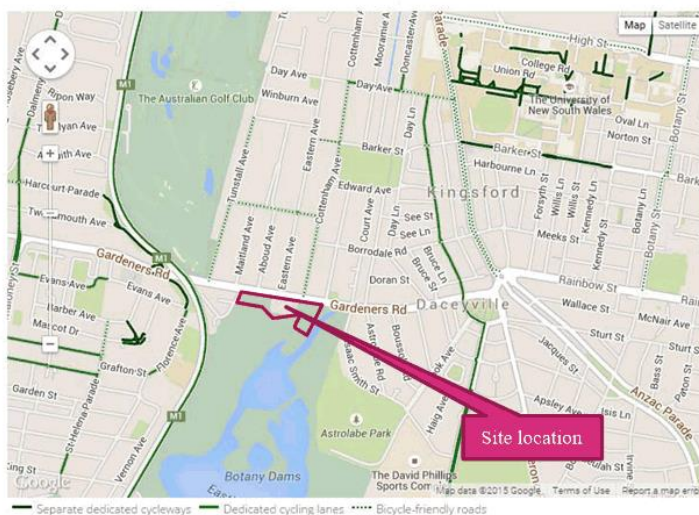


Figure 6 Bicycle routes in the vicinity of site.

Source: Sydney Cycleways <http://www.sydneycycleways.net/map/>

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Transport Assessment

2.6 Public Transport Accessibility

2.6.1 Rail

The closest train stations to the site are:

- Mascot Station, 3.2km to the west of the site
- Green Square Station, 3.6km to the north-west of the site.

The frequency of trains to these stations is shown below in Table 2.

Table 2 - Train service frequencies. Source: Sydney Trains

Time period	Frequency	
	Towards City	Away from City
Morning Peak (8am-9am)	10	9
Evening Peak (5pm-6pm)	8	9
Sunday (1pm-2pm)	4	4

Bus access from each station is via the following services:

- Mascot – 418.
- Green Square – 303, 343

2.6.2 Bus

A number of bus routes service the site, the most regular of which is the 343. A bus stop for the 343 route is located immediately adjacent to the site. There are a number of other bus routes that run along Anzac Parade very frequently (the 390 series) but the closest stop is at the Rainbow Street / Gardeners Road roundabout about a kilometre to the east of the site. Bus frequency is given below in Table 3, with routes shown in Figure 7.

Table 3 - Bus Frequencies

Service	Route	Distance to nearest stop	Frequency (each direction)			
			Week day peak (8-9am)	Off-peak (1-2pm)	Saturday (1-2pm)	Sunday (1-2pm)
302	Eastgardens to City	80m	0	1	1	1
303	Sans Souci to City	80m	8	1	1	1
418	Burwood to Bondi Junction	60m	2	2	2	2
343	Kingsford to Millers Point	60m	12	4	4	3

Source: Sydney Buses

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Transport Assessment

Figure 7 Bus services in the vicinity of the site

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Transport Assessment

3 Masterplan

3.1 Site masterplan

The site masterplan is shown in Figure 8 below, and divides the site into two distinct areas – 75 Gardeners Road and 73 Gardeners Road.

The 75 Gardeners Road site takes the footprint of the old Gardens R Us site and is currently zoned as SP1 (Special Activities). The 73 Gardeners Road site is the current Sydney Water depot site and is currently zoned as SP2 (Infrastructure). Both sites directly front Gardeners Road.

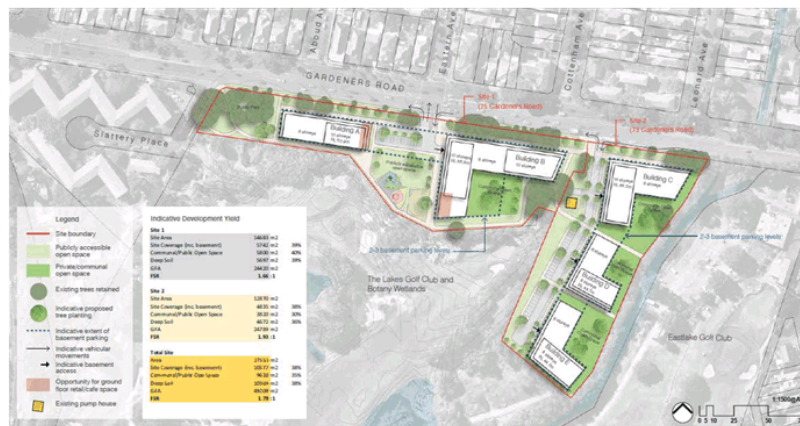


Figure 8 Site masterplan

Source: Architectus

3.2 Potential development yields

The masterplan proposal will enable the future redevelopment of both sites resulting in approximately 750 units and 1,400 parking spaces, and a range of building heights between 6-14 storeys. Approximately 400m² of ancillary retail floor space is also proposed for 75 Gardeners Road. The potential breakdown of dwellings for both 75 Gardeners Road and 73 Gardeners Road is summarised in Table 4.

Table 4 Potential dwelling yields

Site Number	Number of residential dwellings			
	1 bed / studio	2 bed	3 bed	Total
75 Gardeners Road	120	206	40	366
73 Gardeners Road	124	212	41	378
Total	244	418	81	744

4 Transport Assessment

4.1 Site access

Access into 75 Gardeners Road will be via the existing signalised intersection at Gardeners Road / Eastern Avenue. This intersection accommodates traffic movements in all directions and is the subject of further traffic modelling in Section 4.4 of this document.

Access into 73 Gardeners Road will be via the existing driveway into the Sydney Water depot via Gardeners Road. This will be in the form of a left in / left out intersection with a deceleration lane provided to facilitate safe and efficient access for drivers entering the site.

As the access into 73 Gardeners Road is restricted to left in / left out only, vehicles travelling from the west (e.g. Mascot) are unable to turn right directly into the site. Instead vehicles will use the adjacent intersection at Isaac Smith Drive to access the site.



Figure 9 Site access

4.2 Person trip generation

The person peak hour trip generation rates that have been adopted for the proposed development are as follows, which are based on the average rates for high density residential developments as outlined in RMS Technical Direction TDT 2013/04a.

- AM peak hour: 0.66 trips / dwelling
- PM peak hour: 0.57 trips / dwelling

Based on the likely person trip generation rates and forecast mode split, the total travel demand by mode has been analysed and are presented in Table 5.

Table 5 Mode Share and peak period person trips and

Mode Share		AM Peak Trips	PM Peak Trips
Car Driver	38%	187	161
Car Passenger	5%	25	21
Light rail	25%	123	106
Bus	20%	98	85
Walk	9%	44	38
Cycling/Other	3%	15	13
Total	100%	491	424

4.3 Traffic generation

Given the location of the site outside an 800m walk from the light rail stop, Arup undertook peak hour traffic surveys of comparable residential developments in order to derive a suitable traffic generation rate for the proposed development. The sites selected were all new, high density residential developments which were generally located between 400m and 1200m from a railway station.

A summary of the results of the surveys are provided in Table 6 below.

Table 6 Residential traffic generation surveys

Address	No. Units	Peak hour traffic (vehicles)		Generation rate (vehicles / dwelling)	
		AM peak hour	PM peak hour	AM peak hour	PM peak hour
22-24 Gertrude St, Wolli Creek	86	16	12	0.19	0.14
24-26 Levey St, Wolli Creek	219	69	40	0.32	0.18
18 Bonar St, Arncliffe	307	44	52	0.14	0.17
89-99 Princes Highway, Kogarah	121	19	33	0.16	0.27
458 Forest Road, Hurstville	371	53	68	0.14	0.18
2-8 Ashton Street, Rockdale	234	76	43	0.32	0.18
141 Bowden Street, Meadowbank	98	22	26	0.22	0.27
55 Hill Rd, Wentworth Point	252	65	N/A	0.26	N/A
57 Hill Rd, Wentworth Point	332	64	N/A	0.19	N/A
10 Wentworth Drive, Liberty Grove	64	18	26	0.28	0.41
2 Bobbin Head Road, North Turramurra	50	15	14	0.30	0.28
2 Mooramba Road, Dee Why	70	35	35	0.50	0.50
2 Artarmon Rd, Willoughby	161	41	52	0.25	0.32
Total	2365	537	401	0.25	0.26

Therefore for the purposes of this study, the traffic generation rates adopted for the residential component of the development are as follows:

- AM peak hour: 0.25 trips / dwelling
- PM peak hour: 0.26 trips / dwelling
- Weekend peak hour: 0.25 trips / dwelling

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73 & 75 Gardeners Road, Eastlakes
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The following directional splits were applied:

- 20% inbound, 80% outbound during the morning peak
- 80% inbound, 20% outbound during the evening peak
- 50% inbound, 50% outbound during the weekend peak

These assumptions yield the following traffic volumes shown below in Table 7.

Table 7 Forecast peak hour traffic generation

Access point	AM Peak Hour		PM Peak Hour		Weekend Peak Hour	
	<i>In</i>	<i>Out</i>	<i>In</i>	<i>Out</i>	<i>In</i>	<i>Out</i>
75 Gardeners Road (Eastern Avenue)	18	73	76	19	46	46
73 Gardeners Road (left in / left out)	19	76	79	20	47	47
Total	37	149	155	39	93	93

4.4 Traffic Modelling

4.4.1 Methodology

The intersections have been assessed using RMS approved software SIDRA software (version 7).

In urban areas, the traffic capacity of the major road network is generally a function of the performance of key intersections. This performance is quantified in terms of Level of Service (LOS), is based on the average delay per vehicle. LOS ranges from A = very good to F = unsatisfactory.

4.4.2 Results

Table 8 below shows the results of the traffic modelling undertaken for the Gardeners Road / Eastern Avenue intersection, taking into consideration the dwelling yields and traffic generation previously outlined in this report. The modelling indicates that the intersection performs well in the future, with all queues clearing within one signal cycle. This results in a good overall level of service of the intersection across all time periods.

Table 8 Eastern Avenue access preliminary traffic assessment

Time period	95 th Percentile queue length (veh)	Level of service	Degree of saturation
Weekday AM peak hour	27	B	75%
Weekday PM peak hour	38	C	86%
Weekend peak hour	21	B	64%

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Table 9 below shows the intersection modelling results for the Gardeners Road / Isaac Smith Drive intersection. Level of service assessment does not apply to priority controlled (unsignalised) intersections and so queue length and degree of saturation were considered. It was assumed that the traffic approaching on Gardeners Road arrives in platoons due to the nearby traffic signals, which increases available opportunities for vehicles to turn into and out of Isaac Smith Drive. The modelling indicates the intersection operates well following the full development of the site, with spare capacity available in all peak periods assessed. The maximum queue length in the right turn bay into Isaac Smith Drive does not exceed the available storage capacity of 70m.

Table 9 Isaac Smith Drive traffic assessment

Time period	95 th Percentile queue length (m)	Degree of saturation
Weekday AM peak hour	6	28%
Weekday PM peak hour	16	58%
Weekend peak hour	10	37%

Full intersection modelling results are provided in Appendix A.

4.5 Parking

At this stage of the assessment it is proposed to provide car parking at the rates previously specified in the Botany Bay Council DCP, those being:

- Studio / 1 bed: 1 space / dwelling
- 2+ bed: 2 spaces / dwelling
- Visitor: 1 space / 5 dwellings
- Retail - Food/Drink (Café): 1 space / 10m²
- Retail – Business premises: 1 space / 40m²

Given the site is located in close proximity to bus stops on Gardeners Road and close to a 10 minute walk of the future light rail stops on Anzac Parade, it is considered that these parking rates could be reduced in future as the design progresses. This reduction in parking will contribute to reducing the impact of the development on the wider road network.

It is important to note that the actually supply of parking will have an influencing factor on traffic generation. Though this statement may seem obvious, current guidance does not correlate these two factors. Arup recently undertook research which considered the influencing factors that contribute to the level of traffic generated by high density residential developments. The research specifically considered how the provision of on-site parking and site location may influence traffic generation rates.

Key findings of the research was that the rate at which parking is provided within residential developments was found to influence the overall level of traffic generated by that development. Figure 10 shows the relatively positive correlation between peak hour traffic generation and parking provision.

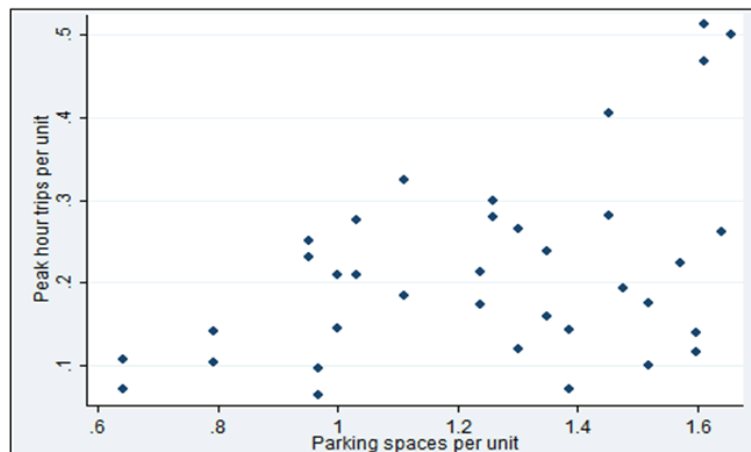


Figure 10: Correlation between peak traffic generation and parking spaces per unit

Sydney Water

73 & 75 Gardeners Road, Eastlakes
Transport Assessment

4.6 Public transport

Public transport conditions in the vicinity of the site will significantly improve in 2019 following the opening of the CBD and South East Light Rail project. As shown in Figure 11, the site is just outside a 10 minute walk from the future light rail stops on Anzac Parade. A number of bus stops are also located in close proximity to the site which will benefit future residents and visitors.



Figure 11 Public transport accessibility

4.7 Walking and cycling

The development of the site will facilitate opportunities to significantly enhance the walking and cycling environment in the area. This will include the potential for a shared pedestrian link along the boundary of the site.

5 Summary

This transport assessment supports a planning proposal for land at 73 and 75 Gardeners Road, Eastlakes. The proposal will enable the future redevelopment of both sites resulting in approximately 750 units and 1,400 parking spaces, and a range of building heights between 6-14 storeys. No approval is sought for the master plan at this stage as it simply seeks to evidence that the proposed changes to the planning controls are appropriate.

The transport assessment has concluded the transport network can accommodate the increased activity associated with the proposal. Transport conditions in the vicinity of the site will significantly improve in future years following the opening of the CBD and South East Light Rail project.

Appendix A

SIDRA modelling outputs

MOVEMENT SUMMARY

 **Site: Gardeners_Eastern_Weekday_AM_dev**

New Site

Signals - Fixed Time Isolated Cycle Time = 90 seconds (Optimum Cycle Time - Minimum Delay)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop Queued	Effective Stop Rate per veh	Average Speed km/h
South: Access											
1	L2	45	0.0	0.180	28.3	LOS B	3.0	21.3	0.76	0.72	35.9
2	T1	5	0.0	0.180	23.8	LOS B	3.0	21.3	0.76	0.72	36.2
3	R2	45	0.0	0.180	28.3	LOS B	3.0	21.3	0.76	0.72	36.1
Approach		96	0.0	0.180	28.1	LOS B	3.0	21.3	0.76	0.72	36.0
East: Gardeners Road E											
4	L2	12	0.0	0.500	19.3	LOS B	14.4	100.9	0.67	0.60	44.8
5	T1	1479	0.0	0.500	13.5	LOS A	14.4	100.9	0.66	0.59	49.1
6	R2	60	0.0	0.496	41.0	LOS C	2.5	17.6	0.91	0.79	33.7
Approach		1551	0.0	0.500	14.6	LOS B	14.4	100.9	0.67	0.59	48.2
North: Eastern Avenue											
7	L2	18	0.0	0.753	37.2	LOS C	14.5	101.2	0.95	0.90	34.5
8	T1	1	0.0	0.753	32.7	LOS C	14.5	101.2	0.95	0.90	33.2
9	R2	322	0.0	0.753	37.2	LOS C	14.5	101.2	0.95	0.90	34.7
Approach		341	0.0	0.753	37.2	LOS C	14.5	101.2	0.95	0.90	34.7
West: Gardeners Road W											
10	L2	59	0.0	0.059	15.7	LOS B	1.2	8.4	0.49	0.68	43.8
11	T1	1541	0.0	0.750	16.6	LOS B	26.5	185.5	0.82	0.74	47.1
12	R2	12	0.0	0.069	25.9	LOS B	0.3	2.4	0.66	0.69	39.2
Approach		1612	0.0	0.750	16.7	LOS B	26.5	185.5	0.81	0.74	46.9
All Vehicles		3599	0.0	0.753	18.0	LOS B	26.5	185.5	0.76	0.69	45.5

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	12.8	LOS B	0.1	0.1	0.53	0.53
P2	East Full Crossing	53	34.7	LOS D	0.1	0.1	0.88	0.88
P3	North Full Crossing	53	12.3	LOS B	0.1	0.1	0.52	0.52
All Pedestrians		158	20.0	LOS B			0.65	0.65

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

 **Site: Gardeners_Eastern_Weekday_PM_dev**

New Site

Signals - Fixed Time Isolated Cycle Time = 90 seconds (Optimum Cycle Time - Minimum Delay)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop Queued	Effective Stop Rate per veh	Average Speed km/h
South: Access											
1	L2	12	0.0	0.044	22.5	LOS C	0.6	4.5	0.70	0.66	38.1
2	T1	1	0.0	0.044	17.9	LOS B	0.6	4.5	0.70	0.66	38.3
3	R2	12	0.0	0.044	22.4	LOS C	0.6	4.5	0.70	0.66	38.3
Approach		24	0.0	0.044	22.2	LOS C	0.6	4.5	0.70	0.66	38.2
East: Gardeners Road E											
4	L2	45	0.0	0.425	18.0	LOS B	11.5	80.8	0.62	0.57	45.3
5	T1	1255	0.0	0.425	12.2	LOS B	11.5	80.8	0.62	0.55	49.8
6	R2	34	0.0	0.330	45.7	LOS D	1.5	10.2	0.93	0.75	32.3
Approach		1334	0.0	0.425	13.3	LOS B	11.5	80.8	0.62	0.55	49.0
North: Eastern Avenue											
7	L2	13	0.0	0.859	46.6	LOS D	20.1	140.5	1.00	1.01	31.8
8	T1	5	0.0	0.859	42.0	LOS D	20.1	140.5	1.00	1.01	30.6
9	R2	387	0.0	0.859	46.6	LOS D	20.1	140.5	1.00	1.01	31.9
Approach		405	0.0	0.859	46.5	LOS D	20.1	140.5	1.00	1.01	31.9
West: Gardeners Road W											
10	L2	45	0.0	0.044	15.2	LOS B	0.9	6.2	0.48	0.67	44.2
11	T1	1700	0.0	0.855	23.7	LOS C	38.4	268.7	0.87	0.87	43.2
12	R2	45	0.0	0.211	23.6	LOS C	1.3	9.2	0.66	0.73	40.2
Approach		1791	0.0	0.855	23.5	LOS C	38.4	268.7	0.85	0.86	43.1
All Vehicles		3554	0.0	0.859	22.3	LOS C	38.4	268.7	0.78	0.76	43.3

Level of Service (LOS) Method: Delay (HCM 2000).

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P2	East Full Crossing	53	35.6	LOS D	0.1	0.1	0.89	0.89
P3	North Full Crossing	53	11.8	LOS B	0.1	0.1	0.51	0.51
All Pedestrians		105	23.7	LOS C			0.70	0.70

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

 **Site: Gardeners_Eastern_Saturday_dev**

New Site

Signals - Fixed Time Isolated Cycle Time = 90 seconds (Optimum Cycle Time - Minimum Delay)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop Queued	Effective Stop Rate per veh	Average Speed km/h
South: Access											
1	L2	28	0.0	0.131	26.7	LOS C	1.8	12.7	0.78	0.71	36.5
2	T1	3	0.0	0.131	22.1	LOS C	1.8	12.7	0.78	0.71	36.7
3	R2	28	0.0	0.131	26.7	LOS C	1.8	12.7	0.78	0.71	36.7
Approach		60	0.0	0.131	26.4	LOS C	1.8	12.7	0.78	0.71	36.6
East: Gardeners Road E											
4	L2	28	0.0	0.336	14.6	LOS B	8.4	59.0	0.52	0.48	47.4
5	T1	1161	0.0	0.336	9.1	LOS A	8.4	59.0	0.52	0.47	52.1
6	R2	63	0.0	0.405	30.3	LOS C	2.2	15.7	0.78	0.77	37.4
Approach		1253	0.0	0.405	10.3	LOS B	8.4	59.0	0.54	0.48	51.0
North: Eastern Avenue											
7	L2	20	0.0	0.620	36.4	LOS D	9.2	64.5	0.94	0.83	34.8
8	T1	3	0.0	0.620	31.8	LOS C	9.2	64.5	0.94	0.83	33.5
9	R2	212	0.0	0.620	36.4	LOS D	9.2	64.5	0.94	0.83	35.0
Approach		235	0.0	0.620	36.3	LOS D	9.2	64.5	0.94	0.83	35.0
West: Gardeners Road W											
10	L2	51	0.0	0.045	12.9	LOS B	0.9	6.1	0.42	0.66	45.4
11	T1	1435	0.0	0.635	11.6	LOS B	20.7	145.0	0.67	0.61	50.4
12	R2	28	0.0	0.107	18.3	LOS B	0.7	4.7	0.54	0.69	42.7
Approach		1514	0.0	0.635	11.7	LOS B	20.7	145.0	0.66	0.61	50.0
All Vehicles		3061	0.0	0.635	13.3	LOS B	20.7	145.0	0.63	0.58	48.4

Level of Service (LOS) Method: Delay (HCM 2000).

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P2	East Full Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	9.4	LOS A	0.1	0.1	0.46	0.46
All Pedestrians		105	24.3	LOS C			0.70	0.70

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

▽ Site: AM dev

New Site

Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Isaac Smith Dr											
1	L2	57	0.0	0.047	6.8	LOS A	0.2	1.2	0.34	0.60	52.6
Approach		57	0.0	0.047	6.8	LOS A	0.2	1.2	0.34	0.60	52.6
East: Gardners Rd (East)											
4	L2	14	0.0	0.261	5.6	LOS A	0.0	0.0	0.00	0.02	58.2
5	T1	1514	0.0	0.261	0.0	LOS A	0.0	0.0	0.00	0.01	59.9
Approach		1527	0.0	0.261	0.1	NA	0.0	0.0	0.00	0.01	59.9
West: Gardners Rd (west)											
11	T1	1607	0.0	0.275	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
12	R2	14	0.0	0.042	15.4	LOS B	0.1	0.8	0.74	0.89	46.9
Approach		1621	0.0	0.275	0.2	NA	0.1	0.8	0.01	0.01	59.8
All Vehicles		3205	0.0	0.275	0.2	NA	0.2	1.2	0.01	0.02	59.7

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

▽ Site: PM dev

New Site
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Isaac Smith Dr											
1	L2	114	0.0	0.093	6.8	LOS A	0.3	2.4	0.34	0.61	52.5
Approach		114	0.0	0.093	6.8	LOS A	0.3	2.4	0.34	0.61	52.5
East: Gardners Rd (East)											
4	L2	105	0.0	0.301	5.6	LOS A	0.0	0.0	0.00	0.11	57.4
5	T1	1648	0.0	0.301	0.0	LOS A	0.0	0.0	0.00	0.03	59.6
Approach		1754	0.0	0.301	0.4	NA	0.0	0.0	0.00	0.04	59.5
West: Gardners Rd (west)											
11	T1	1768	0.0	0.302	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
12	R2	149	0.0	0.580	25.8	LOS B	2.2	15.7	0.90	1.05	41.4
Approach		1918	0.0	0.580	2.0	NA	2.2	15.7	0.07	0.08	57.9
All Vehicles		3785	0.0	0.580	1.4	NA	2.2	15.7	0.05	0.08	58.4

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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 Project: J:\244000\244786-00 75 Gardeners Rd\Work\Internal\Sep17\Isaac Smith.sip6

MOVEMENT SUMMARY

 **Site: Gardeners_Eastern_Weekday_AM_dev**

New Site

Signals - Fixed Time Isolated Cycle Time = 90 seconds (Optimum Cycle Time - Minimum Delay)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop Queued	Effective Stop Rate per veh	Average Speed km/h
South: Access											
1	L2	45	0.0	0.180	28.3	LOS B	3.0	21.3	0.76	0.72	35.9
2	T1	5	0.0	0.180	23.8	LOS B	3.0	21.3	0.76	0.72	36.2
3	R2	45	0.0	0.180	28.3	LOS B	3.0	21.3	0.76	0.72	36.1
Approach		96	0.0	0.180	28.1	LOS B	3.0	21.3	0.76	0.72	36.0
East: Gardeners Road E											
4	L2	12	0.0	0.500	19.3	LOS B	14.4	100.9	0.67	0.60	44.8
5	T1	1479	0.0	0.500	13.5	LOS A	14.4	100.9	0.66	0.59	49.1
6	R2	60	0.0	0.496	41.0	LOS C	2.5	17.6	0.91	0.79	33.7
Approach		1551	0.0	0.500	14.6	LOS B	14.4	100.9	0.67	0.59	48.2
North: Eastern Avenue											
7	L2	18	0.0	0.753	37.2	LOS C	14.5	101.2	0.95	0.90	34.5
8	T1	1	0.0	0.753	32.7	LOS C	14.5	101.2	0.95	0.90	33.2
9	R2	322	0.0	0.753	37.2	LOS C	14.5	101.2	0.95	0.90	34.7
Approach		341	0.0	0.753	37.2	LOS C	14.5	101.2	0.95	0.90	34.7
West: Gardeners Road W											
10	L2	59	0.0	0.059	15.7	LOS B	1.2	8.4	0.49	0.68	43.8
11	T1	1541	0.0	0.750	16.6	LOS B	26.5	185.5	0.82	0.74	47.1
12	R2	12	0.0	0.069	25.9	LOS B	0.3	2.4	0.66	0.69	39.2
Approach		1612	0.0	0.750	16.7	LOS B	26.5	185.5	0.81	0.74	46.9
All Vehicles		3599	0.0	0.753	18.0	LOS B	26.5	185.5	0.76	0.69	45.5

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	12.8	LOS B	0.1	0.1	0.53	0.53
P2	East Full Crossing	53	34.7	LOS D	0.1	0.1	0.88	0.88
P3	North Full Crossing	53	12.3	LOS B	0.1	0.1	0.52	0.52
All Pedestrians		158	20.0	LOS B			0.65	0.65

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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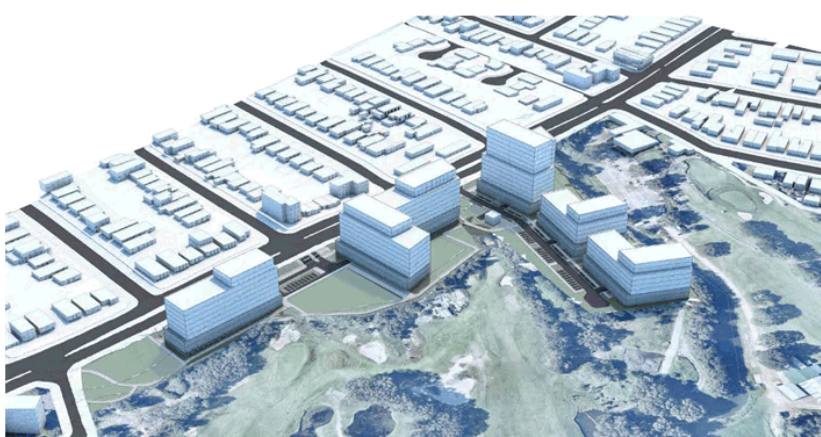
Organisation: ARUP PTY LTD | Processed: Tuesday, 15 November 2016 8:09:01 AM

Project: J:\244000\244786-00 75 Gardeners Rd\Work\Internal\Oct 2016 Update\Gardeners_Eastern_SIDRA\Eastern avenue access\Eastern ave_AM.sip6

**Attachment F – Master Plan:
Preliminary Heritage Review,
Prepared by NBRS Architects,
dated September 2017**

DRAFT MASTER PLAN: PRELIMINARY HERITAGE REVIEW

73 - 75 Gardeners Road Eastlakes



Sydney Water Site
73 - 75 Gardeners Road
EASTLAKES NSW 2018
28 SEPTEMBER 2017

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This report has been prepared under the guidance of the Expert Witness Code of Conduct in the Uniform Civil Procedure Rules and the provisions relating to expert evidence

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ISSUED	REVIEW	ISSUED BY
25 September 2017	Draft	P Jeffery
27 September 2017	Amended draft	P Jeffery
28 September 2017	Final	P Jeffery

DRAFT MASTER PLAN: PRELIMINARY HERITAGE REVIEW

73 - 75 GARDENERS ROAD, EASTLAKES NSW 2018

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1.0 INTRODUCTION

1.1 BACKGROUND

Sydney Water have engaged Architectus to prepare a Master Plan for land at 73 and 75 Gardeners Road, Eastlakes for the purposes of informing a Planning Proposal which seek to amend the current planning controls for the site to allow residential development and supporting land uses.

Sydney Water are in the process of divesting surplus land to allow redevelopment and improved utilisation of this land within the Sydney Metropolitan area. For the subject sites, due to their location within the wider context of Eastlakes, it is proposed to seek their rezoning to allow for residential development or other appropriate supporting land uses.

In order to test and demonstrate the suitability of the site for the proposed land uses, a master plan has been prepared by Architectus and considered by **NBR**ARCHITECTURE. This master plan identifies that the site can be developed for residential with supporting land uses such as small-scale shops, retail or similar uses. The proposal will enable the future redevelopment of both sites as medium- and high-rise residential development ranging from six to fourteen storeys with extensive open areas, ground floor café/retail tenancies and basement parking. No approval is sought for the master plan at this stage as it simply seeks to evidence that the proposed changes to the planning controls are appropriate.

Any future development of the site will be subject to future development applications lodged with Council. Our review of the master plan has identified that the site is suitable for the proposed land uses as residential and supporting land uses including supporting commercial/retail uses.

1.2 THE SITE

The site comprises two parcels of land addressing Gardeners Road, Eastlakes NSW 2018, namely:

- 73 Gardeners Road, described as Lot 101 in a plan of subdivision of Lot 50 in DP1216168 (Parish of Botany, County of Cumberland) currently zoned SP2 – Sydney Water; and
- 73A and 75 Gardeners Road, described as Lot 51 in DP 11216168 (Parish of Botany, County of Cumberland), comprises 1.35ha, includes a drainage easement, currently zoned SP1 – Recreation facility (outdoor).

The site is bounded on the north by Gardeners Road and the Municipality of Randwick, on the east by a drainage canal and Eastlakes Golf Club, and to the west by Slattery Place. The south boundary of the site adjoins the Botany Water Reserve, which is listed as a heritage item on the NSW State Heritage Register. The Botany Water Reserve is part of the Botany Wetlands, which comprises a surface and ground water system, fed by the Botany Sands aquifer and surface run-off from the surrounding areas¹.

The areas to the north and east are characterised by one- and two-storey residential development, while the area to the west contains a five-storey residential development.

¹ Sydney Water, Implementation of Botany Wetlands Plan of Management-Annual Report 2003-2004. September 2004.

The Daceyville Garden Suburb Heritage Conservation Area (C1), located to the east of the subject site, is identified as an item of 'Local' significance on the Botany LEP 2013. The conservation area is separated by the Eastlake Golf Club clubhouse, an open parking area, and greens maintenance storage areas.



Figure 1 – Aerial photograph showing the location and context of 73 and 75 Gardeners Road, Eastlakes. Source: Architectus 2017.

1.3 AUTHORSHIP

The following staff of **NBRS**ARCHITECTURE were engaged in the preparation of this report:

- Pam Jeffery, Senior Heritage Consultant
- Leonie Masson, Historian

Illustrations and photographs contained in this report are the work of NBRSARCHITECTURE unless otherwise noted.

1.4 SOURCES

The main documentary sources consulted in the research for this report are listed below:

- Mitchell Library: State Library of NSW – Maps, Plans and Small Pictures File
- NSW Department of Lands
- Sydney Water Plan Room
- City of Botany Bay Council - Local Studies and History Collection

2.0 HISTORICAL CONTEXT

2.1 PRE-EUROPEAN HISTORY

At the time of European settlement there were three main aboriginal tribes based on Linguistic groups, in the Sydney Region. The Kameygal people set up camps along the banks of the Cooks River and on the shores of Botany Bay, hunting, fishing and gathering food. Trees and plants provided the raw material for food, medicine, implements and weapons. In the mild Sydney climate, the Aboriginal people thrived. Their way of life was undisturbed until the English mariner and explorer, James Cook, sailed into Botany Bay on the Endeavour in April 1770. His arrival set in train events which eventually culminated in the establishment of a penal colony nearby at Sydney Cove.²

Although there is evidence of aboriginal occupation within the Municipality of Botany, there is no physical evidence of any such occupation within the subject site.

2.2 EARLY EUROPEAN SETTLEMENT

Cook named the bay Stingray Harbour, but this was later changed to Botany Bay because of the many exotic plants botanist Sir Joseph Banks collected there. In his journals, Cook wrote enthusiastically of the well-watered fertile meadows he had seen. His descriptions helped to convince the British government that New South Wales would be the ideal place to set up a penal colony.³ When Captain Arthur Phillip followed 18 years later with the First Fleet he found the bay lacked sufficient shelter and ready supplies of fresh water, so he moved his settlement to Sydney Cove.

Although settlers visited the area regularly in hunting parties it would be another 30 years before the first free settlers made their homes on the western shores of Botany Bay. The lack of access across the swamps and marshlands of the lower reaches of the Cook River made communication with the area almost impossible. The thick woods made it a paradise for escaped convicts and bushrangers who could sustain themselves by the abundance of wild life and water. So dense were the forests that the possibility of recapture was extremely remote.

When the first settlers arrived in the area they felt quite threatened by these escapes and in 1820 petitioned the government for a resident district constable.

The alienation of much of this region was by way of land grants between 1804 and 1830. This coupled with the realisation that enormous supplies of timber and shells for lime making were available in the region, gave the area great economic potential as there were no identified deposits of limestone in the Sydney region.

Soldiers, ex-convicts and free immigrants were among the early grantees in the Botany area. Two of the earliest settlers in the region were Andrew Byrne and Edward Redmond, who had been transported for life for their part in the Irish Rebellion of 1798. They cut down trees, sold the timber, and began to raise horses and farm the land. They also collected oyster shells left by the Aboriginal people on the banks of the Cooks River, and burnt them to make lime for building.

In 1815, ex-convict Simeon Lord took advantage of the natural landscape of Botany, when he dammed a stream close to Botany Bay and established the first privately run woollen mill on

² www.botanybay.nsw.gov.au/city/contents/history

³ www.botanybay.nsw.gov.au/city/contents/history

its banks. A short distance away, he also built a flour mill. The two ponds he created are now local landmarks, known as the Mill Pond and the Engine Pond. Lord also received other land in the Botany area, which relates directly to this study.⁴

Simeon Lord was not the only one to recognise the value of Botany's water. In the 1830s, market gardeners arrived in the area. They cut trenches in the soft soil to irrigate their crops, and sold fruit and vegetables to the nearby city and suburbs. Fishing villages sprang up to cater for the demands of a growing population.

In the 1850s, as the colony's streams became clogged and polluted, the government turned to Botany to supply Sydney with water. From 1859 to 1886 pumps carried water from the Botany Swamps to the city and surrounding suburbs. At the same time, more and more industries set up factories in and around the Botany Water Reserve. Tanneries, wool scourers, fellmongers, and boiling down works all drained the natural swamp, till by 1869, the area was no longer considered to be a reliable source of water.

John Geddes who was closely associated with the establishment of the Botany Presbyterian Church, established his tannery and fellmongers businesses along Botany Road in the later decades of the 19th century. By 1886 the Sands Directory records three factories owned by Geddes, J.H. Geddes & Co (associated with the wool trade), Floodvale Fellmongery and Geddes Bros Fellmongers & Glue workers.

In 1921, Mascot was chosen as the site of what was to become Australia's largest international airport. Less than ten years later, a port was established on the shores of Botany Bay. These developments now dominate the landscape of Botany. After more than ten years of planning and manoeuvring, the Sydenham to Botany Railway Line was finally opened in 1925 but only as a goods line. The line still carries goods to and from local industrial sites.

In the Botany area industry and housing have always been located alongside one another. Modern day Botany is a mixture of old and new, with flats and medium density housing interspersed with more traditional brick and wooden cottages. Recent housing developments have taken the place of run down factories.

Following construction of the new wharf road, Botany Road traffic was reduced and some residential redevelopment of the area has occurred with medium density apartments, mostly to the south of Botany Road. The area to the north of Botany Road remains a mainly light industrial with some residential uses interspersed.

In recent years Botany has developed one of the most ethnically diverse populations in Sydney, with over forty percent of residents coming from a non-English speaking background. The influence of the post war generation is evident in the daily life of the community. Restaurants and businesses catering for wide multicultural tastes are attracting a growing number of customers.

2.3 HISTORY OF THE SUBJECT SITE

The subject site is located on part of 417 acres granted to Thomas (Tom) White Melville Winder on 27 May 1823. That land is illustrated in the map at Figure 2, known as Portion 151 of the Parish of Botany.

⁴ www.botanybay.nsw.gov.au/city/contents/history

In August 1820, with Samuel Terry, Winder established the Lachlan Flour Mills at Kensington. He and Terry entered into partnership with William Hutchinson, Daniel Cooper, George Williams and William Leverton and renamed the mill the Lachlan and Waterloo Flour Mills. Winder sold and conveyed his share in the business to the remaining partners in February 1823. In January 1825, Winder conveyed his land grant by lease and release to Daniel Cooper and Solomon Levey and Robert Cooper for the sum of £5000.⁵

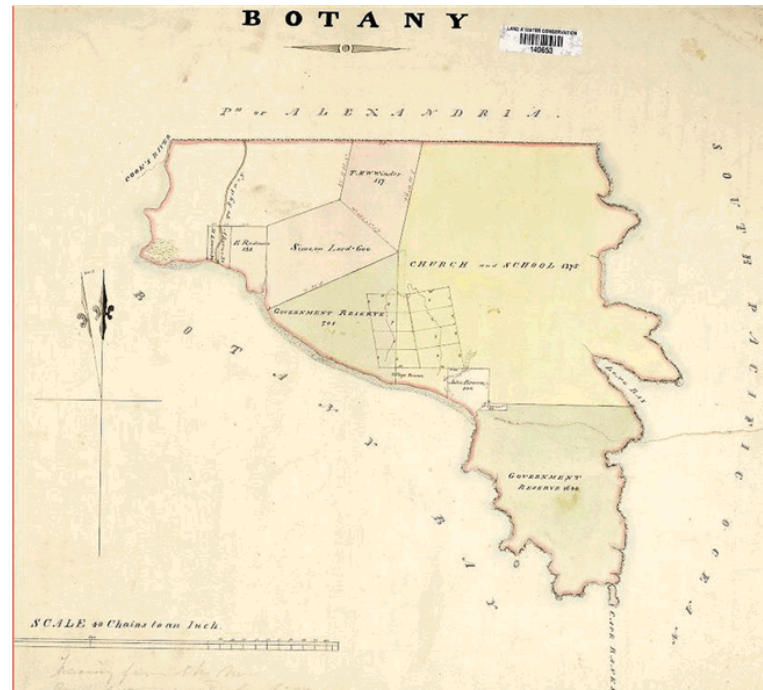


Figure 2 – AO Map 191, Parish of Botany, undated. Winder's land grant shaded pink. (Source: NSW Land & Property Information, Historic Land Records Viewer)

The subject site was originally located within the Lachlan Swamps, which lands were later developed as part of the Botany Water Reserve.

The Sydney Water Works were established in Botany in 1858 and were fed by the many springs in the area. In 1886, the last year of full pumping, 1864 million gallons of water were supplied to Sydney from these water works. Although the scheme was Sydney's major source of water for 30 years, it did not supply water in the Botany area, whose residents depended on natural sources and tanks. (Pollen, 1988, pp.35-6)

Following European colonisation, the first substantial interventions in the area occurred in 1815 when the enterprising merchant Simeon Lord had a dam constructed to the west of the present Botany Road to assist him in establishing the colony's first woollen mill. A second dam was constructed near the present Engine House ruins for a flour mill (refer to 1869 Water

⁵ Old System Deed Bk Q No 19, NSW Land & Property Information.

Commission Plan). This mill continued operating until about 1847 while the textile factory was closed by about 1856.

From 13 July, 1855 the City Council began resuming land around, and including, the Botany wetlands for the city's main water supply scheme - the first-time land resumptions were made for this purpose. (The land was transferred to the Water Board in 1888.) Of this land about 75 acres of Lord's estate was resumed which included his house (demolished in the 1930s though the site of which is near the present heliport), the mill sites, various cottages and the earthworks associated with Lord's mill dams.

The initial water supply scheme of the mid-1850s, by the City Engineer WB Rider, was abandoned with the appointment of Edward Bell to the position. The surviving Engine House and chimney date from the implementation, in the late 1850s, of Bell's scheme while the stone retaining walls for the Engine Pond and outlet sluice probably date from the 1870s work on the Engine Pond augmentation. Between 1866 and the mid-1870s six dams were constructed, and reconstructed for various reasons, from the Mill Pond to Gardeners Road using piling of sheet timber facing filled with sand forming a core of a turfed bank. In 1859 a 30" sand-cast iron main was completed between the Engine House and the Crown Street reservoir. The pipes were made in Scotland in 1856 and machined with such remarkably fine tolerance that, of the total length of 4 miles (6.4 km), the outside diameter varied by only 6mm and allowed the pipes to be laid without jointing material. Part of this easement coincides with the present study area near that Engine House.

Drawing on a 1982 thesis of Margaret Simpson, the Thorp et al study indicates that about 80 trees - "Norfolk Pines, Morton Bay Figs, Weeping Figs, Sweet Scented Pines and Stone Pines" - were planted along the access road from Botany and elsewhere on the site in 1869. Works for the augmentation of water storage at Botany continued throughout the 1870s including the addition of water stored in the Bunnerong Dam (1876-1877) by way of a pipe to the No 4 Pond. The then Bunnerong Road was moved and ran along the top of this dam wall.

By the early 1880s the Upper Nepean Scheme was well underway and in November 1886 the Nepean-supplied water effectively ended the general supply of Sydney's water from the Botany system. Even intermittent emergency use of the system ceased by 1893 so that the Engine House machinery was finally decommissioned with pumping equipment and boilers sold at auction in 1896. In 1894 various local industrial uses - such as wool scourers and tanners - were permitted to return to the wetland vicinity through leases until 1947.



Figure 3 – Sketch showing the Water Reserve and the Country Between Sydney and Botany, 1850 / William Henry Wells. (Source: State Library of New South Wales, Digital Order No. a1595001h)

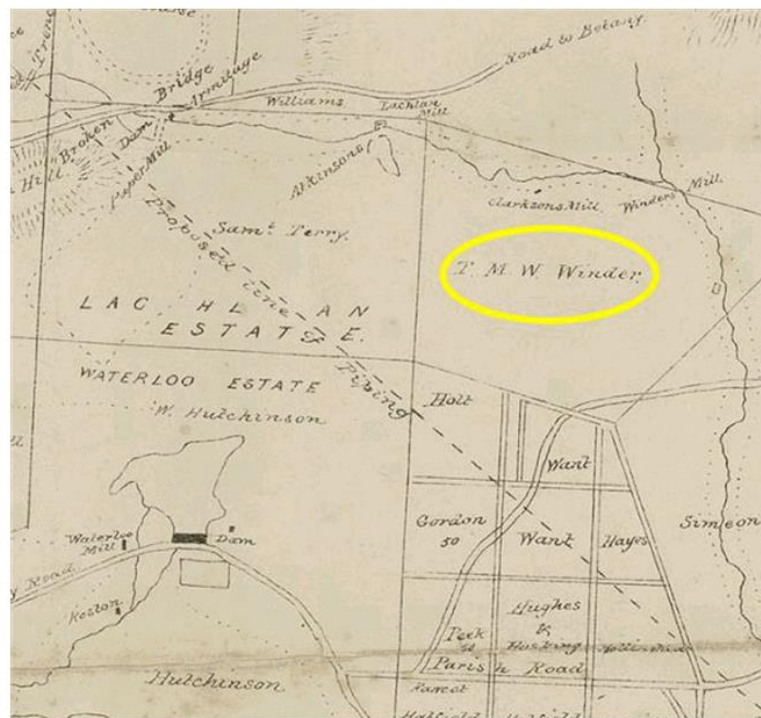


Figure 4 – Plan shewing the various localities and Works referred to in the report of the Special Committee on the subject of procuring permanent supply of water in the City of Sydney, 1852. (Source: State Library of New South Wales, Digital Order No. c015770001)

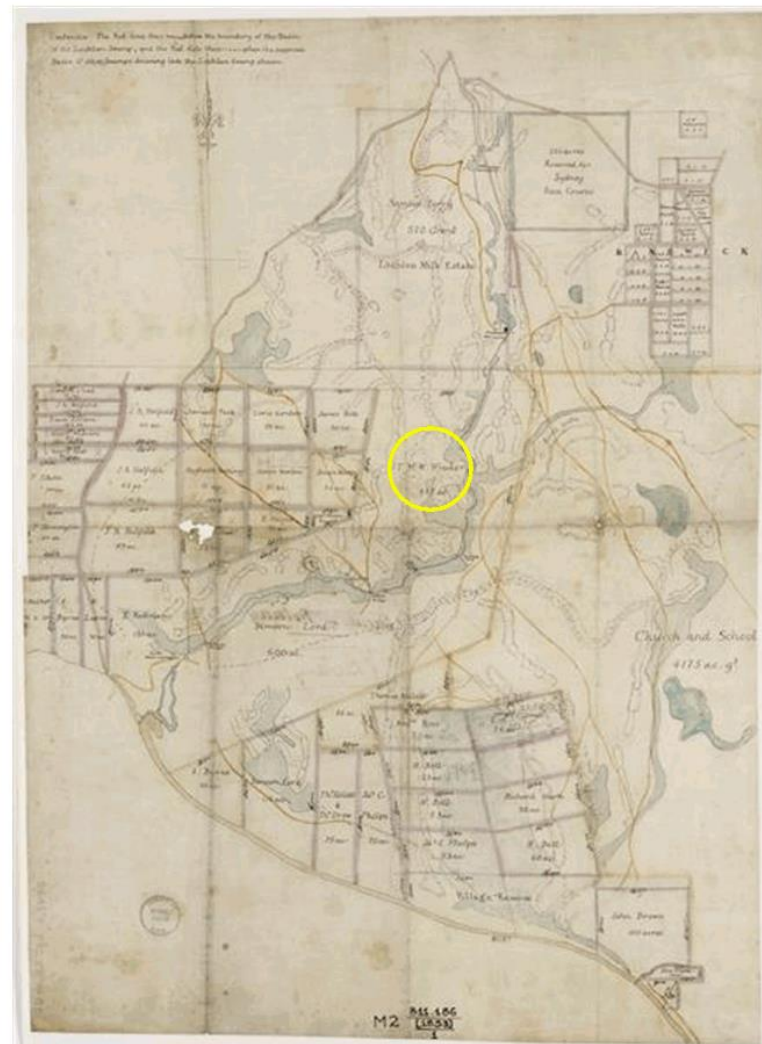


Figure 5 – Parish of Botany [Lachlan and Botany watersheds], 1853. (Source: State Library of New South Wales, Z/M2 811.186/1853/1)

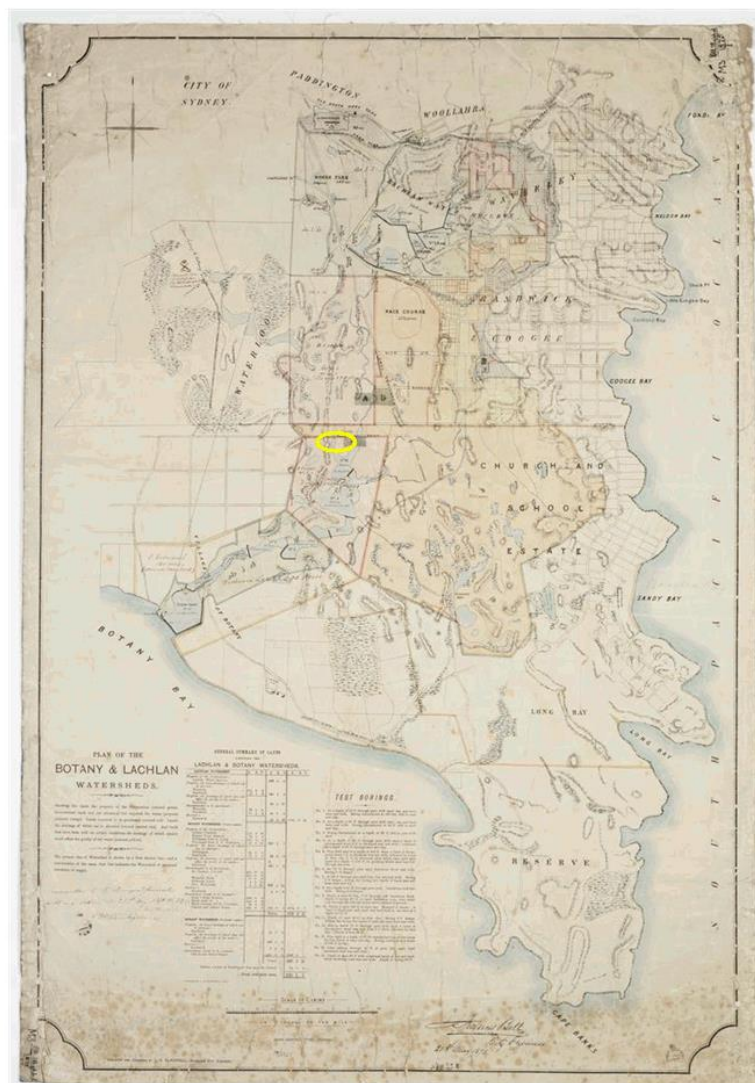


Figure 6 – Plan of the Botany and Lachlan Watersheds [cartographic material] / comp. by L. Blackwell, 1875. (Source: State Library of New South Wales, Digital Order No a1602001)

While these major improvement programs for Sydney's water supply were being put into place it also became clear - chiefly from an increasingly polluted harbour - that substantial works were needed to deal with the sewage of Sydney and its immediate suburbs. After the Board of Water Supply and Sewerage was formed in 1888 the basis of what is presently Sydney's largest sewerage system was commenced. As part of its responsibilities the new Board

assumed control of various recent works of the Public Works Department, one of which was the first of the new sewer mains from the City to the Botany Sewage Farm established about 1886. Another main was added in 1898 which linked various western suburbs to the Sewage Farm. However, by the turn of the century the usefulness of the Farm was fast diminishing such that the southern and western sewerage systems were amalgamated and extended, from 1909, to a new ocean outfall at Malabar while the much-expanded Botany Sewage Farm was closed. This work - known as the Southern and Western Sewer Ocean Outfall System or, usually, SWSOOS No 1 - was completed in 1916 under the direction of Chief Engineer EM de Burgh.

Further growth of Sydney's suburbs and resultant extensions to this sewerage network necessitated an augmentation of the system, by duplication known as SWSOOS No 2, during 1936 to 1941. Both mains were required to cross the Cooks River by inverted syphons. The current SWSOOS network represents Sydney's largest sewerage system and envelops mains that were constructed from the 1880s through the 1890s, 1900s, 1910s to 1940s. Other individually significant components of the SWSOOS network located near the present site include the twin major inverted syphons and syphonic overflows (now under Sydney Airport) (part of ID No SW 33?) and the 1896 sewer vent at West Botany Street, Arncliffe (ID No SW 31 - SHI 4571725).

Within the site the existing engine house chimney was retired for water supply use in 1888, left unused for 28 years then, after being shortened, re-used as a vent in 1916 as part of the work for the new SWSOOS. Various buildings, associated with the new sewerage system, were added to the west. During the 1940s the chimney was further truncated to its present height along with the diversion of the mouth of the Cooks River into Botany Bay and substantial filling of the Engine and Mill Ponds as part of a major expansion and upgrade of airport facilities. From the 1970s a greater appreciation of the special historical and environmental values of the place was apparent through the commissioning of a range of studies to record and assess its significance. However further incursions continued with the 1988 construction of Southern Cross Drive through the middle of the Engine Pond, reclamation by the DMR and more recent works associated with the pre-Olympics upgrade of the airport.⁶

⁶ "Botany Water Reserves", NSW Heritage Register, <http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?id=5051418>, accessed 27 August 2015.



Figure 7 - View of the northwest corner of the existing sewage pumping station located at 73 Gardeners Road, Eastlakes. The building appears to be one of a group constructed in c1920 as part of the SWSQS expansion works.

In January 1923 the Metropolitan Board of Water Supply and Sewerage advertised tenders to golf clubs "for the lease for golf purposes only of about 281 acres of land extending from Kensington to Botany, being part of the area known as the Botany Water reserve. The area to be leased does not include the chain of ponds which exist on the land. The Lease will be for a term ending 30th December 1947."⁷ Despite keen interest from Sir Denison Miller, Governor of the Commonwealth Bank, a member of a syndicate interested in leasing the land, the matter was deferred pending progress on the proposed Botany railway. One year later the Water Board began drawing up a lease of the subject lands⁸ with approval given in June for the final clauses in same, prior to consultations with the Railway Commissions in regard to a proposed tramway route in the vicinity of the subject land.⁹ A syndicate comprising Sir Hugh Denison, HA Russell, TR Raine and James Kell, entered into negotiations with the Water Board to lease the 283 acres of land stretching from Kensington to Botany (the unoccupied portion of the Botany water reserve lands) to construct two golf courses.¹⁰ In August 1927, following the receipt of a new offer for the area, the president of the Water Board "recommended that public tenders be invited for the use of this area for a golf course or courses, and this was agreed to".¹¹ In mid-1928 the tender of George Solomon, representing a syndicate, was accepted by the Water Board: "The land comprises 283 acres and the offer of the successful tenderer is £2 per acre per annum".¹²

At the end of June 1929 the *Sydney Morning Herald* reported "Sydney will have another very fine golf links ready for play in a few months...The club is fortunate in having 280 acres at its disposal and already plans have been made, and a start has been made with the construction of a public course."¹³ The same article discussed plans for the club house to be erected on Gardeners Road comprising a one-storey building of colonial type designed by Messrs Wright and Apperly, "who specialise in club-house designs". The club house was in course of erection in December 1929 and a detailed description of the architecture and facilities of same were

⁷ *Sydney Morning Herald*, 17 January 1923, p22.

⁸ "New Links", *Sydney Morning Herald*, 21 February 1924, p6.

⁹ "New Club Established", *Sydney Morning Herald*, 5 June 1924, p12.

¹⁰ "New Golf Links, Kensington and Botany", *Newcastle Sun*, 29 October 1925, p3.

¹¹ "Golf New Links Botany and Wollongong, Water Board Decision", *Sydney Morning Herald*, 25 August 1927, p13.

¹² "New Links at Botany, tender let to syndicate", *Sydney Morning Herald*, 21 June 1928, p13.

¹³ "The Lakes Club, splendid links at South Kensington", *Sydney Morning Herald*, 25 June 1929, p16.

furnished in the Building and Construction column of the *Sydney Morning Herald* on 10 December, accompanied by the illustration shown below in Figure 8.



Figure 8 – Building and Construction: A Fine Golf House for the Lakes Golf Club. (Source: *Sydney Morning Herald*, 10 December 1929, p8)

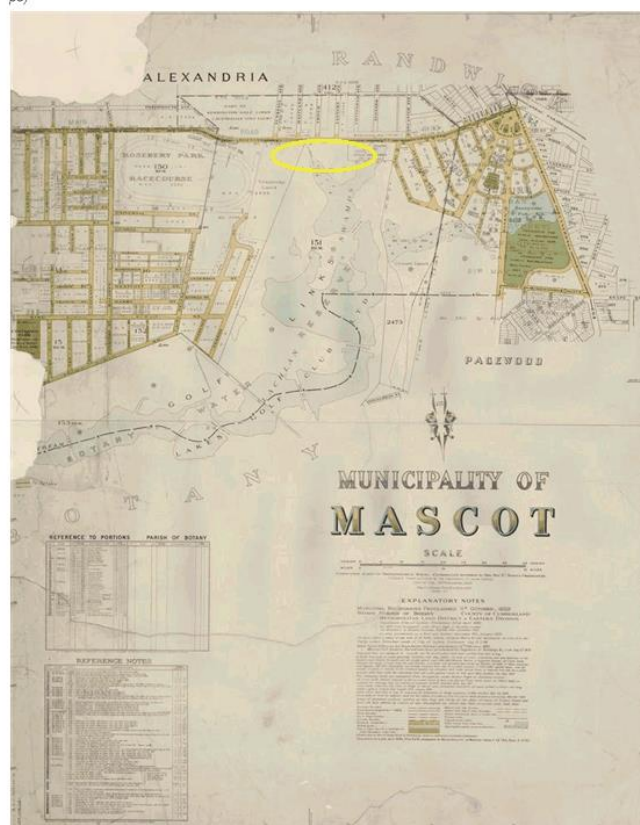


Figure 9 – Municipality of Mascot, 22 December 1932. (Source: State Library of New South Wales, Digital Order No. a136027)

The golf links is shown on the 1932 map of the Municipality of Mascot (Figure 9) and the approximate location of the subject site (former Golf Club House) circled yellow thereon. The club house is visible in the [193?] aerial view of the golf course shown at Figure 10 and in the background shots in 1936 and 1938 (Figure 11). The area to the west of the Club House was used for workshops, storage, generally associated with greens management and maintenance.

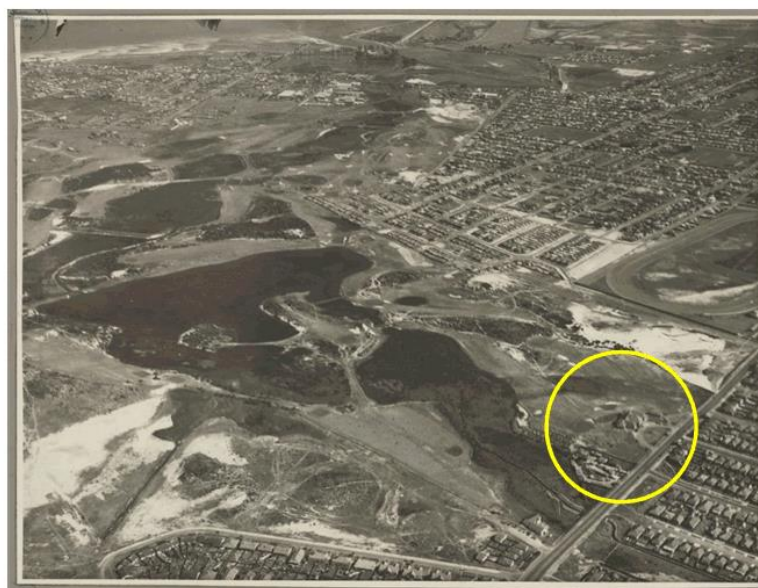


Figure 10 — Aerial view of Lakes Golf Course / Hall & Co., ca. 193-? Club house circled yellow thereon. (Source: State Library of NSW, PXE 889)

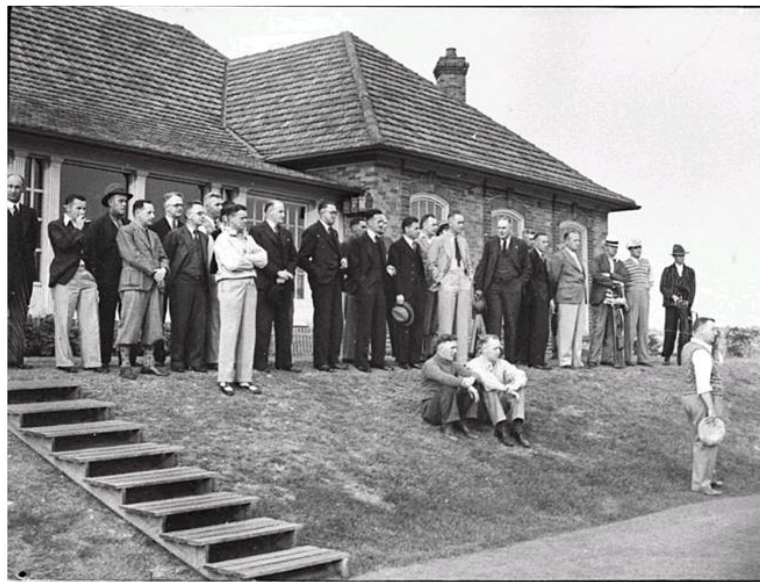


Figure 11 – Lakes Golf Club, Sam Hood, 1936. (Source: State Library of NSW, Digital Order No. hood_13442)



Figure 12 – Extract from 1943 aerial survey of Sydney showing subject site shaded yellow. (Source: NSW Land & Property Information, SIX Maps)



Following the relocation of the Eastlake Golf Club House to a new site in the 1970s, the Metropolitan Water Sewerage and Drainage Board leased part of Lot 51 of DP1216168 in March 1977 to Panama Developments Pty Limited for the yearly sum of \$3000.¹⁴

Investments Pty Limited, a company managing retail nurseries and garden stores, (founded in 1973) leased Lot 51 of DP1216168 commencing in December 1977. The former golf club was demolished to make way for the present Gardens R Us store and carpark.

In c2015 the nursery owner surrendered its lease of 75 Gardeners Road (Lot 51 of DP1216168), and the structures were cleared from the site.

¹⁴ Memorandum of Lease Q133299, NSW Land & Property Information. The portion of land excluded the land resumed for road widening purposes.

3.0 RELEVANT HERITAGE LEGISLATION

3.1 HERITAGE STATUS OF THE SUBJECT SITE

3.1.1 GENERALLY

The site is not identified as a heritage item attached to statutory legislation. It does however adjoin the heritage-listed Botany Wetlands site, and the consent authority is required to assess the impact of potential development on the heritage significance of items of environmental significance in proximity to the development.

However, archaeological deposits are protected under the 'relics' provisions of the *NSW Heritage Act 1977*.

Indigenous archaeology, where located, is protected under the *NSW National Parks and Wildlife Act 1974*.



Figure 13 - Extract from mapHER_004 attached to Botany Local Environmental Plan 2013, showing the location of the site. The area shaded green is the Botany Water Reserve. Source: https://www.legislation.nsw.gov.au/maps/53bc85e6-6c49-434a-891b-2a5581939ddc/1100_COM_HER_004_010_20150722.pdf

3.1.2 73A AND 75 GARDENERS ROAD

Timber and metal structures associated with the former use of the site as a nursery and garden centre were demolished in 2016. A canal located in the western section of 75 Gardeners Road has been formalised, includes remnant sections of stone and brick walls that warrant further archaeological investigation to confirm its significance.

The site contains several mature trees, including a group of paper bark trees situated at the western end of the site adjacent to the drainage canal.

A free-standing, one storey residence constructed in c1930, is situated at the eastern section of the site, and is given the street address of 73a Gardeners Road. NBR SARCHITECTURE inspected the building and its setting in 2015, and undertook a preliminary heritage assessment at that time (refer to Section 4.0 of this report).

3.1.3 73 GARDENERS ROAD

This site is currently situated within the existing legal boundary of the Botany Wetlands Reserves site, but has been *not included* from the heritage curtilage of the Botany Wetlands site which is identified as a heritage item on the following registers:

- Botany Bay Local Environmental Plan 2013, Item No. I2.
- Sydney Water s170 Heritage Register, Item No. 4570025
- NSW State Heritage Register, Listing No. 01317.

The site is currently occupied by Sydney Water, and contains a free-standing office and maintenance storage building constructed c1990.

73 Gardeners Road includes a free-standing sewage pumping station, which would be retained and remained operational as part of the scheme. No formal heritage assessment has been undertaken in respect of this building, however it is likely to demonstrate historic significance at a local level as part of a group of buildings and as evidence of the expansion of the sewage system undertaken in the 1920s to service residential areas in Kingsford and Daceyville.

The electrical substation and the sewage pumping station are located on easements within the proposed boundary of 73 Gardeners Road (Lot 101).

3.2 HERITAGE ITEMS IN THE VICINITY

The south boundary of the subject site, 73 - 75 Gardeners Road, adjoins Botany Water Reserves, which is identified as a heritage item on the following registers and has heritage protection under the *Heritage Act 1977* and the *Environmental Planning and Assessment Act 1979*:

- Botany Bay Local Environmental Plan 2013, Item No. I2.
- NSW State Heritage Register, Listing No. 01317.

The 'Botany Water Reserves' is listed as a heritage item (Item No. 4570025) on the Sydney Water s170 Heritage Register. Under the *Heritage Act 1977*, Sydney Water is obliged to maintain a register of environmental heritage assets that are of state and/or local significance or items that are of potential state and/or local heritage significance.

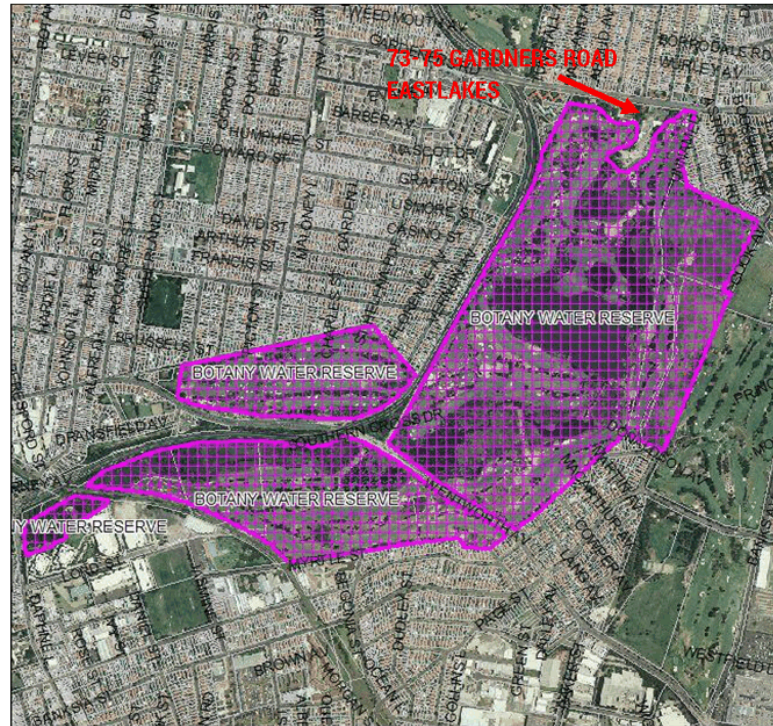


Figure 14 - Plan showing the heritage curtilage identified in the Sydney Water s170 Heritage Register listing of Botany Waters Reserve. Source: Sydney Water.

The following statement of significance for the Botany Water Reserves taken from the NSW State Heritage Register online listing provides some historical context: of the site generally, it states:

Botany Water Reserve holds considerable value for Sydney and NSW because it contains the only remaining major components - substantial layout and other important physical evidence from the 1850s through to the 1870s - of the unique water supply system that supported the expansion of the Sydney metropolis for most of the latter half of the 19th century, representing Sydney's third main water supply system since colonisation; and on account of the surviving remnants of the early 19th century industries associated with the prominent emancipist merchant Simeon Lord. The site includes land which, in 1855, was the subject of the first resumptions for the purpose of a water supply system by a government in Australia. Part of the original 1850s sand-cast iron water supply pipe remains within the site representing a remnant of the State's oldest main.

This extant remnant of the water supply system also has high collective value as important evidence likewise remains of the two principal Sydney water supply systems (The Tank Stream and Busby's Bore) that predated the Botany system along with those superseding it (The Upper Canal and regional dam systems).

The open space areas encompassed by the item include two regionally rare and distinct remnant vegetation communities known as Sydney Freshwater Wetlands and Eastern Suburbs Banksia Scrub that are both potentially of State significance and are the subject of separate listings as an Endangered Ecological Community under the NSW Threatened Species Conservation Act 1995. The wetlands also have recognised regional ecological value as native animal habitat and movement corridors, and may include animal species of conservation significance.

The item is of regional environmental importance as a major recharge source for the Sydney basin aquifer.

It likely holds special interest as a landmark cultural and recreational landscape for the regional community.

It also has regional importance on account of the substantial infrastructure it contains of the 1910s Southern and Western Suburbs Ocean Outfall Sewer System (SWSOOS No 1) - since augmented during 1936-1941 by SWSOOS No 2 - representing one of the first major separate sewers in Sydney as well as incorporating new ventilation technologies. This infrastructure includes use of the former Engine House chimney as a sewer vent, the viaduct to carry the vent pipe, Sewage Pumping Station No 38 of 1916 near the Engine House ruins and part of the SWSOOS Nos 1 and 2 mains. The overall SWSOOS network remains Sydney's largest sewer system.

The Daceyville Garden Suburb Heritage Conservation Area (C1), located to the east of the subject site, is identified as an item of 'Local' significance on the Botany LEP 2013



Figure 15 - Draft master plan prepared for 73 and 75 Gardeners Road, Eastlakes. Source: Architectus, August 2017.

4.0 HERITAGE ASSESSMENT OF 73A GARDENERS ROAD

4.1 DESCRIPTION

4.1.1 GENERALLY

The free-standing residence was constructed by the Metropolitan Water and Sewage Board in 1928-30 as accommodation for its staff until c1990. It was subsequently leased as affordable housing. The building and its setting have been compromised by the construction of ad hoc structures adjacent to the building and removal of original building fabric.

73A Gardeners Road was constructed in the 1930s as a residence by Sydney Water to accommodate staff. The original internal layout and external configuration of the house is apparent to visitors, although the interior of the building has been compromised by previous alterations and replacement of original finishes.

4.1.2 SETTING

73A Gardeners Road is a single-storey, face-brick residence located to the south of Gardeners Road. The house is access directly from Gardeners Road, and is screened from the street by a high fence (paling and corrugated steel) and vegetation. The area is characterised by one- and two-storey development to the north and east of the site, and open areas to its south and west. The south boundary of the site abuts Botany Water Reserve (The Lakes Golf Course) and sites to the west of Slattery Place contain five-storey public housing.

The trees located to the south of the house were planted in the latter twentieth century. The front garden area has been irreversibly altered by the widening of Gardeners Road, and the replacement of outbuildings adjacent to the house.



Figure 16 - Street view of 73A Gardeners Road, looking southwards. Source: Google street view, September 2017.



Figure 17 - The existing garden (northern) frontage to 73A Gardeners Road.



Figure 18 - View looking north along the eastern side of the house.



Figure 19 - View looking southeast towards the pumping station building from the rear of the house.



Figure 20 - View looking south west from the rear of the house.



Figure 21 - Brick paving and paling fence installed c2000.



Figure 22 - Surviving outbuilding c1930, located to the west of the house.



Figure 23 - Structure located to the west of the house.



Figure 24 - Garage located to the northeast of the house.



Figure 25 - Aerial photograph of 73a Gardeners Road, c1943, showing the original driveway to the pumping station building and site of the existing free-standing residence prior to the widening of Gardeners Road. (Source: SIX Maps, NSW Land and Property Information).



Figure 26 - Aerial photograph showing 73a Gardeners Road, c2014, showing the existing free-standing house. (Source: SIX Maps, NSW Land and Property Information).

4.1.3 EXTERIOR FABRIC

73A Gardeners Road is a free-standing, single storey brick cavity house, oriented on site to address Gardeners Road.

Roof

Colourbond corrugated steel roof with quad mould gutters and round downpipes. The metal roofing was installed in c2000, following hail damage to the former terra cotta tile finish, and the roof fan was installed in c2013. The soffit of the boxed eaves is lined with v-jointed boards. The verandah roof is separate to the main roof.

External walls

The exterior walls are face brick with rendered cement detailing at window lintels and the foundation wall. The building includes original external joinery, although there is evidence of localised damage to timber and deteriorated paint finishes.

The north elevation is arranged asymmetrically with an open verandah covering the front entrance door and the northern windows of the sitting room.

There is a timber structure attached to the south elevation of the house containing a former laundry. The external walls are lined with compressed asbestos sheeting and cover battens, and glass louvred windows. Wall vents are unpainted terracotta.

North verandah

The north and west side are formed by half-height brick balustrade walls. The roof is painted timber with exposed rafters and racking lining boards. Boards are v-jointed. The northwest corner of the roof is supported by a painted, cast concrete column. The verandah floor is painted concrete, with cast terrazzo treads, with rendered risers at the entrance.



Figure 27 – the north elevation of 73A Gardeners Road.



Figure 28 – The front verandah, looking west.

Joinery

The surviving original windows are generally double-hung, with each sash comprising two glass panes. Glass is generally clear or 'Kosciusko' pattern.



Figure 29 – Detail of the deteriorated terrazzo treads.



Figure 30 – View of the western elevation of the house.



Figure 31 – The asbestos annex located on the southern side of the house.



Figure 32 – General view of the southeast corner of the house.

4.1.4 INTERIOR FABRIC

Ceilings

Original ceilings and cornices were replaced throughout the house in 2000, following hail damage. The south annex and the front verandah are lined with painted, v-jointed timber boards.

Walls

Internal walls are painted plaster, with a timber picture rail and skirting

Floors

Floors and sub-floor areas were not visible at the time of inspection. We assume the floors and sub-floors throughout the building are timber, however neither was visible at the time of inspection.

Existing floor finishes, including carpet, resilient finishes, and ceramic floor tiles, were installed after 1995, and do not have heritage significance.

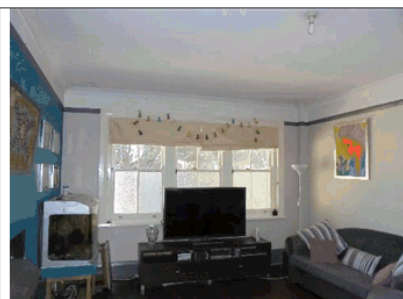


Figure 33 – General view of the sitting room, looking west.



Figure 34 – Partial view of the kitchen fit out, installed c1995.



Figure 35 – Ceilings throughout the building were replaced c2000 with painted plasterboard and coved cornices.



Figure 36 – View of bathroom fit out, installed c1995.

4.2 EVALUATION CRITERIA

This assessment of heritage is based on the methodology and guidelines set by the NSW Office of Environment and Heritage (Heritage Division). It considers the standard values or criteria which arise from the history, construction and use of the building and its site as well as any levels of esteem by recognised groups for the site.

Heritage significance, cultural significance and cultural value are all terms used to describe an item's value or importance to our own society. This value may be contained in the fabric of an item, its setting and its relationship to other items, the response that the item stimulates to those who value it now and in the historical record that allow us to understand it in its own context. An assessment of what is significant is not static. Significance may increase as more is learnt about the past and as items become rare, endangered or are found to document or illustrate aspects that achieve a new recognition of importance.

Determining cultural value is the basis of all planning for places of historic value. Determination of significance enables informed decisions or future planning that ensures that the expressions of significance are retained, enhanced or at least minimally impacted upon. A clear understanding of the nature and degree of significance will determine the parameters for flexibility of future planning and development.

The historical analysis provides the context for assessing significance, which is made by applying standard evaluation criteria to the development and associations of an item. The NSW Heritage Manual has produced standard evaluation criteria that are compatible with the criteria used by the Australian Heritage Council in assessing items, and with those included in The Burra Charter.

State heritage significance, in relation to a place, building, work, relic, moveable object or precinct, means significance to the State in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item (Section 4A(1), *Heritage Act, 1977*). Those values relate to specific criteria used by the Heritage Division, of the NSW Office of Environment and Heritage, to evaluate the cultural significance of a place as follows:

- Criterion A** *An item is important in the course, or pattern, of NSW's cultural or natural history (Historical value).*
- Criterion B** *An item has strong or special association with the life or works of a person, or a group of persons, of importance in NSW's cultural or natural history (Historical value).*
- Criterion C** *An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (Aesthetic value).*
- Criterion D** *An item has strong or special association with a particular community or cultural group in NSW for social, cultural or spiritual reasons (Social value).*
- Criterion E** *An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (Technical/research value).*
- Criterion F** *An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (Rarity).*
- Criterion G** *An item is important in demonstrating the principal characteristics of a class of NSW's*
- *Cultural or natural places; or*
 - *Cultural or natural environments (Representativeness)*

4.2.1 APPLICATION OF THE CRITERIA TO 73A GARDENERS ROAD

The following assessment of heritage significance has been prepared in accordance with 'Assessing Heritage Significance' (2001) guideline prepared by the NSW Heritage Manual.

CRITERIA	SIGNIFICANCE ASSESSMENT
Criterion A - Historical Significance <i>An item is important in the course, or pattern, of the local area's cultural or natural history.</i>	The free-standing residence located at 73a Gardeners Road, Eastlakes, was constructed for the Metropolitan Water Sewerage and Drainage

CRITERIA	SIGNIFICANCE ASSESSMENT
<p>Guidelines for inclusion</p> <ul style="list-style-type: none"> Shows evidence of a significant human activity. <input type="checkbox"/> Is associated with a significant activity or historical phase. <input type="checkbox"/> Maintains or shows continuity of a historical process or activity. <input type="checkbox"/> 	<p>Board c1930 to provide on-site accommodation for staff adjacent to the Pumping Station.</p> <p>Guidelines for Exclusion</p> <ul style="list-style-type: none"> Has incidental or unsubstantiated connections with historically important activities or processes. <input checked="" type="checkbox"/> Provides evidence of activities or processes that are of dubious historical importance. <input type="checkbox"/> Has been so altered that it can no longer provide evidence of a particular association. <input checked="" type="checkbox"/>
<p>Criterion B - Associative Significance <i>An item has strong or special association with the life or works of a person, or group of persons, of importance in the cultural or natural history of the local area.</i></p>	<p>The free-standing residence at 73a Gardeners Road Eastlakes does not demonstrate this criterion at a level to warrant listing at State or Local level. The residence was constructed for the Metropolitan Water Sewerage and Drainage Board in the 1920s to accommodate on-site staff between c1930 and c1975. However it was not a significant element in the development of that organisation and the place is not noted for its association with significant people (occupants or designers).</p>
<p>Guidelines for inclusion</p> <ul style="list-style-type: none"> Shows evidence of a significant human occupation. <input type="checkbox"/> Is associated with a significant event, person, or group of persons. <input type="checkbox"/> 	<p>Guidelines for Exclusion</p> <ul style="list-style-type: none"> Has incidental or unsubstantiated connections with historically important people or events. <input checked="" type="checkbox"/> Provides evidence of people or events that are of dubious historical importance. <input type="checkbox"/> Has been so altered that it can no longer provide evidence of a particular association. <input type="checkbox"/>
<p>Criterion C - Aesthetic values <i>An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in the local area.</i></p>	<p>The free-standing residence at 73a Gardeners Road Eastlakes does not demonstrate this criterion at a level to warrant listing at State or Local level. The building is not an important architectural feature of the Botany Municipality of metropolitan Sydney generally, not does it demonstrate a high degree of creative or technical achievement. Substantial sections of original fabric within the building were replaced in c2000 following storm damage to the roof and water damage to internal finishes.</p>
<p>Guidelines for inclusion</p> <ul style="list-style-type: none"> Shows or is associated with, creative or technical innovation or achievement. <input type="checkbox"/> Is the inspiration for a creative or technical innovation or achievement. <input type="checkbox"/> Is aesthetically distinctive. <input type="checkbox"/> 	<p>Guidelines for Exclusion</p> <ul style="list-style-type: none"> Is not a major work by an important designer or artist. <input checked="" type="checkbox"/> Has lost its design or technical integrity. <input checked="" type="checkbox"/> Its positive visual or sensory appeal or landmark or scenic qualities have been more than temporarily degraded. <input type="checkbox"/>

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CRITERIA	SIGNIFICANCE ASSESSMENT
<ul style="list-style-type: none"> Has landmark qualities. <input type="checkbox"/> Exemplifies a particular taste, style or technology. <input type="checkbox"/> 	<ul style="list-style-type: none"> Has only a loose association with a creative or technical achievement. Is not a major work by an important designer or artist. <input type="checkbox"/> Has lost its design or technical integrity. <input type="checkbox"/> Its positive visual or sensory appeal or landmark or scenic qualities have been more than temporarily degraded. <input type="checkbox"/> Has only a loose association with a creative or technical achievement. <input checked="" type="checkbox"/>
<p>Criterion D - Social significance</p> <p><i>An item has strong or special association with a particular community or cultural group in the area for social, cultural or spiritual reasons.</i></p>	<p>The free-standing residence at 73a Gardeners Road Eastlakes does not demonstrate this criterion at a level to warrant listing at State or Local level. The residence was constructed to accommodate staff of the Metropolitan Water Sewerage and Drainage Board in the 1930s, but has been leased to tenants since the late 1990s.</p>
<p>Guidelines for inclusion</p> <ul style="list-style-type: none"> Is important for its associations with an identifiable group. <input type="checkbox"/> Is important to a community's sense of place. <input type="checkbox"/> 	<p>Guidelines for Exclusion</p> <ul style="list-style-type: none"> Is only important to the community for amenity reasons. <input type="checkbox"/> Is retained only in preference to a proposed alternative. <input checked="" type="checkbox"/>
<p>Criterion E - Technical / Research value</p> <p><i>An item has potential to yield information that will contribute to an understanding of the area's cultural or natural history.</i></p>	<p>The free-standing residence at 73a Gardeners Road Eastlakes does not demonstrate this criterion at a level to warrant listing at State or Local level. The building is typical brick cavity domestic construction, built to accommodate staff rather than as a key element in the development of the water and sewerage system of Sydney.</p>
<p>Guidelines for inclusion</p> <ul style="list-style-type: none"> Has the potential to yield new or further substantial scientific and/or archaeological information. <input type="checkbox"/> Is an important benchmark or reference site or type. <input type="checkbox"/> Provides evidence of past human cultures that is unavailable. <input type="checkbox"/> 	<p>Guidelines for Exclusion</p> <ul style="list-style-type: none"> Has little archaeological potential. <input checked="" type="checkbox"/> Only contains information that is readily available from other resources or archaeological sites. <input type="checkbox"/> The knowledge gained would be irrelevant to research on science, human history or culture. <input checked="" type="checkbox"/>
<p>Criterion F - Rarity</p> <p><i>An item possesses uncommon, rare or endangered aspects of the area's cultural or natural history.</i></p>	<p>The free-standing residence at 73a Gardeners Road Eastlakes does not demonstrate this criterion at a level to warrant listing at State or Local level.</p>
<p>Guidelines for inclusion</p> <ul style="list-style-type: none"> Provides evidence of a defunct custom, way of life or process. <input type="checkbox"/> 	<p>Guidelines for Exclusion</p> <ul style="list-style-type: none"> Is not rare. <input checked="" type="checkbox"/> Is numerous but under threat. <input type="checkbox"/>

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CRITERIA	SIGNIFICANCE ASSESSMENT
<ul style="list-style-type: none"> • Demonstrates a process, custom or other human activity that is in danger of being lost. <input type="checkbox"/> • Shows unusually accurate evidence of a significant human activity. <input type="checkbox"/> • Is the only example of its type. <input type="checkbox"/> • Demonstrates designs or techniques of exceptional interest. <input type="checkbox"/> • Shows rare evidence of a significant human activity important to a community. <input type="checkbox"/> 	
<p>Criterion G - Representativeness <i>An item is important in demonstrating the principal characteristics of a class of the area's - cultural or natural places; or - cultural or natural environments.</i></p>	<p>The free-standing residence at 73a Gardeners Road Eastlakes does not demonstrate this criterion at a level to warrant listing at State or Local level.</p>
<p>Guidelines for inclusion</p> <ul style="list-style-type: none"> • Is a fine example of its type. <input type="checkbox"/> • Has the principal characteristics of an important class or group <input type="checkbox"/> • Has attributes typical of a particular way of life, philosophy, custom, significant process, design, technique or activity. <input type="checkbox"/> • Is a significant variation to a class of items. <input type="checkbox"/> • Is part of a group which collectively illustrates a representative type. <input type="checkbox"/> • Is representative because of its setting, condition or type. <input type="checkbox"/> • Is outstanding because of its integrity or the esteem in which it is held. <input type="checkbox"/> 	<p>Guidelines for Exclusion</p> <ul style="list-style-type: none"> • poor example of its type. <input checked="" type="checkbox"/> • Does not include or has lost the range of characteristics of a type. <input checked="" type="checkbox"/> • Does not represent well the characteristics that make up a significant variation of a type. <input checked="" type="checkbox"/>

4.2.1 HERITAGE SIGNIFICANCE OF 73A GARDENERS ROAD, EASTLAKES

This preliminary assessment concludes the existing brick building located at 73a Gardeners Road does not demonstrate the identified heritage criteria at a level to warrant listing at state or local level.

5.0 POTENTIAL HERITAGE IMPACTS

5.1 DESCRIPTION OF THE PROPOSED DEVELOPMENT

The proposed development comprises five separate residential buildings within a landscaped setting. Buildings are situated to provide north-south view corridors and solar access. Development includes basement carparking, landscaped areas including publicly accessible open space and ground floorspaces for retail or café tenancies.

The five towers are located above a podium, with the upper levels stepping back from the face of the two lowest levels, to reduce the impact of the scale of buildings to visitors, and to relate to residential development near the site. The development would include a range of apartments to accommodate both families and individuals to complement the predominately free-standing residential development in the area.

The indicative development yield for the total combined site is:

Area	27553m ²	
Site Coverage (inc basement)	10577m ²	38%
Communal/Public Open Area	9620m ²	35%
Deep Soil	10369m ²	38%
GFA	49209	
FSR	1.79:1	

5.2 POTENTIAL HERITAGE ISSUES

5.2.1 SEWAGE PUMPING STATION

The existing building is operational, and will remain operational for the foreseeable future. Potential issues include:

- Heritage significance of the sewage pump station building, assumed to be constructed as part of the works carried out in c1928 connecting residential properties in the area to the sewer.
- Curtilage associated with the sewage pump station building.
- Operational and security required for the building by Sydney Water including access to the building.
- Potential noise issues associated with the ongoing use of the pumping station.

5.2.2 BRICK RESIDENCE (73A GARDENERS ROAD)

The free-standing residence was constructed by the Metropolitan Water and Sewage Board in 1928-30 as accommodation for its staff until c1990. It was subsequently leased as affordable housing. The building and its setting have been compromised by the construction of ad hoc structures adjacent to the building and removal of original building fabric. The building can continue to be used as a residence, but would require substantial repair and upgrading of kitchen and bathroom facilities.

Our preliminary assessment concludes the existing brick building located at 73a Gardeners Road has some historical significance, but does not demonstrate the identified heritage criteria at a level to warrant listing at either State or Local level.

5.2.3 VEGETATION AND WATER COURSES

The site forms part of the geological feature known as the Botany Water Reserves, although 75 Gardeners Road and 73 Gardeners Road are located on separate parcels of land, and are

not included in the heritage curtilage identified in the State Heritage Register Listing (see Section 6.2).

The proposed scheme incorporates surface features, such as the western drainage canal as features of the public landscaping, providing opportunities for interpretation of the accessible areas.

Development of 73 - 75 Gardeners Road would take into consideration the objects and intent of the Botany Wetlands Environmental Management Plan including maintenance of:

- environmental quality (i.e. sufficient water flows);
- riparian vegetation; and
- impacts of exotic species.

5.2.4 POTENTIAL ARCHAEOLOGY GENERALLY

Surviving sandstone and brick retaining walls located in the western section of the site may include fabric dating from the nineteenth century, and associated with the earlier European occupation of the site. Council may require an archaeological impact statement as part of the planning proposal or development application.

There are no known Indigenous archaeological deposits within the boundary of the site. Should Indigenous archaeology be uncovered on the site, it would be protected under the *National Parks and Wildlife Act 1974*.

5.3 CONCLUSIONS

The site is located to the north of the State heritage-listed Botany Water Reserves site, which is currently used as The Lakes Golf Club. The scheme has taken into consideration the heritage significance of the adjacent site, the statutory requirements attached to the existing site and the owners' requirements. The proposed scheme is limited to the area immediately to the north of the heritage-listed Botany Wetlands and would not be located within the identified heritage curtilage of the Botany Wetlands (refer to the SHR plan included in Section 6.2).

The scheme was informed by a feasibility study undertaken by Architectus in 2015-16 to assess opportunities for residential development on the site given its location and proximity to shops, transport and educational facilities. The proposed options have been devised to retain and provide public access and views through the site to the open space of the Botany Wetlands.

There are no heritage listings attached to the subject site, although the sewage pumping station building, situated at 73 Gardeners Road, is one of a group of utilitarian buildings demonstrating the development of the South and Western Sewer Ocean Outlet System in the early twentieth century, which in our opinion is likely to meet the threshold for listing as a heritage item at the local level. The existing pumping station building should be retained, with a grassed area to enhance its setting. Service access to the building would be maintained through the internal circulation via Gardeners Road. Views from Gardeners Road to the Pumping Station would be maintained and enhanced by landscaping and new garden areas.

The electrical substation is not identified as having heritage significance.

The current scheme includes 73 Gardeners Road, increasing the previous site area from 14,683 m² to a total of 27,553m². The additional area would enable the buildings to be set further apart than in previous schemes for the site, thereby improving solar access and north-south view corridors through the site to the Botany Waters Reserve.

Landscaping would include open space and walkways immediately to the north of the reserve and linking the eastern and western drainage canals. Public areas would be relatively level and provide opportunities to include interpretive signage.

Buildings would be set back from all boundaries to enable existing trees to be retained and augmented with new plantings to reinforce the original vegetation in the area. The scheme would include open public landscaped areas, together with café and or small retail areas at ground level would provide additional local facilities to residents of the subject site and the adjacent residential areas.

The scheme would re-use existing vehicular access to the sites. Visitor parking would continue to be accessed from Gardeners Road. Resident parking would be located below ground level to maximise the open landscaped area around the proposed buildings.

The scheme is generally acceptable in heritage terms subject to resolution of detail and materials. It balances client requirements in terms of residential development with spacious public and communal spaces, offering various spatial qualities such as play areas and passive activity areas.

5.4 HERITAGE RECOMMENDATIONS

A development application would require a Statement of Heritage Impact to assess the impact of development on the Botany Water Reserves, as required under the Botany LEP 2013 and *Environmental Planning and Assessment Act 1979*.

Stone and brick walls assisted with the canal at the western section of 75 Gardeners Road should be retained and interpreted to occupants and visitors to the site.

Given the proximity of the Building C tower to the one-storey residential development of the Daceyville Conservation Area and the eastern drainage canal, we recommend the design of the podium of Building C should be reduced in height to form a visual transition to single-storey Daceyville housing and to reduce overshadowing of the water reserve generally.

6.0 APPENDICES**6.1 MISCELLANEOUS PHOTOGRAPHS****6.1.1 73 GARDENERS ROAD, EASTLAKES**

Entrance to the existing Sydney Water building located at 73 Gardeners Road. Note the entrance is flanked by remnant cast iron sewer vents.



View of the northern section of the site, looking west across the carpark towards 75 Gardeners Road.



General view (looking west) of the Sewage Pump Station and the northwest section of the Sydney Water offices and workshop building.



The eastern elevation of the Pumping Station building.



The north elevation of the pumping station building.



View of the southeast section of the carpark situated in the southern section of 73 Gardeners Road.



View looking southwest over the existing carpark and maintenance storage area.



The drainage channel located to the east of the 73 Gardeners Road site. Note the timber and wire mesh shown on the right-hand side of the photograph marks the eastern boundary of the 73 Gardeners Road site.

6.1.2 75 GARDENERS ROAD



Section of the surviving stone wall adjacent to the drainage easement located in the western section of 75 Gardeners Road, Eastlakes.

6.2 NSW STATE HERITAGE REGISTER LISTING: BOTANY WATER RESERVES (SHR NO. 01317)
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Botany Water Reserves

Item details

Name of item:	Botany Water Reserves
Other name/s:	Botany Swamps, Botany Wetlands, Mills Stream, Bridge Pond, Lakes Golf Course, Eastlakes Golf Course, Bonnie Doon Golf Course
Type of item:	Landscape
Group/Collection:	Landscape - Cultural
Category:	Historic Landscape
Location:	Lat: -33.9354575348 Long: 151.2122125490
Primary address:	1024 Botany Road, Mascot, NSW 2020
Parish:	Botany
County:	Cumberland
Local govt. area:	Botany Bay
Local Aboriginal Land Council:	La Perouse

Property description

Lot/Volume Code	Lot/Volume Number	Section Number	Plan/Folio Code	Plan/Folio Number
LOT	1		DP	1039418
LOT	2		DP	1039418
PART LOT	2		DP	1144655
LOT	1		DP	233011
LOT	1		DP	241650
LOT	2473		DP	752015
LOT	2825		DP	752015
LOT	5		DP	780391
LOT	6		DP	780391
LOT	7		DP	780391

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LOT	3		DP	780392
LOT	2		DP	854374
LOT	13		DP	87663
LOT	4		DP	87663

All addresses

Street Address	Suburb/town	LGA	Parish	County	Type
King Street	Eastlake	Botany Bay			
Southern Cross Drive	Eastlakes	Botany Bay			
1024 Botany Road	Mascot	Botany Bay	Botany	Cumberland	Primary Address
Between Botany and Mascot, including Eastlakes	Botany	Botany Bay			Alternate Address

Owner/s

Organisation Name	Owner Category	Date Ownership Updated
Sydney Water	State Government	27 Nov 98

Statement of significance:**Botany**

Water Reserve holds considerable value for Sydney and NSW because it contains the only remaining major components - substantial layout and other important physical evidence from the 1850s through to the 1870s - of the unique water supply system that supported the expansion of the Sydney metropolis for most of the latter half of the 19th century, representing Sydney's third main water supply system since colonisation; and on account of the surviving remnants of the early 19th century industries associated with the prominent emancipist merchant Simon Lord. The site includes land which, in 1855, was the subject of the first resumptions for the purpose of a water supply system by a government in Australia. Part of the original 1850s sand-cast iron water supply pipe remains within the site representing a remnant of the State's oldest main.

This extant

remnant of the water supply system also has high collective value as important evidence likewise remains of the two principal Sydney water supply systems (The Tank Stream and Busby's Bore) that predated the Botany system along with those superseding it (The Upper Canal and regional dam systems).

The open space areas encompassed by the item include two regionally rare and distinct remnant vegetation communities known as Sydney Freshwater Wetlands and Eastern Suburbs Banksia Scrub that are both potentially of State significance and are the subject of separate listings as an Endangered Ecological Community under the NSW Threatened Species Conservation Act 1995. The wetlands also have recognised regional ecological value as native animal habitat and movement corridors, and may include animal species of conservation significance.

The item is

of regional environmental importance as a major recharge source for the Sydney basin aquifer.

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It likely holds special interest as a landmark cultural and recreational landscape for the regional community.

It also has regional importance on account of the substantial infrastructure it contains of the 1910s Southern and Western Suburbs Ocean Outfall Sewer System (SWSOOS No 1) - since augmented during 1936-1941 by SWSOOS No 2 - representing one of the first major separate sewers in Sydney as well as incorporating new ventilation technologies. This infrastructure includes use of the former Engine House chimney as a sewer vent, the viaduct to carry the vent pipe, Sewage Pumping Station No 38 of 1916 near the Engine House ruins and part of the SWSOOS Nos 1 and 2 mains. The overall SWSOOS network remains Sydney's largest sewer system.

Date
significance updated: 23 Jul 04

Note: There are incomplete details for a number of items listed in NSW. The Heritage Division intends to develop or upgrade statements of significance and other information for these items as resources become available.

Description

Designer/Maker: City Engineers WB Rider; E.Bell (1856 - 1871) & F. Bell (No relation 1871 -1878)

Builder/Maker: Convicts for Simeon Lord (1815)

Construction years: 1815-1870

Physical description: This item is comprised of an extensive tract of open space/parkland, with 58 ha of wetlands, including Sydney Airport, The Australian Golf Course, Lakes Golf Course, Eastlakes Golf Course, Bonnie Doon Golf Course and Mutch Park. Other areas of wetlands in the vicinity are substantially smaller in extent - the Eve Street wetlands, Arncliffe (south of Kogarah Golf Club) and the chain of ponds in Sir Joseph Banks Park, Botany.

Important surviving elements of non-indigenous heritage include remnants of the water supply Engine House and chimney (late 1850s) (no longer owned by Sydney Water); spillway/weir, remnants of the Engine and Mill Ponds; the sequence of ponds between the Mill Pond and Gardeners Road; 1915 Sewer Pumphouse; twin sewer syphons and easements; partial evidence of old Cooks River edge (evident through comparing early and recent aerial photography; 1869 plantings of Norfolk Island Pines (*Araucaria heterophylla*), Moreton Bay Fig Trees (*Ficus macrophylla*) and Port Jackson Fig Trees (*Ficus rubiginosa*). Given the period, important government institutional use and the choice of tree species there is strong circumstantial evidence for the involvement of Charles Moore - Director of the Royal Botanic Gardens (1848-1896) in advising on these plantings. Canary Island Date Palms (*Phoenix canariensis*) also survive near the Engine Pond and may be remnants - or progeny - of 1910s plantings associated with the reuse of the site for the main southern sewer system. There is likewise strong circumstantial evidence for the involvement of Joseph Henry Maiden - Director of the Royal Botanic Gardens (1896-1924) in recommending the choice of these plantings.

A comparison of current aerial photographs and the Sydney Water Commission's 1869 topographic plan of the Lachlan Swamp from No 6 Dam to Botany Bay shows that there is a substantial degree of correlation between the layouts of many of the dams. Despite the bisection of the Engine Pond by Southern Cross Drive, it is still possible to appreciate the basic outline of the earlier pond. A similar observation holds for the former Bridge Pond as

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	<p>the present Mill Pond and the western half of the 'New Pond' retain the earlier basic form. The embankment separating the Mill and New Ponds preserves part of the alignment of the old Sydney-Botany road (shown on the 1869 SWC plan) with its tollhouse site just south of the embankment. (Archaeological evidence of the former tollhouse may still exist.) The present Nos 1 and 2 Ponds closely reflect the earlier form of the 1869 No 1 Pond while most of the present Nos 3a, 3 and 4/5 Ponds almost exactly retain the earlier form of the 1869 Nos 2, 3, 4 and 5 Ponds respectively. The northern part of the old No 6 Pond has been filled. Generally, the present wetland layout retains a close indication of the original 1860s dam forms. Earlier pond formations existed some decades before, and were absorbed into, this system however surviving evidence is difficult to discern from both (non-intrusive) site inspections and an analysis of aerial photography. Archaeological investigations - if ever required - may reveal evidence of these early 19th century structures.</p> <p>A 'Plan of the Botany & Lachlan Watersheds' signed by Francis Bell in June, 1875 shows that the Lachlan Water Supply (Centennial Park) links with the Botany Pond system as does the area of land containing the present Australian Golf Course.</p> <p>Several remnant areas of the famous and now rare Eastern Suburbs Banksia Scrub (still featuring the trademark Grass Trees [<i>Xanthorrhoea resinosa</i>]) as well as various communities of reed and sedgeland species are represented within the open space boundaries. Other important indigenous vegetation vestiges include areas of Paperbark swamp featuring <i>Melaleuca quinquenervia</i>, marshland and wet heath and large areas of the aquatic herb <i>Ludwigia</i>.</p>
Physical condition and/or Archaeological potential:	<p>Major elements (the sequence of ponds) of Sydney's third main water supply system are substantially intact. Particular elements of the system - its architectural and planted elements - are only partially intact.</p> <p>Generally good</p> <p>Date condition updated: 21 May 04</p>
Modifications and dates:	<p>Although the pre-European wetland ecosystem was modified during the 1860s and 1870s pond construction, there has been only limited major modification - mainly for the expansion of the airport and construction of new arterial roadways - since then. Major elements (the sequence of ponds) of Sydney's third main water supply system are substantially intact. Particular elements of the system - its architectural and planted elements - are only partially intact. Yet the little that remains of these are particularly poignant and serve as important local landmarks.</p>
Further information:	<p>Busby's Bore; Lachlan Swamps; Crown Street Reservoir; Paddington Pumping Station.</p>
Current use:	<p>Golf Courses; Water reserve</p>
Former use:	<p>Industry; Water supply system</p>
History	
Historical notes:	<p>On 29 April 1770 Captain James Cook made his first landfall in Australia at Botany Bay. His ship the Endeavour's botanist, Sir Joseph Banks, and his Swedish assistant, Daniel Solander, spent several days ashore collecting vast numbers of previously unknown plants. Cook was in two minds about a suitable name for the Bay - his journal first refers to it as Stingray's Harbour, then as Botanist Bay, then both were crossed out and the present Botany Bay inserted, no doubt because of Banks and Solander's work. Since its name comes from the Bay on which it</p>

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stands, Botany can well claim to have the oldest (English) place name in Australia.

Cook's recommendation and Banks' enthusiasm were largely responsible for the British Government's decision to found a penal settlement at Botany Bay. When Governor Phillip arrived in mid-summer in 1788 however, he found the harbour shallow and exposed, and the shore swampy and lacking sources of fresh water. As a result the First Fleet sailed on to Port Jackson, finding a more suitable site for settlement at Sydney Cove.

Botany was first planned as an agricultural district, and the principal industry was to be market gardening. Instead it became an industrial area, boasting a fellmonger's yard and a slaughter works. As early as 1809, Mr E Redmond came to settle in the district, but the first important developer was Simeon Lord (1771-1840), who built a fulling mill in 1815 on the site that later became that of the old water works. In 1823 he received a grant of 600 acres, followed by further grants. Part of the estate was subdivided by 1887. Lord, the 'merchant prince of Botany Bay', manufactured fine wool cloth, and was also one of the merchants instrumental in the founding of Sydney Hospital. He gave land for the sites of 2 early churches in Botany, and Lord Street is named after him. Banksia Street, Sir Joseph Banks Park and Booralee Park all commemorate those early days.

The Sydney Water Works were established in Botany in 1858 and were fed by the many springs in the area. In 1886, the last year of full pumping, 1864 million gallons of water were supplied to Sydney from these water works. Although the scheme was Sydney's major source of water for 30 years, it did not supply water in the Botany area and local residents depended on natural sources and tanks. (Pollen, 1988, pp.35-6) .

Following European colonisation the first substantial interventions in the area occurred in 1815 when the enterprising merchant Simeon Lord had a dam constructed to the west of the present Botany Road for the purpose of establishing the colony's first woollen mill. A second dam was constructed near the present Engine House ruins for a flour mill (refer to 1869 Water Commission Plan). This mill continued operating until about 1847 while the textile factory was closed by about 1856.

From 13 July, 1855 the City Council began resuming land around, and including, the Botany wetlands for the city's main water supply scheme - the first time land resumptions were made for this purpose. (The land was transferred to the Water Board in 1888.) Of this land about 75 acres of Lord's estate was resumed which included his house (demolished in the 1930s though the site of which is in the vicinity of the present heliport), the mill sites, various cottages and the earthworks associated with Lord's mill dams.

The initial water supply scheme of the mid-1850s, by the City Engineer WB Rider, was abandoned with the appointment of Edward Bell to the position. The surviving Engine House and chimney date from the implementation, in the late 1850s, of Bell's scheme while the stone retaining walls for the Engine Pond and outlet sluice probably date from the 1870s work on the Engine Pond augmentation. Between 1866 and the mid-1870s six dams were constructed, and reconstructed for various reasons, from the Mill Pond to Gardeners Road using piling of sheet timber facing filled with sand forming a core of a turfed bank. In 1859 a 30" sand-cast iron main was completed between the Engine House and the Crown Street reservoir. The pipes were made in Scotland in 1856 and machined with such remarkably fine tolerance that, of the total length of 4 miles (6.4 km), the outside diameter varied by only 6mm and allowed the pipes to be laid without jointing material. Part of this easement coincides with the present study area in the vicinity of the Engine House.

Drawing on a 1982 thesis of Margaret Simpson, the Thorp et al study indicates that about 80 trees - "Norfolk Pines, Moreton Bay Figs, Weeping Figs, Sweet Scented Pines and Stone Pines" - were planted along the access road from Botany and elsewhere on the site in 1869. Works for the augmentation of water storage at Botany continued throughout the 1870s including the addition of water stored in the Bunnerong Dam (1876-1877) by way of a pipe to the No 4 Pond. The then Bunnerong Road was moved and ran along the top of this dam wall.

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By the early 1880s the Upper Nepean Scheme was well underway and in November 1886 the Nepean-supplied water effectively ended the general supply of Sydney's water from the Botany system. Even intermittent emergency use of the system ceased by 1893 so that the Engine House machinery was finally decommissioned with pumping equipment and boilers sold at auction in 1896. In 1894 various local industrial uses - such as wool scourers and tanners - were permitted to return to the wetland vicinity through leases until 1947.

While these major improvement programs for Sydney's water supply were being put into place it also became clear - chiefly from an increasingly polluted harbour - that substantial works were needed to deal with the sewage of Sydney and its immediate suburbs. After the Board of Water Supply and Sewerage was formed in 1888 the basis of what is presently Sydney's largest sewerage system was commenced. As part of its responsibilities the new Board assumed control of various recent works of the Public Works Department, one of which was the first of the new sewer mains from the City to the Botany Sewage Farm established about 1886. Another main was added in 1898 which linked various western suburbs to the Sewage Farm. However by the turn of the century the usefulness of the Farm was fast diminishing such that the southern and western sewerage systems were amalgamated and extended, from 1909, to a new ocean outfall at Malabar while the much expanded Botany Sewage Farm was closed. This work - known as the Southern and Western Sewer Ocean Outfall System or, usually, SWSOOS No 1 - was completed in 1916 under the direction of Chief Engineer EM de Burgh.

Further growth of Sydney's suburbs and resultant extensions to this sewerage network necessitated an augmentation of the system, by duplication known as SWSOOS No 2, during 1936 to 1941. Both mains were required to cross the Cooks River by inverted syphons. The current SWSOOS network represents Sydney's largest sewerage system and envelops mains that were constructed from the 1880s through the 1890s, 1900s, 1910s to 1940s. Other individually significant components of the SWSOOS network that occur in the vicinity of the present site include the twin major inverted syphons and syphonic overflows (now under Sydney Airport) (part of ID No SW 337) and the 1896 sewer vent at West Botany Street, Arncliffe (ID No SW 31 - SHI 4571725).

Within the site the existing engine house chimney was retired for water supply use in 1888, left unused for 28 years then, after being shortened, re-used as a vent in 1916 as part of the work for the new SWSOOS. Various buildings, associated with the new sewerage system, were added to the west. During the 1940s the chimney was further truncated to its present height along with the diversion of the mouth of the Cooks River into Botany Bay and substantial filling of the Engine and Mill Ponds as part of a major expansion and upgrade of airport facilities. From the 1970s a greater appreciation of the special historical and environmental values of the place was apparent through the commissioning of a range of studies to record and assess its significance. However further incursions continued with the 1988 construction of Southern Cross Drive through the middle of the Engine Pond, reclamation by the DMR and more recent works associated with the pre-Olympics upgrade of the airport.

The Lakes Golf Club (1928)
In 1928 construction

of a clubhouse near Gardeners Road was commenced for the Lakes Golf Club with the course - to the west and north of the chain of ponds - opening in 1930.

About 1960 the Eastlakes Golf Club was established with an 18-hole course on the eastern and southern side of the ponds. The neighbouring course to the northeast, the Australian Golf Club, was established in 1904 and in the same year it was host for the first Australian open golf title which was won by Michael Scott. Both the Lakes and Australian golf courses have been consistently ranked in the top five golf courses in New South Wales for many years.

The Lakes Golf

Club practice precinct (east of the club house)

The practice precinct

was excavated on a number of occasions from 1928 to 1970. In the early 1970s the south-eastern area of this land was bulldozed and redeveloped as part of the overall golf course design as a direct result of the state government requiring some of the golf course land to construct Southern

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Cross Drive. This included extensive excavation of the area of the practice precinct of the golf course. In the mid-1970s some of the practice precinct area formed part of the tennis court construction which required bulldozing the area to prepare the ground for new tennis courts. This was conducted as part of construction of the golf course clubhouse (Kirkman, 2016, 4)

In the early 2000s the practice precinct was renovated as part of a plan to improve course facilities for practice, and to have the course fit with the natural contours and appearance of the sandy dunes and lakes that dominate its site. This included extensive disturbance of the practice precinct area. In 2005 a new club house was built and this resulted in removal of the tennis courts. The practice precinct and some of the driving range tee was bulldozed to remove the tennis courts and then construct the practice chipping area (ibid, 2016, 4-5).

From 2007-09 the entire Lakes Golf Course underwent a comprehensive renovation which included extensive construction works to the south-western section of the practice precinct area. This involved use of a bulldozer and other construction equipment to construct the 10th tees and the area in front of them. This included the small ridge between the driving range tee and the front of the current 10th hole tees (ibid, 2016, 4).

Historic themes

Australian theme (abbrev)	New South Wales theme	Local theme
1. Environment-Tracing the evolution of a continent's special environments	Environment - naturally evolved-Activities associated with the physical surroundings that support human life and influence or shape human cultures.	Cultural: Lakes and wetlands supporting human activities-
1. Environment-Tracing the evolution of a continent's special environments	Environment - naturally evolved-Activities associated with the physical surroundings that support human life and influence or shape human cultures.	Cultural: Rivers and water bodies important to humans-
1. Environment-Tracing the evolution of a continent's special environments	Environment - naturally evolved-Activities associated with the physical surroundings that support human life and influence or shape human cultures.	Cultural: Conserving and protecting natural features-
1. Environment-Tracing the evolution of a continent's special environments	Environment - naturally evolved-Activities associated with the physical surroundings that support human life and influence or shape human cultures.	Natural - site important native fauna habitat or food source-
2. Peopling-Peopling the continent	Convict-Activities relating to incarceration, transport, reform, accommodation and working during the convict period in NSW (1788-1850) - does not include activities associated with the conviction of persons in NSW that are unrelated to the imperial 'convict system' use the theme of Law & Order for such activities	Demonstrating emancipist's entrepreneurial activities-
3. Economy-Developing local, regional and national economies	Agriculture-Activities relating to the cultivation and rearing of plant and animal species, usually for commercial purposes, can	Farming with convict labour-

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	include aquaculture	
3. Economy-Developing local, regional and national economies	Agriculture-Activities relating to the cultivation and rearing of plant and animal species, usually for commercial purposes, can include aquaculture	Clearing land for farming-
3. Economy-Developing local, regional and national economies	Agriculture-Activities relating to the cultivation and rearing of plant and animal species, usually for commercial purposes, can include aquaculture	Market gardening-
3. Economy-Developing local, regional and national economies	Environment - cultural landscape-Activities associated with the interactions between humans, human societies and the shaping of their physical surroundings	(none)-
3. Economy-Developing local, regional and national economies	Environment - cultural landscape-Activities associated with the interactions between humans, human societies and the shaping of their physical surroundings	Landscapes drowned beneath dam waters-
3. Economy-Developing local, regional and national economies	Environment - cultural landscape-Activities associated with the interactions between humans, human societies and the shaping of their physical surroundings	Landscapes of industrial production-
3. Economy-Developing local, regional and national economies	Industry-Activities associated with the manufacture, production and distribution of goods	Processing meat-
3. Economy-Developing local, regional and national economies	Industry-Activities associated with the manufacture, production and distribution of goods	Manufacturing textiles-
3. Economy-Developing local, regional and national economies	Science-Activities associated with systematic observations, experiments and processes for the explanation of observable phenomena	Researching native flora-
3. Economy-Developing local, regional and national economies	Science-Activities associated with systematic observations, experiments and processes for the explanation of observable phenomena	Researching botany and botanical processes-
3. Economy-Developing local, regional and national economies	Technology-Activities and processes associated with the knowledge or use of mechanical arts and applied sciences	(none)-
3. Economy-Developing local, regional and national economies	Technology-Activities and processes associated with the knowledge or use of mechanical arts and applied sciences	Technologies for reticulated water supply-

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4. Settlement-Building settlements, towns and cities	Land tenure-Activities and processes for identifying forms of ownership and occupancy of land and water, both Aboriginal and non-Aboriginal	Sub-division of large estates-
4. Settlement-Building settlements, towns and cities	Land tenure-Activities and processes for identifying forms of ownership and occupancy of land and water, both Aboriginal and non-Aboriginal	Changing land uses - from rural to suburban-
4. Settlement-Building settlements, towns and cities	Land tenure-Activities and processes for identifying forms of ownership and occupancy of land and water, both Aboriginal and non-Aboriginal	Resuming private lands for public purposes-
4. Settlement-Building settlements, towns and cities	Land tenure-Activities and processes for identifying forms of ownership and occupancy of land and water, both Aboriginal and non-Aboriginal	Naming places (toponymy)-
4. Settlement-Building settlements, towns and cities	Towns, suburbs and villages-Activities associated with creating, planning and managing urban functions, landscapes and lifestyles in towns, suburbs and villages	Planning relationships between key structures and town plans-
4. Settlement-Building settlements, towns and cities	Towns, suburbs and villages-Activities associated with creating, planning and managing urban functions, landscapes and lifestyles in towns, suburbs and villages	Developing towns in response to topography-
4. Settlement-Building settlements, towns and cities	Towns, suburbs and villages-Activities associated with creating, planning and managing urban functions, landscapes and lifestyles in towns, suburbs and villages	Creating landmark structures and places in regional settings-
4. Settlement-Building settlements, towns and cities	Utilities-Activities associated with the provision of services, especially on a communal basis	(none)-
4. Settlement-Building settlements, towns and cities	Utilities-Activities associated with the provision of services, especially on a communal basis	Providing drinking water-
5. Working-Working	Labour-Activities associated with work practises and organised and unorganised labour	Working in factories-
7. Governing-Governing	Government and Administration-Activities associated with the governance of local areas, regions, the State and the nation, and the administration of public programs - includes both principled and corrupt activities.	Local and municipal self-governance-

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7. Governing-Governing	Government and Administration-Activities associated with the governance of local areas, regions, the State and the nation, and the administration of public programs - includes both principled and corrupt activities.	Building and operating public infrastructure-
7. Governing-Governing	Government and Administration-Activities associated with the governance of local areas, regions, the State and the nation, and the administration of public programs - includes both principled and corrupt activities.	Developing roles for government - public water supply-
8. Culture-Developing cultural institutions and ways of life	Creative endeavour-Activities associated with the production and performance of literary, artistic, architectural and other imaginative, interpretive or inventive works; and/or associated with the production and expression of cultural phenomena; and/or environments that have inspired such creative activities.	Landscaping - 20th century interwar-
8. Culture-Developing cultural institutions and ways of life	Creative endeavour-Activities associated with the production and performance of literary, artistic, architectural and other imaginative, interpretive or inventive works; and/or associated with the production and expression of cultural phenomena; and/or environments that have inspired such creative activities.	Landscaping - 20th century post WW2-
8. Culture-Developing cultural institutions and ways of life	Creative endeavour-Activities associated with the production and performance of literary, artistic, architectural and other imaginative, interpretive or inventive works; and/or associated with the production and expression of cultural phenomena; and/or environments that have inspired such creative activities.	Building in response to natural landscape features-
9. Culture-Developing cultural institutions and ways of life	Sport-Activities associated with organised recreational and health promotional activities	badminton-
9. Phases of Life-Marking the phases of life	Persons-Activities of, and associations with, identifiable individuals, families and communal groups	Associations with Simeon Lord, industrialist and emancipist-
9. Phases of Life-Marking the phases of life	Persons-Activities of, and associations with, identifiable individuals, families and communal groups	Associations with Sir Joseph Banks - naturalist/botanist-
9. Phases of Life-Marking the phases of life	Persons-Activities of, and associations with, identifiable	Associations with Daniel Solander, assistant

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of life	individuals, families and communal groups	at the British Museum, naturalist - botanist -
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Assessment of significance

SHR Criteria

a)
[Historical significance]

The item contains substantial remnants of structures and layout from Sydney's third main water supply system which supported the growth of Australia's largest city for most of the latter half of the 19th century. The 1850s water supply pipeline represents the oldest main in the State. The site contains important components of Sydney's main southern sewerage system from the 1910s and 1930s to 1940s supporting the expansion and consolidation of inner Sydney from the late 19th century to the present.

It also demonstrates the growth in demand for golf courses throughout the 20th century with the establishment of four separate courses including the Australian (est. 1904) and the Lakes Golf Course (est. 1928) - two of the State's oldest and most highly regarded.

The place also has strong and direct associations with prominent individuals - including Colonial entrepreneur Simeon Lord; the naval officer, surveyor and pastoralist Thomas Woore; City Engineers WB Ruder, Edward Bell and Francis Bell; and Board engineers including EM de Burgh. Passing, though telling, early European references to the former landscape character of the area were made by many noted travellers including Captain James Cook in 1770 and Francois Peron in 1802.

As surviving elements of Sydney's third main water supply system it is rare if not unique.

As a modified/remnant wetland system it is representative of a once extensive vegetation community that included sites from Jewells Swamp, near Lake Macquarie to Coomaditchy Lagoon south of Sydney, yet as remnant sites within the Sydney Basin are now only of a small size and are threatened with extinction the wetlands should be considered rare. Similarly the areas of Eastern Suburbs Banksia Scrub are rare - of their total estimated area at the beginning of European colonisation less than 1% remains.

SWSOOS is rare as the largest of Sydney's sewerage networks.

Although the pre-European wetland ecosystem was modified during the 1860s and 1870s pond construction, there has been only limited major modification - mainly for the expansion of the airport and construction of new arterial roadways - since then. Major elements (the sequence of ponds) of Sydney's third main water supply system are substantially intact. Particular elements of the system - its architectural and planted elements - are only partially intact. Yet the little that remains of these are particularly poignant and serve as important local landmarks.

SHR Criteria c)
[Aesthetic significance]

The site represents a substantial tract of greenspace with important landscape attributes - extensive areas of water, wetlands, plantings, archaeological features, dunes, remnant indigenous vegetation and fauna - providing notable scenery and, remarkably, within 6 km of the Sydney CBD.

SHR Criteria d)
[Social significance]

The large tract of open space is probably highly valued as a local or even regional asset while the uses associated with the various golf courses would likely guarantee a special interest in the wetlands landscape by patrons. The ruinous water supply structures and remnant 1869 plantings along with the 1915 sewerage Pump House are well appreciated features and function as important cultural references within the parkland associated with the remnant Engine Pond.

SHR Criteria e)
[Research potential]

The place is of importance for its archaeological research potential pertaining to the early 19th century use of the wetlands for industry, Sydney's third main water supply system and aspects of Sydney's sewerage provision. Direct evidence of the

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construction of the original Lord dam walls, his house and outbuildings or other structures, other industrial structures and the former Sydney-Botany Tollhouse may still remain under the later fill.

The wetlands are of well recognised ecological value (flora/fauna [including benthos, zooplankton, macroinvertebrates and amphibians] habitat and corridor) and environmental value (major Sydney basin aquifer recharge).

SHR Criteria f) As surviving elements of Sydney's third main water supply system it is rare.
[Rarity]

SHR Criteria g) As a modified wetland system it is representative.
[Representativeness]

Integrity/Intactness: Major elements (the sequence of ponds) of Sydney's third main water supply system are substantially intact.

Assessment criteria: Items are assessed against the **State Heritage Register (SHR)** Criteria to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Procedures /Exemptions

Section of act	Description	Title	Comments	Action date
21(1)(b)	Conservation Plan submitted for endorsement	Botany Wetlands Conservation Management Plan	CMP received for information purposes only, not endorsed, 21 June 2005	Jun 21 2005
57(2)	Exemption to allow work	Standard Exemptions	<p>SCHEDULE OF STANDARD EXEMPTIONS HERITAGE ACT 1977</p> <p>Notice of Order Under Section 57 (2) of the Heritage Act 1977</p> <p>I, the Minister for Planning, pursuant to subsection 57(2) of the Heritage Act 1977, on the recommendation of the Heritage Council of New South Wales, do by this Order:</p> <p>1. revoke the Schedule of Exemptions to subsection 57(1) of the Heritage Act made under subsection 57(2) and published in the Government Gazette on 22 February 2008; and</p> <p>2. grant standard exemptions from subsection 57(1) of the Heritage Act 1977, described in the Schedule attached.</p> <p>FRANK SARTOR Minister for Planning</p> <p>Sydney, 11 July 2008</p> <p>To view the schedule click on the Standard Exemptions for Works Requiring Heritage Council Approval</p>	Sep 5 2008

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			link below:	
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 Standard exemptions for works requiring Heritage Council approval

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Heritage Act - State Heritage Register		01317	18 Nov 99		
Heritage Act - s.170 NSW State agency heritage register		415101	30 Jun 02		
National Trust of Australia register	Botany/Iachlan Swamps Water Supply Former	6813			
Register of the National Estate - Interim	Botany Swamps	17854			

Study details

Title	Year	Number	Author	Inspected by	Guidelines used
Sydney Water Heritage Study	1996	00640	Graham Brooks & Associates		No

References, internet links & images

Type	Author	Year	Title	Internet Links
Written	Abel Ecology	2006	Revegetation Plan, Bonnie Doon Golf Course	
Written	Abel Ecology	2005	Environmental Assessment, Bonnie Doon Golf Course	
Management Plan (HC endorsed)	Asset Management, Sydney Water Corporation.	2003	Botany Wetlands draft conservation management plan	
Written	Eco Logical Australia P/L	2008	Eastern Suburbs Banksia Scrub Monitoring Report - June 2008	
Written	Kirkman, Andrew, General Manager, The Lakes Golf Club	2016	Application for a heritage exemption - Practice Precinct Renovation, at the Lakes Golf Club	
Written	Pollen, Francis (ed.)	1988	Botany, in 'The Book of Sydney Suburbs'	

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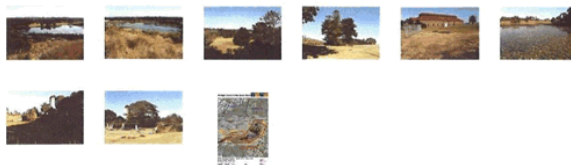
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Written	Ross Watson Golf Course Architecture P/L	2005	Heritage Impact Statement, Bonnie Doon Golf Course	
Written	Ross Watson Golf Course Architecture P/L	2002	Statement of Environmental Effects, Bonnie Doon Golf Course	

Note: internet links may be to web pages, documents or images.



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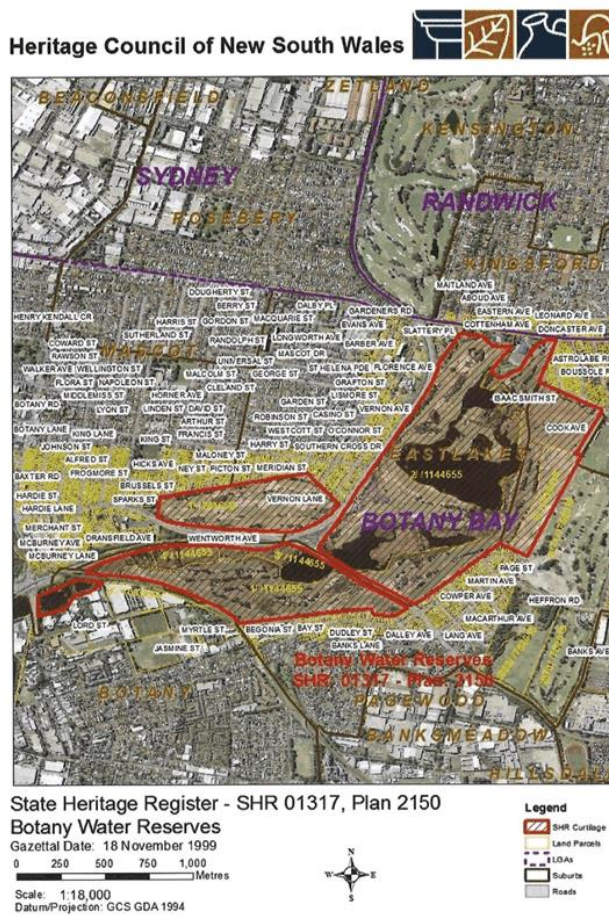
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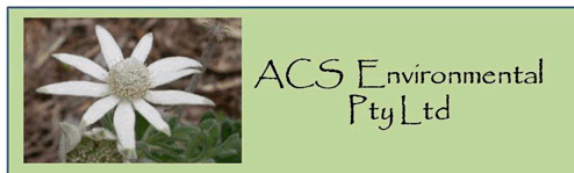
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**Attachment G – Flora and
Fauna Surveys 73 Gardeners
Road, Prepared by ACS
Environmental Pty Ltd dated
September 2017**



FLORA & FAUNA SURVEYS

AND

ECOLOGICAL CONTRIBUTION TO THE

PREPARATION OF A MASTER PLAN FOR A SYDNEY

WATER DEPOT SITE AT

73 GARDENERS ROAD, EASTLAKES, SYDNEY

Prepared for:

ARCHITECTUS SYDNEY
Level 18 MLC Centre
19 Martin Place
Sydney NSW 2000 Australia

ACS Environmental P/L - September 2017

SEPTEMBER 2017

ACS Environmental P/L - September 2017

ACS Environmental P/L

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Peter Stricker BSc. (Hons) (Syd) ^α



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Consultants experience

The director of 'Actinotus Consultancy Services (ACS) – Environmental P/L' (formerly Actinotus Environmental Consultants) has worked in the area of biodiversity impact and bushfire hazard assessment services for a period of greater than 20 years. He also have over 20 years of experience in scientific research (ecological) and teaching in biological science at UNSW.

The principal of the former 'Actinotus Environmental Consultants' has completed the NSW Consulting Planners Bushfire Training Course organised by the Planning Institute of Australia NSW Division for planning consultants and allied professionals relating to the implementation of 'Planning for Bushfire Protection', in June 2003.

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EXECUTIVE SUMMARY

'ACS (Actinotus Consultancy Services) – Environmental' were commissioned by Naturally Trees on behalf of Architectus to undertake a comprehensive biodiversity survey of an area of land of about 1.5 ha at 73 Gardeners Road, Eastlakes as part of the assessment of ecological values occurring at the land for a proposed Masterplan services for the site.

The landscape consists of ridgetop topography sloping gently southwards to The Lakes Golf Course.

The vegetative cover of the subject land at is comprised of landscaped tree and shrub planting, the site being almost totally cleared of wooded vegetation prior to 1943. Currently the subject site contains landscaped mature and semi-mature trees of various species of Myrtaceae such as Bangalay and Sydney Red Gum, as well as Swamp Oak and small trees such as Weeping Bottlebrush among others (Scales 2017).

No natural indigenous species appear to occur in the subject area except for some sparse shrubs of Sydney Golden Wattle and small trees of Sweet Pittosporum that have naturalised in the area, the open tree canopy having all been planted around the fenced boundaries of the site in a landscape plan since 1943. A total number of 30 tree species, including mature and semi-mature individuals has been documented as occurring within the subject site by Scales (2017). Most of these trees will be removed as part of the proposed development, although 3 individuals of Sydney Red Gum occurring along the north-eastern boundary will be retained (Scales 2017).

A total of 9 exotic environmental weeds, including low frequencies of 2 species of 'biosecurity weeds', occur within the subject site (Appendix 1).

Many of the landscaped planted trees are fairly mature and attain heights to 18m, the tree plantings being mixed throughout the area, apart from distinct monocultures of some species that occur such as Swamp Oak along the northern boundary with Gardeners Road (Scales 2017).

None of the assemblages or distributions of trees or shrubs occurring in the subject area at 73 Gardeners Road, Eastlakes, represent natural ecological communities confirming previous mapping undertaken by OEH (2013) and Botany Council DCP 2013.

As such, it is considered that any impacts of potential development on the vegetation would not be significant.

A patch of the Endangered Ecological Community, Coastal Sand Bangalay Forest, occurs on natural sand-based substrates about 60m downslope to the south-west of the subject site,

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but with appropriate construction environmental management plans undertaken for the development, will not be impacted by the proposal.

Current Atlas of NSW Wildlife data (Bionet - October 2015) indicates that 3 threatened flora species have been recorded in the locality within the last 25 years (Table 1). Habitat for another 8 threatened flora species is deemed likely or potentially to occur as qualified by the DoEE 'Protected Matters Search Tool' (2017) and these are listed in Appendix 2.

In relation to locally occurring habitat which has been highly modified by clearing prior to 1943 and landscaped with a variety of locally and non-locally occurring indigenous species, as well as exotic ornamentals at the subject site, it is highly unlikely that any of the listed threatened flora species would occur in the surveyed area. Targeted searches for those species listed in Table 1 where records occur within a 5km radius, failed to locate these, or any other threatened flora species at the subject sites.

Opportunistic fauna observations were made within the study site and in the vicinity of the drainage channel that courses alongside the study site at 673 Gardeners Road, Eastlakes.

Birds recorded at the subject site included the Magpie-lark (*Grallina cyanoleuca*), Noisy Miner (*Manorina melanocephala*), Common Myna (*Sturnus tristis*), Rainbow Lorikeet (*Trichoglossus haematodus*), and Australian Raven (*Corvus coronoides*).

The Welcome Swallow (*Hirundo neoxena*) was recorded flying overhead.

Reptiles observed on the near the subject site were the Dark-flecked Garden Sunskink (*Lampropholis delicata*) and Eastern Water Skink (*Eulamprus quoyii*), with the Eastern Water Dragon (*Physignathus lesueurii*) having been occasionally observed by the personnel at the Depot.

The OEH Atlas of NSW Wildlife database 2015 listed twenty-three (23) species of terrestrial and avifauna considered threatened under the TSC Act within a 5 km radius of the site (Appendix 3).

Four of these threatened fauna species have been recorded within 1km of the study site. These are the Green and Golden Bell Frog, Freckled Duck, Eastern Bentwing Bat and the Grey-headed Flying-fox.

Whilst no individuals of these avian and mammalian species were recorded, an assessment of habitats concluded that potential exists for them to potentially forage near to the study site. An Assessment of Significance to determine any potential impact to any proposed development was not necessary as all these species are likely overhead foragers that have large foraging ranges and their life-cycles, foraging, roosting and breeding behaviours would not be impacted upon in relation to any proposed development at the study site.

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None of the recorded species of birds recorded at the subject site are listed as threatened or appear on migratory bird agreement lists.

The study site is rated as poor habitat for fauna due to its proximity to the busy Gardeners Road motorway and the long history of disturbance for commercial purposes. It is considered unlikely that any proposed development at the subject site would impact on the distribution or integrity of natural faunal populations in the area.

It should be noted that the current proposal is for a master plan only which seeks to inform the proposed future planning controls for the site. Any future development of the site will be subject to sale by Sydney Water and preparation by detailed design Development Applications which will need to undergo further assessment under the planning approval framework. At this stage, it will need to once again consider impacts on flora and fauna in further more specific detail.

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ACRONYMS & GLOSSARY

CCPD – Crown Canopy Projective Density

CEEC – Critically Endangered Ecological Community

DEC – State Department of Environment and Conservation

DECCW – State Department of Environment, Climate Change and Water

DoEE – Commonwealth Department of Energy and Environment

EEC – Endangered Ecological Community

EPA Act – Environment Protection Act

EPBC Act – Environment Protection and Biodiversity Conservation Act

LEP - Local Environment Plan

NPWS – State National Parks and Wildlife Service

OEH – Office of the Environment and Heritage

RoTAP – Rare and Threatened Australian Plants

SMCMA – Sydney Metropolitan Catchment Management Authority

TSC Act – Threatened Species Conservation Act

Biodiversity Assessment of land at 75 Gardeners Road, Eastlakes

ix

INTRODUCTION

1.1 Proposed development

'ACS (Actinotus Consultancy Services) – Environmental' was commissioned by Naturally Trees on behalf of Architectus to undertake a comprehensive biodiversity survey of an area of land of 1.5 ha currently used as a Sydney Water Depot at 73 Gardeners Road, Eastlakes. The survey forms part of the assessment of ecological values occurring at the subject land for a proposed Masterplan services for the site. Figure 1 is an aerial image of the subject land.

A previous report addressed the ecological values of land to the west at 75 Gardeners Road, including the northernmost section of the Lakes Golf Course (ACS Environmental 2015).

The landscape consists of ridgetop topography sloping gently southwards to The Lakes Golf Course (Figure 1).



Figure 1 - Aerial image of subject area of Sydney Water Depot at 73 Gardeners Road, Eastlakes (boundary marked by red line)

1.2 Documents provided

Scales, A. (2017) Draft Arboricultural Impact Appraisal and Method Statement for 73 Gardeners Road, Eastlakes

1.3 Statutory and legislative requirements

Planning controls that need to be addressed in any comprehensive biodiversity studies on the subject land are listed below.

Planning controls provided by State and Commonwealth Legislation include the following:

- ◆ *Environmental Planning and Assessment Act (EP & A Act)(1979),*
- ◆ *Commonwealth Environment Protection and Biodiversity Conservation Act (EPBC Act)(1999),*
- ◆ *Threatened Species Conservation Act (TSC Act)(1995).* The *Threatened Species Conservation Act (TSC Act)(1995)* includes Preliminary Determinations of the NSW Scientific Committee (to September 2017) as well as Provisional Listings of Endangered Species on an emergency basis (to September 2017),
- ◆ *Noxious Weeds Act 1993 (NW Act) (NSW)*
- ◆ *Biosecurity Act (NSW) 2015*

Other relevant legislation that were implemented to restrict the uncontrolled development of bushland in urban areas include:

- ◆ SEPP 19 (Bushland in Urban Areas), and
- ◆ *Local Government Act (1993)*

Biodiversity conservation planning principles promoted by DECCW (2011) that apply to tracts of natural bushland are outlined in *Mid North Coast Regional Conservation Plan (Draft DECCW 2011)*.

Local Council planning controls and other relevant local and State planning documents that relate to the proposed development include the following:

- ◆ *Botany Bay Local Environmental Plan 2013*
- ◆ *Botany Bay Comprehensive Development Control Plan 2013*

1.4 Objectives and scope of the study

The objectives and scope of the study are:

- To identify, locate and describe the biodiversity values of the Study Area and its environmental context in the region by undertaking detailed flora and fauna field surveys.

Current and detailed information will be obtained on the following:

- Identification of the flora and fauna that occur within the Study Area including documentation of species lists and mapping of identifiable plant communities;
 - Identification of Threatened (Endangered and Vulnerable) species, populations, communities and habitats as listed in Schedules 1 & 2 of the Threatened Species Conservation Act 1995 (TSC Act), including Preliminary Determinations of the NSW Scientific Committee, and the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), RoTAP species (Briggs & Leigh 1996) and regionally and locally significant species;
 - Identification of fauna species including amphibians, reptiles, birds and mammals, not directly recorded during surveys but that could potentially occur in the Study Area as indicated by the presence of associated habitat;
 - Description of the identifiable vegetation communities occurring within the Study Area indicating their current condition, conservation value and level of degradation; and
 - Recording of the area and extent of Noxious (and other significant) weed species in the Study Area;
- To prepare a comprehensive flora and fauna biodiversity report to document the ecological values occurring at the subject site.

Specific details of methodology relating to floristic and fauna habitat survey and assessment are documented in following sections of this report.

2 EXISTING ENVIRONMENT

2.1 *Topography, geology and soils*

The site has a south to south-westerly aspect. The topography of the subject site is a hillcrest on Gardeners Road gently sloping southwards (Figure 1) to the northern landscaped section of the Lakes Golf Course with gradients from about 2 to 5° (Figure 1).

The local substrate geology of the hillcrest of the subject area is a tongue of deposits of Quaternary Sand overlying an expanse of Quaternary Dune Sand sediments (Herbert 1983).

The lithology of the Quaternary sand deposits include peat, sandy peat and mud overlying the Quaternary Dune deposits which are comprised of medium to fine-grained 'marine' sand with podsols (Herbert 1983).

The soil landscape particular to the hillcrest of the surveyed area is 'Disturbed Terrain' (Chapman & Murphy 1983). The soil material has been disturbed by human activity including removal or burial of soil, as well as infilling with various landfill substrates (Chapman & Murphy 1983).

2.2 *Existing vegetation – local plant assemblages*

The vegetative cover of the subject land is comprised of landscaped tree and shrub planting (Figure 1). Imagery of the subject land prior to 1943 indicates that low growing vegetation occurred at the site at that time, appearing as low scattered shrubland or grassland with few large shrubs and no trees evident (Figure 2).

Currently the subject land contains landscaped mature trees such as Bangalay and Swamp Oak (Figure 3) as well as small trees and shrubs including Weeping Bottlebrush (Figure 4) and Sydney Golden Wattle (Figure 5).

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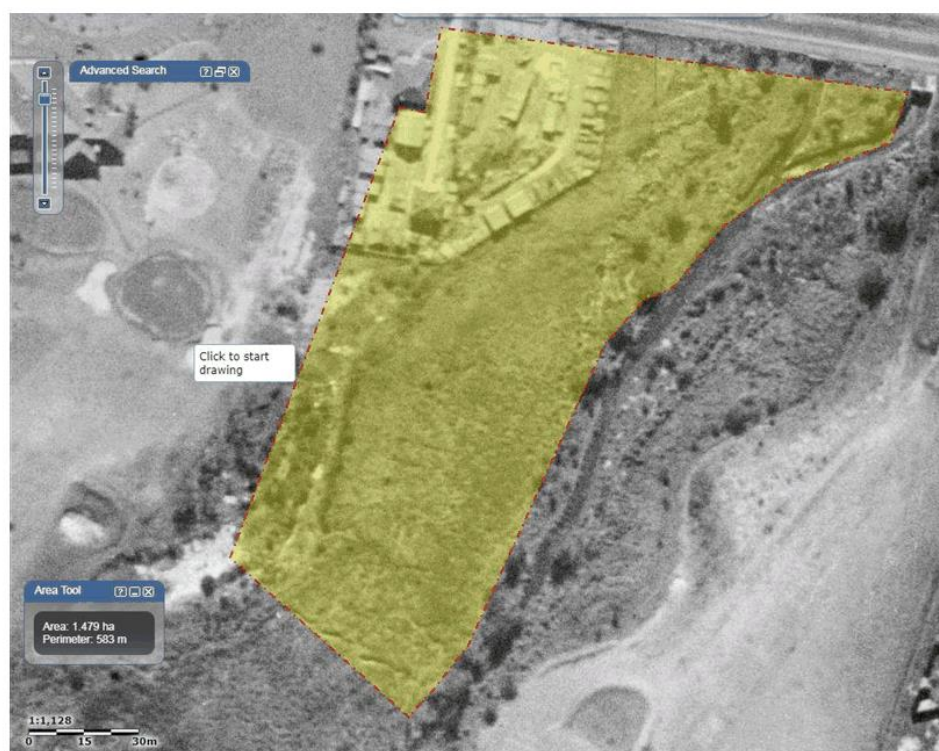


Figure 2 - Aerial view of subject site in 1943 showing a mostly cleared landform though apparently including low growing shrubs or unmanaged grassland, with few tall shrubs or trees

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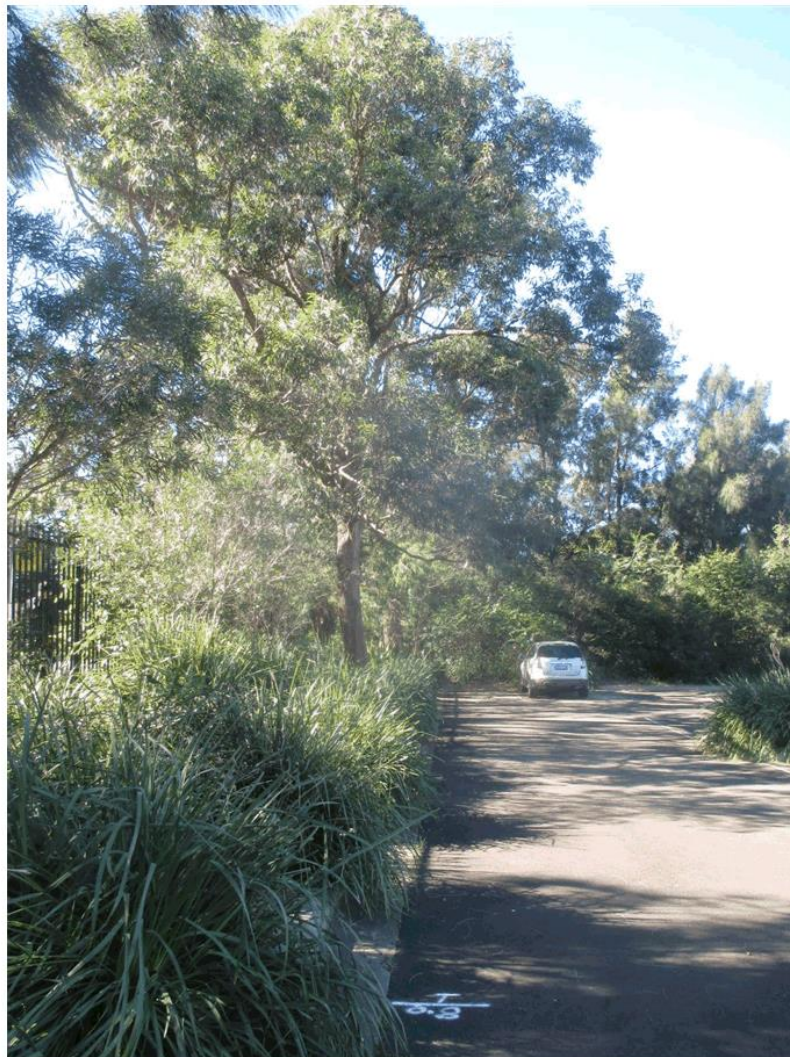


Figure 3 - View within front area of Sydney water Depot at 73 Gardeners Road, Eastlakes, the landscaped vegetation including Bangalay, Sydney Red Gum, Swamp Oak, Weeping Bottlebrush and the tall ground cover Spiny-headed Mat-rush.

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Figure 4 - Clumps of Weeping Bottlebrush occur at the front and rear of the landscaped areas at the Sydney Water Depot



Figure 5 - Shrub of Sydney Golden Wattle occurring along eastern boundary of landscaped gardens

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2.3 *Current and surrounding land use*

On the eastern boundary of the subject land, a stormwater drainage channel originating from the catchment area on the northern side of Gardeners Road, forms a well defined creek (Figures 1 & 2) flowing southwards into the series of ponds located within the Lakes Golf Course (ACS Environmental 2015).

Established urban development occurs to the north of Gardeners Road, a former landscaped nursery occurred to the west (now a construction zone) and the managed Lakes Golf Course extends to the south of the subject land (Figure 1).

3 FLORA AND FAUNA SURVEY AND ASSESSMENT

3.1 Methods

3.1.1 Literature review

Existing information on 'Threatened Flora and Fauna of the Locality', defined as an area of 5km radius around the site, was accessed from the OEH Bionet Atlas of NSW Wildlife (1:100,000 map sheets 9130 Sydney - September 2017), Commonwealth DoE Protected Matters Environmental Reporting Tool (September 2017) and RoTAP (Briggs & Leigh, 1996) databases. Searches of JAMBA (Japan and Australia Migratory Bird Agreement), CAMBA (China and Australia Migratory Bird Agreement) and ROKAMBA (Republic of Korea Migratory Bird Agreement) databases were also consulted in regard to the distribution of migratory bird species

Other literature detailing locally threatened flora and fauna, as well as endangered populations and plant communities of the Study Area included NSW Scientific Committee Final Determinations (1996-2017), The Native Vegetation of the Sydney Metropolitan Catchment Management Authority Area – (OEH 2013), Botany Bay Planning Strategy (2013) and Botany Bay Council Development Control Plan Mapping (2013).

3.1.2 Site survey

The subject site was inspected by 'ACS Environmental P/L' on 6th July 2017.

3.1.2.1 Flora Survey

Comprehensive surveys of the Study Area undertaken on foot by the diversity search method of Cropper (1993) and DEC 'Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities' (2004) to identify the existence of extant and exotic flora.

Survey methods include a complete floristic inventory of indigenous and exotic species and an assessment of the presence, or likelihood of occurrence, of any threatened, rare (RoTAP), regionally or locally significant species or ecological plant community occurring in the Study Area.

Survey design

The relative occurrence of indigenous and exotic flora (modified Braun-Blanquet frequency-of-occurrence ranking) occurring over the site and distinct ecological communities were mapped.

3.1.2.2 Fauna Survey

A dedicated ground search was undertaken within the subject land as was a census of extant birds. The survey involved different search strategies and protocols and all extant fauna or evidence of fauna was recorded. Threatened fauna species not recorded in the survey but with the potential to be present as indicated by habitat are considered in the final assessment.

Strategies employed for the field investigation of the Study Area:

Assessment of the value of habitat suitable for native fauna species and specific habitat structures/resources considered important in life cycles. These structures or resources include:

- Mature trees with hollows for breeding, roosting and/or nesting;
- Particular foraging resources such as certain tree or shrub species;
- Dispersal, migratory or foraging corridors for fauna;
- Leaf litter and ground search for reptiles, frogs and threatened invertebrates;
- Identification of scats and other indirect evidence to suggest fauna utilisation such as tracks, scratch marks or diggings;

Recording Methods

The search strategy employed for diurnal birds is based on utilising periodic observation stations or "point counts" as described by York *et al.*, (1991). Searches undertaken included recording and observing location of potential roost sites and accessible tree hollows. Scat searches and pellet analysis were conducted to ascertain the species present.

Appropriate sampling methodologies were employed where habitat attributes are present that provide microhabitat for cavity dependent fauna. If no cavities or hollows are present, then indirect evidence is relied upon to show fauna utilisation of the survey site.

3.1.2.3 Limitations of the study

Limitations of the study may arise where certain cryptic species of plants may occur as soil-stored seed or as subterranean vegetative structures. Some species are identifiable above-ground only after particular environmental circumstances occur that may be related to factors such as periodic fire frequency, intensity or seasonality, soil moisture regime, grazing pressure, biological life-cycle patterns as in the case of small geophytic taxa such as species of orchids etc.

Diurnal surveys at one time of the year cannot be expected to detect the presence of all species occurring, or likely to occur, in the Study Area. This is because some species may (a) occur seasonally, (b) utilise different areas periodically (as a component of a more extensive home range), or (c) become dormant during specific periods of the year. Rather, the survey provides the opportunity to sample the area, search specifically for species likely to be encountered within the available time frame, and assess the suitability of habitat for particular species.

These potential limitations to the location of certain cryptic or diurnally active species are not expected to cause any significant constraints to the purposes of this assessment.

3.2 Results - Flora

3.2.1 Indigenous and exotic species

Appendix 1 is a floristic species list of terrestrial indigenous and exotic species recorded and compiled as a census of species throughout the subject site. The landscaped area contains extended plantings of locally indigenous, and non-locally indigenous species, these well documented in Scales (2017).

Species nomenclature follows that of Harden (1990 – 2002; 2017 online).

Most natural locally-occurring indigenous species that were recorded in the subject area occur as a result of landscaping, these including such species as Swamp Oak, Bangalay, Sydney Red Gum and Spiny-headed Mat-rush, the open tree and shrub canopy having all been planted in a landscape plan since 1943 (Figure 2). Sydney Golden Wattle and Sweet Pittosporum may have possibly naturalised in the area. A total number of 30 individuals of mature or semi-mature trees, including locally occurring and non-locally occurring species, has been documented within the subject site by Scales (2017).

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A total of 9 exotic environmental weeds, including 2 species of Biosecurity Act (2015) listed weeds, Lantana and African Olive, occur in low frequency within the subject land (Appendix 1).

3.2.2 Ecological communities

3.2.2.1 Previous mapping

The local ecological plant communities that occur at and in the environs of the Study Area have been mapped by OEH (2013) compiling data from API and environmental attributes of geology, average annual rainfall, topography, elevation, Soil Landscape Series type and extent of disturbance (condition), and including some ground-truthing (OEH 2013).

Figure 6 indicates that the lineal distributions of vegetation occurring at the existing Sydney Water Depot location is mapped as 'Urban Native and Exotics' and does not form a natural ecological community.

Vegetation mapping documented in Botany Bay DCP 2013 (Adopted 09/12/2014) indicates that no ecological communities of any significance status occur at the subject site, though also indicating the presence of the patch of Coastal Sand Bangalay Forest occurring about 60m down-slope of the Sydney Water Depot land (Figure 7).

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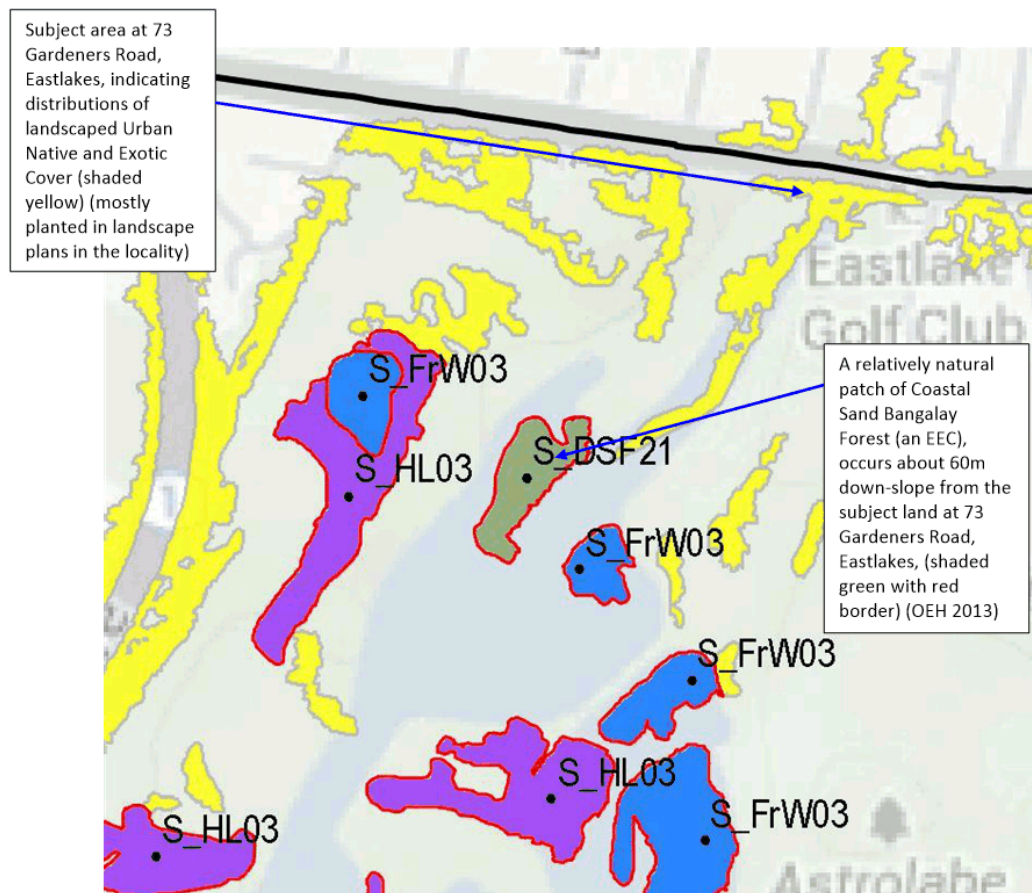


Figure 6 – Vegetation mapping by OEH (2013) of patches of urban natives and exotics at the Sydney Water Depot (Code: URE/N but not labeled on map), mapped in yellow shading. A patch of Coastal Bangalay Forest occurs about 60m down-slope to the south-west of the Sydney Water Depot site, this patch shaded in green with red border denoting its occurrence as an Endangered Ecological Community.

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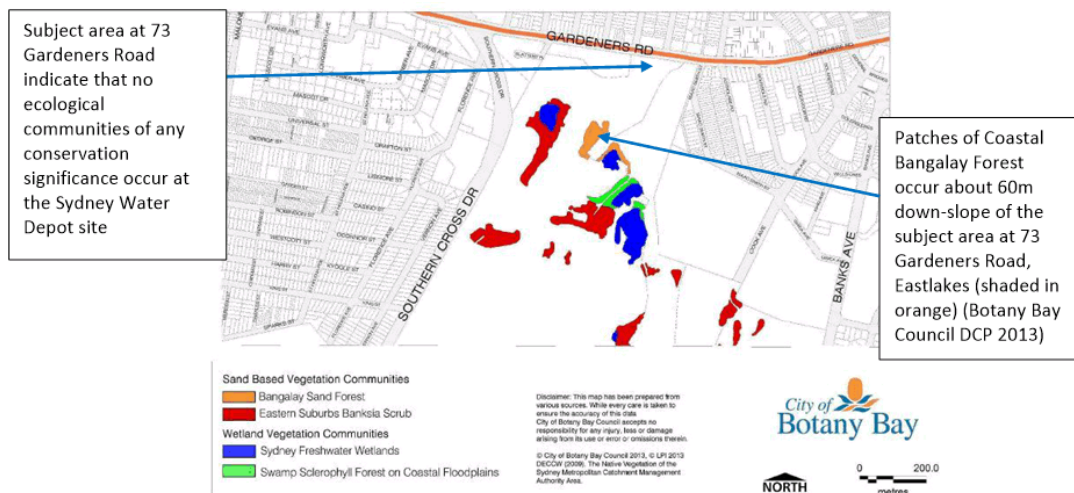


Figure 7 - Excerpt of vegetation mapping in the vicinity of the subject land (from Botany Bay Council DCP 2013).

3.2.2.2 Ground-truthing and assessment

The surveyed area has been historically modified by extensive clearing (Figure 2) and landscaped planting of 30 species of indigenous and exotic ornamental trees (Scales 2017), forming woodland patches and lineal distributions of small trees, shrubs and tall ground cover plants along fence-lines (Figures 1, 3, 4 & 5).

Some of the trees are relatively mature, such as some individuals of Bangalay attaining heights to 18m, but these are mixed with smaller landscaped trees and shrubs throughout the area (Scales 2017).

None of the assemblages or distributions of trees or shrubs in this area represent natural ecological communities and confirm previous mapping as shown in Figures 6 & 7.

3.2.3 Conservation status of vegetation

None of the discrete patches of often species-specific vegetation represents any assemblages of conservation significance or heritage (Figures 2, 3, 4, 5, 6 & 7).

As such, any impacts of potential development will not be significant in relation to existing vegetation distributions at the subject land.

3.2.4 Flora species of conservation significance

Threatened species

Current Atlas of NSW Wildlife data (Bionet - September 2017) was accessed to indicate threatened flora species that have been recorded in the locality within the last 25 years. Records for an area of 5km radius around the subject site indicate that 3 species of conservation significance have been recorded within the last 25 years (Table 1). Appendix 2 lists these 3 species with an account of their threatened status, geographical range, physiognomic attributes, habitat features, and likelihood of occurrence in the surveyed area. Habitat for another 8 threatened species is deemed likely or potentially to occur as qualified by the DoEE 'Protected Matters Search Tool' (2017) and these are also listed in Appendix 2.

Family	Common name	Scientific name	NSW status	Comm. status	No. of records
Asteraceae	Coast Groundsel	<i>Senecio spathulatus</i>	E1,P		1
Fabaceae (Mimosoidae)	Sunshine Wattle	<i>Acacia terminalis</i> subsp. <i>terminalis</i>	E1,P	E	30
Myrtaceae	Magenta Lilly Pilly	<i>Syzygium paniculatum</i>	E1,P	V	4

Table 1 - Records for 3 species of conservation significance recorded within a 5km radius of the subject site at Eastlakes within the last 25 years.

In relation to locally occurring habitat which has been highly modified by clearing prior to 1943 (Figure 2), and landscaped with a variety of locally and non-locally occurring indigenous species, it is highly unlikely that any of the threatened flora species would occur at the subject site (Appendix 2).

Targeted searches for those species listed in Table 1 where records occur within a 5km radius, failed to locate these, or any other threatened flora species, at the subject site.

3.3 Results - Fauna

3.3.1 Summary of habitats present

The quality of fauna habitat may be categorised by the presence of certain features that include:

- a predator free environment,
- whether the vegetation provides shelter, food resources and nesting or roosting opportunity for native fauna species,
- the presence of tree hollows, dead and fallen timber, rock crevices and caves, and
- the contribution an area has towards a fauna movement corridor.

Terrestrial areas of the site (Figure 1) are rated poor as fauna habitat due to:

- (i) limited canopy coverage with low numbers of indigenous ground cover species;
- (ii) limited mid-storey coverage;
- (iii) no nesting structures, fallen timber, hollow logs or tree hollows; and
- (iv) no contribution to a fauna movement corridor.

The aquatic environment represented by the stormwater drainage channel that occurs to the east of the subject site, draining from north to south to the pond system at The Lakes Golf Course (Figures 1 & 2).

The channel is polluted with rubbish and stormwater pollutants from surrounding urban development to the north. Reptiles expected to be associated with the drainage course include the Eastern Water Dragon (observed by personnel at the Depot site) and the Eastern Water Skink.

3.3.2 Fauna recorded

Opportunistic fauna observations were made within the study site and vicinity (Figure 1). Species recorded and expected to occur at the subject site are listed Table 2.

Birds recorded at the Sydney Water Depot site included the Magpie-lark (*Grallina cyanoleuca*), Noisy Miner (*Manorina melanocephala*), Noisy Miner (*Manorina melanocephala*), Common Myna (*Sturnus tristis*), Rainbow Lorikeet (*Trichoglossus haematodus*) and Australian Raven (*Corvus coronoides*) (Table 2).

Reptiles observed and expected to occur at the Sydney Water Depot site included Dark-flecked Garden Sunskink (*Lampropholis delicata*), Eastern Water Skink (*Eulamprus quoyii*) and Eastern Water Dragon (*Physignathus lesueurii*).

No scats were collected from any area of the study site. Being close to the golf course it is probable that invasive species such as the rabbit is chemically controlled. The Common Ringtail Possum may be present at times. It is the favoured prey species for the Powerful Owl. The scarcity of habitat for the Ring-tailed Possum would be expected to limit the potential of the Powerful Owl to occur in the immediate area as there are more favourable habitats in more wooded areas in the locality. The subject site does not contain trees with hollows of sufficient size to accommodate nesting for mammal or bird species and no possum dreys were located. All birds recorded are likely diurnal visitors. Bird species are more likely to roost in dense vegetation that occurs more coastal to the survey site.

The Eastern Dwarf Tree Frog is expected to occur around the edges of the drainage channel. The Plague Minnow (*Gambusia holbrooki*) is expected to occur in the drainage channel.

Family	Scientific Name	Common Name	Subject site
BIRDS			
Artamidae	<i>Cracticus torquatus</i>	Grey Butcherbird	e
	<i>Gymnorhina tibicen</i>	Australian Magpie	e
Cacatuidae	<i>Cacatua galerita</i>	Sulphur-crested Cockatoo	e
Campephagidae	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo Shrike	e
Corvidae	<i>Corvus coronoides</i>	Australian Raven	1
Dicruridae	<i>Grallina cyanoleuca</i>	Magpie-lark	1
	<i>Rhipidura leucophrys</i>	Willie Wagtail	e
Hirundinidae	<i>Hirundo neoxena</i>	Welcome Swallow	4 OH
Meliphagidae	<i>Manorina melanocephala</i>	Noisy Miner	2
Psittacidae	<i>Trichoglossus haematodus</i>	Rainbow Lorikeet	3
Sturnidae	<i>Acridotheres tristis</i>	Common Myna*	2
MAMMALS			
Muridae	<i>Rattus rattus</i>	Black Rat*	e
Pteropodidae	<i>Pteropus poliocephalus</i>	Grey-headed Flying Fox	e
REPTILES			
Agamidae	<i>Physignathus lesuerii</i>	Eastern Water Dragon	e
Scincidae	<i>Lampropholis delicata</i>	Dark-flecked Garden Sunskink	1
	<i>Eulamprus quoyii</i>	Eastern Water Skink	e
AMPHIBIANS			
Myobatrachidae	<i>Litoria falax</i>	Eastern Tree-frog	e

Code

OH – overhead

e – expected to visit occasionally

* - introduced species

Table 2 –Fauna species recorded and expected to occur at the Sydney Water Depot site at 73 Gardeners Road, Eastlakes

3.3.3 Fauna species of conservation significance

Threatened species

The criteria used to assess the likelihood of threatened species occurring in the Study Area included the specificity of habitat features such as tree canopy cover, relative soil moisture regime, relative soil nutrient regimes, historical disturbance and degradation of vegetation and known occurrences of threatened species in the immediate locality.

If all or most of these collective criteria deemed optimal for the occurrence of a particular threatened species occur in relation to the habitat of the Study Area, then the likelihood of its potential occurrence in the habitat of the Study Area could be assessed as being relatively high. If only some of these collective criteria deemed suitable for the occurrence of a particular threatened species occur in the habitat of the Study Area, then its potential occurrence in the area of study may be deemed moderate at best. If few of these collective criteria deemed suitable for the occurrence of a particular threatened species occur in the habitat of the Study Area, then the likelihood of its occurrence would be assessed as being low to very unlikely.

The OEH Atlas of NSW Wildlife database 2015 listed twenty-three (23) species of terrestrial and avifauna considered threatened under the TSC Act within a 5 km radius of the site (Appendix 3). One of these species is critically endangered and five are designated as endangered by the NSW Scientific Committee with the remainder designated as vulnerable. Under the EPBC Act 1999, one is listed as critically endangered, two listed as endangered and two listed as vulnerable.

Appendix 4 lists these threatened species with descriptions of suitable habitats and the likelihood of occurrence at the subject site.

Four of these threatened fauna species have been recorded within 1km of the study site. These are the Green and Golden Bell Frog, Freckled Duck, Eastern Bentwing Bat and the Grey-headed Flying-fox.

The Freckled Duck is a very rare bird to occur in the area and could be classified as a 'vagrant', occurring out of its normal range.

The Eastern Bentwing Bat (*Miniopterus schreibersii oceanensis*). Foraging habitat is present over the survey area, however it is highly unlikely that the bat would roost within the site, as no deep caves are present. Although no roosting habitat is available in the subject area, they may occasionally overfly the area whilst foraging.

The Grey-headed Flying-fox (*Pteropus poliocephalus*). The species congregates in large camps and is found in a variety of habitats including rainforest, mangroves, Melaleuca

swamps, wet and dry sclerophyll forests as well as in cultivated areas. At night the Grey-headed Flying-fox searches for food and may travel 50 km to its feeding areas. It eats fruit from a range of native and introduced species, particularly figs, and for this reason it is sometimes called 'Fruit Bat'. It also feeds on nectar and pollen from native trees.

An individual was noted to have been electrocuted on nearby overhead transmission lines, and an assessment of habitats concluded that potential exists for it to forage within and in the vicinity of the study site. An Assessment of Significance to determine any potential impact to any proposed development was not necessary as all these species are likely overhead foragers that have large foraging ranges and the development proposal would not likely impact on their lifestyle.

The Green and Golden Bell Frog (GGBF) (*Litoria aurea*) has previously been recorded immediately to the east of the study area some 24 years ago in 1993 (OEH NSW Atlas of Wildlife 2017). No further studies have identified it as present in the area. OEH has since listed the frog as extinct within the Lakes Golf Course at Eastlakes (OEH 2017).

From previous surveys (ACS Environmental 2015), it would be expected that extensive populations of the Plague Minnow, also known as Mosquito Fish (*Gambusia holbrooki*) would occur within the ponds. *Gambusia* has been listed as a KEY THREATENING PROCESS on Schedule 3 of the *Threatened Species Conservation Act 1995* [29 January 1999] for survival of the GGBF. *Gambusia* is a small freshwater fish originally introduced into Australia in the 1920s where some were released into creeks around Sydney, Melbourne and Brisbane, the species being now widespread throughout NSW. It is an aggressive and voracious predator of native fauna, particularly the eggs and tadpole stages of frog development.

With regard to the Green and Golden Bell Frog, Morgan and Buttemer (1996) conducted predation experiments examining the impact upon survival of tadpoles and the influence of aquatic vegetation on the predatory impact of *Gambusia*. They found that in the absence of aquatic vegetation, *Gambusia* was able to significantly reduce tadpole survival within 24 hours. In the presence of aquatic vegetation, the effect was substantially reduced.

Studies by Pyke and White (1996) surveyed waterbodies in the Sydney region for the Green and Golden Bell Frog, examining the association between evidence of breeding, occurrence of introduced fish and quality of habitat. They found that successful breeding was most strongly associated with ephemeral rather than permanent water bodies, followed by the absence of *Gambusia*, and speculated that this fish was a major cause of decline of the Green and Golden Bell Frog.

Hamer *et al* (2002) however, experimentally demonstrated that the growth of Green and Golden Bell Frog tadpoles was more favourable in permanent, rather than ephemeral

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water bodies and importantly found that tadpoles did not respond to the presence of *Gambusia* which made them more vulnerable to predation. The authors concluded that predation from *Gambusia* may have reduced the suitability of permanent water bodies as optimal breeding habitat for Green and Golden Bell Frogs and that the long-term use of less favourable ephemeral habitats may have contributed to the decline of this species.

The flow rate in the drainage channel that courses alongside the north-south boundary to the east of the subject site varies from relatively slow to relatively fast flowing after significant rainfall events. As such, and with the level of toxic pollutants carried from stormwater as well as the lack of fringing reed embankments (Figure 8), is not considered suitable for the occurrence of this species.



Figure 8 - Drainage channel flowing in a southerly direction, located to the east of the subject site, draining into the series of ponds at the Lakes Golf Course

In light of these findings, OEH records and relevant documentation, it is concluded that the Green and Golden Bell Frog, even if it were to occur, would not be impacted upon by any potential development at 73 Gardeners Road, Eastlakes (Appendix 4).

3.3.4 Species listed by the OEH Atlas of NSW Wildlife database 2017 as potential migratory inhabitants of the site.

The OEH Atlas of NSW Wildlife database 2017 listed twenty-three (23) migratory species of avifauna covered by bi-lateral bird agreements, recorded within a 5 km radius of the site.

Two species, the Sharp-tailed Sandpiper and the Little Tern may on occasion utilise resources on the golf course, but would not be impacted by any potential development at 73 Gardeners Road, Eastlakes.

Most of the migratory species listed were recorded within the Botany Swamp, well to the south of the subject site.

3.3.5 Migratory species listed by the Commonwealth DoEE (Commonwealth Protected Matters Search Tool) as potential inhabitants of the site.

Migratory species listed by the Commonwealth DoEE was reviewed in relation to the distribution, habitat and likelihood of occurrence. None of the migratory species listed has potential to occur and would not be impacted by any potential development at 73 Gardeners Road, Eastlakes.

3.3.6 Terrestrial species listed by the Commonwealth DoEE (Commonwealth Protected Matters Search Tool) as potential inhabitants of the site.

Threatened terrestrial fauna species listed by the Commonwealth DoE were reviewed in relation to the distribution, habitat and likelihood of occurrence. The current study concluded that the Grey-headed Flying Fox is likely to forage in eucalypt trees when in flower. However, the species is more likely to forage within the many golf courses of the locality where foraging resources occur in larger tracts of woodland.

3.3.7 Conclusion – fauna

The OEH Atlas of NSW Wildlife database 2015 listed twenty-three (23) species of terrestrial and avifauna considered threatened under the TSC Act within a 5 km radius of the site.

The Green and Golden Bell Frog (*Litoria aurea*) has been recorded some 22 years previously immediately to the east of the study area in 1993 (OEH NSW Atlas of Wildlife 2015). No further studies have identified it as present in the area. OEH has since listed the frog as extinct within Eastlakes Golf Course (OEH 2015).

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The Freckled Duck is a very rare bird to occur in the area and could be classified as a 'vagrant', occurring out of its normal range.

The Eastern Bentwing Bat (*Miniopterus schreibersii oceanensis*) may forage over the surveyed areas, however it is unlikely that the bat roosts within it as no deep caves are present.

The Grey-headed Flying-fox (*Pteropus poliocephalus*) congregates in large camps and is found in a variety of habitats. At night the Grey-headed Flying-fox searches for food and may travel 50 km to its feeding areas. A dead animal, electrocuted on transmission lines on Gardeners Road, is evidence that this species forages and over-flies in the locality. It is however more likely to be found foraging within the large groves of trees within the golf course.

None of the recorded animals, or those expected to occur at or near to the subject site, are listed as threatened or appear on migratory bird agreement lists.

The study site is rated as poor habitat for fauna due to its proximity to the busy Gardeners Road motorway and the long history of disturbance for commercial purposes. It is unlikely that any proposed development at the subject site will impact on the natural fauna of the area.

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Appendix 1: Floristic species assemblage recorded at 73 Gardeners Road, Eastlakes

KEY
Status:
* - Exotic species
RMM - Weeds classified as Regional Recommended Measures in the Randwick Council LGA
MM - Weeds classified as Mandatory Measures in the Randwick Council LGA
pl - planted indigenous and ornamental species
nat - naturalised
Vegetation
The vegetation of the subject site has been largely derived from landscaped plantings. The plantings include both locally and non-locally occurring indigenous species as well as some exotic ornamentals
Relative ranked frequency of occurrence (modified Braun-Blanquet rank scale)
1 – uncommon or rare
2 – relatively uncommon but occasional individuals <5% cover
3 – abundant individuals but cover <5%
4 - Cover abundance from 5 – 10%

STATUS	SCIENTIFIC NAME	COMMON NAME	SUBJECT SITE AT 73 GARDENERS ROAD
	MAGNOLIOPSIDA: MAGNOLIDAE		
*	Asclepiadaceae <i>Araujia sericifera</i>	Moth Plant	3
Mostly pl	Casuarinaceae <i>Casuarina glauca</i>	Swamp Oak	4
*	Convolvulaceae <i>Ipomoea indica</i>	Morning Glory	3
pl	Lamiaceae <i>Westringia fruticosa</i>	Native Rosemary	3
*pl	Lauraceae <i>Persea americana</i>	Avocado	3

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STATUS	SCIENTIFIC NAME	COMMON NAME	SUBJECT SITE AT 73 GARDENERS ROAD
	Mimosaceae		
Pl and /or nat	<i>Acacia longifolia</i> ssp <i>longifolia</i>	Sydney Golden Wattle	3
Pl and /or nat	<i>Acacia longifolia</i> ssp <i>longifolia</i>	Sydney Golden Wattle	3
	Myrtaceae		
*pl	<i>Agonis flexuosa</i>	Willow Myrtle	3
pl	<i>Angophora costata</i>	Sydney Red Gum	3
pl	<i>Callistemon viminalis</i>	Weeping Bottlebrush	4
*pl	<i>Corymbia ficifolia</i>	Red Flowering Gum	1
pl	<i>Eucalyptus botryoides</i>	Coast Mahogany	3
	Oleaceae		
RRM	<i>Olea europea</i> var <i>cuspidata</i>	African Olive	2
	Papaveraceae		
*	<i>Fumaria muralis</i>	Wall Fumitory	3
	Pittosporaceae		
nat	<i>Pittosporum undulatum</i>	Sweet Pittosporum	3
	Ulmaceae		
*	<i>Celtis occidentale</i>	Hackberry	3
	Urticaceae		
*	<i>Parietaria judaica</i>	Pellitory	3
	Verbenaceae		
MM	<i>Lantana camara</i>	Lantana	3
	MAGNOLOPSIDA: LILIDAE		
	Arecaceae		
*	<i>Phoenix canariensis</i>	Canary Island Palm	3
	Lomandraceae		
pl	<i>Lomandra longifolia</i>	Spiny-headed Mat-rush	4
	Phormiaceae		
pl	<i>Dianella revoluta</i>	Blue Flax Lily	3

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LEGEND TO APPENDIX 1 - BIOSECURITY WEEDS IN RANDWICK COUNCIL LGA

RMM - *The plant or parts of the plant are not traded, carried, grown or released into the environment. Exclusion zone: The plant is eradicated from the land and the land kept free of the plant. Core infestation area: Land managers prevent spread from their land where feasible.*

MM - *Must not be imported into the State or sold*

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Appendix 2: Plant species of conservation significance recorded within a 5km radius of the subject area since 1990 where potential habitat may occur (OEH Atlas of NSW Wildlife 2017^a) or where potential habitat is deemed to potentially occur (Commonwealth DoEE Protected Matters Environmental Reporting Tool 2017^b)

Scientific Name	Status (EPBC Act 1999)	Status (TSC Act 1995)	RoTAP	Habit/potential habitat/general geographic location	Likelihood of occurrence in subject area	Reference material derived from 'Final Determinations' (NSW Scientific Committee) and others listed below:
<i>Acacia terminalis</i> ssp <i>terminalis</i> ^{α β}	E*	E1		Erect or spreading shrub or small tree to 6m tall. Dry sclerophyll forest in coastal Sydney region. Occurs in coastal scrub and dry sclerophyll woodland in sandy soils	Highly unlikely – Subject habitat highly modified and landscaped. Nearest record appears about 2km to the east along Anzac Parade at Kingsford. Absence of distinct life-form individuals in area of study deemed to indicate non-occurrence. No further assessment required	OEH Atlas of NSW Wildlife (2017); Fairley & Moore (2004)
<i>Allocasuarina glauca</i> ^β		E1 (2E)		Slender open shrub to 1 - 2m high. Occurs in clay soils derived from alluvial gravels in woodland comprised of the tree species <i>Angophora bakeri</i> and <i>Eucalyptus sclerophylla</i> .	Highly unlikely - habitat unsuitable. No records of occurrence in locality. Absence of relatively distinct life-form individuals in small area of study deemed to indicate non-occurrence. No further assessment required	OEH Atlas of NSW Wildlife (2017); Harden (2000); Fairley (2004)
<i>Caladenia tessellata</i> ^β	V*	E1	3V	Terrestrial herb. Clay or sandy soils in moist forests or scrubs on coastal ridgetops	Highly unlikely –Subject habitat highly modified and landscaped. No records of occurrence in locality. No further assessment required	OEH Atlas of NSW Wildlife (2017); Robinson (2000)
<i>Cryptostylis hunteriana</i> ^β	V*	V	3VC-	No leaf, flowers only in Dec-Feb, saprophytic. Known from a range of swamp-heath and woodland communities with poorly drained soils.	Highly unlikely - Habitat unsuitable, cleared and highly modified. No records within 5km of subject site. No further assessment required	OEH Atlas of NSW Wildlife (2017); Robinson (2003); Bishop (2000)
<i>Genoplesium baueri</i> ^β		V	3RC-	Terrestrial orchid to 15cm tall, occurs in sparse sandy dry sclerophyll forest habitat and moss outcrops over sandstone.	Highly unlikely - Habitat unsuitable, cleared and highly modified. No records within 5km of subject areas. No further assessment required	OEH Atlas of NSW Wildlife (2017), Robinson (2000), Fairley (2004).

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Scientific Name	Status (EPBC Act 1999)	Status (TSC Act 1995)	RoTAP	Habit/potential habitat/general geographic location	Likelihood of occurrence in subject area	Reference material derived from 'Final Determinations ' (NSW Scientific Committee) and others listed below:
<i>Melaleuca biconvexa</i> ^β	V*	V		Shrub or small tree to 10m, occurring in damp places, often near streams or low lying areas on alluvial soils of low slopes or sheltered aspects. <i>Melaleuca biconvexa</i> may occur in dense stands forming a narrow strip adjacent to watercourses, in association with other <i>Melaleuca</i> species or as an understorey species in wet forest types.	Highly unlikely – Subject habitat highly modified and landscaped. No records within 5km of subject sites. Absence of distinct life-form individuals in area of study deemed to indicate non-occurrence. No further assessment required	OEH Atlas of NSW Wildlife (2017)
<i>Pimelea curviflora</i> var <i>curviflora</i> ^β	V*	V		Much-branched subshrub or shrub 20 to 100cm. Occurs in woodlands of the northern area of Sydney on shale-sandstone transition areas and laterite soils.	Not likely – Habitat unsuitable, highly modified and landscaped, absence of relatively distinct life-form individuals in area of study indicates non-occurrence. No further assessment required	OEH Atlas of NSW Wildlife (2017); James et al (1999)
<i>Senecio spathulatus</i>		E1		A low-growing daisy forming hummocks to 30cm tall. Grows on primary sand dunes between Kurnell and Myall Lakes National Park.	Highly Unlikely – Habitat is unsuitable, grows on primary soil dunes. Nearest records are some 3.6km to the south at Port Botany. Absence of relatively distinct life-form individuals in area of study indicates non-occurrence. No further assessment required	OEH Atlas of NSW Wildlife (2017)
<i>Syzygium paniculatum</i> ^α	V*	V	3VCi	Shrub or small tree to 8m tall, occurs in or near rainforest from littoral sands to sheltered gullies, especially near watercourses on sandy soils	Highly unlikely – Habitat unsuitable, highly modified and landscaped. Nearest OEH record about 500m to the north at Erskineville, probably also a landscaped planting. On the south coast the Magenta Lilly Pilly occurs on grey soils over sandstone, restricted	OEH Atlas of NSW Wildlife (2017); Robinson (2000), Fairley & Moore (2004)

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					mainly to remnant stands of littoral (coastal) rainforest. Habitat cleared highly modified and landscaped. Absence of relatively distinct large life-form individuals in area of study indicates non-occurrence. No further assessment required	
<i>Thesium australe</i> ^β	V*	V		Herb to 40cm high. Occurs in grassland and woodland, often in damp situations	Highly unlikely – habitat highly modified and landscaped. Rare, not recently recorded. No records within 5km of subject areas. No further assessment required.	OEH Atlas of NSW Wildlife (2017); Harden (1992)

<p>Key:</p> <p>Department of the Environment (DoE) Threatened species status ^β</p> <p>EX – Presumed extinct E* – Endangered V* – Vulnerable</p> <p>OEH Threatened species status ^α</p> <p>E4A – presumed extinct, recently recorded E1 – Endangered E2 – Endangered Population V – Vulnerable</p>
<p>Key to Conservation Status:</p> <p>Commonwealth legislation</p> <p><i>Environmental Protection and Biodiversity Conservation Act, 1999</i></p> <p>EX – Presumed extinct E* – Endangered V* – Vulnerable</p> <p>NSW legislation</p> <p><i>Threatened Species Conservation Act, 1995</i></p> <p>E4A – Schedule 1 Part 1 – Presumed extinct, recently recorded E1 Schedule 1 Part 1 – Endangered V Schedule 2 – Vulnerable</p> <p>RoTAP</p> <p><u>Conservation code</u></p> <p>2 – geographic range <100km 3 – geographic range >100km</p> <p><u>Conservation status</u></p> <p>E – endangered to point of extinction if current land use and other threats continue to operate V – vulnerable, at risk of depletion over 20-50- years if land use that threatens survival is maintained C – at least one population conserved in a national park or proclaimed conservation area</p> <p><u>Size class of reserved populations</u></p> <p>a – >1000 plants in conservation reserve i – < 1000 plants in conservation reserve - reserved population size not accurately known</p>

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Appendix 3: Threatened fauna species recorded previously within a 5km radius of the subject sites at 73 Gardeners Road, Eastlakes since 1992 (Source: OEH Atlas of NSW Wildlife 2017)

Common Name	Scientific Name	NSW Status	COMM Status	Number of Records
Green and Golden Bell Frog	<i>Litoria aurea</i>	E1	V	11
Freckled Duck	<i>Stictonetta naevosa</i>	V		1
Superb Fruit-Dove	<i>Ptilinopus superbus</i>	V		2
Bush Stone-curlew	<i>Burhinus grallarius</i>	E1		1
Pied Oystercatcher	<i>Haematopus longirostris</i>	E1		3
Lesser Sand-plover	<i>Charadrius mongolus</i>	V		3
Sanderling	<i>Calidris alba</i>	V		3
Curlew Sandpiper	<i>Calidris ferruginea</i>	E1		41
Great Knot	<i>Calidris tenuirostris</i>	V		4
Black-tailed Godwit	<i>Limosa limosa</i>	V		2
Terek Sandpiper	<i>Xenus cinereus</i>	V		3
Little Tern	<i>Sternula albifrons</i>	E1		313
Glossy Black-Cockatoo	<i>Calyptorhynchus lathami</i>	V		2
Swift Parrot	<i>Lathamus discolor</i>	E1	E	1
Orange-bellied Parrot	<i>Neophema chrysogaster</i>	E4A	CE	1
Eastern Ground Parrot	<i>Pezoporus wallicus wallicus</i>	V		2
Powerful Owl	<i>Ninox strenua</i>	V		9
Scarlet Robin	<i>Petroica boodang</i>	V		1
Diamond Firetail	<i>Stagonopleura guttata</i>	V		2
Spotted-tailed Quoll	<i>Dasyurus maculatus</i>	V	E	1
Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>	V	V	73
Eastern Bentwing-bat	<i>Miniopterus schreibersii oceanensis</i>	V		10
Southern Myotis	<i>Myotis macropus</i>	V		464

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Appendix 4: Likelihood of occurrence in surveyed area of fauna species of conservation significance recorded within a 5km radius of the Study Area at 73 Gardeners Road, Eastlakes since 1992 (OEH Atlas of NSW Wildlife 2017) or where potential habitat is deemed to potentially occur

Common Name	Scientific Name	TSC Act	EPBC Act	Number recorded	Distribution, Habitat	Likelihood of occurrence in surveyed areas and requirement for further assessment	Reference material derived from 'Final Determinations'
Green and Golden Bell Frog	<i>Litoria aurea</i>	E1	V	11 (One record 10m east in 1993)	Formerly distributed from the NSW north coast near Brunswick Heads, southwards along the NSW coast to Victoria where it extends into east Gippsland. It inhabits marshes, dams and stream-sides, particularly ones with bullrushes (<i>Typha orientalis</i> spp.) or spikerushes (<i>Eleocharis</i> spp.).	Unlikely Habitat may be present in ponds within the golf course but the presence of (<i>Gambusia holbrooki</i>) which predated on the tadpoles limits its presence. Now deemed to be extinct in the area (OEH 2015). No further assessment required.	OEH Atlas of NSW Wildlife (2017), Cogger 200 Barker et al 1995
Freckled Duck	<i>Stictonetta naevosa</i>	V		1 One record 2013 500m south	The Freckled Duck is found primarily in south-eastern and south-western Australia, occurring as a vagrant elsewhere. It breeds in large temporary swamps created by floods in the Bulloo and Lake Eyre basins and the Murray-Darling system, particularly along the Paroo and Lachlan Rivers, and other rivers within the Riverina. Prefer permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree. During drier times they move from ephemeral breeding swamps to more permanent waters..	Not likely - Suitable habitat present but it is such a rare occurrence that it is unlikely to occur within survey area. No further assessment required.	OEH Atlas of NSW Wildlife (2017), Pizzey & Knight (2003).

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Common Name	Scientific Name	TSC Act	EPBC Act	Number recorded	Distribution, Habitat	Likelihood of occurrence in surveyed areas and requirement for further assessment	Reference material derived from 'Final Determinations'
Superb Fruitdove	<i>Ptilinopus superbus</i>	V		2	The Superb Fruit-dove occurs principally from north-eastern in Queensland to north-eastern NSW. It is much less common further south, where it is largely confined to pockets of suitable habitat as far south as Moruya. Inhabits rainforest and similar closed forests where it forages high in the canopy, eating the fruits of many tree species. It may also forage in eucalypt or acacia woodland where there are fruit-bearing trees. Part of the population is migratory or nomadic	Not likely – No suitable habitat present but it is such a rare occurrence that it is unlikely to occur within survey area. No further assessment required.	OEH Atlas of NSW Wildlife (2017), Pizzey & Knight (2003).
Bush Stone-curlew	<i>Burhinus grallarius</i>	E1		1	The Bush Stone-curlew is found throughout Australia except for the central southern coast and inland, the far south-east corner, and Tasmania (Pizzey & Knight 2003). In general, habitat occurs in open woodlands with few, if any, shrubs, and short, sparse native grasses, scattered fallen timber, leaf litter and bare ground present. In coastal areas, structurally similar elements of tidal and estuarine areas provide suitable habitat, for example Bush Stone-curlews are recorded within Casuarina woodlands, saltmarsh and mangroves. The presence of fallen tree debris appears critical to the selection of day roost sites. Largely nocturnal, being especially active on moonlit nights.	Not likely - No suitable habitat present within survey area. More likely within Botany Wetlands No further assessment required.	OEH Atlas of NSW Wildlife (2017), Pizzey & Knight (2003).

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Common Name	Scientific Name	TSC Act	EPBC Act	Number recorded	Distribution, Habitat	Likelihood of occurrence in surveyed areas and requirement for further assessment	Reference material derived from 'Final Determinations'
Pied Oystercatcher	<i>Haematopus longirostris</i>	E1		3	The species is distributed around the entire Australian coastline, although it is most common in coastal Tasmania and parts of Victoria, such as Corner Inlet (Pizzey & Knight 2003). In NSW the species is thinly scattered along the entire coast. Favours intertidal flats of inlets and bays, open beaches and sandbanks.	Not likely - No suitable habitat present within survey area. More likely within Botany Wetlands No further assessment required.	OEH Atlas of NSW Wildlife (2017), (Pizzey & Knight 2003).
Lesser Sand-plover	<i>Charadrius mongolus</i>	V		3	This species is strongly migratory, wintering on sandy beaches in east Africa, south Asia and Australasia. The lesser sand plover's food is insects, crustaceans and annelid worms, which are obtained by a run-and-pause technique, rather than the steady probing of some other wader groups	Not likely - No suitable habitat present within survey area. More likely within Botany Wetlands No further assessment required.	OEH Atlas of NSW Wildlife (2017), (Pizzey & Knight 2003).
Sanderling	<i>Calidris acuminata</i>	V		3	A regular summer migrant from Siberia and other Arctic breeding grounds to most of the Australian coastline. It is uncommon to locally common, arriving from September and leaving by May (some may overwinter in Australia). Sanderlings occur along the NSW coast, with occasional inland sightings. They are often found in coastal areas on low beaches of firm sand, near reefs and inlets, along tidal mudflats and bare open coastal lagoons; individuals are rarely recorded in near-coastal wetlands. They breed in Siberia. In Australia it roosts on bare sand, behind clumps of beach-cast kelp or in coastal dunes.	Not likely - No suitable habitat present within survey area. More likely within Botany Wetlands No further assessment required.	OEH Atlas of NSW Wildlife (2017), (Pizzey & Knight 2003).

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Common Name	Scientific Name	TSC Act	EPBC Act	Number recorded	Distribution, Habitat	Likelihood of occurrence in surveyed areas and requirement for further assessment	Reference material derived from 'Final Determinations'
Curlew Sandpiper	<i>Calidris ferruginea</i>	E1		41	The Curlew Sandpiper is a common visitor during the Australian summer, congregating in large flocks at sheltered intertidal mudflats and also at the muddy margins of terrestrial wetlands. They, peck at invertebrates on the surface of the mud or making shallow probes below its surface, sometimes wading in belly-deep water while probing. Feeding becomes more intense before their long flight back to their breeding grounds in Siberia.	Not likely - No suitable habitat present within survey area. More likely within Botany Wetlands No further assessment required.	OEH Atlas of NSW Wildlife (2017), (Pizzey & Knight 2003).
Great Knot	<i>Calidris</i>	V		4	In NSW, the species has been recorded at scattered sites along the coast to about Narooma. It has also been observed inland at Tullakool, Armidale, Gilgandra and Griffith (Pizzey & Knight 2003). It occurs within sheltered, coastal habitats containing large, intertidal mudflats or sandflats, including inlets, bays, harbours, estuaries and lagoons. Often recorded on sandy beaches with mudflats nearby, sandy spits and islets and sometimes on exposed reefs or rock platforms.	Not likely - No suitable habitat present within survey area. More likely within Botany Wetlands No further assessment required.	OEH Atlas of NSW Wildlife (2017), (Pizzey & Knight 2003).

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Common Name	Scientific Name	TSC Act	EPBC Act	Number recorded	Distribution, Habitat	Likelihood of occurrence in surveyed areas and requirement for further assessment	Reference material derived from 'Final Determinations'
Black-tailed Godwit	<i>Limosa limosa</i>	V		2	The Black-tailed Godwit is a migratory wading bird that breeds in Mongolia and Eastern Siberia (Palearctic) and flies to Australia for the southern summer, arriving in August and leaving in March. In NSW, it is most frequently recorded at Kooragang Island (Hunter River estuary), with occasional records elsewhere along the north and south coast, and inland. Habitat is found in sheltered bays, estuaries and lagoons with large intertidal mudflats and/or sandflats. Further inland, it can also be found on mudflats and in water less than 10 cm deep, around muddy lakes and swamps. Individuals have been recorded in wet fields and sewerage treatment works. Forages for insects, crustaceans, molluscs, worms, larvae, spiders, fish eggs, frog eggs and tadpoles in soft mud or shallow water.	Not likely - No suitable habitat present within survey area. More likely within Botany Wetlands No further assessment required.	OEH Atlas of NSW Wildlife (2017), (Pizzey & Knight 2003).

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Common Name	Scientific Name	TSC Act	EPBC Act	Number recorded	Distribution, Habitat	Likelihood of occurrence in surveyed areas and requirement for further assessment	Reference material derived from 'Final Determinations'
Terek Sandpiper	<i>Xenus cinereus</i>	V		3	A rare migrant to the eastern and southern Australian coasts, being most common in northern Australia, and extending its distribution south to the NSW coast in the east. The two main sites for the species in NSW are the Richmond River estuary and the Hunter River estuary. In Australia, has been recorded on coastal mudflats, lagoons, creeks and estuaries. Favours mudbanks and sandbanks located near mangroves, but may also be observed on rocky pools and reefs, and occasionally up to 10 km inland around brackish pools. Generally roosts communally amongst mangroves of dead trees, often with related wader species.	Not likely - No suitable habitat present within survey area. More likely within Botany Wetlands No further assessment required.	OEH Atlas of NSW Wildlife (2017), (Pizzey & Knight 2003).
Little Tern	<i>Sternula albifrons</i>	E1		313	Little terns migrate from eastern Asia, and in Australia is found on the north, east and south-east Australian coasts, from Shark Bay in Western Australia to the Gulf of St Vincent in South Australia. In NSW, it arrives from September to November, occurring mainly north of Sydney, with smaller numbers found south to Victoria. Almost exclusively coastal, preferring sheltered environments; however may occur several kilometres from the sea in harbours, inlets and rivers (with occasional offshore islands or coral cay records).	Not likely - No suitable habitat present within survey area. Recorded within 1km of the site within the larger expanse of the Golf Course No further assessment required.	OEH Atlas of NSW Wildlife (2017), (Pizzey & Knight 2003).

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Common Name	Scientific Name	TSC Act	EPBC Act	Number recorded	Distribution, Habitat	Likelihood of occurrence in surveyed areas and requirement for further assessment	Reference material derived from 'Final Determinations'
Glossy Black-cockatoo	<i>Calyptorhynchus lathami</i>	V		2	The Glossy Black-Cockatoo inhabits eucalypt woodland, forest or timbered watercourses where casuarinas (She-oaks) are common. In NSW, the Glossy Black-Cockatoo occurs in coastal and mountain districts. They feed almost exclusively on the seeds of She-oaks, mostly Forest She-oak <i>Allocasuarina torulosa</i> and Black She-oak <i>A. Littoralis</i> although they are also known to eat the seeds of Shrub She-oak <i>A. distyla</i> at times.	Not likely - No suitable habitat present within survey area. No further assessment required.	OEH Atlas of NSW Wildlife (2017), (Pizzey & Knight 2003).
Swift Parrot	<i>Lathamus discolor</i>	E1	E	1	Autumn – winter migrant to coastal NSW. In NSW mostly occurs on the coast and south west slopes where eucalypts are flowering profusely or where there are abundant lerp infestations. Will feed in the following trees; Swamp Mahogany (<i>E. robusta</i>), Forest Redgum (<i>E. tereticornis</i>), Spotted Gum (<i>Corymbia maculata</i>), Red Bloodwood (<i>Corymbia gummifera</i>).	Not likely - No suitable habitat present within survey area. No further assessment required.	OEH Atlas of NSW Wildlife (2017), (Pizzey & Knight 2003).
Orange-bellied Parrot	<i>Neophema chrysogaster</i>	E4	CE	1	The Orange-bellied Parrot breeds in Tasmania and migrates northward during winter. On the mainland they spend winter mostly within 3 km of the coast in sheltering in bays, lagoons, estuaries, coastal dunes and saltmarshes. They also inhabit small islands and golf courses. Birds forage in herbland or taller coastal shrubland. Recent records from Shellharbour and Maroubra suggest that the species may be expanding their selection of habitats and foraging plant species.	Not likely - No suitable habitat present within survey area. More likely in the Malabar peninsula. No further assessment required.	OEH Atlas of NSW Wildlife (2017), (Pizzey & Knight 2003).

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Common Name	Scientific Name	TSC Act	EPBC Act	Number recorded	Distribution, Habitat	Likelihood of occurrence in surveyed areas and requirement for further assessment	Reference material derived from 'Final Determinations'
Eastern Ground Parrot	<i>Pezoporus wallicus wallicus</i>	V		2	In NSW populations have declined and contracted to islands of coastal or subcoastal heathland and sedgeland habitats. The species is found in small numbers on the north coast (Broadwater, Bundjalung, Yuraygir NPs) and Myall Lakes on the central coast. The largest populations occur on the NSW south coast. The Ground Parrot occurs in high rainfall coastal and near coastal sedgelands, generally below one metre in height and very dense (up to 90% projected foliage cover). Home ranges of adult birds is typically 10 ha. There is no evidence of regular long-distance dispersal or migration events.	Not likely - No suitable habitat present within survey area. No further assessment required.	OEH Atlas of NSW Wildlife (2017), (Pizzey & Knight 2003).
Powerful Owl	<i>Ninox strenua</i>	V		9	Endemic to eastern and south-eastern Australia, mainly on the coastal side of the Great Dividing Range from Mackay to south-western Victoria. In NSW, it is widely distributed throughout the eastern forests from the coast inland to tablelands. Now uncommon throughout its range where it occurs at low density. Inhabits woodland and open sclerophyll forest to tall open wet forest and rainforest.	Not likely - No suitable prey species available. No further assessment required	OEH Atlas of NSW Wildlife (2017), Pizzey & Knight (2003).
Scarlet Robin	<i>Petroica bodang</i>	V		1	The Scarlet Robin lives in dry eucalypt forests and woodlands. The understorey is usually open and grassy with few scattered shrubs and usually contains abundant logs and fallen timber: these are important components of its habitat. In autumn and winter many Scarlet Robins live in open grassy woodlands, and grasslands or grazed paddocks with scattered trees.	Not likely – This shy bird is more likely to occur further south. Although vagrants do occur as far north as Eastlakes, the habitat present is considered sub-optimal.	OEH Atlas of NSW Wildlife (2017), Pizzey & Knight (2003).

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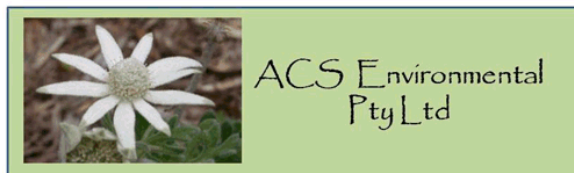
Common Name	Scientific Name	TSC Act	EPBC Act	Number recorded	Distribution, Habitat	Likelihood of occurrence in surveyed areas and requirement for further assessment	Reference material derived from 'Final Determinations'
Diamond Firetail	<i>Tagonopleura guttata</i>	V		2	The Diamond Firetail is endemic to south-eastern Australia, ranging from Carnarvon Ranges in Queensland to the Eyre Peninsula and Kangaroo Island in South Australia. Diamond Firetails are found in open grassy woodland, heath and farmland or grassland with scattered trees. Diamond Firetails feed on the ground and generally eat ripe or partially ripe seeds and can be seen hopping around on the ground. They occasionally eat insects and their larvae. They are prone to predation by Currawongs.	Not likely - No suitable habitat present within survey area. No further assessment required.	OEH Atlas of NSW Wildlife (2017), Pizzey & Knight (2003).
Spotted-tail Quoll	<i>Dasyurus maculatus</i>	V	E	1	Recorded across a range of habitat types, including rainforest, open forest, forest, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. Individual animals use hollow-bearing trees, fallen logs, small caves, rock crevices, boulder fields and rocky-cliff faces as den sites.	Not likely - No suitable habitat present within survey area. No further assessment required.	OEH Atlas of NSW Wildlife (2017), Strahan (1995); Menkhurst and Knight 2001
Grey-headed Flying-Fox	<i>Pteropus poliocephalus</i>	V	V	73 One recorded in 2007 1km south	Occurs along the east coast of Australia from Gladstone in Qld. to south Gippsland and Melbourne in Vic (Strahan 1995; Churchill 1998). The species congregates in large camps and is found in a variety of habitats including rainforest, mangroves, Melaleuca swamps, wet and dry sclerophyll forests and also cultivated areas.	Likely - The Grey-Headed Flying-Fox may fly overhead to forage in trees surrounding the golf course. No impact is expected by the development proposal.	OEH Atlas of NSW Wildlife (2017), Churchill (1998), Tidemann et al 1999

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Common Name	Scientific Name	TSC Act	EPBC Act	Number recorded	Distribution, Habitat	Likelihood of occurrence in surveyed areas and requirement for further assessment	Reference material derived from 'Final Determinations'
Eastern Bentwing-bat	<i>Miniopterus schreibersii oceanensis</i>	V		10	Occurs along the coast and ranges, from north Queensland to the far south-eastern corner of South Australia (Strahan 1995; Churchill 1998). Recorded in a wide range of habitats from grasslands through to subtropical rainforests, but it is typically found in well-timbered valleys Dwyer (1995). Known roost sites include caves, disused mines, storm-water drains, culverts and buildings.	Likely - The Eastern Bentwing Bat may fly overhead to forage for insects over the golf course. No impact is expected by the development proposal.	OEH Atlas of NSW Wildlife (2017), Strahan (1995); Churchill (1998), Dwyer (1995).
Southern Myotis	<i>Myotis macropus</i>	V		464	The Southern Myotis is generally recorded in the coastal regions from south-eastern South Australia, through Victoria, New South Wales, Queensland, Northern Territory and the top of WA (Strahan 1995; Churchill 1998). Prefers permanent and/or flowing water. The Southern Myotis is commonly a cave dwelling microchiropteran, but will utilise tree hollows, mines, stormwater drains, bridges and dense vegetation (Churchill 1998). Roosting sites can be located within a wide variety of habitats, usually located in close proximity to permanent, slow flowing water. Breeding occurs between November and December, with young being weaned after three to four weeks (Churchill 1998).	Not likely - No suitable habitat present within survey area. More likely over the large ponds within the golf course. No further assessment required.	OEH Atlas of NSW Wildlife (2017), Strahan (1995); Churchill (1998), Dwyer (1995).

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**Attachment H – Flora and
Fauna Surveys 75 Gardeners
Road, Prepared by ACS
Environmental Pty Ltd, dated
November 2017**



FLORA & FAUNA SURVEYS

AND

ECOLOGICAL CONTRIBUTION TO THE

PREPARATION OF A MASTER PLAN FOR A SITE AT

75 GARDENERS ROAD, EASTLAKES, SYDNEY

Prepared for:

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NOVEMBER 2015

ACS Environmental P/L - November 2015

ACS Environmental P/L

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Consultants experience

The directors of 'Actinotus Consultancy Services (ACS) – Environmental P/L' (formerly Actinotus Environmental Consultants) have collectively worked in the area of biodiversity impact and bushfire hazard assessment services for a period of greater than 20 years. They also have over 30 years of experience in scientific research (ecological, genetic) and teaching in biological science.

The principals of the former 'Actinotus Environmental Consultants' have completed the NSW Consulting Planners Bushfire Training Course organised by the Planning Institute of Australia NSW Division for planning consultants and allied professionals relating to the implementation of 'Planning for Bushfire Protection', in June 2003.

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EXECUTIVE SUMMARY

'ACS (Actinotus Consultancy Services) – Environmental' were commissioned by Naturally Trees on behalf of Architectus to undertake a comprehensive biodiversity survey of an area of land of 1.45 ha at Lot 1 in DP 1116853 at 75 Gardeners Road, Eastlakes (AREA 1), as well as an existing area of landscaped low woodland/grassland occurring at the Lakes Golf Course site immediately to the south (AREA 2), as part of the assessment of ecological values occurring at the land for proposed Masterplan services for the site.

The landscape consists of ridgetop topography sloping southwards to The Lakes Golf Course.

The vegetative cover of the subject land at the hillcrest site in Area 1 is comprised of landscaped tree and shrub planting, the site being almost totally cleared of vegetation prior to 1943. Currently the hillcrest site contains landscaped mature trees of various species of eucalypts such as Sydney Blue Gum and Lemon-scented Gum, as well as palms such as Queen Palm and Alexandra Palm, Broad-leaved Paperbark, River Sheoak and Kaffir Plum among others (Scales 2015).

No natural indigenous species occur in this section of the subject area (Area 1) except for some sparse shrubs of Sydney Golden Wattle that have naturalised in the area, the open tree canopy having all been planted in a landscape plan since 1943. A total number of 30 tree species has been documented as occurring within the subject site by Scales (2015).

A total of 23 exotic environmental weeds, including low frequencies of 7 species of noxious weed, occur within the subject site in Area 1 (Appendix 1).

Many of the landscaped planted trees are mature and attain heights to 30m, the tree plantings being mixed throughout the area, apart from distinct monocultures of some species that occur such as Broad-leaved Paperbark in the western section and Queen Palm along the northern central section of Area 1 (Scales 2015).

None of the assemblages or distributions of trees or shrubs occurring in Area 1 represent natural ecological communities confirming previous mapping undertaken by OEH (2013) and Botany Council DCP 2013.

Parts of Area 2 have recently (2008) been re-profiled and landscaped mostly with species typical of coastal sand-based woodland vegetation (Lakes Golf Course personnel *pers comm.*) though some low lying sections of the area include patches of mature vegetation such as Broad-leaved Paperbark woodland.

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Indigenous shrub and small tree species have been planted and established in Area 2. A total number of 8 tree species have been planted on low profiled sand dunes, some such as Sydney Red Gum, Coast Mahogany, Coast Banksia, Black Sheoak and Broad-leaved Scribbly Gum representing former assemblages of Coastal Sand Apple-Bloodwood Forest that would have occurred in the locality before extensive clearing (OEH 2013).

A total of 28 exotic environmental weeds and grasses, including low frequencies of 5 species of noxious weed, occur within the subject site at Area 2 (Appendix 1).

Area 2 has been historically modified by earlier extensive clearing and low dune re-profiling, with areas landscaped to include patches of low trees in discrete clumps such as Coast Mahogany, Coast Banksia and Sydney Red Gum, with the area also including a mature copse of Broad-leaved Paperbark (Figure 8).

In relation to conservation significance of the vegetation occurring within Areas 1 & 2, none of the discrete patches of often species-specific vegetation represents any assemblages of conservation significance or heritage (Figure 8).

As such, it is considered that any impacts of potential development would not be significant. The landscaping of the re-profiled low dune landforms within Area 2 may nominally partly resemble that which may have occurred prior to clearing and it is recommended to enhance these plantings, maintain weed control and protect this vegetation from indirect impacts to any potential development that may occur upslope.

Current Atlas of NSW Wildlife data (Bionet - October 2015) indicates that 3 threatened flora species have been recorded in the locality within the last 25 years (Table 1). Habitat for another 8 threatened flora species is deemed likely or potentially to occur as qualified by the DoE 'Protected Matters Search Tool' (2015) and these are listed in Appendix 2.

In relation to locally occurring habitat which has been highly modified by clearing prior to 1943 and landscaped with a variety of locally and non-locally occurring indigenous species, as well as exotic ornamentals at the nursery site, it is highly unlikely that any of the listed threatened flora species would occur at the subject sites. Targeted searches for those species listed in Table 1 where records occur within a 5km radius, failed to locate these, or any other threatened flora species at the subject sites.

Opportunistic fauna observations were made within the study site and in the vicinity of the small ponds downslope of the study site at The Lakes Golf Course. Species recorded included 1 amphibian, 23 birds and 3 reptiles.

Birds recorded at the nursery site included the Magpie-lark (*Grallina cyanoleuca*), Noisy Miner (*Manorina melanocephala*), Common Myna (*Sturnus tristis*) and Australian Raven (*Corvus coronoides*).

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Several water birds were recorded near the ponds, the most prolific being the Australian White Ibis (*Threskiornis moluccus*). The Welcome Swallow (*Hirundo neoxena*) and Tree Martin (*Petrochelidon nigricans*) were recorded flying around and over the pond.

Reptiles observed on the near the nursery were the Dark-flecked Garden Sunskink (*Lampropholis delicata*), Eastern Water Skink (*Eulamprus quoyii*) and Eastern Water Dragon (*Physignathus lesueurii*).

The OEH Atlas of NSW Wildlife database 2015 listed twenty-three (23) species of terrestrial and avifauna considered threatened under the TSC Act within a 5 km radius of the site (Appendix 3).

Four of these threatened fauna species have been recorded within 1km of the study site. These are the Green and Golden Bell Frog, Freckled Duck, Eastern Bentwing Bat and the Grey-headed Flying-fox.

Whilst no individuals of these avian and mammalian species were recorded, an assessment of habitats concluded that potential exists for them to potentially forage near to the study site. An Assessment of Significance to determine any potential impact to any proposed development was not necessary as all these species are likely overhead foragers that have large foraging ranges and would not have their lifestyle impacted upon were there any development likely to occur at the study sites..

The Green and Golden Bell Frog (GGBF) (*Litoria aurea*) has previously been recorded immediately to the east of the study area some 22 years ago in 1993 (OEH NSW Atlas of Wildlife 2015) but no further studies have identified its present in the area. OEH has since listed the frog as extinct within the Lakes Golf Course at Eastlakes (OEH. 2015).

This survey identified extensive populations of the Plague Minnow or Mosquito Fish (*Gambusia holbrooki*) within the ponds. *Gambusia* has been listed as a KEY THREATENING PROCESS on Schedule 3 of the *Threatened Species Conservation Act 1995* [29 January 1999] for survival of the GGBF. The plague Minnow is an aggressive and voracious predator of native fauna, particularly the eggs and tadpole stages of frog development.

Whilst twenty-three species of bird were recorded within the subject sites, none are listed as threatened or appear on migratory bird agreement lists.

The study site is rated as poor habitat for fauna due to its proximity to the busy Gardeners Road motorway and the long history of disturbance for commercial purposes. It is considered unlikely that any proposed development at the subject site would impact on the distribution or integrity of natural faunal populations in the area.

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ACRONYMS & GLOSSARY

CCPD – Crown Canopy Projective Density

CEEC – Critically Endangered Ecological Community

DEC – State Department of Environment and Conservation

DECCW – State Department of Environment, Climate Change and Water

DoE – Commonwealth Department of Environment

EEC – Endangered Ecological Community

EPA Act – Environment Protection Act

EPBC Act – Environment Protection and Biodiversity Conservation Act

LEP – Local Environment Plan

NPWS – State National Parks and Wildlife Service

OEH – Office of the Environment and Heritage

RoTAP – Rare and Threatened Australian Plants

SMCMA – Sydney Metropolitan Catchment Management Authority

TSC Act – Threatened Species Conservation Act

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INTRODUCTION

1.1 Proposed development

'ACS (Actinotus Consultancy Services) – Environmental' were commissioned by Naturally Trees on behalf of Architectus to undertake a comprehensive biodiversity survey of an area of land of 1.45 ha at Lot 1 in DP 1116853 at 75 Gardeners Road, Eastlakes (AREA 1), as well as an existing area of landscaped low woodland/grassland occurring at the Lakes Golf Course site immediately to the south (AREA 2), as part of the assessment of ecological values occurring at the land for proposed Masterplan services for the site. Figure 1 is an aerial image of the subject land.

The landscape consists of ridgetop topography sloping southwards to The Lakes Golf Course (Figure 1).



Figure 1 - Subject areas at Nursery Facility at 75 Gardeners Road, Eastlakes (AREA 1) and areas of landscaped bushland/grassland to the south within The Lakes Golf Course (AREA 2)

1.2 Statutory and legislative requirements

Planning controls that need to be addressed in any comprehensive biodiversity studies on the subject land are listed below.

Planning controls provided by State and Commonwealth Legislation include the following:

- ◆ *Environmental Planning and Assessment Act (EP & A Act)(1979),*
- ◆ *Commonwealth Environment Protection and Biodiversity Conservation Act (EPBC Act)(1999),*
- ◆ *Threatened Species Conservation Act (TSC Act)(1995).* The *Threatened Species Conservation Act (TSC Act)(1995)* includes Preliminary Determinations of the NSW Scientific Committee (to November 2015) as well as Provisional Listings of Endangered Species on an emergency basis (to November 2015),
- ◆ *Noxious Weeds Act 1993 (NW Act) (NSW)*

Other relevant legislation that were implemented to restrict the uncontrolled development of bushland in urban areas include:

- ◆ SEPP 19 (Bushland in Urban Areas), and
- ◆ *Local Government Act (1993)*

Biodiversity conservation planning principles promoted by DECCW (2011) that apply to tracts of natural bushland are outlined in *Mid North Coast Regional Conservation Plan (Draft DECCW 2011)*.

Local Council planning controls and other relevant local and State planning documents that relate to the proposed development include the following:

- ◆ *Botany Bay Local Environmental Plan 2013*
- ◆ *Botany Bay Comprehensive Development Control Plan 2013*

1.3 Objectives and scope of the study

The objectives and scope of the study are:

- To identify, locate and describe the biodiversity values of the Study Area and its environmental context in the region by undertaking detailed flora and fauna field surveys. Current and detailed information will be obtained on the following:

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- Identification of the flora and fauna that occur within the Study Area including documentation of species lists and mapping of identifiable plant communities;
 - Identification of Threatened (Endangered and Vulnerable) species, populations, communities and habitats as listed in Schedules 1 & 2 of the Threatened Species Conservation Act 1995 (TSC Act), including Preliminary Determinations of the NSW Scientific Committee, and the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), RoTAP species (Briggs & Leigh 1996) and regionally and locally significant species;
 - Identification of fauna species including amphibians, reptiles, birds and mammals, not directly recorded during surveys but that could potentially occur in the Study Area as indicated by the presence of associated habitat;
 - Description of the identifiable vegetation communities occurring within the Study Area indicating their current condition, conservation value and level of degradation; and
 - Recording of the area and extent of Noxious (and other significant) weed species in the Study Area;
- To prepare a comprehensive flora and fauna biodiversity report to document the ecological values occurring at the subject site.

Specific details of methodology relating to floristic and fauna habitat survey and assessment are documented in following sections of this report.

2 EXISTING ENVIRONMENT

2.1 *Topography, geology and soils*

The site has a south to south-westerly aspect. The topography of the subject site in 'Area 1' (Figure 1) is a hillcrest on Gardeners Road gently sloping southwards to the 'Area 2' (Figure 1) in the northern landscaped section of the Lakes Golf Course with gradients from about 5 to 7° (Figure 1).

The local substrate geology of the hillcrest of the subject area is an expanse of Quaternary Dune Sand sediments contiguous with low lying deposits of Quaternary Sand deposited in low lying swamp areas in the northern sections of the Golf Course (Herbert 1983).

The lithology of the overlying Quaternary Dune deposits are comprised of medium to fine-grained 'marine' sand with podsols, whereas the low lying Quaternary sand deposits include peat, sandy peat and mud (Herbert 1983).

The soil landscape particular to the hillcrest of the surveyed area is the aeolian 'Tuggerah' Soil Landscape Series (Chapman & Murphy 1983). This soil landscape is characterised by gently to rolling coastal dunefields (Chapman & Murphy 1983).

Original soil material derived from these sandy dunefield substrates include deep podsols on dunes and podsol/humus podsol intergrades on swales (Chapman & Murphy 1983).

Further down the gentle slope, the soil material has been disturbed by human activity including removal or burial of soil, as well as various landfill substrates (Chapman & Murphy 1983).

2.2 *Existing vegetation – local plant assemblages*

Area 1 - Hillcrest site

The vegetative cover of the subject land at the hillcrest site in Area 1 (Figure 1) is comprised of landscaped tree and shrub planting, the site being almost totally cleared of vegetation prior to 1943 (Figure 2).

Currently the hillcrest site contains landscaped mature trees of various species of eucalypts such as Sydney Blue Gum and Lemon-scented Gum, as well as palms such as Queen Palm and Alexandra Palm, Broad-leaved Paperbark, River Sheoak and Kaffir Plum (Figure 3) (Scales 2015).

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Figure 2 - Aerial view of subject site showing a cleared landform except for some planted trees along the road frontage



Figure 3 - View within nursery facility at 75 Gardeners Road, Eastlakes showing an array of mature landscaped trees.

Area 2 - Downslope site at northern section of Lakes Golf Course.

Parts of this area (Figure 1) have recently (2008) been re-profiled and landscaped mostly with species typical of coastal sand-based woodland vegetation (Lakes Golf Course personnel *pers comm.*) (Figure 4), though some low lying sections of the area include patch of mature vegetation such as Broad-leaved Paperbark woodland (Figure 5).



Figure 4 - Areas of re-profiled low dunes and landscaped low woodland in Area 2



Figure 5 - Areas of mature Broad-leaved paperbark woodland occurring in Area 2

2.3 *Current and surrounding land use*

Area 1 - 75 Gardeners Road, Eastlakes

The nursery facility is surrounded on its eastern, northern and western sides by established residential housing development and on its southern aspect by the Lakes Golf Course (Figure 1).

Area 2 - Northern section of Lakes Golf Course

This area is contiguous with the nursery facility to the north, expanded areas of golfing facilities to the east and south and apartment-style residential development to the west (Figure 1).

3 FLORA AND FAUNA SURVEY AND ASSESSMENT

3.1 Methods

3.1.1 Literature review

Existing information on 'Threatened Flora and Fauna of the Locality', defined as an area of 5km radius around the site, was accessed from the OEH Bionet Atlas of NSW Wildlife (1:100,000 map sheets 9130 Sydney - November 2015), Commonwealth DoE Protected Matters Environmental Reporting Tool (November 2015) and RoTAP (Briggs & Leigh, 1996) databases. Searches of JAMBA (Japan and Australia Migratory Bird Agreement), CAMBA (China and Australia Migratory Bird Agreement) and ROKAMBA (Republic of Korea Migratory Bird Agreement) databases were also consulted in regard to the distribution of migratory bird species

Other literature detailing locally threatened flora and fauna, as well as endangered populations and plant communities of the Study Area included NSW Scientific Committee Final Determinations (1996-2015), The Native Vegetation of the Sydney Metropolitan Catchment Management Authority Area – (OEH 2013), Botany Bay Planning Strategy (2013) and Botany Bay Council Development Control Plan Mapping (2013).

3.1.2 Site survey

The subject site was inspected by 'ACS Environmental P/L' on 29th October and 12th November 2015.

3.1.2.1 Flora Survey

Comprehensive surveys of the Study Area undertaken on foot by the diversity search method of Cropper (1993) and DEC 'Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities' (2004) to identify the existence of extant and exotic flora.

Survey methods include a complete floristic inventory of indigenous and exotic species and an assessment of the presence, or likelihood of occurrence, of any threatened, rare (RoTAP), regionally or locally significant species or ecological plant community occurring in the Study Area.

Survey design

The relative occurrence of indigenous and exotic flora (modified Braun-Blanquet frequency-of-occurrence ranking) occurring over the site and distinct ecological communities were mapped.

3.1.2.2 Fauna Survey

A dedicated ground search was undertaken within the subject land as was a census of extant birds. The survey involved different search strategies and protocols and all extant fauna or evidence of fauna was recorded. Threatened fauna species not recorded in the survey but with the potential to be present as indicated by habitat are considered in the final assessment.

Strategies employed for the field investigation of the Study Area:

Assessment of the value of habitat suitable for native fauna species and specific habitat structures/resources considered important in life cycles. These structures or resources include:

- Mature trees with hollows for breeding, roosting and/or nesting;
- Particular foraging resources such as certain tree or shrub species;
- Dispersal, migratory or foraging corridors for fauna;
- Leaf litter and ground search for reptiles, frogs and threatened invertebrates;
- Identification of scats and other indirect evidence to suggest fauna utilisation such as tracks, scratch marks or diggings;
- Identification of frog calls from a library of calls.

Recording Methods

The search strategy employed for diurnal birds is based on utilising periodic observation stations or "point counts" as described by York *et al.*, (1991). Counts were conducted only during periods of relatively high activity (early morning or late afternoon). Searches undertaken included recording and observing location of potential roost sites and accessible tree hollows. Roost trees are delineated by evidence of white wash around the base of a tree or tree trunk. Scat searches and pellet analysis were conducted to ascertain the species present.

Appropriate sampling methodologies were employed where habitat attributes are present that provide microhabitat for cavity dependent fauna. If no cavities or hollows are present, then indirect evidence is relied upon to show fauna utilisation of the survey site. Scats are collected in resealable plastic bags for later examination.

Opportunistic hand searches were undertaken for reptilian fauna when temperatures were optimal, ensuring maximum activity. Specific habitat searches were undertaken within the wetter areas of the survey site for amphibian fauna.

A bat detector was not set up due to the unsecured area of the study site.

Analysis of scat collected and contents examined of composite matter e.g. vegetative material, bone fragments, feathers etc, was undertaken with particular reference to hair type. Hair identity was determined mainly from scale and banding pattern with the aid of software (Brunner, Triggs and Ecobyte Pty. Ltd., 2002). Scat identity was determined from gross morphology in association with all internal elements.

3.1.2.3 Limitations of the study

Limitations of the study may arise where certain cryptic species of plants may occur as soil-stored seed or as subterranean vegetative structures. Some species are identifiable above-ground only after particular environmental circumstances occur that may be related to factors such as periodic fire frequency, intensity or seasonality, soil moisture regime, grazing pressure, biological life-cycle patterns as in the case of small geophytic taxa such as species of orchids etc.

Diurnal surveys at one time of the year cannot be expected to detect the presence of all species occurring, or likely to occur, in the Study Area. This is because some species may (a) occur seasonally, (b) utilise different areas periodically (as a component of a more extensive home range), or (c) become dormant during specific periods of the year. Rather, the survey provides the opportunity to sample the area, search specifically for species likely to be encountered within the available time frame, and assess the suitability of habitat for particular species.

These potential limitations to the location of certain cryptic or diurnally active species are not expected to cause any significant constraints to the purposes of this assessment.

3.2 Results - Flora

3.2.1 Indigenous and exotic species

Area 1 - 75 Gardeners Road, Eastlakes

Appendix 1 is a floristic species list of terrestrial indigenous and exotic species recorded and compiled as a census of species throughout the subject sites. Area 1 contains a nursery facility with extended plantings of exotic and ornamental trees, these well documented in Scales (2015). As such, though most ornamental tree species are included in Appendix 1 particularly where abundant, some exotic or ornamental species such as

Kaffir Plum, Chinese Hackberry and others occurring infrequently or in low abundance, are not listed in Appendix 1.

Species nomenclature follows that of Harden (1990 – 2002; 2015 online).

No natural indigenous species occur in this section of the subject area except for some sparse shrubs of Sydney Golden Wattle that have naturalised in the area, the open tree canopy having all been planted in a landscape plan since 1943 (Figure 2). A total number of 30 tree species has been documented as occurring within the subject site by Scales (2015).

A total of 23 exotic environmental weeds, including 7 species of noxious weed occurring in low frequency, occur within the subject site in Area 1 (Appendix 1).

Area 2 - Northern section of Lakes Golf Course, Eastlakes

Area 2 is a partially landscaped area of low bushland interspersed with exotic grassland (Figure 4).

Indigenous shrub and small tree species have been planted and established in this area, some sections as recently as about 2007 (Lakes Golf Course personnel *pers comm*). A total number of 8 tree species have been planted on low profiled sand dunes, some such as Sydney Red Gum, Coast Mahogany, Coast Banksia, Black Sheoak and Broad-leaved Scribbly Gum, representing former assemblages of Coastal Sand Apple-Bloodwood Forest that would have occurred in the locality before extensive clearing (OEH 2013).

A total of 28 exotic environmental weeds and grasses, including 5 species of noxious weed occurring in low frequency, occur within the subject site at Area 2 (Appendix 1).

3.2.2 Ecological communities

3.2.2.1 Previous mapping

The local ecological plant communities that occur at and in the environs of the Study Area have been mapped by DEC (2002) compiling data from API and environmental attributes of geology, average annual rainfall, topography, elevation, Soil Landscape Series type and extent of disturbance (condition), and including some ground-truthing (DEC 2002).

Figure 6 indicates that the ecological plant community occurring at the existing RHAC location is mapped as Cumberland Shale Plains Woodland (Code: S_GW03; DEC 2002). The subject area at 37 Worcester Road that is not shaded in the mapping occurs predominantly as exotic grassland.

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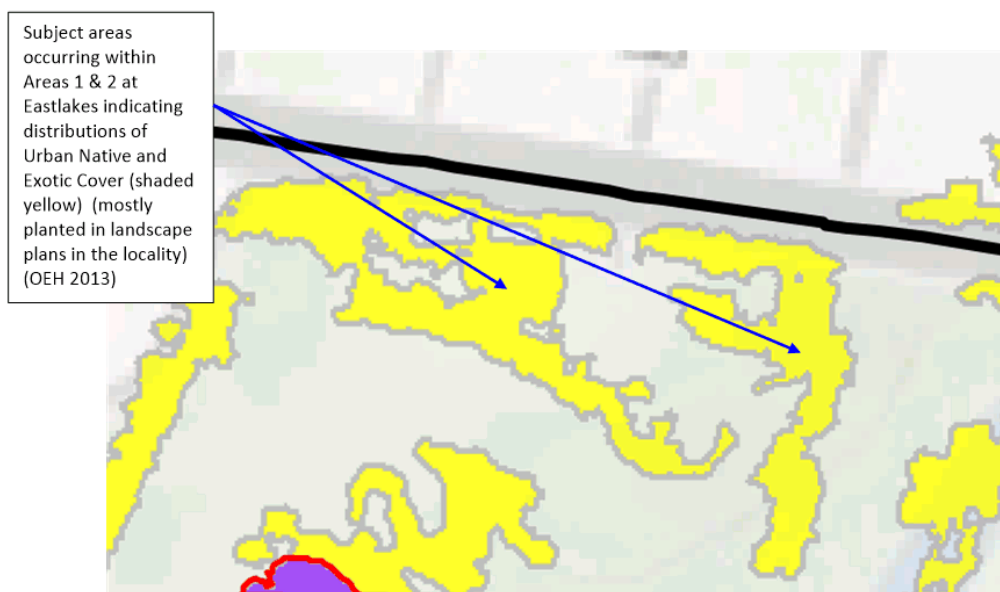


Figure 6 – Vegetation mapping by OEH (2013) of patches of scrub/woodland at the existing nursery facility and northern section of The Lakes Golf Course (Code: URE/N but not labelled on map), mapped in yellow shading.

Vegetation mapping documented in Botany Bay Development Control Plan 2013 (Adopted 09/12/2014) indicates that no ecological communities of any significance status occur at the subject sites (Figure 7).

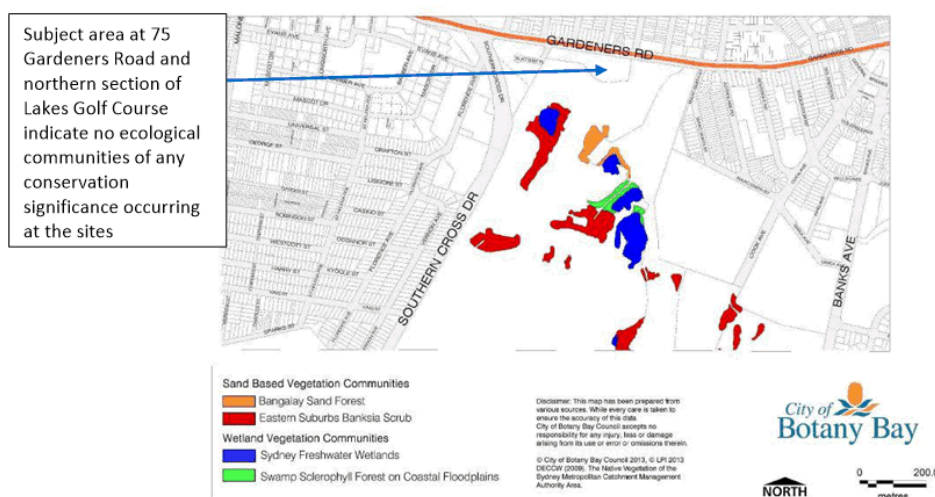


Figure 7 - Excerpt of vegetation mapping in Botany Bay Council DCP 2013.

3.2.2.2 Ground-truthing and assessment

Area 1 - Nursery facility at 75 Gardeners Road, Eastlakes

This section of the surveyed area has been historically modified by extensive clearing (Figure 2) and landscaped planting of 30 species of indigenous and exotic ornamental trees (Scales 2013), forming woodland patches and lineal distributions of trees along fence-lines (Figure 1).

Many of the trees are mature and attain heights to 30m but are mixed throughout the area, apart from distinct monocultures of some species that occur such as Broad-leaved Paperbark in the western section of Area 1 (Scales 2015).

None of the assemblages or distributions of trees or shrubs in this area represent natural ecological communities confirming previous mapping shown in Figures 6 & 7.

Area 2 - Northern section of Lakes Golf Course

This section of the surveyed area has been historically modified by extensive clearing (Figure 2) and low dune re-profiling, with areas landscaped as recently as in 2008 (Lakes Golf Course personnel *pers comm*). Patches of low trees in discrete clumps include Coast Mahogany, mature copse of Broad-leaved Paperbark, Coast Banksia, and Sydney Red Gum (Figure 8).

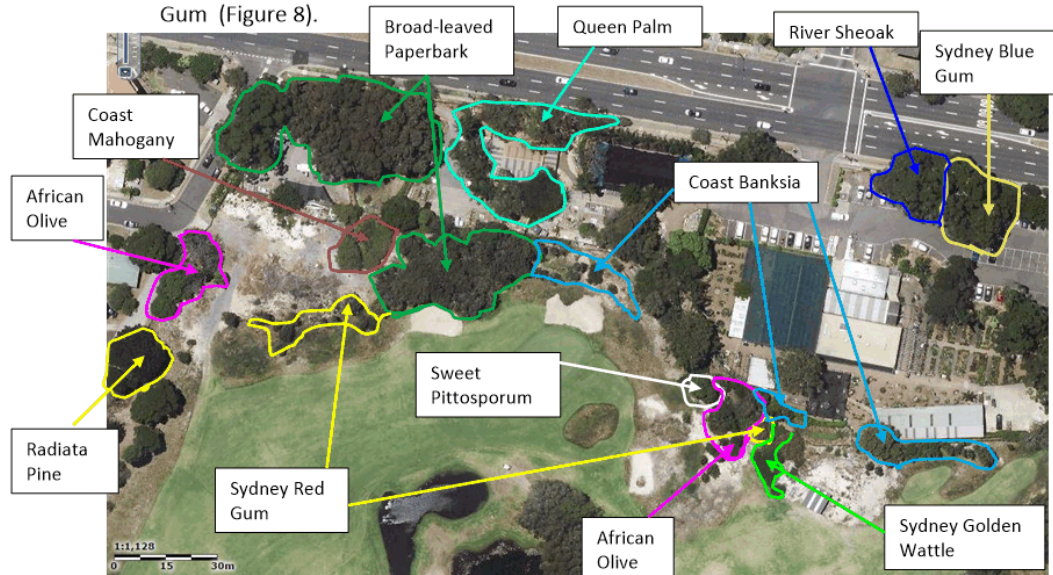


Figure 8 - Mapping of some discrete clumps of vegetation in the subject sites at Eastlakes (also from Scales 2015)

3.2.3 Conservation status of vegetation

None of the discrete patches of often species-specific vegetation represents any assemblages of conservation significance or heritage (Figures 6, 7 & 8).

As such, any impacts of potential development will not be significant. The landscaping of the re-profiled low dune landforms within the Area 2 may nominally partly resemble that which may have occurred prior to clearing and it is recommended to enhance these plantings, maintain weed control and protect this vegetation from indirect impacts to any potential development that may occur upslope.

3.2.4 Flora species of conservation significance

Threatened species

Current Atlas of NSW Wildlife data (Bionet - October 2015) was accessed to indicate threatened flora species that have been recorded in the locality within the last 25 years. Records for an area of 5km radius around the subject site indicate that 3 species of conservation significance have been recorded within the last 25 years (Table 1). Appendix 2 lists these 3 species with an account of their threatened status, geographical range, physiognomic attributes, habitat features, and likelihood of occurrence in the surveyed area. Habitat for another 8 threatened species is deemed likely or potentially to occur as qualified by the DoE 'Protected Matters Search Tool' (2015) and these are also listed in Appendix 2.

Family	Common name	Scientific name	NSW status	Comm. status	No. of records
Asteraceae	Coast Groundsel	<i>Senecio spathulatus</i>	E1,P		1
Fabaceae (Mimosoidae)	Sunshine Wattle	<i>Acacia terminalis</i> subsp. <i>terminalis</i>	E1,P	E	30
Myrtaceae	Magenta Lilly Pilly	<i>Syzygium paniculatum</i>	E1,P	V	4

Table 1 - Records for 3 species of conservation significance recorded within a 5km radius of the subject site at Eastlakes within the last 25 years.

In relation to locally occurring habitat which has been highly modified by clearing prior to 1943 (Figure 2), re-profiled in some sections and landscaped with a variety of locally and non-locally occurring indigenous species, as well as exotic ornamentals at the nursery site, it is highly unlikely that any of the threatened flora species would occur at the subject sites (Appendix 2). Targeted searches for those species listed in Table 1 where records

occur within a 5km radius, failed to locate these, or any other threatened flora species at the subject sites.

3.3 Results - Fauna

3.3.1 Summary of habitats present

The quality of fauna habitat may be categorised by the presence of certain features that include:

- a predator free environment,
- whether the vegetation provides shelter, food resources and nesting or roosting opportunity for native fauna species,
- the presence of tree hollows, dead and fallen timber, rock crevices and caves., and
- the contribution an area has towards a fauna movement corridor.

Terrestrial areas of the site which included the plant nursery (Figure 9) and growing areas related to nursery workings are rated poor as fauna habitat due to;

- (i) limited canopy coverage with low numbers of indigenous ground cover species;
- (ii) limited mid-storey coverage;
- (iii) no nesting structures, fallen timber, hollow logs or tree hollows; and
- (iv) no contribution to a fauna movement corridor.



Figure 9 - View towards the plant nursery showing open the canopy and large areas with no ground cover for fauna to seek refuge.

The aquatic environment represented by the two 'fluctuating level' ponds situated just beyond the southern boundary of the survey area within the Lakes Golf Course. These water bodies were examined for the potential for threatened amphibian species such as The Green and Golden Bell Frog to inhabit these ponds, these frogs potentially foraging up to 1km from the water. Any impact on foraging habitat must be addressed.

The ponds have the appearance of fair wetland habitat for native frogs and birds due to gently sloping banks and grassy verges, though there is limited establishment of fringing water reeds and there appears to be an abundance of Mosquito Fish or Plague Minnow throughout the water-bodies.

The ponds during times of heavy rainfall experience overflow from a storm water channel situated to the north (Figure 10.. The channel is heavily polluted from rubbish and stormwater accumulated during times of heavy flow from surrounding urban development to the north.

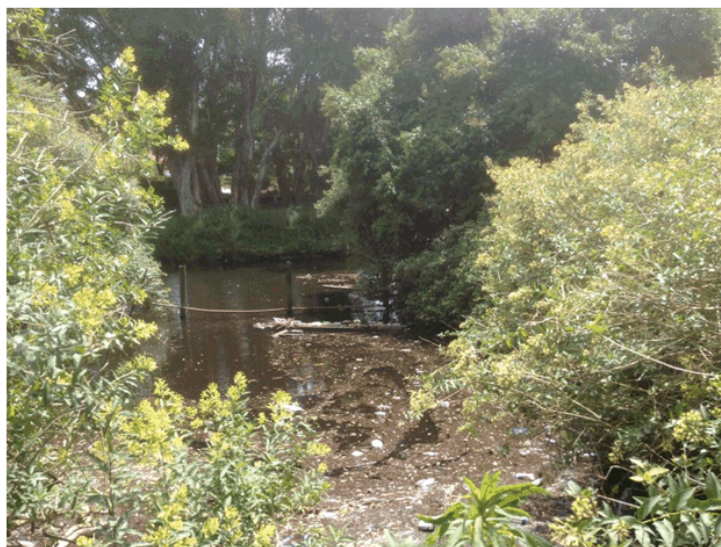


Figure 10 - View of the drainage channel that feeds overflows at times of heavy rainfall events onto the golf course from Gardeners Road. It is heavily polluted with rubbish and stormwater pollutants from urban surrounds.

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Figure 11 An aerial view of the study site (red outline) to the north and the Lakes Golf Course to the south. The arrow indicates the pond that was examined for the presence of frog species.

3.3.2 Fauna recorded

Opportunistic fauna observations were made within the study site and in the vicinity of the small ponds downslope of the study site at The Lakes Golf Course (Figures 1 & 11). Species recorded included 1 amphibian, 23 birds and 3 reptiles (Table 2).

Birds recorded at the nursery site included the Magpie-lark (*Grallina cyanoleuca*), Noisy Miner (*Manorina melanocephala*), Common Myna (*Sturnus tristis*) and Australian Raven (*Corvus coronoides*).

Several water birds were recorded near the ponds. The most prolific was the Australian White Ibis (*Threskiornis moluccus*). The Welcome Swallow (*Hirundo neoxena*) and Tree Martin (*Petrochelidon nigricans*) were recorded flying around and over the pond. Tree Martins were noted nesting within the drainage channel tunnel connecting the water retention basin within the nursery facility to the nearest pond.

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Reptiles observed on the near the nursery were one Dark-flecked Garden Sunskink (*Lampropholis delicata*), several Eastern Water Skink (*Eulamprus quoyii*) and one Eastern Water Dragon (*Physignathus lesueurii*).

No reptiles were observed near the ponds.

No scats were collected from any area of the study site. Being close to the golf course it is probable that invasive species such as the rabbit is chemically controlled. The Common Ringtail Possum may be present at times. It is the favoured prey species for the Powerful Owl. The scarcity of habitat for the Ring-tailed Possum may be limiting the potential of the Powerful Owl occurring in the immediate area. The area does not contain trees with hollows of sufficient size to accommodate nesting for mammal or bird species and no possum dreys were located. All birds recorded are likely diurnal visitors. Bird species are more likely to roost in dense vegetation that occurs more coastal to the survey site.

The Eastern Dwarf Tree Frog was audible around the edges of the first pond and drainage channel. The Plague Minnow (*Gambusia holbrooki*) was present in large numbers within the ponds. Several species of water bird were present around the pond. Other frogs expected to be present are listed in Table 2.

Family	Scientific Name	Common Name	Nursery facility	Lakes Golf Course within 20m of subject site
BIRDS				
Accipitridae	<i>Haliastur sphenurus</i>	Whistling Kite		e
Anatidae	<i>Anas platyrhynchos</i>	Mallard*		1 male 4 females
	<i>Anas superciliosa</i>	Pacific Black Duck		2
	<i>Cygnus atratus</i>	Black Swan		4
Artamidae	<i>Cracticus torquatus</i>	Grey Butcherbird		1
	<i>Gymnorhina tibicen</i>	Australian Magpie		2
	<i>Strepera graculina</i>	Pied Currawong		1
Cacatuidae	<i>Calyptorhynchus funereus</i>	Yellow-tailed Black Cockatoo		e
Campephagidae	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo Shrike		1
Charadriidae	<i>Vanellus miles</i>	Masked Lapwing		1
Columbidae	<i>Columba livia</i>	Rock Pigeon*		1
Corvidae	<i>Corvus coronoides</i>	Australian Raven		15
Dicruridae	<i>Grallina cyanoleuca</i>	Magpie-lark		2
	<i>Rhipidura leucophrys</i>	Willie Wagtail		e
Halcyonidae	<i>Dacelo novaeguineae</i>	Laughing Kookaburra		1

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Family	Scientific Name	Common Name	Nursery facility	Lakes Golf Course within 20m of subject site
Hirundinidae	<i>Hirundo neoxena</i>	Welcome Swallow		5 OH
	<i>Petrochelidon nigricans</i>	Tree Martin		20 OH + nests
Laridae	<i>Chroicocephalus novaehollandiae</i>	Silver Gull		1
Meliphagidae	<i>Manorina melanocephala</i>	Noisy Miner	2	10
Pardalotidae	<i>Pardalotus punctatus</i>	Spotted Pardalote		e
Podargidae	<i>Podargus strigoides</i>	Tawny Frogmouth		e
Psittacidae	<i>Trichoglossus haematodus</i>	Rainbow Lorikeet		5
Rallidae	<i>Fulica atra</i>	Eurasian Coot		10
	<i>Gallinula tenebrosa</i>	Dusky Moorhen		5
	<i>Porphyria porphyria</i>	Purple Swamphen		1
Sturnidae	<i>Acridotheres tristis</i>	Common Myna*	2	
Threskiornithidae	<i>Threskiornis moluccus</i>	Australian White Ibis		7
	<i>Platelea regia</i>	Royal Spoonbill		1
MAMMALS				
Muridae	<i>Rattus rattus</i>	Black Rat*		e
	<i>Mus musculus</i>	House Mouse*		e
Pteropodidae	<i>Pteropus poliocephalus</i>	Grey-headed Flying Fox		e
Vespertilionidae	<i>Chalinolobus gouldii</i>	Goulds Wattled Bat		e
	<i>Vespadelus vulturnus</i>	Little Forest Bat		e
REPTILES				
Agamidae	<i>Physignathus lesuerii</i>	Eastern Water Dragon	1	
Scincidae	<i>Lampropholis delicata</i>	Dark-flecked Garden		1
	<i>Eulamprus quoyii</i>	Eastern Water Skink	10	2
AMPHIBIANS				
Myobatrachidae	<i>Litoria falax</i>	Eastern Dwarf Tree-		h
	<i>Limnodynastes peronii</i>	Striped Marsh Frog		e
FISH				
Poeciliidae	<i>Gambusia holbrooki</i>	Eastern Gambusia*		>200
Anguillidae	<i>Anguilla australis</i>	Short-finned Eel		e

Code

h - heard

OH – overhead

e – expected to visit occasionally

* - introduced species

Table 2 –Fauna species recorded at 75 Gardeners Road, Eastlakes and northern section of Golf Course

3.3.3 Fauna species of conservation significance

Threatened species

The criteria used to assess the likelihood of threatened species occurring in the Study Area included the specificity of habitat features such as tree canopy cover, relative soil moisture regime, relative soil nutrient regimes, historical disturbance and degradation of vegetation and known occurrences of threatened species in the immediate locality.

If all or most of these collective criteria deemed optimal for the occurrence of a particular threatened species occur in relation to the habitat of the Study Area, then the likelihood of its potential occurrence in the habitat of the Study Area could be assessed as being relatively high. If only some of these collective criteria deemed suitable for the occurrence of a particular threatened species occur in the habitat of the Study Area, then its potential occurrence in the area of study may be deemed moderate at best. If few of these collective criteria deemed suitable for the occurrence of a particular threatened species occur in the habitat of the Study Area, then the likelihood of its occurrence would be assessed as being low to very unlikely.

The OEH Atlas of NSW Wildlife database 2015 listed twenty-three (23) species of terrestrial and avifauna considered threatened under the TSC Act within a 5 km radius of the site (Appendix 3). One of these species is critically endangered and five are designated as endangered by the NSW Scientific Committee with the remainder designated as vulnerable. Under the EPBC Act 1999, one is listed as critically endangered, two listed as endangered and two listed as vulnerable.

Appendix 4 lists these threatened species with descriptions of suitable habitats and likelihood of occurrence at the subject sites.

Four of these threatened fauna species have been recorded within 1km of the study site. These are the Green and Golden Bell Frog, Freckled Duck, Eastern Bentwing Bat and the Grey-headed Flying-fox.

The Freckled Duck is a very rare bird to occur in the area and could be classified as a 'vagrant', occurring out of its normal range.

The Eastern Bentwing Bat (*Miniopterus schreibersii oceanensis*). Foraging habitat is present over the survey area, however it is unlikely that the bat roosts within it, as no deep caves are present. Although no roosting habitat is available in the subject area, they may overfly the area whilst foraging.

The Grey-headed Flying-fox (*Pteropus poliocephalus*). The species congregates in large camps and is found in a variety of habitats including rainforest, mangroves, Melaleuca

swamps, wet and dry sclerophyll forests as well as in cultivated areas. At night the Grey-headed Flying-fox searches for food and may travel 50 km to its feeding areas. It eats fruit from a range of native and introduced species, particularly figs, and for this reason it is sometimes called 'Fruit Bat'. It also feeds on nectar and pollen from native trees.

Whilst no individuals of these above listed species were recorded, an assessment of habitats concluded that potential exists for it to forage near to the study site. An Assessment of Significance to determine any potential impact to any proposed development was not necessary as all these species are likely overhead foragers that have large foraging ranges and would not have their lifestyle impacted upon.

The Green and Golden Bell Frog (GGBF) (*Litoria aurea*) has previously been recorded immediately to the east of the study area some 22 years ago in 1993 (OEH NSW Atlas of Wildlife 2015). No further studies have identified it as present in the area. OEH has since listed the frog as extinct within the Lakes Golf Course at Eastlakes (OEH. 2015).

This survey identified extensive populations of the Plague Minnow, also known as Mosquito Fish (*Gambusia holbrooki*) within the ponds. *Gambusia* has been listed as a KEY THREATENING PROCESS on Schedule 3 of the *Threatened Species Conservation Act 1995* [29 January 1999] for survival of the GGBF. *Gambusia* is a small freshwater fish originally introduced into Australia in the 1920s. The fish was imported as an aquarium fish but some were released into creeks around Sydney, Melbourne and Brisbane, the species being now widespread throughout NSW. It is an aggressive and voracious predator of native fauna, particularly the eggs and tadpole stages of frog development.

In several studies, the presence of *Gambusia* has been linked to the decline of many Australian frog species, such as the Spotted Grass Frog (*Limnodynastes tasmaniensis*), Leseuer's Frog (*Litoria leseueuri*) and the Bleating Tree Frog (*Litoria dentata*) (Harris 1995), Sign-bearing Froglet (*C. insignifera*), Glauert's Froglet (*C. glauerti*) (Reynolds 1995), Green and Golden Bell Frog (*L. aurea*) (Morgan and Buttemer 1996), Striped Marsh Frog *Limnodynastes peronii* and signbearing froglet (*C. insignifera*) (Webb and Joss 1997).

With regard to the Green and Golden Bell Frog, Morgan and Buttemer (1996) conducted predation experiments examining the impact upon survival of tadpoles and the influence of aquatic vegetation on the predatory impact of *Gambusia*. They found that in the absence of aquatic vegetation, *Gambusia* was able to significantly reduce tadpole survival within 24 hours. In the presence of aquatic vegetation, the effect was substantially reduced.

Studies by Pyke and White (1996) surveyed waterbodies in the Sydney region for Green and Golden Bell Frogs examining the association between evidence of breeding, occurrence of introduced fish and quality of habitat. They found that successful breeding was most strongly associated with ephemeral rather than permanent or 'fluctuating'

ponds, followed by the absence of *Gambusia*, and speculated that this fish was a major cause of decline of the Green and Golden Bell Frog.

Hamer *et al* (2002) however, experimentally demonstrated that the growth of Green and Golden Bell Frog tadpoles was more favourable in permanent, rather than ephemeral water bodies and importantly found that tadpoles did not respond to the presence of *Gambusia* which made them more vulnerable to predation. The authors concluded that predation from *Gambusia* may have reduced the suitability of permanent water bodies as optimal breeding habitat for Green and Golden Bell Frogs and that the long-term use of less favourable ephemeral habitats may have contributed to the decline of this species.

In light of these findings, OEH records and relevant documentation, it is concluded that the Green and Golden Bell Frog, if it were to occur, would not be impacted upon by the any potential development at 75 Gardeners Road, Eastlakes (Appendix 4).

3.3.4 Species listed by the OEH Atlas of NSW Wildlife database 2015 as potential migratory inhabitants of the site.

The OEH Atlas of NSW Wildlife database 2015 listed twenty-three (23) migratory species of avifauna covered by bi-lateral bird agreements, recorded within a 5 km radius of the site (Appendix 5). Habitat for these birds is assessed and documented in Appendix 6. Two species, the Sharp-tailed Sandpiper and the Little Tern may on occasion utilise resources on the golf course but would not be impacted by any potential development at 75 Gardeners Road, Eastlakes.

Most of the migratory species listed were recorded within the Botany Swamp to the south (Figure 12).

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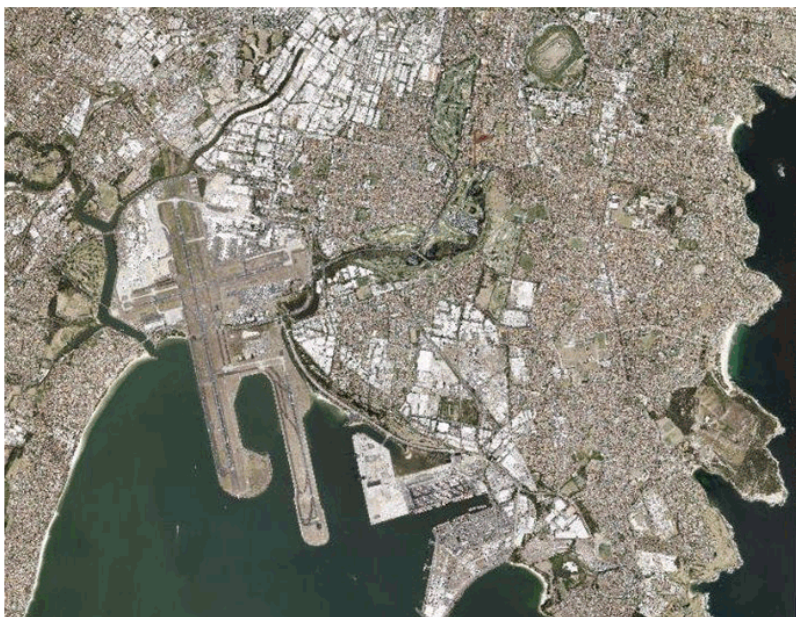


Figure 12 - An aerial view of the position of the study area (red flag) in relation to the coastal areas of Botany Bay to the south where there are established wetlands where large numbers of migratory birds forage. Most migratory species were recorded within the Botany Wetlands.

3.3.5 Migratory species listed by the Commonwealth DoE (Commonwealth Protected Matters Search Tool) as potential inhabitants of the site.

Migratory species listed by the Commonwealth DoE was reviewed in relation to the distribution, habitat and likelihood of occurrence (Appendix 7). None of the migratory species listed has potential to occur and would not be impacted by any potential development at 75 Gardeners Road, Eastlakes.

3.3.6 Terrestrial species listed by the Commonwealth DoE (Commonwealth Protected Matters Search Tool) as potential inhabitants of the site.

Threatened terrestrial fauna species listed by the Commonwealth DoE were reviewed in relation to the distribution, habitat and likelihood of occurrence (Appendix 8). The current study concluded that the Grey-headed Flying Fox is likely to forage in eucalypt trees when in flower. However, the species is more likely to forage within the many golf courses of the locality where foraging resources occur in larger tracts of woodland.

3.3.7 Conclusion – fauna

The OEH Atlas of NSW Wildlife database 2015 listed twenty-three (23) species of terrestrial and avifauna considered threatened under the TSC Act within a 5 km radius of the site.

The Green and Golden Bell Frog (*Litoria aurea*) has been recorded some 22 years previously immediately to the east of the study area in 1993 (OEH NSW Atlas of Wildlife 2015). No further studies have identified it as present in the area. OEH has since listed the frog as extinct within Eastlakes Golf Course (OEH 2015).

The Freckled Duck is a very rare bird to occur in the area and could be classified as a 'vagrant', occurring out of its normal range.

The Eastern Bentwing Bat (*Miniopterus schreibersii oceanensis*) may forage over the surveyed areas, however it is unlikely that the bat roosts within it as no deep caves are present.

The Grey-headed Flying-fox (*Pteropus poliocephalus*) congregates in large camps and is found in a variety of habitats. At night the Grey-headed Flying-fox searches for food and may travel 50 km to its feeding areas. It is however more likely to be found foraging within the large groves of trees within the golf course.

Whilst twenty-three species of bird were recorded within the subject sites, none are listed as threatened or appear on migratory bird agreement lists.

The study site is rated as poor habitat for fauna due to its proximity to the busy Gardeners Road motorway and the long history of disturbance for commercial purposes. It is unlikely that any proposed development at the subject site will impact on the natural fauna of the area.

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Appendix 1: Floristic species assemblages recorded at subject site at 75 Gardeners Road, Eastlakes and at northern section of Lakes Golf Course.

<p>KEY</p> <p>Status:</p> <p>* - Exotic species</p> <p>C4 - Noxious Weeds in the Botany Council LGA</p> <p>pl - planted indigenous and ornamental species</p> <p>nat - naturalised</p> <p>Vegetation</p> <p>The vegetation of both areas has been largely derived from landscaped plantings. In the nursery area at 75 Gardeners Road, the plantings include both locally and non-locally occurring indigenous species as well as exotic ornamentals, whereas the low woodland areas occurring at the northern section of the Lakes Golf Course include vegetation that may resemble Coastal Sand Apple-Bloodwood Forest assemblages.</p> <p>Relative ranked frequency of occurrence (modified Braun-Blanquet rank scale)</p> <p>1 – uncommon or rare</p> <p>2 – relatively uncommon but occasional individuals <5% cover</p> <p>3 – abundant individuals but cover <5%</p> <p>4 - Cover abundance from 5 – 10%</p> <p>5 - Cover abundance from 10 – 25%</p>
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STATUS	SCIENTIFIC NAME	COMMON NAME	NURSERY FACILITY - 75 GARDENERS ROAD (AREA 1)	LANDSCAPED WOODLAND/EXOTIC GRASSLAND - NTH END OF LAKES GOLF COURSE (AREA 2)
	GYMNOSPERMAE: CONIFERALES			
*pl	Cupressaceae <i>Cupressus sp.</i>	Cypress Pine	1 tree	
*pl	Pinaceae <i>Pinus radiata</i>	Radiata Pine	2 trees	2 trees

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STATUS	SCIENTIFIC NAME	COMMON NAME	NURSERY FACILITY - 75 GARDENERS ROAD (AREA 1)	LANDSCAPED WOODLAND/EXOTIC GRASSLAND - NTH END OF LAKES GOLF COURSE (AREA 2)
	MAGNOLIOPSIDA: MAGNOLIDAE			
pl	Aizoaceae <i>Carpobrotus glaucescens</i>	Pigface		3
*pl	Apocynaceae <i>Nerium oleander</i>	Oleander		2
*pl	<i>Plumeria acutifolia</i>	Frangipani	1	
*	Araliaceae <i>Hedera helix</i>	English Ivy		2
*	Asclepiadaceae <i>Araujia sericifera</i>	Moth Plant	3	3
*	Asteraceae <i>Bidens pilosa</i>	Cobblers Pegs	3	3
*	<i>Conyza sumatrensis</i>	Tall Fleabane	3	3
*	<i>Hypochaeris radicata</i>	Cats Ears		3
*	<i>Lactuca serriola</i>	Prickly Lettuce		3
*	<i>Roldana petasitis</i>	Roldana	2	
C4	<i>Senecio</i>	Fireweed		3
	<i>madagascariensis</i>			
*	<i>Sonchus oleraceous</i>	Common Sowthistle		3
*	<i>Vellereophyton dealbatum</i>	White Cudweed		3
*	Brassicaceae <i>Brassica juncea</i>	Indian Mustard	3	
	Campanulaceae <i>Wahlenbergia gracilis</i>	Spreading Bluebell		3
*	Caryophyllaceae <i>Cerastium glomeratum</i>	Mouse-eared Chickweed		3
*	<i>Paronychia brasiliensis</i>	Chilean Whitlow Wort		3

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STATUS	SCIENTIFIC NAME	COMMON NAME	NURSERY FACILITY - 75 GARDENERS ROAD (AREA 1)	LANDSCAPED WOODLAND/EXOTIC GRASSLAND - NTH END OF LAKES GOLF COURSE (AREA 2)
pl	Casuarinaceae <i>Allocasuarina littoralis</i>	Black Sheoak		2
pl	<i>Casuarina cunninghamiana</i>	River Oak	12 trees	
C4	Convolvulaceae <i>Ipomoea indica</i>	Morning Glory	2	2
C4	Euphorbiaceae <i>Ricinus communis</i>	Castor Oil Plant	2	2
*	Lauraceae <i>Cinnamomum camphora</i>	Camphor Laurel	3	
*pl	Malaceae <i>Eriobotrya japonica</i>	Loquat	1	
*	Malvaceae <i>Sida rhombifolia</i>	Paddys Lucerne	3	
	Meliaceae <i>Melia azederach</i>	White Cedar		1
nat	Mimosaceae <i>Acacia longifolia</i> ssp <i>longifolia</i>	Sydney Golden Wattle	2	3
*	Moraceae <i>Morus alba</i>	White Mulberry	2	2
pl	Myrtaceae <i>Angophora costata</i>	Sydney Red Gum	1 tree	3
pl	<i>Corymbia citriodora</i>	Lemon-scented Gum	3 trees	
pl	<i>Eucalyptus botryoides</i>	Coast Mahogany	3 trees	Small clump
pl	<i>Eucalyptus haemastoma</i>	Broad-leaved Scribbly Gum		2
pl	<i>Eucalyptus punctata</i>	Grey Gum	1 tree	
pl	<i>Eucalyptus robusta</i>	Swamp Mahogany	2	2

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STATUS	SCIENTIFIC NAME	COMMON NAME	NURSERY FACILITY - 75 GARDENERS ROAD (AREA 1)	LANDSCAPED WOODLAND/EXOTIC GRASSLAND - NTH END OF LAKES GOLF COURSE (AREA 2)
	Myrtaceae (cont)			
pl	<i>Eucalyptus saligna</i>	Sydney Bluegum	15 trees	
pl	<i>Eucalyptus scoparia</i>	Wallangarra White Gum	1 tree	
	<i>Kunzea ambigua</i>	Tick Bush		2
pl	<i>Lophostemon conferta</i>	Brush Box	2 trees	
pl	<i>Melaleuca quinquinervia</i>	Broad-leaved Paperbark	Large copse (4)	Large copse (4)
pl	<i>Syzygium sp.</i>	Lilly Pilly	2 trees	
	Oleaceae			
C4	<i>Ligustrum sinense</i>	Small-leaved Privet	3	
*	<i>Olea europea</i> var <i>cuspidata</i>	African Olive	2	3
	Pittosporaceae			
nat	<i>Pittosporum undulatum</i>	Sweet Pittosporum		3
	Polygonaceae			
*	<i>Acetosa sagittata</i>	Turkey Rhubarb	2	3
	Proteaceae			
pl	<i>Banksia aemula</i>	Old Man Banksia		1
pl	<i>Banksia integrifolia</i>	Coast Banksia		Scattered (4)
	Rutaceae			
*pl	<i>Murraya paniculata</i>	Orange Jessamine	3	
	Salicaceae			
*pl	<i>Populus nigra</i>	Cottonwood	1 tree	
	Solanaceae			
C3	<i>Cestrum parqui</i>	Green Poisonberry	3	3
	Urticaceae			
*	<i>Parietaria judaica</i>	Pellitory	3	3

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STATUS	SCIENTIFIC NAME	COMMON NAME	NURSERY FACILITY - 75 GARDENERS ROAD (AREA 1)	LANDSCAPED WOODLAND/EXOTIC GRASSLAND - NTH END OF LAKES GOLF COURSE (AREA 2)
C4	Verbenaceae			
	<i>Lantana camara</i>	Lantana	2	2
*	<i>Verbena bonariensis</i>	Purple Top	3	
	MAGNOLOPSIDA: LILIDAE			
	Alliaceae			
*	<i>Nothoscordum borbonicum</i>	Onion Weed		3
	Arecaceae			
*	<i>Phoenix canariensis</i>	Canary Island Palm	3 trees	
*pl	<i>Syagruf romanzoffianum</i>	Queen Palm	35 trees	
	Asparagaceae			
C4	<i>Asparagus aethiopicus</i>	Asparagus Fern	2	
	Commelinaceae			
*	<i>Tradescantia fluminensis</i>	Wandering Jew		3
	Cyperaceae			
*	<i>Cyperus eragrostis</i>	Umbrella Sedge		2
	Iridaceae			
*pl	<i>Agapanthus praecox</i>	Agapanthus	2	
	Lomandraceae			
pl	<i>Lomandra longifolia</i>	Spiky-headed Mat-rush		2
	Poaceae			
*	<i>Andropogon virginicus</i>	Whiskey Grass		3
*	<i>Bromus catharticus</i>	Brome	2	3
*	<i>Cynodon dactylon</i>	Couch	4	5
	<i>Dichelachne micrantha</i>	Short-hair Plumegrass		3
*	<i>Ehrhata erecta</i>	African Veldt Grass	4	
	<i>Eragrostis brownii</i>	Browns Lovegrass		3
*	<i>Eragrostis curvula</i>	African Lovegrass	3	3

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STATUS	SCIENTIFIC NAME	COMMON NAME	NURSERY FACILITY - 75 GARDENERS ROAD (AREA 1)	LANDSCAPED WOODLAND/EXOTIC GRASSLAND - NTH END OF LAKES GOLF COURSE (AREA 2)
	Poaceae (cont)			
*	<i>Imperata cylindrica</i>	Blady Grass		3
	<i>Lolium perenne</i>	Perennial Ryegrass		3
*	<i>Melinis repens</i>	Red Natal Grass		3
*	<i>Pennisetum clandestinum</i>	Kikuyu	4	
*pl	Strelitzaceae <i>Strelitzia reginae</i>	Crane Flower	Planted row	

LEGEND TO APPENDIX 1 - NOXIOUS WEEDS IN BOTANY COUNCIL LGA

C3 - A noxious weed the presence of which must be fully and continuously suppressed and destroyed

C4 - A noxious weed the growth and spread of which must be controlled according to the measures specified in a management plan published by the local control authority

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Appendix 2: Plant species of conservation significance recorded within a 5km radius of the subject area since 1990 where potential habitat may occur (OEH Atlas of NSW Wildlife 2015^α) or where potential habitat is deemed to potentially occur (Commonwealth DoE Protected Matters Environmental Reporting Tool 2015^β)

Scientific Name	Status (EPBC Act 1999)	Status (TSC Act 1995)	RoTAP	Habit/potential habitat/general geographic location	Likelihood of occurrence in subject area	Reference material derived from 'Final Determinations' (NSW Scientific Committee) and others listed below:
<i>Acacia terminalis</i> ssp <i>terminalis</i> ^{α β}	E*	E1		Erect or spreading shrub or small tree to 6m tall. Dry sclerophyll forest in coastal Sydney region. Occurs in coastal scrub and dry sclerophyll woodland in sandy soils	Highly unlikely – all subject habitats have been highly modified, some re-profiled and landscaped. Nearest record appears about 2km to the east along Anzac Parade at Kingsford. Absence of distinct life-form individuals in area of study deemed to indicate non-occurrence. No further assessment required	OEH Atlas of NSW Wildlife (2015); Fairley & Moore (2004)
<i>Allocasuarina glareicola</i> ^β		E1 (2E)		Slender open shrub to 1 - 2m high. Occurs in clay soils derived from alluvial gravels in woodland comprised of the tree species <i>Angophora bakeri</i> and <i>Eucalyptus sclerophylla</i> .	Highly unlikely - habitat unsuitable. No records of occurrence in locality. Absence of relatively distinct life-form individuals in small area of study deemed to indicate non-occurrence. No further assessment required	OEH Atlas of NSW Wildlife (2015); Harden (2000); Fairley (2004)
<i>Caladenia tessellata</i> ^β	V*	E1	3V	Terrestrial herb. Clay or sandy soils in moist forests or scrubs on coastal ridgetops	Highly unlikely – all subject habitats have been highly modified, some re-profiled and landscaped. No records of occurrence in locality. No further assessment required	OEH Atlas of NSW Wildlife (2015); Robinson (2000)

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Scientific Name	Status (EPBC Act 1999)	Status (TSC Act 1995)	RoTAP	Habit/potential habitat/general geographic location	Likelihood of occurrence in subject area	Reference material derived from 'Final Determinations ' (NSW Scientific Committee) and others listed below:
<i>Cryptostylis hunteriana</i> ^β	V*	V	3VC-	No leaf, flowers only in Dec-Feb, saprophytic. Known from a range of swamp-heath and woodland communities with poorly drained soils.	Highly unlikely - Habitat unsuitable, cleared and highly modified. No records within 5km of subject site. No further assessment required	OEH Atlas of NSW Wildlife (2015); Robinson (2003); Bishop (2000)
<i>Genoplesium baueri</i> ^β		V	3RC-	Terrestrial orchid to 15cm tall, occurs in sparse sandy dry sclerophyll forest habitat and moss outcrops over sandstone.	Highly unlikely - Habitat unsuitable, cleared and highly modified. No records within 5km of subject areas. No further assessment required	OEH Atlas of NSW Wildlife (2015), Robinson (2000), Fairley (2004).
<i>Melaleuca biconvexa</i> ^β	V*	V		Shrub or small tree to 10m, occurring in damp places, often near streams or low lying areas on alluvial soils of low slopes or sheltered aspects. <i>Melaleuca biconvexa</i> may occur in dense stands forming a narrow strip adjacent to watercourses, in association with other <i>Melaleuca</i> species or as an understorey species in wet forest types.	Highly unlikely – all subject habitats have been highly modified, some re-profiled and landscaped. No records within 5km of subject sites. Absence of distinct life-form individuals in area of study deemed to indicate non-occurrence. No further assessment required	OEH Atlas of NSW Wildlife (2015)
<i>Pimelea curviflora</i> var <i>curviflora</i> ^β	V*	V		Much-branched subshrub or shrub 20 to 100cm. Occurs in woodlands of the northern area of Sydney on shale-sandstone transition areas and laterite soils.	Not likely – Habitat unsuitable, highly modified, cleared and landscaped, absence of relatively distinct life-form individuals in area of study indicates non-occurrence. No further assessment required	OEH Atlas of NSW Wildlife (2015); James et al (1999)

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Scientific Name	Status (EPBC Act 1999)	Status (TSC Act 1995)	RoTAP	Habit/potential habitat/general geographic location	Likelihood of occurrence in subject area	Reference material derived from 'Final Determinations' (NSW Scientific Committee) and others listed below:
<i>Senecio spathulatus</i>		E1		A low-growing daisy forming hummocks to 30cm tall. Grows on primary sand dunes between Kurnell and Myall Lakes National Park.	Highly Unlikely – Habitat is unsuitable, grows on primary soil dunes. Nearest records are some 3.6km to the south at Port Botany. Absence of relatively distinct life-form individuals in area of study indicates non-occurrence. No further assessment required	OEH Atlas of NSW Wildlife (2015)
<i>Syzygium paniculatum</i> ^α	V*	V	3VCI	Shrub or small tree to 8m tall, occurs in or near rainforest from littoral sands to sheltered gullies, especially near watercourses on sandy soils	Highly unlikely – Habitat unsuitable, highly modified, cleared and landscaped. May occur as landscaped plantings at nursery site. Nearest OEH record about 500m to the north at Erskineville, probably also a landscaped planting. On the south coast the Magenta Lilly Pilly occurs on grey soils over sandstone, restricted mainly to remnant stands of littoral (coastal) rainforest. Habitat cleared highly modified and landscaped. Absence of relatively distinct large life-form individuals in area of study indicates non-occurrence. No further assessment required	OEH Atlas of NSW Wildlife (2015); Robinson (2000), Fairley & Moore (2004)
<i>Thesium australe</i> ^β	V*	V		Herb to 40cm high. Occurs in grassland and woodland, often in damp situations	Highly unlikely – habitat highly modified and landscaped. Rare, not recently recorded. No records within 5km of subject areas. No further assessment required.	OEH Atlas of NSW Wildlife (2015); Harden (1992)

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<p>Key:</p> <p>Department of the Environment (DoE) Threatened species status ^β</p> <p>EX – Presumed extinct E* - Endangered V* - Vulnerable</p> <p>OEH Threatened species status ^α</p> <p>E4A – presumed extinct, recently recorded E1 - Endangered E2 - Endangered Population V - Vulnerable</p>
<p>Key to Conservation Status:</p> <p>Commonwealth legislation</p> <p><i>Environmental Protection and Biodiversity Conservation Act, 1999</i></p> <p>EX – Presumed extinct E* - Endangered V* - Vulnerable</p> <p>NSW legislation</p> <p><i>Threatened Species Conservation Act, 1995</i></p> <p>E4A – Schedule 1 Part 1 – Presumed extinct, recently recorded E1 Schedule 1 Part 1 – Endangered V Schedule 2 - Vulnerable</p> <p>RoTAP</p> <p><u>Conservation code</u> 2 - geographic range <100km 3 - geographic range >100km</p> <p><u>Conservation status</u> E - endangered to point of extinction if current land use and other threats continue to operate V - vulnerable, at risk of depletion over 20-50- years if land use that threatens survival is maintained C - at least one population conserved in a national park or proclaimed conservation area</p> <p><u>Size class of reserved populations</u></p> <p>a - >1000 plants in conservation reserve i - < 1000 plants in conservation reserve - reserved population size not accurately known</p>

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Appendix 3: Threatened fauna species recorded previously within a 5km radius of the subject sites at 75 Gardeners Road, Eastlakes since 1990 (Source: OEH NSW Atlas of Wildlife 2015)

Common Name	Scientific Name	NSW Status	COMM Status	Number of Records
Green and Golden Bell Frog	<i>Litoria aurea</i>	E1	V	11
Freckled Duck	<i>Stictonetta naevosa</i>	V		1
Superb Fruit-Dove	<i>Ptilinopus superbus</i>	V		2
Bush Stone-curlew	<i>Burhinus grallarius</i>	E1		1
Pied Oystercatcher	<i>Haematopus longirostris</i>	E1		3
Lesser Sand-plover	<i>Charadrius mongolus</i>	V		3
Sanderling	<i>Calidris alba</i>	V		3
Curlew Sandpiper	<i>Calidris ferruginea</i>	E1		41
Great Knot	<i>Calidris tenuirostris</i>	V		4
Black-tailed Godwit	<i>Limosa limosa</i>	V		2
Terek Sandpiper	<i>Xenus cinereus</i>	V		3
Little Tern	<i>Sternula albifrons</i>	E1		313
Glossy Black-Cockatoo	<i>Calyptorhynchus lathami</i>	V		2
Swift Parrot	<i>Lathamus discolor</i>	E1	E	1
Orange-bellied Parrot	<i>Neophema chrysogaster</i>	E4A	CE	1
Eastern Ground Parrot	<i>Pezoporus wallicus wallicus</i>	V		2
Powerful Owl	<i>Ninox strenua</i>	V		9
Scarlet Robin	<i>Petroica boodang</i>	V		1
Diamond Firetail	<i>Stagonopleura guttata</i>	V		2
Spotted-tailed Quoll	<i>Dasyurus maculatus</i>	V	E	1
Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>	V	V	73
Eastern Bentwing-bat	<i>Miniopterus schreibersii oceanensis</i>	V		10
Southern Myotis	<i>Myotis macropus</i>	V		464

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Appendix 4: Likelihood of occurrence in surveyed area of fauna species of conservation significance recorded within a 5km radius of the Study Area at 75 Gardeners Road, Eastlakes since 1990 (OEH Atlas of NSW Wildlife 2015) or where potential habitat is deemed to potentially occur

Common Name	Scientific Name	TSC Act	EPBC Act	Number recorded	Distribution, Habitat	Likelihood of occurrence in surveyed areas and requirement for further assessment	Reference material derived from 'Final Determinations'
Green and Golden Bell Frog	<i>Litoria aurea</i>	E1	V	11 (One record 10m east in 1993)	Formerly distributed from the NSW north coast near Brunswick Heads, southwards along the NSW coast to Victoria where it extends into east Gippsland. It inhabits marshes, dams and stream-sides, particularly ones with bullrushes (<i>Typha orientalis</i> spp.) or spikerushes (<i>Eleocharis</i> spp.).	Unlikely Habitat may be present in ponds within the golf course but the presence of (<i>Gambusia holbrooki</i>) which predated on the tadpoles limits its presence. Now deemed to be extinct in the area (OEH 2015). No further assessment required.	OEH Atlas of NSW Wildlife (2015), Cogger 200 Barker et al 1995
Freckled Duck	<i>Stictonetta naevosa</i>	V		1 One record 2013 500m south	The Freckled Duck is found primarily in south-eastern and south-western Australia, occurring as a vagrant elsewhere. It breeds in large temporary swamps created by floods in the Bulloo and Lake Eyre basins and the Murray-Darling system, particularly along the Paroo and Lachlan Rivers, and other rivers within the Riverina. Prefer permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree. During drier times they move from ephemeral breeding swamps to more permanent waters..	Not likely - Suitable habitat present but it is such a rare occurrence that it is unlikely to occur within survey area. No further assessment required.	OEH Atlas of NSW Wildlife (2015), Pizzey & Knight (2003).

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Common Name	Scientific Name	TSC Act	EPBC Act	Number recorded	Distribution, Habitat	Likelihood of occurrence in surveyed areas and requirement for further assessment	Reference material derived from 'Final Determinations'
Superb Fruitdove	<i>Ptilinopus superbus</i>	V		2	The Superb Fruit-dove occurs principally from north-eastern in Queensland to north-eastern NSW. It is much less common further south, where it is largely confined to pockets of suitable habitat as far south as Moruya. Inhabits rainforest and similar closed forests where it forages high in the canopy, eating the fruits of many tree species. It may also forage in eucalypt or acacia woodland where there are fruit-bearing trees. Part of the population is migratory or nomadic	Not likely – No suitable habitat present but it is such a rare occurrence that it is unlikely to occur within survey area. No further assessment required.	OEH Atlas of NSW Wildlife (2015), Pizzey & Knight (2003).
Bush Stone-curlew	<i>Burhinus grallarius</i>	E1		1	The Bush Stone-curlew is found throughout Australia except for the central southern coast and inland, the far south-east corner, and Tasmania (Pizzey & Knight 2003). In general, habitat occurs in open woodlands with few, if any, shrubs, and short, sparse native grasses, scattered fallen timber, leaf litter and bare ground present. In coastal areas, structurally similar elements of tidal and estuarine areas provide suitable habitat, for example Bush Stone-curlews are recorded within Casuarina woodlands, saltmarsh and mangroves. The presence of fallen tree debris appears critical to the selection of day roost sites. Largely nocturnal, being especially active on moonlit nights.	Not likely - No suitable habitat present within survey area. More likely within Botany Wetlands No further assessment required.	OEH Atlas of NSW Wildlife (2015), Pizzey & Knight (2003).

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Common Name	Scientific Name	TSC Act	EPBC Act	Number recorded	Distribution, Habitat	Likelihood of occurrence in surveyed areas and requirement for further assessment	Reference material derived from 'Final Determinations'
Pied Oystercatcher	<i>Haematopus longirostris</i>	E1		3	The species is distributed around the entire Australian coastline, although it is most common in coastal Tasmania and parts of Victoria, such as Corner Inlet (Pizzey & Knight 2003). In NSW the species is thinly scattered along the entire coast. Favours intertidal flats of inlets and bays, open beaches and sandbanks.	Not likely - No suitable habitat present within survey area. More likely within Botany Wetlands No further assessment required.	OEH Atlas of NSW Wildlife (2012), (Pizzey & Knight 2003).
Lesser Sand-plover	<i>Charadrius mongolus</i>	V		3	This species is strongly migratory, wintering on sandy beaches in east Africa, south Asia and Australasia. The lesser sand plover's food is insects, crustaceans and annelid worms, which are obtained by a run-and-pause technique, rather than the steady probing of some other wader groups	Not likely - No suitable habitat present within survey area. More likely within Botany Wetlands No further assessment required.	OEH Atlas of NSW Wildlife (2015), (Pizzey & Knight 2003).
Sanderling	<i>Calidris acuminata</i>	V		3	A regular summer migrant from Siberia and other Arctic breeding grounds to most of the Australian coastline. It is uncommon to locally common, arriving from September and leaving by May (some may overwinter in Australia). Sanderlings occur along the NSW coast, with occasional inland sightings. They are often found in coastal areas on low beaches of firm sand, near reefs and inlets, along tidal mudflats and bare open coastal lagoons; individuals are rarely recorded in near-coastal wetlands. They breed in Siberia. In Australia it roosts on bare sand, behind clumps of beach-cast kelp or in coastal dunes.	Not likely - No suitable habitat present within survey area. More likely within Botany Wetlands No further assessment required.	OEH Atlas of NSW Wildlife (2015), (Pizzey & Knight 2003).

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Common Name	Scientific Name	TSC Act	EPBC Act	Number recorded	Distribution, Habitat	Likelihood of occurrence in surveyed areas and requirement for further assessment	Reference material derived from 'Final Determinations'
Curlew Sandpiper	<i>Calidris ferruginea</i>	E1		41	The Curlew Sandpiper is a common visitor during the Australian summer, congregating in large flocks at sheltered intertidal mudflats and also at the muddy margins of terrestrial wetlands. They, peck at invertebrates on the surface of the mud or making shallow probes below its surface, sometimes wading in belly-deep water while probing. Feeding becomes more intense before their long flight back to their breeding grounds in Siberia.	Not likely - No suitable habitat present within survey area. More likely within Botany Wetlands No further assessment required.	OEH Atlas of NSW Wildlife (2015), (Pizzey & Knight 2003).
Great Knot	<i>Calidris</i>	V		4	In NSW, the species has been recorded at scattered sites along the coast to about Narooma. It has also been observed inland at Tullakool, Armidale, Gilgandra and Griffith (Pizzey & Knight 2003). It occurs within sheltered, coastal habitats containing large, intertidal mudflats or sandflats, including inlets, bays, harbours, estuaries and lagoons. Often recorded on sandy beaches with mudflats nearby, sandy spits and islets and sometimes on exposed reefs or rock platforms.	Not likely - No suitable habitat present within survey area. More likely within Botany Wetlands No further assessment required.	OEH Atlas of NSW Wildlife (2015), (Pizzey & Knight 2003).

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Common Name	Scientific Name	TSC Act	EPBC Act	Number recorded	Distribution, Habitat	Likelihood of occurrence in surveyed areas and requirement for further assessment	Reference material derived from 'Final Determinations'
Black-tailed Godwit	<i>Limosa limosa</i>	V		2	The Black-tailed Godwit is a migratory wading bird that breeds in Mongolia and Eastern Siberia (Palearctic) and flies to Australia for the southern summer, arriving in August and leaving in March. In NSW, it is most frequently recorded at Kooragang Island (Hunter River estuary), with occasional records elsewhere along the north and south coast, and inland. Habitat is found in sheltered bays, estuaries and lagoons with large intertidal mudflats and/or sandflats. Further inland, it can also be found on mudflats and in water less than 10 cm deep, around muddy lakes and swamps. Individuals have been recorded in wet fields and sewerage treatment works. Forages for insects, crustaceans, molluscs, worms, larvae, spiders, fish eggs, frog eggs and tadpoles in soft mud or shallow water.	Not likely - No suitable habitat present within survey area. More likely within Botany Wetlands No further assessment required.	OEH Atlas of NSW Wildlife (2015), (Pizzey & Knight 2003).

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Common Name	Scientific Name	TSC Act	EPBC Act	Number recorded	Distribution, Habitat	Likelihood of occurrence in surveyed areas and requirement for further assessment	Reference material derived from 'Final Determinations'
Terek Sandpiper	<i>Xenus cinereus</i>	V		3	A rare migrant to the eastern and southern Australian coasts, being most common in northern Australia, and extending its distribution south to the NSW coast in the east. The two main sites for the species in NSW are the Richmond River estuary and the Hunter River estuary. In Australia, has been recorded on coastal mudflats, lagoons, creeks and estuaries. Favours mudbanks and sandbanks located near mangroves, but may also be observed on rocky pools and reefs, and occasionally up to 10 km inland around brackish pools. Generally roosts communally amongst mangroves of dead trees, often with related wader species.	Not likely - No suitable habitat present within survey area. More likely within Botany Wetlands No further assessment required.	OEH Atlas of NSW Wildlife (2015), (Pizzey & Knight 2003).
Little Tern	<i>Sternula albifrons</i>	E1		313	Little terns migrate from eastern Asia, and in Australia is found on the north, east and south-east Australian coasts, from Shark Bay in Western Australia to the Gulf of St Vincent in South Australia. In NSW, it arrives from September to November, occurring mainly north of Sydney, with smaller numbers found south to Victoria. Almost exclusively coastal, preferring sheltered environments; however may occur several kilometres from the sea in harbours, inlets and rivers (with occasional offshore islands or coral cay records).	Not likely - No suitable habitat present within survey area. Recorded within 1km of the site within the larger expanse of the Golf Course No further assessment required.	OEH Atlas of NSW Wildlife (2012), (Pizzey & Knight 2003).

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Common Name	Scientific Name	TSC Act	EPBC Act	Number recorded	Distribution, Habitat	Likelihood of occurrence in surveyed areas and requirement for further assessment	Reference material derived from 'Final Determinations'
Glossy Black-cockatoo	<i>Calyptorhynchus lathami</i>	V		2	The Glossy Black-Cockatoo inhabits eucalypt woodland, forest or timbered watercourses where casuarinas (She-oaks) are common. In NSW, the Glossy Black-Cockatoo occurs in coastal and mountain districts. They feed almost exclusively on the seeds of She-oaks, mostly Forest She-oak <i>Allocasuarina torulosa</i> and Black She-oak <i>A. Littoralis</i> although they are also known to eat the seeds of Shrub She-oak <i>A. distyla</i> at times.	Not likely - No suitable habitat present within survey area. No further assessment required.	OEH Atlas of NSW Wildlife (2015), (Pizzey & Knight 2003).
Swift Parrot	<i>Lathamus discolor</i>	E1	E	1	Autumn – winter migrant to coastal NSW. In NSW mostly occurs on the coast and south west slopes where eucalypts are flowering profusely or where there are abundant lerp infestations. Will feed in the following trees; Swamp Mahogany (<i>E. robusta</i>), Forest Redgum (<i>E. tereticornis</i>), Spotted Gum (<i>Corymbia maculata</i>), Red Bloodwood (<i>Corymbia gummifera</i>).	Not likely - No suitable habitat present within survey area. No further assessment required.	OEH Atlas of NSW Wildlife (2015), (Pizzey & Knight 2003).
Orange-bellied Parrot	<i>Neophema chrysogaster</i>	E4	CE	1	The Orange-bellied Parrot breeds in Tasmania and migrates northward during winter. On the mainland they spend winter mostly within 3 km of the coast in sheltering in bays, lagoons, estuaries, coastal dunes and saltmarshes. They also inhabit small islands and golf courses. Birds forage in herbland or taller coastal shrubland. Recent records from Shellharbour and Maroubra suggest that the species may be expanding their selection of habitats and foraging plant species.	Not likely - No suitable habitat present within survey area. More likely in the Malabar peninsula. No further assessment required.	OEH Atlas of NSW Wildlife (2015), (Pizzey & Knight 2003).

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Common Name	Scientific Name	TSC Act	EPBC Act	Number recorded	Distribution, Habitat	Likelihood of occurrence in surveyed areas and requirement for further assessment	Reference material derived from 'Final Determinations'
Eastern Ground Parrot	<i>Pezoporus wallicus wallicus</i>	V		2	In NSW populations have declined and contracted to islands of coastal or subcoastal heathland and sedgeland habitats. The species is found in small numbers on the north coast (Broadwater, Bundjalung, Yuraygir NPs) and Myall Lakes on the central coast. The largest populations occur on the NSW south coast. The Ground Parrot occurs in high rainfall coastal and near coastal sedgelands, generally below one metre in height and very dense (up to 90% projected foliage cover). Home ranges of adult birds is typically 10 ha. There is no evidence of regular long-distance dispersal or migration events.	Not likely - No suitable habitat present within survey area. No further assessment required.	OEH Atlas of NSW Wildlife (2015), (Pizzey & Knight 2003).
Powerful Owl	<i>Ninox strenua</i>	V		9	Endemic to eastern and south-eastern Australia, mainly on the coastal side of the Great Dividing Range from Mackay to south-western Victoria. In NSW, it is widely distributed throughout the eastern forests from the coast inland to tablelands. Now uncommon throughout its range where it occurs at low density. Inhabits woodland and open sclerophyll forest to tall open wet forest and rainforest.	Not likely - No suitable prey species available. No further assessment required	OEH Atlas of NSW Wildlife (2015), Pizzey & Knight (2003).
Scarlet Robin	<i>Petroica bodang</i>	V		1	The Scarlet Robin lives in dry eucalypt forests and woodlands. The understorey is usually open and grassy with few scattered shrubs and usually contains abundant logs and fallen timber: these are important components of its habitat. In autumn and winter many Scarlet Robins live in open grassy woodlands, and grasslands or grazed paddocks with scattered trees.	Not likely – This shy bird is more likely to occur further south. Although vagrants do occur as far north as Eastlakes, the habitat present is considered sub-optimal.	OEH Atlas of NSW Wildlife (2015), Pizzey & Knight (2003).

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Common Name	Scientific Name	TSC Act	EPBC Act	Number recorded	Distribution, Habitat	Likelihood of occurrence in surveyed areas and requirement for further assessment	Reference material derived from 'Final Determinations'
Diamond Firetail	<i>Tagonopleura guttata</i>	V		2	The Diamond Firetail is endemic to south-eastern Australia, ranging from Carnarvon Ranges in Queensland to the Eyre Peninsula and Kangaroo Island in South Australia. Diamond Firetails are found in open grassy woodland, heath and farmland or grassland with scattered trees. Diamond Firetails feed on the ground and generally eat ripe or partially ripe seeds and can be seen hopping around on the ground. They occasionally eat insects and their larvae. They are prone to predation by Currawongs.	Not likely - No suitable habitat present within survey area. No further assessment required.	OEH Atlas of NSW Wildlife (2015), Pizzey & Knight (2003).
Spotted-tail Quoll	<i>Dasyurus maculatus</i>	V	E	1	Recorded across a range of habitat types, including rainforest, open forest, forest, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. Individual animals use hollow-bearing trees, fallen logs, small caves, rock crevices, boulder fields and rocky-cliff faces as den sites.	Not likely - No suitable habitat present within survey area. No further assessment required.	OEH Atlas of NSW Wildlife (2015), Strahan (1995); Menkhurst and Knight 2001
Grey-headed Flying-Fox	<i>Pteropus poliocephalus</i>	V	V	73 One recorded in 2007 1km south	Occurs along the east coast of Australia from Gladstone in Qld. to south Gippsland and Melbourne in Vic (Strahan 1995; Churchill 1998). The species congregates in large camps and is found in a variety of habitats including rainforest, mangroves, Melaleuca swamps, wet and dry sclerophyll forests and also cultivated areas.	Likely - The Grey-Headed Flying-Fox may fly overhead to forage in trees surrounding the golf course. No impact is expected by the development proposal.	OEH Atlas of NSW Wildlife (2015), Churchill (1998), Tidemann et al 1999

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Common Name	Scientific Name	TSC Act	EPBC Act	Number recorded	Distribution, Habitat	Likelihood of occurrence in surveyed areas and requirement for further assessment	Reference material derived from 'Final Determinations'
Eastern Bentwing-bat	<i>Miniopterus schreibersii oceanensis</i>	V		10	Occurs along the coast and ranges, from north Queensland to the far south-eastern corner of South Australia (Strahan 1995; Churchill 1998). Recorded in a wide range of habitats from grasslands through to subtropical rainforests, but it is typically found in well-timbered valleys Dwyer (1995). Known roost sites include caves, disused mines, storm-water drains, culverts and buildings.	Likely - The Eastern Bentwing Bat may fly overhead to forage for insects over the golf course. No impact is expected by the development proposal.	OEH Atlas of NSW Wildlife (2015), Strahan (1995); Churchill (1998), Dwyer (1995).
Southern Myotis	<i>Myotis macropus</i>	V		464	The Southern Myotis is generally recorded in the coastal regions from south-eastern South Australia, through Victoria, New South Wales, Queensland, Northern Territory and the top of WA (Strahan 1995; Churchill 1998). Prefers permanent and/or flowing water. The Southern Myotis is commonly a cave dwelling microchiropteran, but will utilise tree hollows, mines, stormwater drains, bridges and dense vegetation (Churchill 1998). Roosting sites can be located within a wide variety of habitats, usually located in close proximity to permanent, slow flowing water. Breeding occurs between November and December, with young being weaned after three to four weeks (Churchill 1998).	Not likely - No suitable habitat present within survey area. More likely over the large ponds within the golf course. No further assessment required.	OEH Atlas of NSW Wildlife (2015), Strahan (1995); Churchill (1998), Dwyer (1995).

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Appendix 5: Migratory fauna species recorded within a 5km radius of the Study Area at 75 Gardeners Road, Eastlakes, since 1990 (OEH Atlas of NSW Wildlife 2015)

Common Name	Scientific Name	NSW STATUS	COMM STATUS	Number of Records
Wedge-tailed Shearwater	<i>Ardenna pacificus</i>		J	1
Cattle Egret	<i>Ardea ibis</i>		C,J	5
White-bellied Sea-Eagle	<i>Haliaeetus leucogaster</i>		C	2
Lesser Sand-plover	<i>Charadrius mongolus</i>	V	C,J,K	3
Pacific Golden Plover	<i>Pluvialis fulva</i>		C,J,K	39
Grey Plover	<i>Pluvialis squatarola</i>		C,J,K	5
Common Sandpiper	<i>Actitis hypoleucos</i>		C,J,K	4
Ruddy Turnstone	<i>Arenaria interpres</i>		C,J,K	3
Sharp-tailed Sandpiper	<i>Calidris acuminata</i>		C,J,K	31
Sanderling	<i>Calidris alba</i>	V	C,J,K	3
Red Knot	<i>Calidris canutus</i>		C,J,K	24
Curlew Sandpiper	<i>Calidris ferruginea</i>	E1	CE,C,J,K	41
Red-necked Stint	<i>Calidris ruficollis</i>		C,J,K	66
Great Knot	<i>Calidris tenuirostris</i>	V	C,J,K	4
Latham's Snipe	<i>Gallinago hardwickii</i>		C,J,K	4
Bar-tailed Godwit	<i>Limosa lapponica</i>		C,J,K	117
Black-tailed Godwit	<i>Limosa limosa</i>	V	C,J,K	2
Eastern Curlew	<i>Numenius madagascariensis</i>		CE,C,J,K	1
Grey-tailed Tattler	<i>Tringa brevipes</i>		C,J,K	14
Terek Sandpiper	<i>Xenus cinereus</i>	V	C,J,K	3
Caspian Tern	<i>Hydroprogne caspia</i>		C,J	15
Common Tern	<i>Sterna hirundo</i>		C,J,K	24
Little Tern	<i>Sternula albifrons</i>	E1	C,J,K	313

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Appendix 6: Likelihood of occurrence in surveyed area of migratory avifauna species recorded within a 5km radius of the Study Area at 75 Gardeners Road, Eastlakes, since 1990 (OEH Atlas of NSW Wildlife 2015) or where potential habitat is deemed to potentially occur.

Name	Distribution	Preferred Habitat	Number of Sightings in the area	Likelihood of occurrence in surveyed areas and requirement for further assessment
Wedge-tailed Shearwater <i>Ardenna pacificus</i> C	The Wedge-tailed Shearwater breeds on the east and west coasts of Australia and on off-shore islands. The species is common in the Indian Ocean, the Coral Sea and the Tasman Sea (Lindsey 1986).	The Wedge-tailed Shearwater is a pelagic, marine bird known from tropical and subtropical waters. The species tolerates a range of surface-temperatures and salinities. In tropical zones the species may feed over cool nutrient-rich waters. The species has been recorded in offshore waters of eastern Victoria and southern NSW, mostly over continental slope.	1	No suitable habitat present within survey area. More likely to occur along the coastline beaches. No further assessment required.
Cattle Egret <i>Ardea ibis</i> C, J	Originally found in Africa, Europe and Asia, the Cattle Egret is now found on nearly every continent, with birds in Australia originating from Asia. In Australia it is most widespread and common in north-eastern Western Australia across the Top End, Northern Territory, and in south-eastern Australia from Bundaberg, Queensland to Port Augusta, South Australia, including Tasmania. The Cattle Egret is partially migratory, moving during winter.	The Cattle Egret is found in grasslands, woodlands and wetlands, and is not common in arid areas. It also uses pastures and croplands, especially where drainage is poor. Will also forage at garbage dumps, and is often seen with cattle and other stock.	5	No suitable habitat present within survey area. More likely to occur at Towra Point nature reserve. No further assessment required.
White-bellied Sea Eagle <i>Haliaeetus leucogaster</i> J	White-bellied Sea-Eagles are a common sight in coastal and near coastal areas of Australia. In addition to Australia, the species is found in New Guinea, Indonesia, China, south-east Asia and India	White-bellied Sea-Eagles are normally seen perched high in a tree, or soaring over waterways and adjacent land. Birds form permanent pairs that inhabit territories throughout the year	2	May overfly the survey area on occasion but unlikely to utilise resources on site. No further assessment required.

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Name	Distribution	Preferred Habitat	Number of Sightings in the area	Likelihood of occurrence in surveyed areas and requirement for further assessment
Pacific Golden Plover <i>Pluvialis fulva</i> C, J, R	The Pacific Golden Plover breeds on the Arctic tundra in western Alaska. It winters in South America and islands of the Pacific Ocean to India, Indonesia and Australia. In Australia it is widespread along the coastline.	The Pacific Golden Plover is found on muddy, rocky and sandy wetlands, shores, paddocks, saltmarsh, coastal golf courses, estuaries and lagoons.	39	No suitable habitat present within survey area. More likely to occur at Towra Point nature reserve. No further assessment required.
Grey Plover <i>Pluvialis squatarola</i> C, J, R	The Grey Plover breeds around the Arctic regions and migrates to the southern hemisphere, being a regular summer migrant to Australia, mostly to the west and south coasts. It is generally sparse but not uncommon in some areas. It is occasionally found inland.	The Grey Plover is almost entirely coastal, being found mainly on marine shores, inlets, estuaries and lagoons with large tidal mudflats or sandflats for feeding, sandy beaches for roosting, and also on rocky coasts.	5	No suitable habitat present within survey area. No further assessment required.
Common Sandpiper <i>Actitis hypoleucos</i> C, J, R	The Common Sandpiper breeds in Europe and Asia. In Australasia it visits New Guinea and Australia, mainly in the north and west. It is less often seen in New Zealand. The Common Sandpiper is migratory, breeding in Eurasia. Most of the western breeding populations winter in Africa and eastern breeding populations winter in Australia and south Asia to Melanesia. Some birds do not return to Eurasia to breed, but remain in the north of Australia throughout the Australian winter.	In Australia, the Common Sandpiper is found in coastal or inland wetlands, both saline or fresh. It is found mainly on muddy edges or rocky shores. During the breeding season in the northern hemisphere, it prefers freshwater lakes and shallow rivers.	4	No suitable habitat present within survey area. More likely to occur at Botany Wetlands No further assessment required.

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Name	Distribution	Preferred Habitat	Number of Sightings in the area	Likelihood of occurrence in surveyed areas and requirement for further assessment
Ruddy Turnstone <i>Arenaria interpres</i> C, J, R	In Australia, Ruddy Turnstones are widespread around the coast of the mainland and off-shore islands. They breed on the northern coasts of Europe, Asia and North America. They are found on coastlines around the world, when not breeding or on passage. After breeding in the northern hemisphere, they migrate south. There are five breeding populations. The birds migrating to Australia breed in east Siberia and west Alaska, moving through south-east Asia then south to Australia.. They visit Australia from about September to May.	The Ruddy Turnstone is found singly or in small groups along the coastline and only occasionally inland. They are mainly found on exposed rocks or reefs, often with shallow pools, and on beaches. In the north, they are found in a wider range of habitats, including mudflats.	3	No suitable habitat present within survey area. More likely to occur at Botany Wetlands No further assessment required.
Sharp-tailed Sandpiper <i>Calidris acuminata</i> C, J, R	The Sharp-tailed Sandpiper is a summer migrant from Arctic Siberia, being found on wetlands throughout Australia. It is also found in Indonesia, Papua New Guinea, the Solomon Islands, New Caledonia and New Zealand. It is a vagrant to India, Europe, western North America, Fiji and other parts of the central Pacific region.	The Sharp-tailed Sandpiper prefers the grassy edges of shallow inland freshwater wetlands. It is also found around swage farms, flooded fields, mudflats, mangroves, rocky shores and beaches. Its breeding habitat in Siberia is the peat-hummock and lichen tundra of the high Arctic.	31	Recorded within 1km of the survey area within the larger expanse of the Golf Course. More likely to occur at Botany Wetlands. No further assessment required.
Sanderling <i>Calidris alba</i> C, J, R	A regular summer migrant from Siberia and other Arctic breeding grounds to most of the Australian coastline. It is uncommon to locally common, arriving from September and leaving by May (some may overwinter in Australia). Sanderlings occur along the NSW coast, with occasional inland sightings.	They are often found in coastal areas on low beaches of firm sand, near reefs and inlets, along tidal mudflats and bare open coastal lagoons; individuals are rarely recorded in near-coastal wetlands. They breed in Siberia. In Australia it roosts on bare sand, behind clumps of beach-cast kelp or in coastal dunes.	1	No suitable habitat present within survey area. More likely to occur at Botany Wetlands No further assessment required.

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Name	Distribution	Preferred Habitat	Number of Sightings in the area	Likelihood of occurrence in surveyed areas and requirement for further assessment
Red Knot <i>Calidris canutus</i> C, J, R	Red Knots are widespread around the Australian coast, less in the south and with few inland records. Small numbers visit Tasmania and off-shore islands. It is widespread but scattered in New Zealand. They breed in North America, Russia, Greenland and Spitsbergen. Red Knots are a non-breeding visitor to most continents. This is a migratory species, breeding in the high Arctic, then migrating south. The subspecies <i>rogersi</i> breeds in north-eastern Siberia and migrates mainly to New Zealand and Australia. The nominate subspecies also flies to Australia. They fly long non-stop flights and the route to Australia is not well known. Most arrive in north west Australia at the end of August to September and leave south east Australia from March to early April. Some young non-breeders may remain here.	Red Knots gather in large flocks on the coast in sandy estuaries with tidal mudflats. Red Knots gather in large flocks with other waders. They walk fast, probing rapidly in soft sand and mud for worms, bivalves and crustaceans and also eat spiders, insects, seeds and shoots. They feed by day and night, regulated by the tide.	24	No suitable habitat present within survey area. More likely to occur at Botany Wetlands No further assessment required.
Curlew Sandpiper <i>Calidris ferruginea</i> C, J, R	The Curlew Sandpiper is a common summer migrant from north-eastern Siberia and Alaska, found in many Australian coastal sites and may also be seen inland in suitable habitats. It is most common in the far south-east and north-west of Australia. It is also found in Africa, across southern Asia to Indonesia and New Guinea, and in New Zealand.	The Curlew Sandpiper is found on intertidal mudflats of estuaries, lagoons, mangroves, as well as beaches, rocky shores and around lakes, dams and floodwaters. Its breeding habitat is the lowland tundra of Siberia.	41	No suitable habitat present within survey area. More likely to occur at Botany Wetlands No further assessment required.

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Name	Distribution	Preferred Habitat	Number of Sightings in the area	Likelihood of occurrence in surveyed areas and requirement for further assessment
Red-necked Stint <i>Calidris ruficollis</i> C, J, R	The Red-necked Stint breeds in north-eastern Siberia and northern and western Alaska. It follows the the East Asian-Australasian Flyway to spend the southern summer months in Australia. It is found widely in Australia, except in the arid inland. The Red-necked Stint is a migratory wader arriving in Australia from late August to September and leaving early March to mid-April.	In Australia, Red-necked Stints are found on the coast, in sheltered inlets, bays, lagoons, estuaries, intertidal mudflats and protected sandy or coralline shores. They may also be seen in saltworks, sewage farms, saltmarsh, shallow wetlands including lakes, swamps, riverbanks, waterholes, soaks and pools in saltflats, flooded paddocks or damp grasslands. They are often in dense flocks, feeding or roosting.	66	No suitable habitat present within survey area. More likely to occur at Botany Wetlands No further assessment required.
Great Knot <i>Calidris tenuirostris</i> C, J, R	Their breeding habitat is tundra in northeast Siberia. They are strongly migratory wintering on coasts in southern Asia through to Australia. This species forms enormous flocks in winter. Great Knot leave Australian shores during March and April for their breeding grounds in far northern Siberia. They return to us in August and September.	Found feeding on the mudflats of inlets, estuaries and lagoons, then roosting on sand-bars, beaches etc.	4	No suitable habitat present within survey area. More likely to occur at Botany Wetlands No further assessment required.
Latham's Snipe <i>Gallinago hardwickii</i> C, J, R	Latham's Snipe is a non-breeding migrant to the south east of Australia including Tasmania, passing through the north and New Guinea on passage. Latham's Snipe breed in Japan and on the east Asian mainland. Latham's Snipe is a migratory wader, moving to Australia in our warmer months. They leave their breeding areas from August to November, arriving in Australia mainly in September.	Latham's Snipe are seen in small groups or singly in freshwater wetlands on or near the coast, generally among dense cover. They are found in any vegetation around wetlands, in sedges, grasses, lignum, reeds and rushes and also in saltmarsh and creek edges on migration. They also use crops and pasture. They are omnivorous, eating seeds and plant material, worms and insects, some molluscs, isopods and centipedes	4	No suitable habitat present within survey area. More likely to occur at Botany Wetlands No further assessment required.

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Name	Distribution	Preferred Habitat	Number of Sightings in the area	Likelihood of occurrence in surveyed areas and requirement for further assessment
Bar-tailed Godwit <i>Limosa lapponica</i> C, J, R	Bar-tailed Godwits arrive in Australia each year in August from breeding grounds in the northern hemisphere. Birds are more numerous in northern Australia. While most birds leave Australia in April and May, to return to their breeding grounds, some birds (mostly young birds) remain all year round.	Bar-tailed Godwits inhabit estuarine mudflats, beaches and mangroves. They are common in coastal areas around Australia. They are social birds and are often seen in large flocks and in the company of other waders. Bar-tailed Godwits feed on molluscs, worms and aquatic insects. Birds wade through the probe their long bills rapidly into the bottom to find food.	117	No suitable habitat present within survey area. More likely to occur at Botany Wetlands No further assessment required.
Black-tailed Godwit <i>Limosa limicola</i> C, J, R	The Black-tailed Godwit is a migratory wading bird that breeds in Mongolia and Eastern Siberia (Palearctic) and flies to Australia for the southern summer, arriving in August and leaving in March. In NSW, it is most frequently recorded at Kooragang Island (Hunter River estuary), with occasional records elsewhere along the north and south coast, and inland.	Habitat is found in sheltered bays, estuaries and lagoons with large intertidal mudflats and/or sandflats. Further inland, it can also be found on mudflats and in water less than 10 cm deep, around muddy lakes and swamps.	2	No suitable habitat present within survey area. More likely to occur at Botany Wetlands No further assessment required.
Eastern Curlew <i>Numenius madagascariensis</i> C, J, R	The Eastern Curlew is widespread in coastal regions in the north-east and south of Australia, including Tasmania, and scattered in other coastal areas. It is rarely seen inland. It breeds in Russia and north-eastern China, leaving breeding areas from mid-July to late September. They arrive in eastern Australia mainly in August. Large numbers appear on the east coast from September to November. Most leave again from late February to March.	The Eastern Curlew is found on intertidal mudflats and sandflats, often with beds of seagrass, on sheltered coasts, especially estuaries, mangrove swamps, bays, harbours and lagoons.	1	No suitable habitat present within survey area. More likely to occur at Botany Wetlands No further assessment required.

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Name	Distribution	Preferred Habitat	Number of Sightings in the area	Likelihood of occurrence in surveyed areas and requirement for further assessment
Grey-tailed Tattler <i>Tringa brevipes</i> C, J, R	Grey-tailed Tattlers breed in Siberia and on passage are seen along the East Asian-Australasian Flyway (the migration route to Australia). When non-breeding they are found in China, Philippines, Taiwan, Vietnam, Malay Peninsula, Indonesia, New Guinea, Micronesia, Fiji, New Zealand and Australia. They are more commonly seen in the north of Australia.	Grey-tailed Tattlers are usually seen in small flocks on sheltered coasts with reefs and rock platforms or with intertidal mudflats. They are also found in intertidal rocky, coral or stony reefs, platforms and islets that are exposed at high tide, also shores of rock, shingle, gravel and shells and on intertidal mudflats in embayments, estuaries and coastal lagoons, especially those fringed with mangroves.	14	No suitable habitat present within survey area. More likely to occur at Botany Wetlands No further assessment required.
Terek Sandpiper <i>Xenus cinereus</i> C, J, R	Terek Sandpipers are more common on the northern and eastern Australian coasts than in the south, but nowhere in large numbers. They breed mainly in Russia and Finland and migrate to coastal Africa, India, the Malayan peninsula and Australia.	Terek Sandpipers are found on the coast in mangrove swamps, tidal mudflats and the seashore.	3	No suitable habitat present within survey area. More likely to occur at Botany Wetlands No further assessment required.
Caspian Tern <i>Hydroprogne caspia</i> C, J	Their breeding habitat is large lakes and ocean coasts in North America (including the Great Lakes), and locally in Europe (mainly around the Baltic Sea and Black Sea), Asia, Africa, and Australasia (Australia and New Zealand). North American birds migrate to southern coasts, the West Indies and northernmost South America. European and Asian birds spend the non-breeding season in the Old World tropics. African and Australasian birds are resident or disperse over short distances	They may fly up to 60 km from the breeding colony to catch fish; it often fishes on freshwater lakes as well as at sea. They feed mainly on fish, which they dive for, hovering high over the water and then plunging. They also occasionally eat large insects, the young and eggs of other birds and rodents.	15	No suitable habitat present within survey area. More likely to occur at Botany Wetlands No further assessment required.

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Name	Distribution	Preferred Habitat	Number of Sightings in the area	Likelihood of occurrence in surveyed areas and requirement for further assessment
Common Tern <i>Sterna hirundo</i> C, J, R	In Australia the Common Tern is a regular non-breeding visitor. It breeds across much of northern North America, Europe and Asia as far east as the Pacific coast of Siberia, and as far south as the Mediterranean, North Africa and Central Asia. It is almost cosmopolitan (worldwide) at other times.	The Common Tern is mainly coastal when not breeding and found in offshore waters, ocean beaches, estuaries and large lakes. Common Terns are occasionally seen in freshwater swamps, floodwaters, sewage farms and brackish and saline lakes.	24	No suitable habitat present within survey area. More likely to occur at Botany Wetlands No further assessment required.
Little tern <i>Sternula albifrons</i> C, J, R	The Little Tern breeds in North America, Eurasia, Western Africa and Australasia and winters in northern South America, Africa, Southern Asia and Australasia. In Australia, it breeds from Tasmania to the Gulf of Carpentaria and has bred in the Coorong and near Adelaide, South Australia. It has been recorded across Northern Australia to Shark Bay, Western Australia.	The Little Tern is mainly coastal, being found on beaches, sheltered inlets, estuaries, lakes, sewage farms, lagoons, river mouths and deltas.	313	No suitable habitat present within survey area. More likely to occur at Botany Wetlands No further assessment required.

Birds listed under CAMBA (C), and JAMBA (J), ROCKAMBA (R)

Reference material: Pizzey & Knight 2003 'A Field Guide to the birds of Australia'

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\Appendix 7 - Migratory Species Listed by Commonwealth Department of the Environment (DoE) as having habitat within the survey area.

birds listed under CAMBA (C), and JAMBA (J), ROCKAMBA (R)

Species	Species Distribution	Preferred Habitat	Presence on site
White-bellied Sea-eagle <i>Haliaeetus leucogaster</i> C	Coastal mainland Australia and Tasmania and large waterbodies and rivers inland	Major rivers, inshore seas and large estuaries as well as upper reaches of rivers and large inland waterbodies	UNLIKELY- but may overfly the area as part of a greater range.
White-throated Needletail <i>Hirundapus caudacutus</i> C,J,R	Summer migrant to coastal and sub-coastal eastern Australia	Range of habitats where it forages in the airspace over forests, woodlands, urban areas, grasslands and water	UNLIKELY- but may overfly the area as part of a greater range.
Black-faced Monarch <i>Monarcha melanopsis</i>	Summer migrant to east coast of NSW. Coastal eastern Australia from Cape York to far eastern Victoria mostly east of Great Divide	Rainforests, eucalypt woodlands, coastal scrubs, wet gullies and woodlands. Prefers to feed in the middle layers of rainforest and wet eucalypt forest. Also prefers a dense understorey tangle where it feeds into the cracks and crevices.	UNLIKELY-No suitable habitat present within survey area. The proposed development should have no impact on this species.
Rainbow Bee-eater <i>Merops ornatus</i>	The Rainbow Bee-eater is found throughout mainland Australia, as well as eastern Indonesia, New Guinea and, rarely, the Solomon Islands. In Australia it is widespread, except in desert areas, and breeds throughout most of its range, although southern birds move north to breed.	The Rainbow Bee-eater is most often found in open forests, woodlands and shrublands, and cleared areas, usually near water. It will be found on farmland with remnant vegetation and in orchards and vineyards. It will use disturbed sites such as quarries, cuttings and mines to build its nesting tunnels.	UNLIKELY-No suitable habitat present within survey area. The proposed development should have no impact on this species.
Satin Flycatcher <i>Myiagra cyanoleuca</i>	Breeding Queensland to Tasmania, they migrate north to Torres Strait and New Guinea in winter.	Winters in northern Australia. Occupies rolling plains and steep heavily vegetated mountain gullies in forests, woodlands.	UNLIKELY-No suitable habitat present within survey area. The proposed development should have no impact on this species.

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Species	Species Distribution	Preferred Habitat	Presence on site
Rufous Fantail <i>Rufous rufifons</i>	Breeds north as far as Cooktown in Queensland and down to south-western Victoria. They travel north during March-April. September-October to winter in north-eastern Queensland and Northern New Guinea, returning September-October.	Undergrowth of wet forests and scrubs, monsoon forests and paperbarks, coastal scrubs, mangroves and watercourses.	UNLIKELY-suitable habitat present within survey area but to disturbed for this cryptic species. May occur within river areas. The proposed development should have no impact on this migratory species.
Regent Honeyeater <i>Xanthomyza phrygia</i>	Autumn – winter migrant to coastal NSW. Southern and central tablelands through north-western slopes.	Prefers well shrubbed eucalypt woodland and open forest flanking the Great Dividing Range. Forage in box ironbark woodlands and mistletoe-infested areas. Forages coastally in Swamp Mahogany.	UNLIKELY-No suitable habitat present within survey area. The proposed development should have no impact on this species

Reference material: Pizzey & Knight 2003 'A Field Guide to the birds of Australia'

Marchant & Higgins 1990 'Handbook of Australian, New Zealand and Antarctic Birds'

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Appendix 8- Threatened Species Listed by Commonwealth Department of the Environment, (OoE) as having habitat within the survey area.

Species	Species Distribution	Preferred Habitat	Presence on site
Regent Honeyeater <i>Anthochaera phrygia</i>	Autumn – winter migrant to coastal NSW. Southern and central tablelands through north-western slopes.	Prefers well shrubbed eucalypt woodland and open forest flanking the Great Dividing Range. Forage in box ironbark woodlands and mistletoe-infested areas. Forages coastally in Swamp Mahogany.	UNLIKELY-No suitable habitat present within survey area. The proposed development should have no impact on this species.
Australasian Bittern <i>Botaurus poiciloptilus</i>	The Australasian Bittern is found in coastal and sub-coastal areas of south-eastern and south-western mainland Australia, and the eastern marshes of Tasmania.	Favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes (<i>Typha</i> spp.) and spikerushes (<i>Eleocharis</i> spp.). Hides during the day amongst dense reeds or rushes.	UNLIKELY-No suitable habitat present within survey area. The proposed development should have no impact on this species.
Eastern Bristlebird <i>Dasyornis brachypterus</i>	A central population, occurs on the central coast of NSW, and consists of extant local populations at Budderoo National Park and adjoining Barren Grounds Nature Reserve, in the Morton National Park-Red Rocks Nature Reserve area, and at Jervis Bay.	Dense coastal, mountain heath, taller swamps, stream thickets.	UNLIKELY-No suitable habitat present within survey area. The proposed development should have no impact on this species.
Red Goshawk <i>Erythrotriorchis radiatus</i>	The Red Goshawk is endemic to Australia. It is very sparsely dispersed across approximately 15% of coastal and sub-coastal Australia, from western Kimberley Division (north of 19°S) to northeastern NSW (north of 33°), and occasionally on continental islands.	In NSW favoured habitat is mixed subtropical rainforest and Melaleuca forest along coastal rivers, often in rugged terrain.	UNLIKELY-No suitable habitat present within survey area. The proposed development should have no impact on this species.
Swift Parrot <i>Lathamus discolor</i>	Autumn – winter migrant to coastal NSW. In NSW mostly occurs on the coast and south west slopes (Pizzey & Knight 2003).	Occurs on the mainland in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations. Will feed in the following trees; Swamp Mahogany (<i>E. robusta</i>), Forest Redgum (<i>E. tereticornis</i>), Spotted Gum (<i>Corymbia maculata</i>), Red Bloodwood (<i>Corymbia gummifera</i>).	UNLIKELY-No suitable habitat present within survey area. The proposed development should have no impact on this species.
Australian Painted Snipe <i>Rostratula australis</i>	The Australian race of Painted Snipe appears non-migratory, but nomadic, occurring across eastern and northern Australia, mainly inland in muddy, freshwater swamps in Murray-Darling and Great Artesian Basins.	Prefers shallow freshwater swamps and marsh with adequate cover.	UNLIKELY-No suitable wetland habitat present within survey area. The proposed development should have no impact on this species.

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Species	Species Distribution	Preferred Habitat	Presence on site
Giant Burrowing Frog <i>Heleioporus australiacus</i>	This species is found from the central coast of NSW to eastern Victoria (Cogger 2000). Habitat restricted to Hawkesbury Sandstone.	Usually found in sandy creek beds with crayfish burrows in the area.	UNLIKELY-No suitable habitat present within survey area. The proposed development should have no impact on this species.
Green and Golden Bellfrog <i>Litoria aurea</i>	Formerly distributed from the NSW north coast near Brunswick Heads, southwards along the NSW coast to Victoria. Records from west to Bathurst, Tumut and the ACT region. Since 1990 there have been approximately 50 recorded locations in NSW, most of which are small. Large populations in NSW are located around the metropolitan areas of Sydney, Shoalhaven and mid north coast. Optimum habitat includes water-bodies that are unshaded, free of predatory fish such as Plague Minnow (<i>Gambusia holbrooki</i>),	Inhabits marshes, dams and stream-sides, particularly those containing bullrushes (<i>Typha</i>)	UNLIKELY- Habitat present in ponds within the golf course but the presence of (<i>Gambusia holbrooki</i>) which predated on the tadpoles limits its presence. The Office of the Environment has listed the frog as extinct within Eastlakes Golf Course.
Giant-barred Frog <i>Mixophyes iteratus</i>	Distribution: Coast and ranges from south-eastern Queensland to the Hawkesbury River in NSW. North-eastern NSW, particularly the Coffs Harbour-Dorrigo area, is now a stronghold.	Giant Barred Frogs forage and live amongst deep, damp leaf litter in rainforests, moist eucalypt forest and nearby dry eucalypt forest, at elevations below 1000 m. They breed around shallow, flowing rocky streams from late spring to summer.	UNLIKELY-No suitable habitat present within survey area. The proposed development should have no impact on this species.
Large-eared Pied Bat <i>Chalinolobus dwyeri</i>	South-eastern Queensland to New South Wales from the coast to the western slopes of the Divide. Endemic to Australia.	These bats roost in shallow caves in escarpments, particularly in sandstone and forage in remnant native dry and wet open forests, woodlands and rainforests.	UNLIKELY-As no suitable roosting habitat is available on site individuals are likely to visit during foraging only. No impact is expected on this species as a result of the proposed development.
Spotted-tailed Quoll <i>Dasyurus maculatus maculatus</i>	Sparsely distributed from Fraser Island to south-western Victoria and widespread in Tasmania.	Inhabits rainforest, wet and dry sclerophyll forest, coastal heath and scrub, often found associated with Forest Red Gum along inland rivers. The species dens in tree hollows, hollow logs or rock crevices.	UNLIKELY-No suitable habitat present within survey area. The proposed development should have no impact on this species

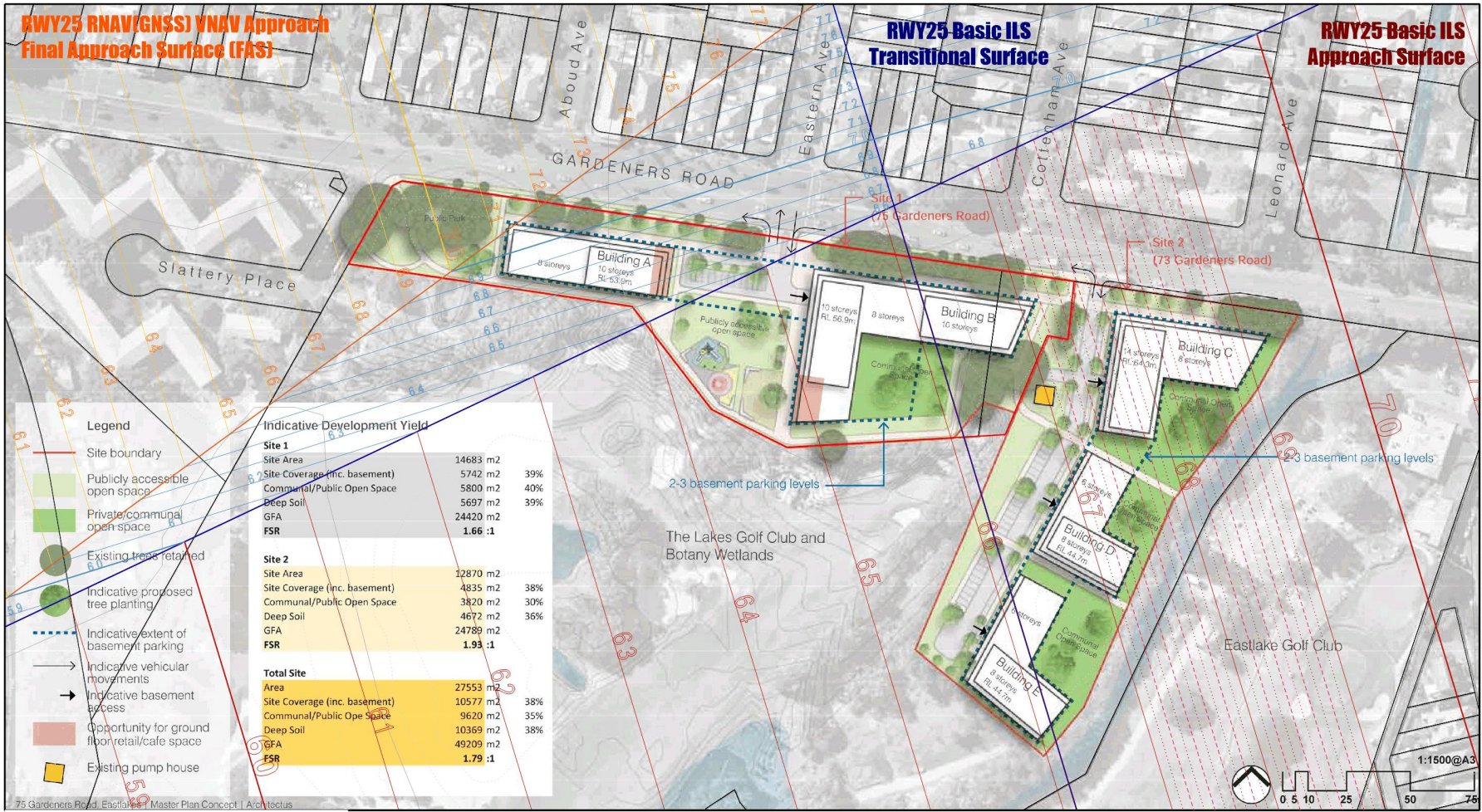
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Species	Species Distribution	Preferred Habitat	Presence on site
Long-nosed Potoroo <i>Potorous tridactylus tridactylus</i>	Locally common in Tasmania, patchy distribution from coastal south-west Victoria to south-east Queensland.	Inhabits moist sclerophyll forest with a dense shrub layer to coastal heath woodland. Prefers dense cover for shelter adjacent to open foraging sites.	UNLIKELY-No suitable habitat present within survey area. The proposed development should have no impact on this species
Koala <i>Phascolarctos cinereus</i>	The Koala has a fragmented distribution throughout eastern Australia from north-east Queensland to the Eyre Peninsula in South Australia. In NSW it mainly occurs on the central and north coasts with some populations in the western region.	They inhabit eucalypt woodlands and forests. Feed on the foliage of more than 70 eucalypt species and 30 non-eucalypt species, but in any one area will select preferred browse species. Home range size varies with quality of habitat, ranging from less than two ha to several hundred hectares in size. Primary food trees in the region of the subject land are <i>Eucalyptus parramattensis</i> , <i>E. tereticornis</i> , <i>E. viminalis</i> , <i>E. robusta</i> and <i>E. amplifolia</i> . Some secondary food sources include but are not limited to <i>Eucalyptus punctata</i> , <i>E. moluccana</i> and <i>E. macrocarpa</i> .	UNLIKELY-No suitable habitat present within survey area. The proposed development should have no impact on this species
Brush-tailed Rock Wallaby <i>Petrogale penicillata</i>	The Brush-tailed Rock-wallaby was once widespread and abundant in southeastern Australia. It was formerly found along the Great Dividing Range from Nanango in south-east Queensland through to east Gippsland in Victoria.	This species prefers rocky habitats, including loose boulder-piles, rocky outcrops, steep rocky slopes, cliffs, gorges and isolated rock stacks. It also utilises tree limbs.	UNLIKELY-No suitable habitat present within survey area. The proposed development should have no impact on this species
New Holland Mouse <i>Pseudomys novaehollandiae</i>	The New Holland Mouse has a fragmented distribution across Tasmania, Victoria, NSW and Queensland. In NSW, the New Holland Mouse is known from: Royal National Park (Menkorst & Knight 2001)	The New Holland Mouse has been found from coastal areas and up to 100 km inland on sandstone country with deeper topsoils for digging burrows. Due to the grain diet of the species, areas high in floristic diversity, are essential.	UNLIKELY-No suitable habitat present within survey area. The proposed development should have no impact on this species
Grey-headed flying Fox <i>Pteropus poliocephalus</i>	East coast of Australia from Rockhampton in Queensland to western Victoria. Endemic to Australia (Churchill 1998).	Found in a variety of habitats, including rainforest, mangroves, paperbark swamps, wet and dry sclerophyll forests and cultivated areas.	LIKELY-The survey area does contain some food trees suitable for the Grey-headed Flying Fox but the species is more likely to forage within Bicentennial Park. The proposed development should have no impact.

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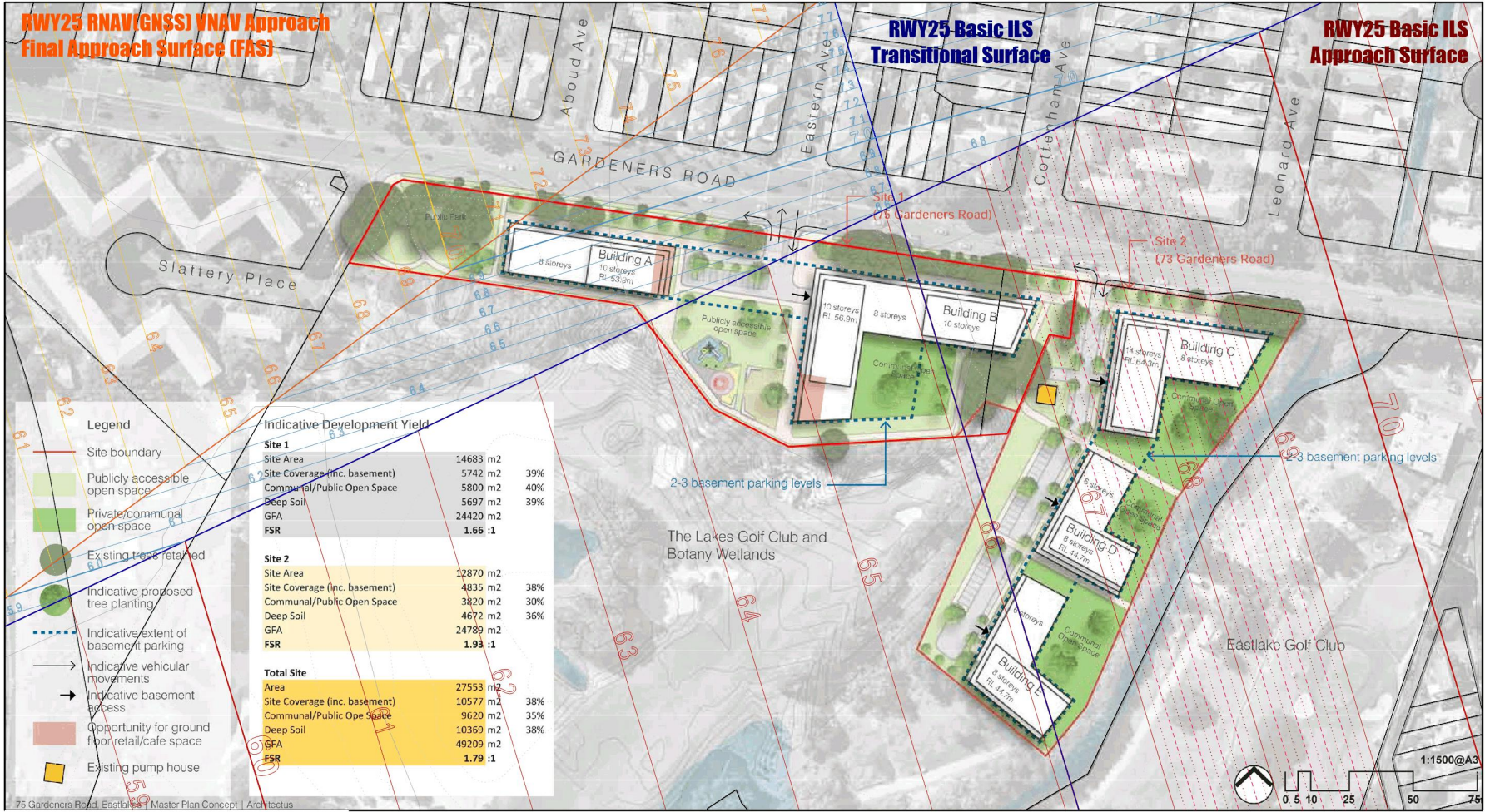
**Attachment I – Aeronautical
Assessment, Prepared by
Strategic Airspace, dated
September 2017**

**73-75 Gardeners Rd, Eastlakes
Sydney Water Project**
Aviation-related Airspace Height Limits (PANS-OPS Surfaces)
Maximum Permissible Development Heights
(Metres AHD)



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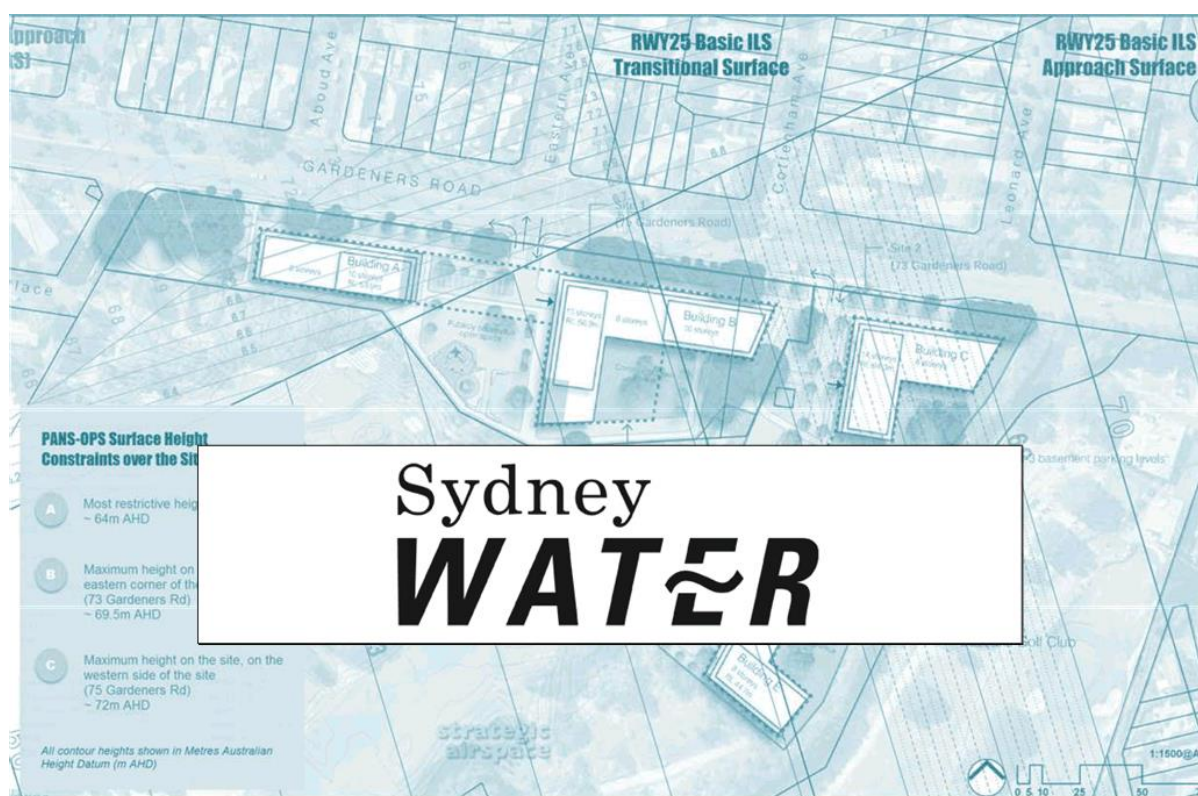
**73-75 Gardeners Rd, Eastlakes
Sydney Water Project**
Aviation-related Airspace Height Limits (PANS-OPS Surfaces)
Maximum Permissible Development Heights
(Metres AHD)



Scale: 1:1000 at A1

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73-75 Gardeners Rd, Eastlakes — Aeronautical Impact Assessment for Planning Proposal

Version 1.1

22 September 2017

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Sydney Water

Document Control

Document Number: **17.012-01-001**

Version: **1.1**

Document Title: **73-75 Gardeners Rd, Eastlakes — Aeronautical Impact Assessment for Planning Proposal**

Purpose / Abstract: *This report has been commissioned by Sydney Water to support the planning processes for the land at 73 and 75 Gardeners Rd, Eastlakes.*

This report assesses the current regulated airspace height constraints over the project site to inform the planning process and ongoing master planning being conducted by Architectus. The airspace constraints are examined in relation to the maximum building envelope proposed and the additional airspace that would be required for cranes necessary to enable the development.

Contract: -

StratAir Ref: 17.012

Change History

Version	Versn Date	Version By	QA By	Version / Change Description
1.0 x Drafts	Aug'2017	C. Pak-Poy	J. McCarthy	Preliminary versions for internal review
1.1 Draft	10-Sep-2017	C. Pak-Poy	J. McCarthy	Include impact of RWY25 RNAV(GNSS) Baro-VNAV procedure on PANS-OPS surface constraints over the site.
1.1	22-Sep-2017	C. Pak-Poy	J. McCarthy	Editorial – repair document
1.2 Final	27-Sep-2017	J. McCarthy		Minor amendment following review by client

Distribution Control

<u>Legend:</u>	<i>Uncont</i>	Uncontrolled Document	SACL	Sydney Airport Limited
	<i>Client</i>	Sydney Water	<i>StratAir</i>	Strategic Airspace
	<i>APT</i>	Sydney Airport	<i>AsA</i>	Airservices (formerly Airservices Australia)
	<i>CASA</i>	Civil Aviation Safety Authority	<i>Infrastructure, D/IRD</i>	Department of Infrastructure & Regional Development

Issue Version	Issue Date	Issue Purpose / Description	Copy No	Copy Recipient
1.1	24-Aug-2017	Distribution to client for distribution	Uncont	StratAir internal, Client
1.2	27-Sep-2017	Final version for client	Uncont	Client

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In the event of translation for this purpose and any discrepancies between the translated and original versions, this original text will prevail.

For: Sydney Water

73-75 Gardeners Rd, Eastlakes — Aeronautical Height Assessment
Report by Strategic Airspace

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Report by **Strategic Airspace**

For: **Sydney Water**

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Appendix 1 — Abbreviations

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For: Sydney Water

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1. Executive Summary

Sydney Water is in the process of divesting surplus land to allow redevelopment and improved utilisation of this land within the Sydney Metropolitan area. For the subject sites, due to their location within the wider context of Eastlakes, it is proposed to seek their rezoning to allow for residential development or other appropriate supporting land uses.

This report — which focuses on the existing conditions and airspace constraints — has been commissioned by Sydney Water to inform and support ongoing planning for the two land parcels at **73 and 75 Gardeners Rd, Eastlakes**.

To this end, Sydney Water has also engaged Architectus to prepare a Master Plan for the site for the purposes of informing a Planning Proposal which seek to amend the current planning controls for the site to allow residential development and supporting land uses. This aeronautical impact report is to be considered as a contribution to the Master Plan and for the consideration of the appropriateness of height limits in planning controls.



Figure 1 — Sydney Water Master Plan Concept – Gardeners Rd, Eastlakes

This report has been prepared having regard to the Prescribed Airspace of Sydney Airport. It examines the current regulated airspace height limits constraints overhead the site that are related to aviation airspace protection requirements and which, under the Airports (Protection of Airspace) Regulations 1996 (APAR), would:

- a) Trigger the requirement to apply for an airspace height approval;
- b) Constrain the maximum permissible building envelope heights; and
- c) Constrain the maximum permissible heights for cranes that would be required to enable construction of the proposed development.

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For: Sydney Water

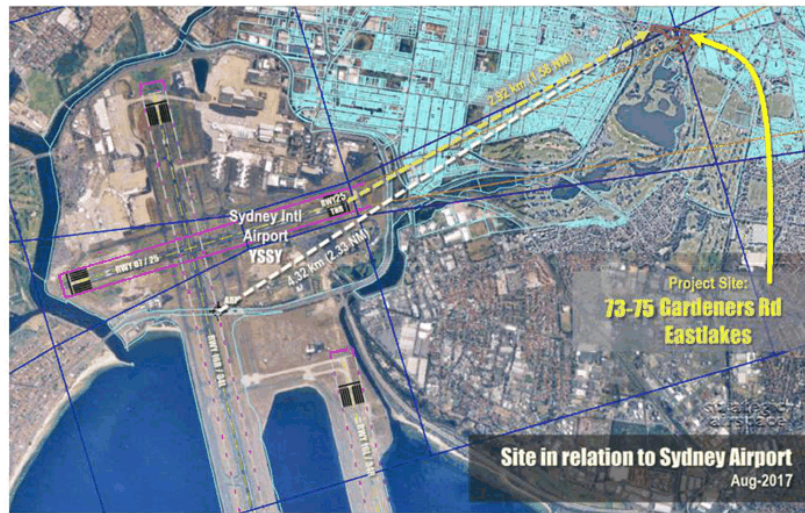


Figure 2 — Project Site in relation to Sydney Airport

The study area is located approximately 4.3km (2.3 Nautical Miles, NM) from the Aerodrome Reference Point of Sydney Airport and approximately 2.9km (1.6NM) from the Runway (RWY) 25 landing threshold, as indicated in Figure 2 above.

In this location, the site is:

- Subject to Obstacle Limitation Surface (OLS) height limits which, over the site, is a horizontal limit of 51m Australian Height Datum (AHD).

OLS heights can be considered threshold heights; any building or crane which would exceed the relevant height would need to gain airspace height approvals from the Commonwealth Department of Infrastructure and Regional Development (DIRD), under the Airports (Protection of Airspace) Regulations (APAR) prior to construction or erection.

- Constrained by PANS-OPS approach procedures, which impose various sloping surfaces across the site.

PANS-OPS surface heights are based on the heights related to the protection requirements of the various PANS-OPS Instrument Flight Procedures for Sydney Airport. These define the potential maximum permissible heights for buildings (including all overruns) under the APAR, except where another aviation safety-related airspace constraint is lower. Cranes may also be permitted up to these surface heights.

- All other surfaces which overlay the site are higher than the PANS-OPS surfaces and therefore considered irrelevant for the purposes of this study.

Cranes are may not be permitted at heights which exceed the PANS-OPS surface limits indicated herein.

The relevant airspace constraints overhead the study area are summarised as follows:

For: Sydney Water

73-75 Gardeners Rd, Eastlakes — Aeronautical Height Assessment
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Table 1 — Summary — Airspace Height Constraints (as per Table 4)

Height Limits (AHD)	Height Limit Detail	Comment
51m	OLS Outer Horizontal Surface	THRESHOLD HEIGHT limits (depicted in Figure 7, p10) Any development that would exceed the relevant OLS height across the site would require a prior 'airspace height' approval from the Department of Infrastructure and Regional Development under the Airports (Protection of Airspace) Regulations (or APAR). An application can be made for each tower building separately, or a single application can be made for the all towers within the development that would exceed this height.
~64 – 72m	Various PANS-OPS RWY25 Basic ILS Approach & Transitional & RNAV(GNSS)-Z VNAV Final Approach Surface — All sloping surfaces	The PANS-OPS height constraints across the site will be regarded as the maximum permissible building heights that would be approved by the aviation authorities in the relevant areas (see Figure 8, p12) Cranes may be permitted up to the relevant PANS-OPS heights, taking crane boom length and swing into effect. Cranes may potentially be approved at heights that exceed the applicable PANS-OPS surface height constraints shown, subject to the specific location and a risk analysis, and acceptability to Sydney Airport.
NA	Other Surfaces	The study area is not constrained by any airspace protection requirements related to other approach procedures, departure procedures, Radar Terrain Clearance Chart (RTCC) surfaces, Sydney Airport's Navigation and Airport Lighting and Visual Guidance facilities, as well as those related to Airline Engine Inoperative contingency take-off procedures.

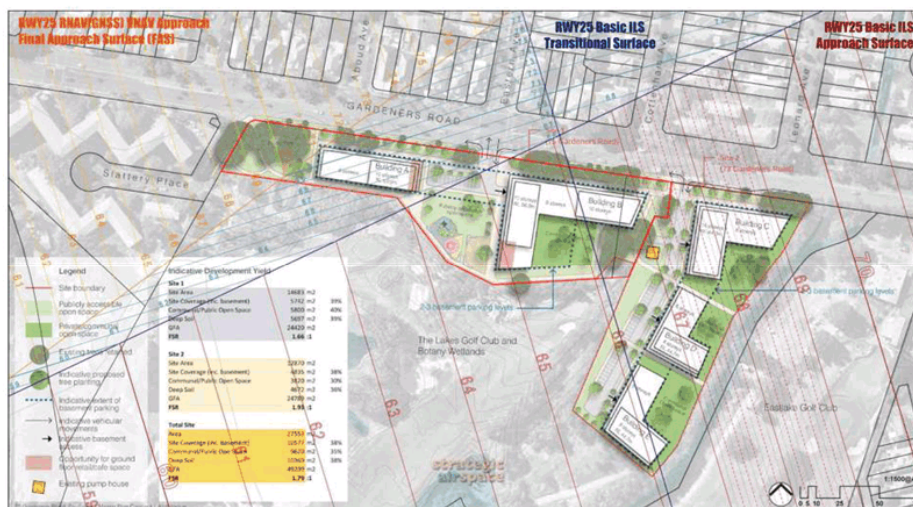


Figure 3 — Maximum Permissible Development Heights — Restrictive Surface Heights from the PANS-OPS Surface Limits (as per Figure 8)

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Any building, structure or crane which would exceed the OLS height of 51m AHD would be subject to the Airports (Protection of Airspace) Regulations and would require prior height approval under these regulations.

As can be seen from the Table 1 and Figure 3 above, the maximum heights of buildings (including overruns) is quite constrained by a range of sloping PANS-OPS surfaces that are related to approaches from the east towards Runway (RWY) 25, the eastern end of the east-west cross runway. The height contours depicted in the PANS-OPS surfaces diagram should be considered the maximum possible heights (in metres Australian Height Datum (AHD)) that would be considered permissible under the airspace regulations.

Further, due to the proximity of the site to the airport and to the nominal straight-in / straight-out flight path for RWY 07/25, it is also highly likely that these same height constraints would be applicable to cranes required for construction.

Taking these factors into consideration, as well as the location of the site in relation to the airport, **there is no technical impediment to the proposed master plan for the Sydney Water Gardeners Rd sites** providing the maximum heights of buildings and cranes do not exceed the current PANS-OPS Height Constraints documented herein, **and we consider that a future application under the Airports (Protection of Airspace) Regulations 1996 (APAR), supported by a full aeronautical assessment and safety case would be approved by the Department of Infrastructure and Regional Development.** This would need to be considered and assessed further as part of any subsequent detailed Development Application under the proposed amendments to the current planning controls.

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2. Introduction

Sydney Water is in the process of divesting surplus land to allow redevelopment and improved utilisation of this land within the Sydney Metropolitan area. For the subject sites, due to their location within the wider context of Eastlakes, it is proposed to seek their rezoning to allow for residential development and supporting land uses.

This report — which focuses on the existing conditions and airspace constraints — has been commissioned by Sydney Water to inform and support ongoing planning for the two land parcels at **73 and 75 Gardeners Rd, Eastlakes**.

To this end, Sydney Water has also engaged Architectus to prepare a Master Plan for the site for the purposes of informing a Planning Proposal which seek to amend the current planning controls for the site to allow residential development and supporting land uses. This aeronautical impact report is to be considered as a contribution to the Master Plan and for the consideration of the appropriateness of height limits in planning controls.

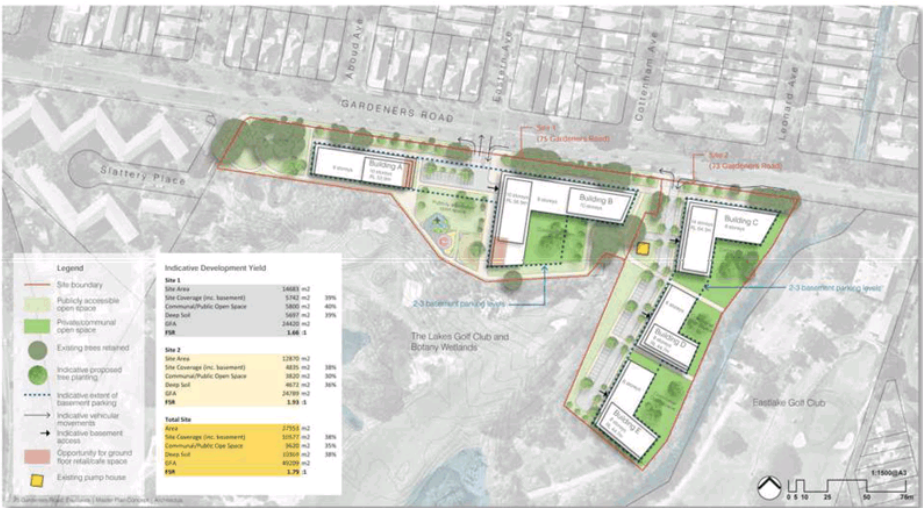


Figure 4 — Sydney Water Sites — Gardeners Rd, Eastlakes

The airspace constraints are examined in relation to the maximum building envelope proposed and the additional airspace that would be required for cranes necessary to enable development on the site.

This report has been prepared having regard to the Prescribed Airspace of Sydney Airport. It examines the current regulated airspace height limits constraints overhead the site that are related to aviation airspace protection requirements and which, under the Airports (Protection of Airspace) Regulations 1996 (APAR), would:

- a) Trigger the requirement to apply for an airspace height approval;
- b) Constrain the maximum permissible building envelope heights; and
- c) Constrain the maximum permissible heights for cranes that would be required to enable construction of the proposed development.

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It is also understood that any future development of the site will be subject to future development applications to be lodged with Council. Separate DAs are likely to require their own airspace height applications under APAR.

3. Background

3.1 The Project

In order to test and demonstrate the suitability of the current project area, incorporating both 73 and 75 Gardeners Rd Eastlakes, a master plan has been prepared by Architectus and considered by it and its project sub-consultants. This master plan identifies that the site should be developed for residential, with supporting land uses such as small scale shops, retail or similar uses. The proposal will enable the future redevelopment of both sites, resulting in a range of building heights between 6-14 storeys.

No approval is sought for the master plan at this stage as it simply seeks to evidence that the proposed changes to the planning controls are appropriate.



Figure 5 — Sydney Water Master Plan Concept in 3D – Gardeners Rd, Eastlakes

3.2 Previous Aeronautical Studies

Aeronautical studies have previously been conducted for the site at 75 Gardeners Rd. This study now includes the adjacent lot at 73 Gardeners Rd and is based on the airspace surfaces that currently overlay the expanded site area.

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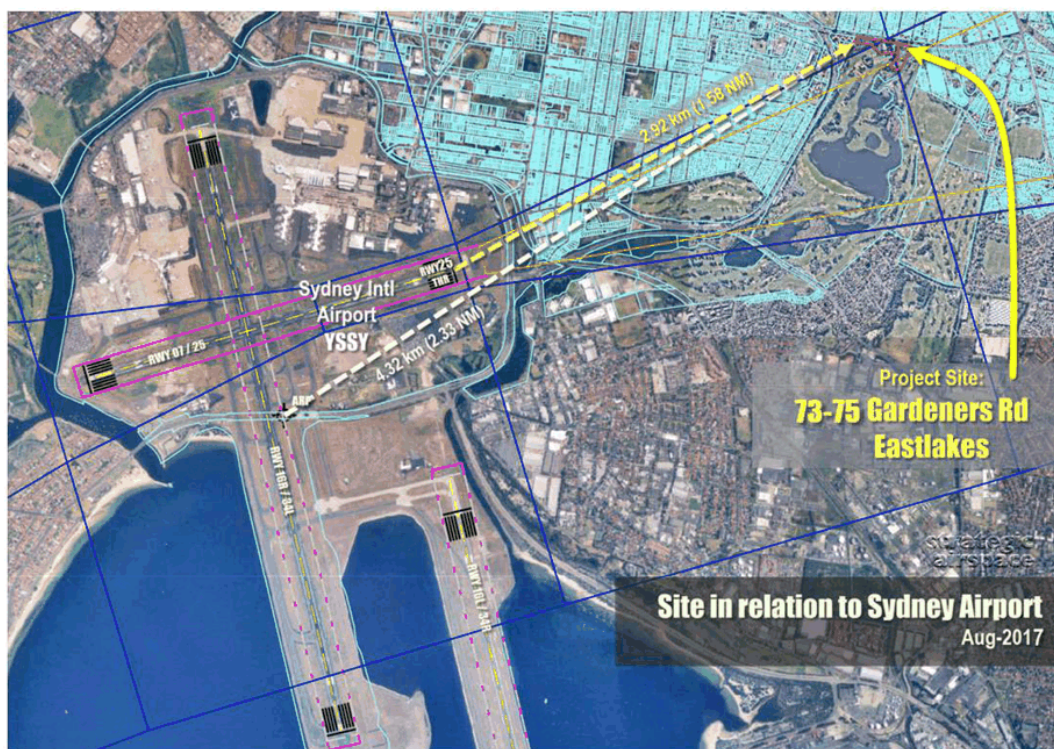
4. Aeronautical Impact Context

4.1 Location of the Proposed Development

The site lies to the north of Sydney Airport, approximately 4.3 km (2.3 Nautical Miles, NM) from the aerodrome reference point (ARP) at a bearing of at 060° True (T). The closest point of the site, the south-western corner, is 2.9 km (1.6NM) at 061°T from the RWY25 threshold.

The southern-most point of the site boundary lies approximately 0.37km (0.2NM) perpendicular from the RWY 07/25 extended centreline.

The other airports in the Sydney Basin are too distant from the study area to have any impact on the airspace overhead it.



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4.2 Methodology

The methodology used to determine the maximum building height (or minimum airspace height limitation) above the development site takes into consideration each of the following.

4.2.1 Airspace Regulations

The proposed development site is subject to the Airports (Protection of Airspace) Regulations (APAR), under the Commonwealth's Airports Act, 1996), because of its proximity to Sydney Airport and because of its proposed height. These regulations define both: how building height limitations due to airspace safety can be determined; and the process for gaining approval of the proposed development under the regulations.

The Prescribed Airspace Regulations, and their impact upon building height limitations, are described below.

4.2.2 Prescribed Airspace

Prescribed airspace, under these regulations, includes at minimum:

■ Obstacle Limitation Surfaces (OLS)

- The OLS surfaces are used to identify buildings and other structures that may have an impact upon the safety or regularity of aircraft operations at an airport. This impact depends upon both the type of operations at the aerodrome and which OLS surfaces are penetrated by a (proposed) building or structure.
- The OLS are flat and rising (invisible) surfaces around the airport. They are based on the geometry of the airport and its runways and therefore they rarely change.
- If a permanent building development (or temporary crane) that is proposed at a height that will penetrate (exceed) the height limit of an OLS surface, then an application must be made to the Commonwealth Department of Infrastructure and Regional Development (DIRD) — via the closest airport, and with copies to any other potentially affected airport — for an airspace height approval prior to construction of the permanent development &/or erection of the temporary crane obstacle. Such applications should demonstrate the proposed building development does not penetrate or adversely affect surfaces protecting: instrument flight procedures (PANS-OPS surfaces); radar vectoring; navigation infrastructure; or anything else that might affect the safety or regularity of operations at the airport.

■ PANS-OPS Surfaces

- PANS-OPS surfaces represent the protection surfaces for published instrument flight procedures to and from the airport. These surfaces comprise flat, sloping and complex surface components.
- PANS-OPS surfaces must not be penetrated by either permanent or temporary buildings or structures. However, for a variety of reasons, PANS-OPS surfaces can and do change over time.
- As flight procedures are changed from time to time (usually by Airservices), the PANS-OPS Surface Plan published by an airport may not reflect the current situation — which is why we not only reference the airport's plans but also review the published charts for current (or pending) instrument flight procedures and evaluate the associated PANS-OPS height limits. The regulations also make a provision for any factor which may be deemed to adversely affect the safety, regularity or efficiency of aircraft operations at an airport. In light of this, it is necessary to consider the following factors.

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■ Other Considerations

- **Sydney Airport's Declared Airspace Plans** additionally include:
 - Radar Terrain Clearance Charts (RTCC), which depict the areas and height limits related to the Minimum Vector Altitudes (MVAs) used by Air Traffic Controllers when vectoring aircraft;
 - Lighting and visual guidance protection plans — used for approach guidance by aircraft, especially at night and in times of poor visibility; and
 - Navaid and radar evaluation / protection surface plans.
- **Other Factors**
 - Protection for other Instrument Flight Procedure surfaces, where the procedures are not classified as PANS-OPS and/or have been omitted from Sydney Airport's declared PANS-OPS surfaces charts. These may include a variety of Required Navigation Procedures (RNP).
 - Airline Engine-Out (Contingency) Take-Off Splays (as per Civil Aviation Order 20.7 1b)
These are generally assessed independently by the airlines as part of their own evaluations of any given airspace height application, but it is prudent to evaluate any potential impact in advance.
 - Other miscellaneous factors that may be considered as potential safety issues by any of the key stakeholders, and the Civil Aviation Safety Authority (CASA) in particular.
- Note: Airspace that is approved by the Department of Infrastructure and Regional Development as Declared Airspace is considered part of an airport's Prescribed Airspace.

4.2.3 Note about Heights: Australian Height Datum (AHD) vs Above Ground Level (AGL)

All "heights" provided in this document are elevations expressed in metres in the Australian Height Datum (AHD) — and thus they are true elevations, and NOT heights above ground level (AGL).

For estimating maximum development heights AGL, the ground elevation^{AHD} should be subtracted from the airspace height limits^{AHD}.

Note also for aviation-related airspace height limits, any building height approval under the Airports (Protection of Airspace) Regulations is regarded as inclusive of the building itself plus all rooftop furniture and overruns (plant buildings, lift risers, etc).

4.2.4 Making an Application for an Aviation-related Airspace Height Approval

All applications under APAR must be submitted to DIRD, at the appropriate time, through the closest relevant airport — in this case, Sydney Airport. Applications should include aeronautical impact assessment reports — such as this, but which are based on the most current plans for the proposed development available at the time. For major developments, such reports should include consideration of cranes that will be required for construction: this information will be used for assessment of the feasibility of constructing the buildings if approved at the maximum heights sought. Safety impact assessments and mitigation strategies may need to be included in the aeronautical study, depending on the nature and location of the development in relation to the airspace restrictions and other aeronautical impact factors.

Separate applications for cranes will also be required at the appropriate times during the construction period, prior to their installation and operation.

5. Analysis

The impact of the various building height limitations, from lowest to highest, is summarised in the following table.

5.1 OLS Analysis

The height limit of Sydney Airport's OLS overhead the precinct is defined by the Inner Horizontal Surface, which applies across the entire precinct, as depicted in Figure 7 below.

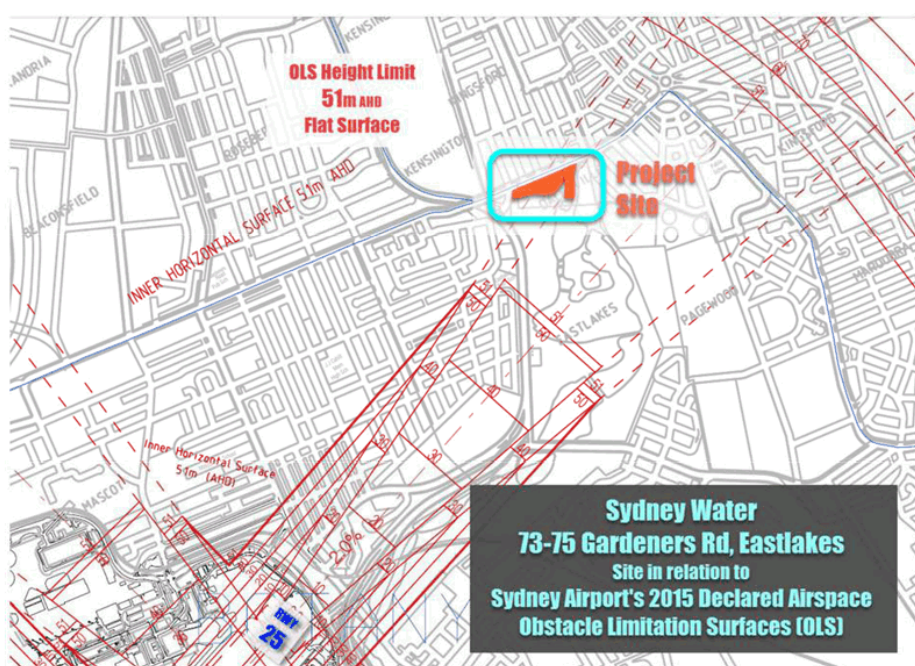


Figure 7 — Site in relation to Sydney Airport's OLS

Buildings and cranes may exceed the OLS height limits, but if planned as such an application for the aviation-related airspace approval for the proposed development must be submitted to Commonwealth Department of Infrastructure and Regional Development (DIRD), via Sydney Airport. Failure to obtain such approval before construction commences can result in significant penalties under the Airports Act (1996).

Conversely, airspace height approvals are not required for any buildings or cranes that would not exceed the OLS height limits.

The Sydney Airport Master Plan to 2033 does not forecast any changes to the aerodrome that would occasion a change to the OLS. Thus, the current OLS is anticipated to remain in force for the planning horizon of the project site.

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5.2 PANS-OPS Analysis

5.2.1 Current Procedures

In addition to reviewing the PANS-OPS Surfaces chart of Sydney Airport's Prescribed Airspace (as declared and approved by DIRD in 2015), assessment was conducted of the following instrument (non-visual) procedure types for Sydney Airport, as published by Airservices Australia in the Australian Aeronautical Information Publication (AIP) Departure and Approach Procedures (DAP), up to Amendment 152 (effective 17-Aug-2017 to 08-Nov-2017).

- The Circling Minima and Minimum Sector Altitudes (MSAs) for existing PANS-OPS procedures
"Area" procedures, which provide protection for aircraft manoeuvring or circling within defined areas above the airport and surrounds
- The discrete minima for the Instrument Approach Procedures.
- Missed Approaches — as part of the evaluation of Approach Procedures
- The existing Standard Instrument Departure Procedures (SIDs)

Of the approach and departure procedures, only procedures that might be relevant to the study area are included in this report. Principally these are procedures for the eastern East-West "cross" runway, RWY 07/25, as well as the "area" procedures.

The Sydney Airport Master Plan to 2033 was also reviewed for potential future impact. The Master Plan does not forecast any changes to procedures that would, to our best knowledge, make the airspace above the study area any more constraining than that resulting from analysis of the combination of the current PANS-OPS surfaces.

Analysis determined that the precinct is constrained by only a few procedures, the major ones of impact being surfaces related to the RWY25 Basic ILS (which are related to the ILS precision approach procedures to RWY25) and the Baro-VNAV component of the RWY25 RNAV(GNSS) approach.

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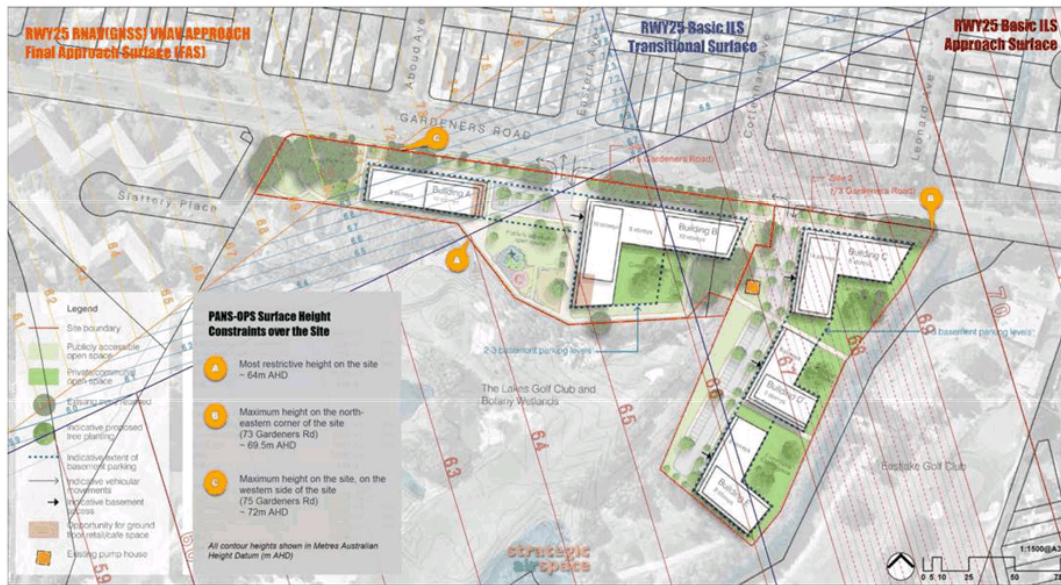


Figure 8 — PANS-OPS Height Constraints across the Site (Large Format)

Table 2 — PANS-OPS Height Limit Summary

Procedure	Height Limit (m AHD)	Description
Approaches to Runway 25	~64 – ~72	The height constraints vary across the site due to the interaction of various sloping surfaces : the Basic ILS (protecting the ILS Precision Approach) and the RNAV(GNSS)-Z approach (Baro-VNAV minima only). See Figure 8, above.
Departures	>90	Where protection surfaces overlay the study area, they vary across the site and are higher than those related to RWY25 approach and RWY07 missed approach procedures.
Circling	126.4	Restriction due to the Cat A&B Circling minima. The No Circling Area in that sector commences beyond the site, at 3DME (5.6km).
Minimum Sector Altitude (MSA)	335.2	10NM Inner MSA of 2100ft.

Further details are provided in the following sections.

5.2.2 “Area” Procedures

A Minimum Sector Altitudes (MSAs)

The height restrictions imposed by Minimum Sector Altitudes are higher than the limits imposed by approach procedures.

B Circling Minima

The site is inside the permitted circling area defined for Sydney Airport, before the No Circling Area in that sector which only comes into effect beyond the site (at 3DME or 5.6km from the ARP).

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The constraining surface height relates to the Cat A & B Circling altitude minima of 710ft.

5.2.3 Instrument Approaches & Missed Approaches

The impact of each of the relevant PANS-OPS protection surfaces for current approach and departure procedures for Sydney Airport are provided below. The lateral extent of restrictions is shown in the diagrams (where appropriate) and contours shown where the surfaces are sloping in nature.

Note also that where specific guideline height limits are provided, they are relevant only to the specific procedure. Other procedures mentioned in this report may impose more restrictive height limits over the same location.

The height restrictions due to the instrument approach procedures vary across the site.

A Approach Procedures to RWY 25

A.1 RWY25 ILS Precision Approach & RWY25 Basic ILS Approach Surfaces

The Basic ILS surfaces related to the RWY 25 ILS precision approach procedures cover the entire site area, with the approach surface component covering the majority of the site (east and south-eastern two-thirds) and the transitional covering the planned built area towards the western side along the Gardeners Rd frontage.

It is highly unlikely that any proposed development that would infringe this Approach Surface would be approved, and hence is should be regarded as a firm height constraint (as per the slope depicted by the contours in Figure 8 above).

The Transitional Surface over the western part of the site slopes up away from the Approach Surface. Due to the difference between different technical methods of calculating the safe landing minima for precision approaches, it is possible that the development of a building that is higher than the height contours of the Transitional Surface would not negatively affect the safety, efficiency or regularity of the precision approaches to RWY25, and therefore an application for buildings which penetrate this surface (to some extent) may potentially be considered approvable. However, given the proximity to the airport and the proximity of any buildings on the western half of the site to the Approach Surface, it is strongly recommended that in this case the Transitional Surface is also considered as a firm limit with regard to planning building heights.

Due to the slightly greater flexibility of the Transitional Surfaces, cranes used for construction which would exceed the Transitional Surface height limits across the western half of the site may potentially be approved — but only up to the next most limiting procedure surface, and only for a maximum of 3 months.

A Safety Case would need to be developed to help justify a case for penetrating the Transitional Surface — for a proposed building and/or for a temporary obstacle such as a crane.

A.2 RNAV(GNSS)-Z Approach to RWY25

The PANS-OPS surfaces for the RNAV(GNSS)-Z approach to RWY25 also cover the entire site. The Final Approach Surface (FAS) of this procedure, which relates to the Baro-VNAV component of the procedure (ie, that relevant to the LNAV/VNAV minima only), is the surface most relevant to the

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site. This is constraining over a relatively small portion of the total site only, at the western edge (refer also Figure 8 above).

If any development or temporary crane was sought at a height exceeding the Basic ILS surface constraints, then the lowest of the sloping FAS and the horizontal surface (at a height of 83.49m AHD) that protects the LNAV component of the RNAV(GNSS) procedure would be the next highest effective constraint. A separate study would be required to determine the constraints in this case, and a safety study would also be required to support any height application to the aviation authorities.

B Missed Approach Segments of Approach Procedures for RWY 07 and RWY 34R

The precinct is unconstrained by the following procedures, either because the limiting heights are so high (higher than other more restrictive surfaces) or the site is laterally outside the protection surfaces.

5.2.4 Departures

The surfaces of departure procedures from both RWY07 and RWY34R overlay the site, but the limiting heights overhead the site area are higher than those of Approach and Missed Approach Procedures and therefore not restrictive.

Note that the Sydney Airport 2015 Declared Airspace Omnidirectional Radar Departures Chart is now obsolete due to an increase in the minimum turn height of the procedures (eg, RWY25 now has a minimum turn height of 600ft for non-jet aircraft) and a change in the PANS-OPS design criteria (reduction of Minimum Obstacle Clearance (MOC) from 90m to 75m). Calculations in a 2015 report for this site, after the change of minimum turn height but before the change in PANS-OPS criteria) indicated that the height limit due to the RWY07 departure would be above 90m AHD at that time. The change in MOC may serve to further increase this height constraint.

5.3 Other Assessment Considerations

The following table provides a brief assessment of other considerations.

Table 3 — Other Assessable Height Limitations

Procedure	Height Limit (m AHD)	Description
Radar Terrain Clearance Chart (RTCC) / Minimum Vector Altitude (MVA)	152.4	The entire site is covered by the 1500 RTCC sector. This is the limit related to the Minimum Vectoring Altitude (MVA), which is used by air traffic controllers. This information is sourced from the RTCC published as part of Sydney Airport's Prescribed Airspace Plans.
Navigation Infrastructure	N/A	The proposed site is outside the lateral extent of surfaces protecting navigation aids shown in SACL's published Prescribed Airspace Plans.
HAL Light Planes	N/A	The development site is outside the lateral extent of surfaces shown in SACL's published Prescribed Airspace Plans.
PAPI Light Planes Surface	N/A	The PAPI Light Planes Surface covers a portion of the site (at the south) but is less constraining than the Basic ILS Approach Surface — and so not applicable.

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Procedure	Height Limit (m AHD)	Description
Airlines Engine Out Procedures	N/A	Engine Out procedures (from RWY 34R, the most relevant take-off runway end) are designed and maintained by each of the passenger transport aircraft operators in accordance with the relevant regulations. All such procedures necessarily take into account Sydney Tower Eye, which is closer to the airport and taller than the proposed development. As such this proposal will not adversely affect any contingency procedures.

There are no other considerations that might limit the building height at the project site.

5.4 Summary of Maximum Permissible Heights

Table 4 — Summary — Airspace Height Constraints

Height Limits (AHD)	Height Limit Detail	Comment
51m	OLS Outer Horizontal Surface	THRESHOLD HEIGHT limits (depicted in Figure 7, p10) Any development that would exceed the relevant OLS height across the site would require a prior 'airspace height' approval from the Department of Infrastructure and Regional Development under the Airports (Protection of Airspace) Regulations (or APAR). An application can be made for each tower building separately, or a single application can be made for the all towers within the development that would exceed this height.
~64 – 72m	Various PANS-OPS RWY25 Basic ILS Approach & Transitional & RWY25 RNAV(GNSS)-Z VNAV Final Approach Surface — All sloping surfaces	The PANS-OPS height constraints across the site will be regarded as the maximum permissible building heights that would be approved by the aviation authorities in the relevant areas (see Figure 8, p12) Cranes may be permitted up to the relevant PANS-OPS heights, taking crane boom length and swing into effect. Cranes may potentially be approved at heights that exceed the applicable PANS-OPS surface height constraints shown, subject to the specific location and a risk analysis, and acceptability to Sydney Airport.
NA	Other Surfaces	The study area is not constrained by any airspace protection requirements related to other approach procedures, departure procedures, Radar Terrain Clearance Chart (RTCC) surfaces, Sydney Airport's Navigation and Airport Lighting and Visual Guidance facilities, as well as those related to Airline Engine Inoperative contingency take-off procedures.

6. Considerations for Cranes

Under the Regulations, cranes are considered to be Temporary Controlled Activities, which may be permitted to penetrate PANS-OPS and other surfaces for up to three months under certain circumstances. They are permitted to penetrate an existing PANS-OPS surface only if the procedure which the surface is protecting can be temporarily changed without affecting safety or regularity. Thus, not all PANS-OPS surfaces can be penetrated temporarily by cranes.

The three-month time limit is a major impediment to using cranes that penetrate PANS-OPS surfaces. The Department is reluctant to approve cranes that penetrate existing PANS-OPS surfaces unless it can be proven, to the satisfaction of the airport and the Department, that the crane will be needed for less than three months. This is because, in recent times, some cranes have penetrated PANS-OPS surfaces for much longer than 3 months; this extended time period has caused problems for Air Traffic Control procedures at the airport.

In some cases, the height of the cranes needed to construct a development has further limited the height of proposed buildings. Some developers have tackled this problem by altering the type of construction for the top part of buildings and/or using cranes, or other methods of lifting materials and equipment, that do not require significant additional height above the building height.

In the case of the Gardeners Road development site, the limiting surfaces are the Basic ILS Surfaces for the ILS approach to RWY 25. The ILS approach to RWY 25 cannot be modified but it may be possible to argue that these surfaces can be penetrated temporarily up to the limit of the next most limiting PANS-OPS surface (the RNAV-Z GNSS approach to RWY25) — and this is likely to be only possible where the Obstacle Assessment Surfaces (OAS) for this ILS approach are substantially higher than the Basic ILS Surface heights, on the western half of the site. The other condition would be that the penetration by cranes was for no more than 3 months duration.

Finally also note that Sydney Airport now accepts applications for cranes that exceed the PANS-OPS surface limits for single-night-at-a-time operations — during curfew hours only — for the purposes of cranes that will be used for installing or removing other cranes. If considered acceptable by the airport, such applications will be approved by the Department of Infrastructure.

The airport and the Department will require that issue cranes be satisfactorily addressed in the application for approval prior to approving any building development for the Gardeners Road site.

This preliminary report is for the purpose of supporting further planning and exploring a maximum development height at the site that may be considered as technically and probably approvable under the Airports (Protection of Airspace) Regulations 1996 (APARs). The results and opinions are based on preliminary data only and would be subject to confirmation in a complete aeronautical impact study, based on survey data and firm building footprints and proposed heights.

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7. Conclusion

The entire study area is situated under the OLS surface at a height of 51m AHD (refer Figure 7 (p10)). Any building, structure or crane which would exceed that height would require a prior airspace height approval under the Airports (Protection of Airspace) Regulations 1996 (APAR).

Further, the project site is located relatively close to the airport and close to the nominal straight-in / straight-out flight path for RWY 07/25 — and therefore under the protection surfaces related to the approaches to RWY25. As such, the PANS-OPS surfaces overhead impose fairly limiting maximum permissible building heights (inclusive of overruns, rooftop furniture, roof-mounted antennae and so forth). The PANS-OPS height constraints slope across the site and range from approximately 64m AHD to 72m AHD, as indicated in Figure 8 (p12).

Given the location of the site in relation to the airport and the flight paths, it is also highly likely that the PANS-OPS surface height constraints will also be considered by the aviation authorities as the maximum permissible heights for any cranes that would be required for construction.

Taking these factors into consideration, as well as the location of the site in relation to the airport, **there is no technical impediment to the proposed master plan for the Sydney Water Gardeners Rd sites** providing the maximum heights of buildings and cranes do not exceed the current PANS-OPS Height Constraints documented herein, **and we consider that an application under the Airports (Protection of Airspace) Regulations, supported by a full aeronautical assessment and safety case would be approved by the Department of Infrastructure and Regional Development.** This would need to be considered and assessed further as part of any subsequent detailed Development Application under the proposed amendments to the current planning controls.

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APPENDICES

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APPENDIX 1 — ABBREVIATIONS

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Appendix 1 — Abbreviations ... 1

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Abbreviations used in this report and/or associated reference documents, and the meanings assigned to them for the purposes of this report are detailed in the following table:

Abbreviation	Meaning
AC	Advisory Circular (document supporting CAR 1998)
ACFT	Aircraft
AD	Aerodrome
AGL	Above Ground Level (Height)
AHD	Australian Height Datum
AHT	Aircraft Height
AIP	Aeronautical Information Publication
Airports Act	Airports Act 1996, as amended
AIS	Aeronautical Information Services
ALARP	As Low As Reasonably Practicable
ALC	Airport Lease Company
Alt	Altitude
AMAC	Australian Mayoral Aviation Council
AMSL	Above Minimum Sea Level
ANEF	Australian Noise Exposure Forecast
ANSP	Airspace and Navigation Service Provider
APACL	Australia Pacific Airports Corporation Limited, owner of Melbourne and Launceston Airports
APCH	Approach
APARs, or A(PofA)R	Airports (Protection of Airspace) Regulations, 1996 as amended
ARP	Aerodrome Reference Point
AsA	Airservices Australia
ASDA	Accelerated Stop Distance Available
ATC	Air Traffic Control(ler)
ATM	Air Traffic Management
BA (Planning)	Building Application or Building Approval (Planning)
BAC	Brisbane Airport Corporation
BCC	Brisbane City Council
CAO	Civil Aviation Order
CAR	Civil Aviation Regulation
CASA	Civil Aviation Safety Authority
CASR	Civil Aviation Safety Regulation
Cat	Category
CBD	Central Business District
CG	Climb Gradient
CNS/ATM	Communications, Navigation, Surveillance / Air Traffic Management
CPA	Cairns Port Authority, Operators Of Cairns Airport
DA (Aviation)	Decision Altitude (Aviation)
DA (Planning)	Development Application or Development Approval (Planning)
DAH	Designated Airspace Handbook
DAP	Departure and Approach Procedures (published by AsA)
DEP	Departure
DER	Departure End (of the) Runway
DEVELMT	Development
DH	Decision Height
DIRD	Department of Infrastructure and Regional Development (sometimes also abbreviated as Infrastructure)
DME	Distance Measuring Equipment
Doc nn	ICAO Document Number nn
DoD	Department of Defence
DODPROPS	Dependent Opposite Direction Parallel Runway Operations
EIS	Environmental Impact Study
ELEV	Elevation (above mean sea level)

2 ... Appendix 1 — Abbreviations

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For: **Sydney Water****73-75 Gardeners Rd, Eastlakes — Aeronautical Height Assessment**
Report by **Strategic Airspace**

Abbreviation	Meaning
ENE	East North East
ERSA	EnRoute Supplement Australia
ESE	East South East
FAF	Final Approach Fix
FAP	Final Approach Point
Ft	Feet
GBAS	Ground-Based Augmentation System, a GNSS augmentation system to provide vertical guidance and additional precision to non-precision approaches — permits GLS Approaches
GLS	GNSS Landing System — a precision landing system like ILS but based on augmented GNSS using ground and satellite systems.
GNSS	Global Navigation Satellite System
GP	Glide Path
HIAL	High Intensity Approach Light
HLS	Helicopter Landing Site
IAS	Indicated Air Speed
ICAO	International Civil Aviation Organisation
IFR	Instrument Flight Rules
IHS	Inner Horizontal Surface, an Obstacle Limitation Surface
ILS	Instrument Landing System, a precision approach landing system
IMC	Instrument Meteorological Conditions
IPA	Integrated Planning Act 1997, Queensland State Government
ISA	International Standard Atmosphere
IVA	Independent Visual Approach
Km	Kilometres
Kt	Knot (one nautical mile per hour)
LAT	Latitude
LDA	Landing Distance Available
LEP	Local Environment Plan (Planning)
LLZ	Localizer
LONG	Longitude
LSALT	Lowest Safe ALTitude
M	Metres
MAPt	Missed Approach Point
MDA	Minimum Descent Altitude
MDH	Minimum Descent Height
MDP	Major Development Plan
MGA94	Map Grid Australia 1994
MOC	Minimum Obstacle Clearance
MOCA	Minimum Obstacle Clearance Altitude
MOS	Manual Of Standards, published by CASA
MP	Master Plan
MSA	Minimum Sector Altitude
MVA	Minimum Vector Altitude
NASF	National Airports Safeguarding Framework
NDB	Non-Directional Beacon
NE	North East
NM	Nautical Mile (= 1.852 km)
nnDME	Distance from the DME (in Nautical Miles)
NNE	North North East
NNW	North North West
NOTAM	NOTice to AirMen
NPR	New Parallel Runway (Project, Brisbane Airport)
OAR	Office of Airspace Regulation
OCA	Obstacle Clearance Altitude (in this case, in AMSL)
OCH	Obstacle Clearance Height

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Appendix 1 — Abbreviations ... 3

73-75 Gardeners Rd, Eastlakes — Aeronautical Height Assessment
Report by **Strategic Airspace**

For: **Sydney Water**

Abbreviation	Meaning
ODPROPS	Opposite Direction Parallel Runway OPerations
OHS	Outer Horizontal Surface, an Obstacle Limitation Surface
OLS	Obstacle Limitation Surface, defined by ICAO Annex 14; refer also CASA MOS Part 139
PANS-OPS	Procedures for Air Navigation – Operations, ICAO Doc 8168; refer also CASA MOS Part 173
PAPI	Precision Approach Path Indicator (a form of VGSI)
PBN	Performance Based Navigation
PRM	Precision Runway Monitor
RAAF	Royal Australian Air Force
RAPAC	Regional Airspace users Advisory Committee
REF	Reference
RL	Relative Level
RNAV	aRea NAVigation
RNP	Required Navigation Performance
RPA	Rules and Practices for Aerodromes — replaced by the MOS Part 139 — Aerodromes
RPT	Regular Public Transport
RTCC	Radar Terrain Clearance Chart (refer also MVA)
RWY	Runway
SACL	Sydney Airport Corporation Limited
SID	Standard Instrument Departure
SODPROPS	(Independent) Simultaneous Opposite Direction Parallel Runway OPerations
SPP	State Planning Policy, Queensland (specifically SPP 1/02: Development in the Vicinity of Certain Airports and Aviation Facilities)
SSDA	State Significant Development Application
SSP	State Significant Precinct
SSR	Secondary Surveillance Radar
STAR	STandard Arrival
TAR	Terminal Approach Radar
TAS	True Airspeed
THR	THReshold (of Runway)
TMA	TerMinal Area
TNA	Turn Altitude
TODA	Take-off Distance Available
TORA	Take-Off Runway Available
VFR	Visual Flight Rules
VIS	Visual
VMC	Visual Meteorological Conditions
V _n	Aircraft critical velocity reference
VOR	Very high frequency Omni-directional Range
VSS	Visual Segment Surface
WAC	Westralia Airports Corporation, operators of Perth Airport
WAM	Wide-Area Multilateration
WNW	West North West
WSW	West South West
WGS84	World Geodetic System 1984
WSA	Western Sydney Airport – the proposed second international airport for the Sydney Basin

4 ... Appendix 1 — Abbreviations

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For: **Sydney Water**

73-75 Gardeners Rd, Eastlakes — Aeronautical Height Assessment
Report by **Strategic Airspace**

APPENDIX 2 — PANS-OPS PROCEDURES

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Appendix 2 — PANS-OPS Procedures ... 1

73-75 Gardeners Rd, Eastlakes — Aeronautical Height Assessment
Report by Strategic Airspace

For: Sydney Water

The latest versions of the IFPs consulted were from the current AIP Amendment 152, effective from 17-Aug-2017 to 08-Nov-2017 — as indicated in Table 5 below.

Table 5 — PANS OPS Instrument Flight Procedure Charts for Sydney Airport (AIP Amendment 152 – Effective 17-Aug-2017 to 08-Nov-2017)

SYDNEY (YSSY)

Name of Chart	Effective Date (Amendment No)
AERODROME CHART PAGE 1	2-Mar-2017 (Am 150)
AERODROME CHART PAGE 2	10-Nov-2016 (Am 149)
APRON CHART - INTERNATIONAL PAGE 1	13-Nov-2014 (Am 141)
APRON CHART - INTERNATIONAL PAGE 2	25-May-2017 (Am 151)
APRON CHART - DOMESTIC PAGE 1	26-May-2016 (Am 147)
APRON CHART - DOMESTIC PAGE 2	26-May-2016 (Am 147)
APRON CHART - DOMESTIC PAGE 3	26-May-2016 (Am 147)
STANDARD DOMESTIC TAXI ROUTES - ARRIVALS	21-Aug-2014 (Am 140)
STANDARD DOMESTIC TAXI ROUTES - DEPARTURES	6-Mar-2014 (Am 138)
NOISE ABATEMENT PROCEDURE PAGE 1	17-Nov-2011 (Am 129)
NOISE ABATEMENT PROCEDURE PAGE 2	17-Aug-2017 (Am 152)
NOISE ABATEMENT PROCEDURE PAGE 3	3-Mar-2016 (Am 146)
NOISE ABATEMENT PROCEDURE PAGE 4	3-Mar-2016 (Am 146)
NOISE ABATEMENT PROCEDURE PAGE 5	2-Mar-2017 (Am 150)
NOISE ABATEMENT PROCEDURE PAGE 6	3-Mar-2016 (Am 146)
NOISE ABATEMENT PROCEDURE PAGE 7	3-Mar-2016 (Am 146)
NOISE ABATEMENT PROCEDURE PAGE 8	3-Mar-2016 (Am 146)
NOISE ABATEMENT PROCEDURE PAGE 9	3-Mar-2016 (Am 146)
NOISE ABATEMENT PROCEDURE PAGE 10	3-Mar-2016 (Am 146)
AIRPORT EFFICIENCY PROCEDURES	18-Aug-2016 (Am 148)
IVA USER GUIDE PAGE 1	10-Nov-2016 (Am 149)
IVA USER GUIDE PAGE 2	6-Mar-2014 (Am 138)
SID SYDNEY ONE DEP (RADAR) - ALL RWYS	17-Aug-2017 (Am 152)
SID RWY 34L SOUTH WEST DEP (JET)	10-Nov-2016 (Am 149)
SID RWY 16R & 34L SOUTH DEP (NON-JET) (RNAV)	10-Nov-2016 (Am 149)
SID RWY 16R DEENA SEVEN (JET) (RNAV)	17-Aug-2017 (Am 152)
SID RWY 34R ENTRA FIVE (JET) (RNAV)	10-Nov-2016 (Am 149)
SID RWY 07 FISHA EIGHT (JET) (RNAV)	17-Aug-2017 (Am 152)
SID KAMBA DEP RWYS 07 & 16L (NON-JET) (RNAV)	10-Nov-2016 (Am 149)
SID RWY 16R KAMPI FOUR (JET) (RNAV)	17-Aug-2017 (Am 152)
SID RWY 16L KEVIN FIVE (JET) (RNAV)	10-Nov-2016 (Am 149)
SID RWY 16L ABBEY THREE (JET) (RNAV)	10-Nov-2016 (Am 149)
SID RWY 34R MARUB SIX (JET) (RNAV)	17-Aug-2017 (Am 152)
SID RWY 34L RICHMOND FIVE DEP (JET)	17-Aug-2017 (Am 152)
SID RWY 16L BOTANY BAY EIGHT (VISUAL) (RNAV)	10-Nov-2016 (Am 149)
SID RWY 16R CURFEW FIVE (RNAV)	10-Nov-2016 (Am 149)
STAR BOREE SIX ARRIVAL (RNAV)	10-Nov-2016 (Am 149)
STAR MEPIL ONE ARRIVAL (RNAV)	10-Nov-2016 (Am 149)
STAR MARLN TWO ARRIVAL (RNAV)	10-Nov-2016 (Am 149)
STAR ODALE SIX ARRIVAL (RNAV)	17-Aug-2017 (Am 152)
STAR RIVET TWO ARRIVAL (RNAV)	10-Nov-2016 (Am 149)
ILS-Z OR LOC-Z RWY 07	10-Nov-2016 (Am 149)

2 ... Appendix 2 — PANS-OPS Procedures

September 2017

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For: **Sydney Water** **73-75 Gardeners Rd, Eastlakes — Aeronautical Height Assessment**
Report by **Strategic Airspace**

<i>Name of Chart</i>	<i>Effective Date (Amendment No)</i>
ILS-Y OR LOC-Y RWY 07	10-Nov-2016 (Am 149)
ILS-Z OR LOC-Z RWY 16L	10-Nov-2016 (Am 149)
ILS-Y OR LOC-Y RWY 16L	10-Nov-2016 (Am 149)
ILS-Z OR LOC-Z RWY 16R PAGE 1	17-Aug-2017 (Am 152)
ILS-Z RWY 16R PAGE 2	17-Aug-2017 (Am 152)
ILS-Y OR LOC-Y RWY 16R	2-Mar-2017 (Am 150)
ILS OR LOC RWY 25	10-Nov-2016 (Am 149)
ILS-Z OR LOC-Z RWY 34L PAGE 1	17-Aug-2017 (Am 152)
ILS-Z RWY 34L PAGE 2	17-Aug-2017 (Am 152)
ILS-Y OR LOC-Y RWY 34L	25-May-2017 (Am 151)
ILS-Z OR LOC-Z RWY 34R	10-Nov-2016 (Am 149)
ILS-Y OR LOC-Y RWY 34R	10-Nov-2016 (Am 149)
RNAV-Z (GNSS) RWY 07	17-Aug-2017 (Am 152)
RNAV-Z (GNSS) RWY 16L	17-Aug-2017 (Am 152)
RNAV-Z (GNSS) RWY 16R	17-Aug-2017 (Am 152)
RNAV-Z (GNSS) RWY 25	17-Aug-2017 (Am 152)
RNAV-Z (GNSS) RWY 34L	17-Aug-2017 (Am 152)
RNAV-Z (GNSS) RWY 34R	17-Aug-2017 (Am 152)
GLS RWY 07	10-Nov-2016 (Am 149)
GLS RWY 16L	10-Nov-2016 (Am 149)
GLS RWY 16R	2-Mar-2017 (Am 150)
GLS RWY 25	10-Nov-2016 (Am 149)
GLS RWY 34L	25-May-2017 (Am 151)
GLS RWY 34R	10-Nov-2016 (Am 149)
ILS PRM USER INSTRUCTIONS PAGE 1	10-Nov-2016 (Am 149)
ILS PRM USER INSTRUCTIONS PAGE 2	20-Aug-2015 (Am 144)
ILS-Z RWY 16L PRM	10-Nov-2016 (Am 149)
ILS-Y RWY 16L PRM	10-Nov-2016 (Am 149)
ILS-Z (CAT I & II) RWY 16R PRM	2-Mar-2017 (Am 150)
ILS-Y RWY 16R PRM	2-Mar-2017 (Am 150)
ILS-Z (CAT I & II) RWY 34L PRM	10-Nov-2016 (Am 149)
ILS-Y RWY 34L PRM	10-Nov-2016 (Am 149)
ILS-Z RWY 34R PRM	10-Nov-2016 (Am 149)
ILS-Y RWY 34R PRM	10-Nov-2016 (Am 149)

Source: AIP Book (17-Aug-2017) via <http://www.airservicesaustralia.com/aip/aip.asp?pg=10>

**Attachment J –
Environmental Noise Impact
Statement, Prepared by
Acoustic Logic, dated
September 2017**

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3	25/09/2017	20150926.1/2509A/R3/GC	GC		BW

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1 INTRODUCTION

This report presents our preliminary acoustic assessment for the masterplan of a proposed development at 73-75 Gardeners Road, Eastlakes. The purpose of this master plan is to inform the appropriate planning controls for the site to demonstrate that the site is suitable for residential development. Any future development will be subject to divestment of the site by Sydney Water and further detailed design and assessment by others as required by the NSW planning system.

This report will:

- Conduct an external noise intrusion assessment (primarily traffic noise and aircraft noise) and recommend acoustic treatments to ensure that a reasonable level of amenity is achieved for future occupants. Traffic noise at the site have been measured and assessed in accordance with the requirements of City of Botany Council DCP, Australian Standard 2107:2000 and NSW State Environmental Planning Policy (Infrastructure) 2007. Aircraft noise on site has been assessed in accordance with Australian Standard 2021:2000.
- Conduct background noise monitoring to determine noise emission goals for future use of the development to meet the requirements of City of Botany Council DCP and NSW EPA Industrial Noise Policy.

2 SITE DESCRIPTION AND MAJOR ACOUSTIC ISSUES

The subject site is located on Gardeners Road, Eastlakes and currently operates as a commercial site. Approximately 4 metres to the north of the site lies Gardeners Road, which carries medium to high volumes of traffic. Slattery Way, which bounds the west of the site, carries low volumes of traffic and mainly acts as a conduit for residents accessing local streets. Southern boundaries are bounded by existing golf course whilst the eastern boundaries is bounded by the existing golf course car park and club house site which carries low volumes of traffic and is predominantly utilised by employees and customers accessing the site.

In addition, the site is affected by noise from aircraft movements to/from the third runway at Sydney Airport, and lies between the ANEF 20 and 25 contours.

Figure 1 shows the site surroundings and measurement locations.



Figure 1: Site Map and Measurement Locations

3 NOISE DESCRIPTORS

Traffic noise constantly varies in level, due to fluctuations in traffic speed, vehicle types, road conditions and traffic densities. Accordingly, it is not possible to accurately determine prevailing traffic noise conditions by measuring a single, instantaneous noise level. To accurately determine the effects of traffic noise a 15-20 minute measurement interval is utilised. Over this period, noise levels are monitored on a continuous basis and statistical and integrating techniques are used to determine noise description parameters. These parameters are used to measure how much annoyance would be caused by a particular noise source.

In the case of environmental noise three principle measurement parameters are used, namely L_{10} , L_{90} and L_{eq} .

The L_{10} and L_{90} measurement parameters are statistical levels that represent the average maximum and average minimum noise levels respectively, over the measurement intervals.

The L_{10} parameter is commonly used to measure noise produced by a particular intrusive noise source since it represents the average of the loudest noise levels produced at the source.

Conversely, the L_{90} level (which is commonly referred to as the background noise level) represents the noise level heard in the quieter periods during a measurement interval. The L_{90} parameter is used to set the allowable noise level for new, potentially intrusive noise sources since the disturbance caused by the new source will depend on how audible it is above the pre-existing noise environment, particularly during quiet periods, as represented by the L_{90} level.

The L_{eq} parameter represents the average noise energy during a measurement period. This parameter is derived by integrating the noise levels measured over the measurement period. L_{eq} is important in the assessment of traffic noise impact as it closely corresponds with human perception of a changing noise environment; such is the character of traffic noise.

Current practice favours the L_{eq} parameter as a means of measuring traffic noise, whereas the L_{10} parameter has been used in the past and is still incorporated in some codes. For the reasons outlined above, the L_{90} parameter is not used to assess traffic noise intrusion.

LA_{max} refers to the maximum noise level occurring during a measurement period, and is used when assessing sleep disturbance impacts.

4 NOISE INTRUSION ASSESSMENT

4.1 PROJECT ACOUSTIC OBJECTIVES

The assessment of traffic and aircraft noise is conducted with reference to the following documents:

- The City of Botany Bay Council Development Control Plan 2013
- NSW State Environmental Planning Policy Infrastructure (2007).
- AS2107 – 2000 Acoustics – Recommended design sound level and reverberation times for building interiors.
- AS2021 – 2000 Acoustics – Aircraft noise intrusion – Building siting and construction.

4.1.1 The City of Botany Bay Council DCP

Botany Council DCP states the following:

“C1 New dwellings shall be designed and constructed to comply with the criteria specified in Table 6 for all noise intrusion from external noise sources (including mechanical services noise from within the development itself).

C2 An acoustic report prepared by a certified acoustic consultant must be submitted with the development application addressing the requirements detailed in C1 and C3.

C3 Where multiple dwellings are provided within the same building, the building shall be designed and constructed to comply with the requirements of the BCA regarding acoustic insulation and noise transmission of walls and floors. In order to meet these requirements, the following design measures are to be incorporated in the development:

(i) Buildings are to be designed and rooms positioned to reduce noise transmission within and between dwellings;

(ii) Bedrooms should be designed so that wardrobes act as sound buffers between rooms or dwellings;

(iii) Windows and doors should be located away from external noise sources, or buffers used where separation cannot be achieved;

(iv) Materials with low noise penetration properties should be used where practical;

(v) Locate bedrooms and private open spaces away from noise sources such as garages, driveways, mechanical equipment and recreation areas; and (vi) Mechanical equipment, such as pumps, lifts or air conditioners should not be located adjacent to bedrooms or living rooms of dwellings on adjoining properties.

C4 Habitable rooms must be orientated away from arterial roads and other traffic noise sources, to the extent possible. “

Table 6 of the Residential Flat Buildings DCP states the following:

Internal Area	Time	Repeatable Maximum LAeq (1 Hour) with closed windows and doors	Repeatable Maximum LAeq (1 Hour) with open windows and doors
<i>Living Areas</i>	<i>Day or Night</i>	< 40 dBA	<50dBA
<i>Sleeping Areas</i>	<i>Day or Night</i>	< 40 dBA	<50dBA

4.1.2 Botany Bay LEP

Botany Bay LEP section 6.9 requires that for developments located in the ANEF 20 contour or greater, that the consent authority must be satisfied that the indoor design sound levels in table 3.3 of AS2021 will be met.

4.1.3 Australian Standards Criteria

The Australian Standards recommend maximum design sound levels for different areas of occupancy in the residential development while AS 3671 -1989 "Road Traffic Noise Intrusion - Building Siting and Construction" recommends that an appropriate L_{eq} for traffic noise descriptor be used for the occupancy being assessed.

Based on AS2107-2000 and AS 3671-1989 the following assessment criteria would apply to the proposed development based on developments near major roads.

Table 1 - AS2107:2000 Internal Traffic Noise Criteria

Space Activity Type	Noise Level dB(A) $L_{eq}(1hr)$	
	Satisfactory	Maximum
Living Areas	35	45
Sleeping Areas	30	40
Retail/Commercial	45	50
Lobby	45	55

4.1.4 State Environmental Planning Policy 2007

The NSW Department of Planning's policy, Development Near Rail Corridors And Busy Roads – Interim Guideline, sets out internal noise level criteria adapted from the State Environmental Planning Policy (Infrastructure) 2007 (the 'Infrastructure SEPP') for developments with the potential to be impacted by traffic or rail noise and vibration.

The Infrastructure SEPP defines busy roads that are subject to an acoustic assessment as:

"Clause 102: development for any of the following purposes that is on land in or adjacent to a road corridor for a freeway, a tollway or a transit way or any other road with an annual average daily traffic volume of more than 40,000 vehicles (based on the traffic volume data available on the website of the RTA) and that the consent authority considers is likely to be adversely affected by road noise or vibration:

- *building for residential use*
- *a place of public worship*
- *a hospital*
- *an educational establishment or childcare."*

The Infrastructure SEPP sets out the following criteria for internal noise levels from airborne traffic noise:

"For Clauses 87 (Rail) and 102 (Road):

"If the development is for the purpose of a building for residential use, the consent authority must be satisfied that appropriate measures will be taken to ensure that the following L_{Aeq} levels are not exceeded:

in any bedroom in the building : 35dB(A) at any time 10pm–7am

anywhere else in the building (other than a garage, kitchen, bathroom or hallway): 40dB(A) at any time."

Internal requirements are for residential spaces and are measured internally with windows closed.

4.1.5 Australian Standard 2021:2000 (Aircraft Noise Intrusion)

As the proposed site is located between ANEF 20 and 25 contours, AS2021 states that a full evaluation of internal noise levels is carried out. This evaluation requires an examination of the likely levels of internal noise from aircraft flyovers.

AS2021 stipulates the internal noise levels listed in the Table 2 below for residential buildings. These levels will be used to assess aircraft noise intrusion into the residential levels of the development.

Table 2 – Indoor Design Sound Levels for Aircraft Noise Reduction Assessment

ACTIVITY	INDOOR DESIGN SOUND LEVEL FROM AIRCRAFT FLYOVER, dB (A)
Sleeping areas, dedicated lounges	50 dB (A)
Other habitable spaces	55 dB (A)
Bathrooms, toilets, laundries	60 dB (A)

4.1.6 Summary of Criteria

The governing project criteria are presented in the Table 3 and 4 below.

Table 3 – Internal Noise Level Criteria

Location	Criteria	
	Traffic Noise Intrusion	Aircraft Noise Intrusion
Bedroom	35 dB(A) $L_{eq}(15\text{hour})$ – SEPP 40 dB(A) $L_{eq}(1\text{hour})$ – AS2107	50 dB(A)
Habitable Space	40 dB(A) $L_{eq}(9\text{hour})$ – SEPP 45 dB(A) $L_{eq}(1\text{hour})$ – AS2107	55 dB(A)
Bathrooms	N/A	60 dB(A)

Table 4 - AS2107:2000 Internal Noise Level Criteria for Other Areas

LOCATION	TIME OF DAY	CRITERIA	
		SATISFACTORY	MAXIMUM*
Retail/Commercial	24 Hours	45dB(A) $L_{eq}(1\text{ hour})$	50dB(A) $L_{eq}(1\text{ hour})$
Lobby	24 Hours	45dB(A) $L_{eq}(1\text{ hour})$	55dB(A) $L_{eq}(1\text{ hour})$

*Recommendations nominated in section 4.4 below will comply with the Maximum design criterion above.

Compliance with the criteria in table 3 and 4 above will result in compliance with Botany Council DCP's and LEP, AS2021 and SEPP Infrastructure.

4.2 TRAFFIC NOISE MEASUREMENTS

Traffic measurements were taken along the Gardeners Road façade and Bourke Road of the proposed development. Both short term (attended) and long term (unattended) measurements were conducted.

4.2.1 Measurement Location

The long-term noise monitor was setup on Gardeners Road, the monitor had a full view of the road without any obstructions, as indicated in Figure 1.

Supplementary attended measurements were taken at various locations of the site, as shown in Figure 1.

4.2.2 Measurement Period

The long-term noise monitor was conducted from 27th July until the 4th August 2015.

The attended measurements were taken on 20th July 2015 and 28th June 2017.

4.2.3 Measurement Equipment

The long term monitoring was conducted using an Acoustic Research Laboratories Pty Ltd noise logger. The logger was set to A-weighted fast response and was programmed to store 15-minute statistical noise levels throughout the monitoring period. The monitor was calibrated at the start and end of the monitoring period using a Rion NC-73 calibrator. No significant drift was noted.

Attended measurements were undertaken using a Norsonic 140 sound level analyser, set to A-weighted fast response. The sound level analyser was calibrated before and after the measurements, no significant drift was noted.

4.2.4 Measurement Results

4.2.4.1 Unattended Noise Monitor Results

Table 5 below shows measured results from unattended noise monitoring on the proposed site. For detailed location see Figure 1. Detailed results from noise monitoring can be found in Appendix A.

Table 5 – Unattended Noise Monitor Results

Location	Time Period	Traffic Noise Level
75 Gardeners Road, Eastlakes (Approximately 4m from the kerb)	Day - (7am-10pm)	70 dB(A) _{L_{Aeq}} (15hr)
	Night – (7am-10pm_	64 dB(A) _{L_{Aeq}} (9hr)
	Day - (7am-10pm)	71 dB(A) _{L_{Aeq}} (worst 1hr)
	Night - (10pm-7am)	69 dB(A) _{L_{Aeq}} (worst 1hr)

4.2.4.2 Attended Noise Measurements

Table 6 below shows measured results from Attended traffic measurements which were conducted around the proposed site. For detailed location see Figure 1.

Table 6 – Attended Noise Measurements- Site 2

Location	Time	Measured Results
75 Gardeners Road, Eastlakes (Approximately 4m from the kerb at north east boundary)	5:00pm – 6:00pm	72 dB(A) _{L_{aq}(15mins)}
75 Gardeners Road, Eastlakes (Approximately 4m from the kerb at north west boundary)		69 dB(A) _{L_{aq}(15mins)}

Table 7 – Attended Noise Measurements- Site 3

Location	Time	Measured Results
73 Gardeners Road, Eastlakes (Approximately 4m from the kerb at north east boundary)	5:00pm – 6:00pm	72 dB(A) _{L_{aq}(15mins)}
73 Gardeners Road, Eastlakes (Approximately 4m from the kerb at north west boundary)		72 dB(A) _{L_{aq}(15mins)}

4.3 AIRCRAFT NOISE ASSESSMENT

4.3.1 Site Evaluation

Assessing the acceptability of aircraft noise exposure is done so using Australian Standard AS 2021-2000 "Aircraft Noise Intrusion – Building Siting and Construction". The standard sets the criteria for the allowable levels of aircraft noise exposure dependant on the situation and use of the development.

The acceptability of a site in terms of aircraft noise exposure is assessed using the Australian Noise Exposure Forecast System (ANEF). ANEF was produced to provide a rating system that reflects actual human response to different aspects of aircraft noise, allowing the noise exposure of a particular location to be readily assessed. The three fundamental factors that influence the perception of aircraft noise are as follows; the frequency of aircraft movements overhead, the noise level and duration of individual aircraft movements and the time of the day in which they occur.

The proposed site is located near the ANEF 20 contour, based on the Sydney Airport 2029 ANEF plan. For any sites located on or near the 20 ANEF contour, it is recommended that the proposed site be assessed to ensure that internal noise levels are limited to those recommended in AS2021.

4.3.2 External Aircraft Noise Levels

Aircraft noise levels at the site were determined using AS 2021. The Standard gives aircraft noise levels for various aircraft landing and taking off for locations near airports. The location of the runways was obtained from Sydney Airport 2029 ANEF.

Based on the distance from the site to the runways and an assessment of all the aircraft listed in AS 2021, the Standard predicts that the highest typical aircraft movement will be from a short range take off of a Boeing-767 taking off from the Third Runway. The noise level at the site as indicated by the standard is 76dB(A). This noise level will be used to predict the resultant internal noise levels. The maximum noise levels in the table below will be used to predict the resultant internal noise levels for each runway option.

Table 8 – Aircraft Noise Levels at the Proposed Site

Boeing 767 Aircraft	East/West Runway	Third Runway
Sideline Distance (DS), m	571m for landings	520m for take offs 2000m for landings
Distance for Take Offs (DT), m*	N/A	6750m
Distance for Landings (DL), m*	2750m	3250m
767 Take Off dB (A)	N/A	<76
767 Landing dB (A)	<72	<54
ANR 767 Take Off dB (A)	N/A	21 Living 26 Sleeping 16 Wet
ANR 767 Landing dB (A)	17 Living 22 Sleeping 12 Wet	0 Living 4 Sleeping 0 Wet

* These distances have been adjusted to take into account land height correction pursuant to AS2021.

4.4 EVALUATION OF NOISE INTRUSION

Internal noise levels will primarily be as a result of noise transfer through the windows and doors and roof, as these are relatively light building elements that offer less resistance to the transmission of sound. **Any external walls and roof design that are proposed to be of heavy masonry elements will not require upgrading. Any lightweight constructions will need to be reviewed and assessed at a later stage.**

The predicted noise levels through windows and doors for typical developments are discussed below. The predicted noise levels have been based on the measured level and spectral characteristics of the external noise, the area of building elements exposed to traffic noise, the absorption characteristics of the rooms and the noise reduction performance of the building elements.

Calculations were performed taking into account the orientation of windows, barrier effects (where applicable), the total area of glazing, facade transmission loss and the likely room sound absorption characteristics. In this way the likely interior noise levels can be predicted.

Table 9 – Typical Glazing Construction Recommendations – Site 2 and 3

Boundary	Room	Glazing requirements*
North (Gardeners Road)	Bedrooms	10.38mm Laminated with acoustic seals
	Living Rooms	10.38mm Laminated with acoustic seals
Southern (Golf Course)	Bedrooms	10.38mm Laminated with acoustic seals
	Living Rooms	6.38mm Laminated with acoustic seals
Eastern Boundary (Slattery Way)	Bedrooms	10.38mm Laminated with acoustic seals
	Living Rooms	6.38mm Laminated with acoustic seals
Western Boundary (Golf Club House)	Bedrooms	10.38mm Laminated with acoustic seals
	Living Rooms	6.38mm Laminated with acoustic seals

Note: These glazing thicknesses are to be reviewed at CC stage when plans are finalised.

Table 10 – Typical Retail/Commercial Glazing Recommendations

Facade	Area	Glazing requirements
All	Retail/Commercial	6mm toughened with acoustic seals

The glazing thicknesses recommended are those needed to satisfy acoustic requirements and do not take into account other requirements such as structural, safety or other considerations. These additional considerations may require the glazing thickness to be increased beyond the acoustic requirement. **These glazing thicknesses are to be reviewed at CC stage when plans are finalised.**

Noise intrusion through the masonry walls will be negligible and will not contribute to internal noise levels. Similarly, noise intrusion through the concrete slab roof construction will not be significant.

4.1 MECHANICAL VENTILATION

AS2021-2000 requires the installation of ventilation or air conditioning system where aircraft noise exposure exceeds ANEF 20. As internal noise levels cannot be achieved with windows open it is required that an alternative outside air supply system or air conditioning be installed in accordance with AS 1668.2 requirements. Any mechanical ventilation system that is installed should be acoustically designed such that the acoustic performance of the recommended constructions are not reduced by any duct or pipe penetrating the wall/ceiling/roof. Noise emitted to the property boundaries by any ventilation system shall comply with Council requirements.

5 NOISE EMISSION ASSESSMENT

Detailed mechanical equipment selection and layouts are not available at this stage. The external noise emission criteria are set up in this section of the report to ensure that the amenities of nearby land users are not adversely affected.

The nearest potentially affected residential receivers are the residential properties located on the western side of Slattery Way and on the northern side of Gardeners Road from the subject development. The nearest affected commercial receivers are the Eastlake Golf Club and shop on the eastern boundary and the golf course on the southern boundary adjacent to the site.

5.1 BACKGROUND NOISE MONITORING

Long-term unattended monitors were used for background noise measurements supplemented with attended measurements at the eastern and northern boundary of the site. Detailed noise monitoring results can be found in Appendix 1.

The long-term noise monitoring was conducted from 27th July until the 4th August 2015.

The long term monitoring was conducted using Acoustic Research Laboratories Pty Ltd noise loggers. The loggers were set to A-weighted fast response and were programmed to store 15-minute statistical noise levels throughout the monitoring period. The monitors were calibrated at the start and end of the monitoring period using a Rion NC-73 calibrator. No significant drift was noted. See Figure 1 for Monitor Locations.

Table 10 – Measured Background Noise Levels

Location	Period/Time	Background Noise Level dB(A) L ₉₀ (period)
75 Gardeners Road, Eastlakes (Northern Boundary)	Day (7am-6pm)	57
	Evening(6pm-10pm)	53
	Night(10pm-7am)	41
Sydney Water, Eastlakes (73 Gardeners Road Location)	Day (7am-6pm)	48
	Evening(6pm-10pm)	49
	Night(10pm-7am)	41

5.2 NOISE EMISSION OBJECTIVES

The following documents are used to establish the noise emission criteria for the development site:

- City of Botany Bay Council DCP
- EPA Industrial Noise Policy
- Protection of Environmental Operation Act Regulation

5.2.1 City of Botany Bay Council DCP

The City of Botany Bay Council states:

“C18 The noise level from air conditioning systems is not to exceed the $L_{Aeq\ 15\ minute}$ by 5dBA measured at the property Boundary.

5.2.2 EPA Industrial Noise Policy

The EPA Industrial Noise Policy, has two criteria which need to be satisfied namely Intrusiveness and Amenity.

The EPA Industrial Noise Policy sets out acceptable noise levels for various localities. Table 2.1 on page 16 of the policy indicates 4 categories to distinguish different residential areas. They are rural, suburban, urban and urban/industrial interface. Under the policy the nearest residence would be assessed against the urban criteria.

Noise levels are to be assessed at the property boundary or nearby dwelling, or at the balcony or façade of an apartment.

5.2.2.1 Intrusiveness Criterion

The guideline is intended to limit the audibility of noise emissions at residential receivers and requires that noise emissions measured using the L_{eq} descriptor not exceed the background noise level by more than 5dB(A). Where applicable, the intrusive noise level should be penalised (increased) to account for any annoying characteristics such as tonality.

Background noise levels adopted are presented in the table below. Noise emissions from the site should comply with the noise levels presented below when measured at nearby property boundary.

Table 11– Allowable Intrusive Noise Levels

Location	Intrusiveness Noise Goals dB(A) $L_{eq(15\ minutes)}$		
	Daytime (7am – 6pm)	Evening (6pm – 10pm)	Night-time (10pm – 7am)
Northern Boundary	62	58	46
All Remaining Boundaries	53	54	46

5.2.2.2 Amenity Criterion

The guideline is intended to limit the absolute noise level from all noise sources to a level that is consistent with the general environment.

The EPA's Industrial noise policy sets out acceptable noise levels for various localities. Table 2.1 on page 16 of the policy indicates 4 categories to distinguish different residential areas. They are rural, suburban, urban and urban/industrial interface. This site is categorised by the residential receivers as suburban.

For the purposes of this condition:

- Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sundays and Public Holidays;
- Evening is defined as the period from 6pm to 10pm.
- Night is defined as the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sunday and public holidays.

Table 12 – EPA Amenity Noise Levels

Type of Receiver	Time of day	Recommended Acceptable Noise Level dB(A) $L_{eq(period)}$
Residential – Suburban	Day (7am-6pm)	55
	Evening (6pm-10pm)	45
	Night (10pm-7am)	40
Commercial Premises	When in use	65

5.2.3 Sleep Arousal

To minimise the potential for sleep arousal the L_1 (1 minute) noise level of any specific noise source does not exceed the background noise level (L_{90}) by more than 15 dB(A) outside a resident's bedroom window between the hours of 10pm and 7am.

The L_1 noise level is the level exceeded for 1 per cent of the time and approximates the typical maximum noise level from a particular source. Where the typical repeatable existing L_1 levels exceed the above requirement then the existing L_1 levels form the basis for, sleep disturbance criteria.

5.2.4 Protection of the Environmental Operation Act Regulation

Protection of the Environmental Operations regulation limits the noise levels associated within the operation of domestic air conditioning criteria during night time periods which is presented below:

Protection of the Environmental Operations (Noise Control) Regulation 2000-Sect 52

52 Air Conditioners

(1) A person must not cause or permit an air conditioner to be used on residential premises in such a manner that it emits noise that can be heard within a habitable room in any other residential premises (regardless of whether any door or window to that room is open):

(a) before 8 am or after 10 pm on any Saturday, Sunday or public holiday, or

(b) before 7 am or after 10 pm on any other day.

5.2.5 Summary of Noise Emission Objectives

Based on the requirements stated in the sections above, the Table 13 and 14 below provides a summary of the assessment criteria applicable to the future residential development at the project site. The assessment criteria are also based on the ambient noise monitoring conducted at the site.

Table 13 – Environmental Noise Emission Criteria (Northern Boundary)

Time of day	Measured Background Noise Level dB(A) L ₉₀ (15minutes)	Amenity Criteria dB(A) L _{eq} (period)	Intrusiveness Criteria Background + 5 dB(A) L _{eq} (15minutes)	EPA Criteria for Residential Condensers	EPA Criteria for Sleep Disturbance dB (A) L ₁ (1minute)
Day	57	55	63	N/A	N/A
Evening	53	45	58	N/A	N/A
Night	41	40	46	Inaudible within neighbouring premises	56

Table 14 – Environmental Noise Emission Criteria (Remaining Boundaries)

Time of day	Measured Background Noise Level dB(A) L ₉₀ (15minutes)	Amenity Criteria dB(A) L _{eq} (period)	Intrusiveness Criteria Background + 5 dB(A) L _{eq} (15minutes)	EPA Criteria for Residential Condensers	EPA Criteria for Sleep Disturbance dB (A) L ₁ (1minute)
Day	48	55	53	N/A	N/A
Evening	49	45	54	N/A	N/A
Night	41	40	46	Inaudible within neighbouring premises	56

5.3 ASSESSMENT OF NOISE EMISSION

As mechanical plant has not yet been selected at this stage, a complete assessment of mechanical noise emissions can not be conducted at this time. Generally, this is undertaken at CC stage, once the plant selections have been undertaken. Notwithstanding, compliance with the mechanical noise emission criteria presented in section 5.2.5 is both practical and reasonable with the use of one or more of (but not limited to) the following:

- Acoustic Barriers/Screens;
- Internally lined ductwork;
- External Lagging;
- Silencers etc.

5.3.1 Noise – Air-conditioners

As air conditioning plant has not yet been selected, a complete assessment of air-conditioning noise emissions can not be conducted at this time. Generally, this is undertaken at CC stage, once the plant selections have been undertaken. Notwithstanding, compliance with the air conditioning noise emission criteria presented in section 5.2.5 is both practical and reasonable with the use of one or more of (but not limited to) the following acoustic treatments:

- Acoustic Barriers/Screens;
- Internally lined ductwork;
- External Lagging;
- Silencers etc.

6 CONCLUSION

This report presents preliminary acoustic assessment for the masterplan of a potential development at 73-75 Gardeners Road, Eastlakes.

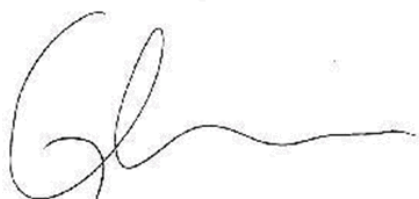
Noise intrusion impact from traffic and aircraft noise onto the future occupants of the development has been assessed in accordance with State of Environment Planning Policy (Infrastructure), Botany Bay Council DCP's and Australian Standards 2021:2000 and 2107:2000 . The typical acoustic treatments in principle necessary to achieve these guidelines have been presented within this report.

Noise emission criteria for the development site have been determined based on the site noise logging and Botany Bay Council DCP, NSW EPA Industrial Noise Policy and Protection of the Environmental Operation Act Regulation. These requirements have been presented in Section 5.2.

It must be noted that any future development will be subject to a separate Development Application lodged with Bayside Council which will need to undergo detailed assessment against the relevant criteria identified in this report. The assessment of the master plan identifies that the site is appropriate for residential development with regards to acoustic impacts, subject to detailed design and further assessment as part of any future development application.

We trust this information is satisfactory. Please contact us should you have any further queries.

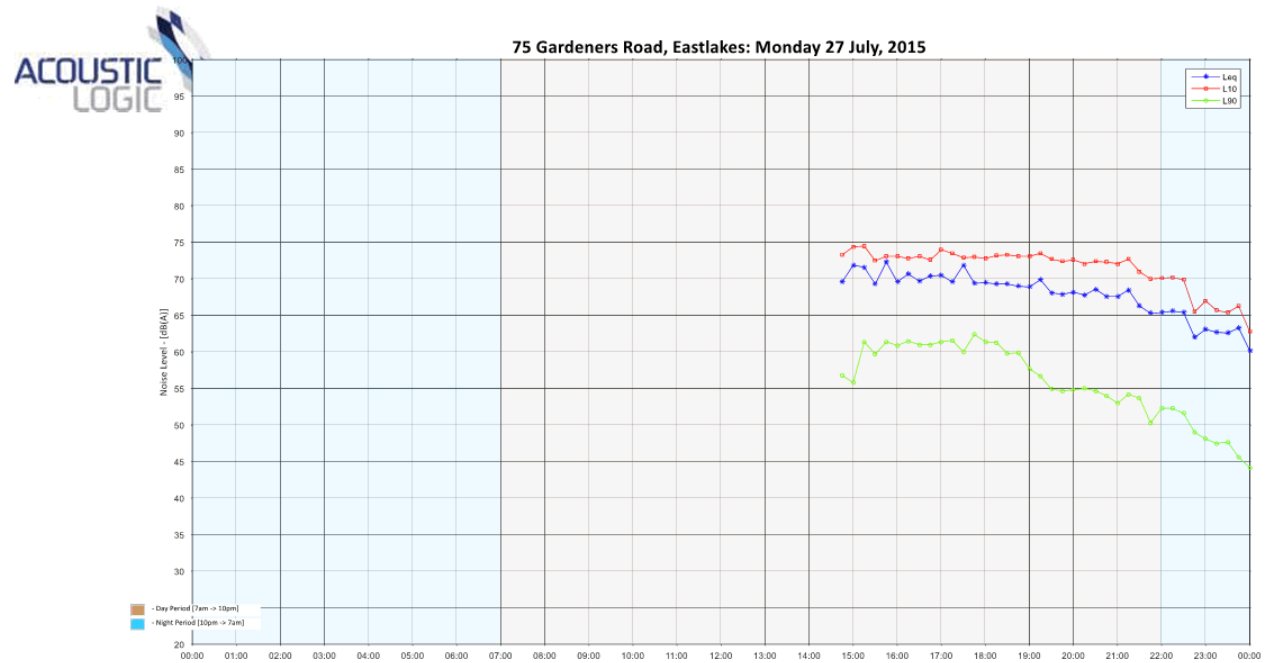
Yours faithfully,

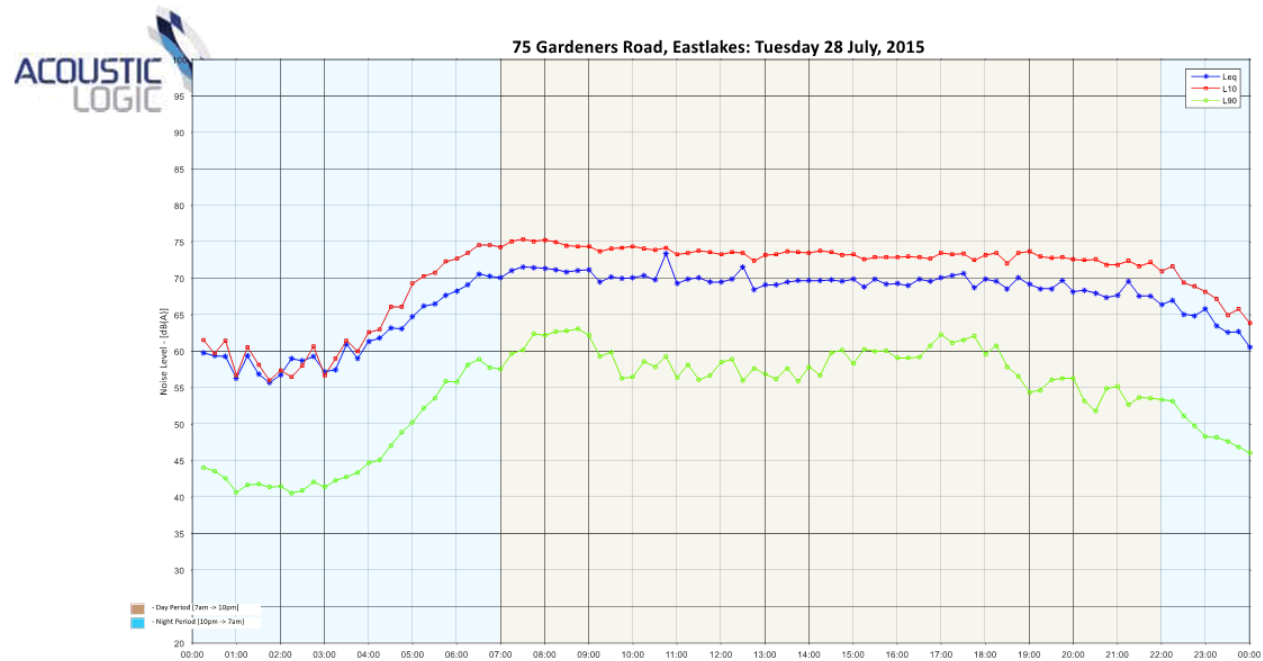


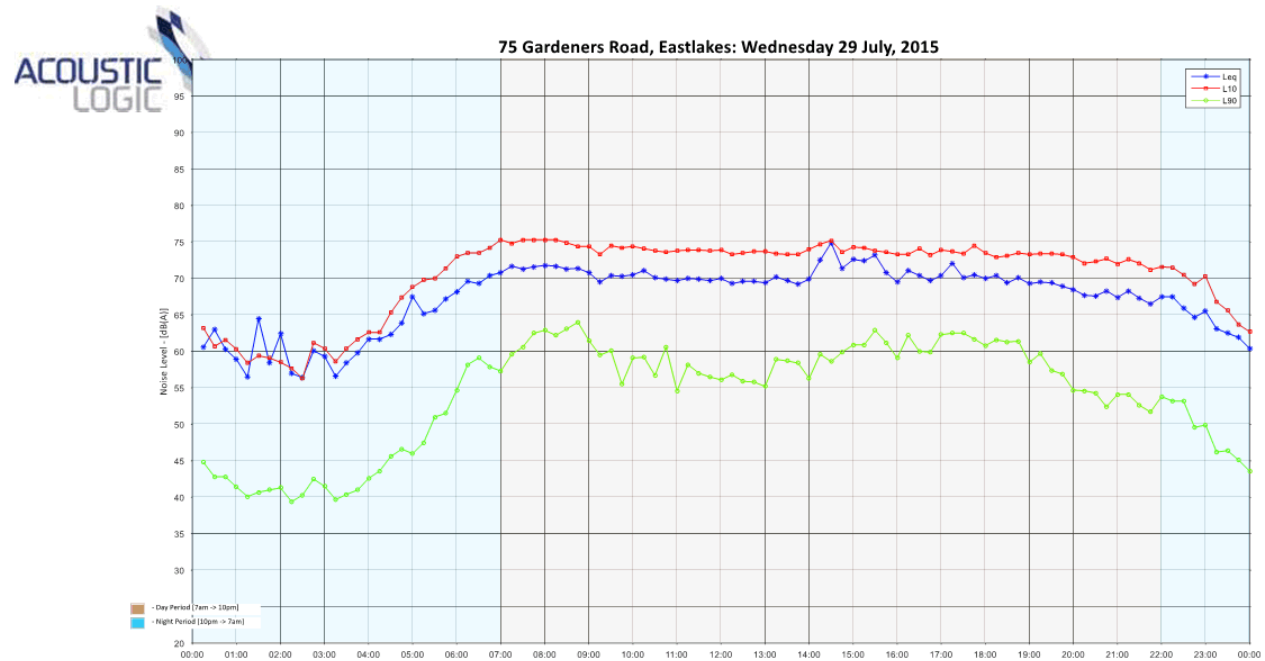
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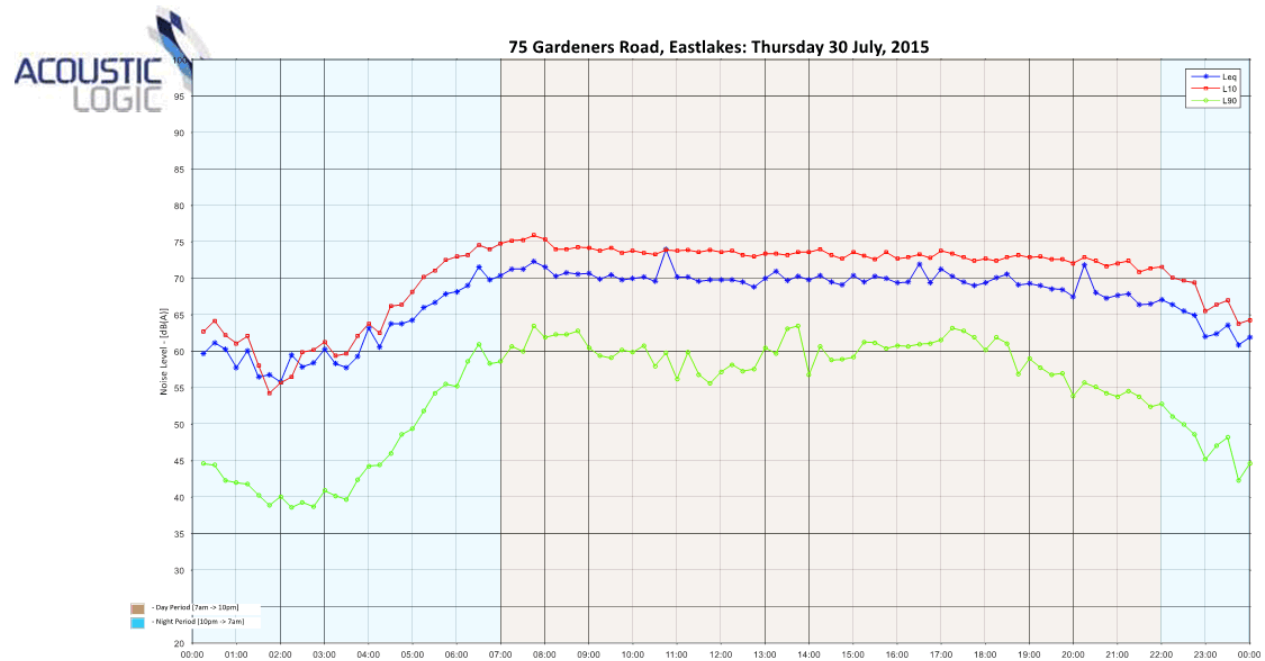
APPENDIX 1

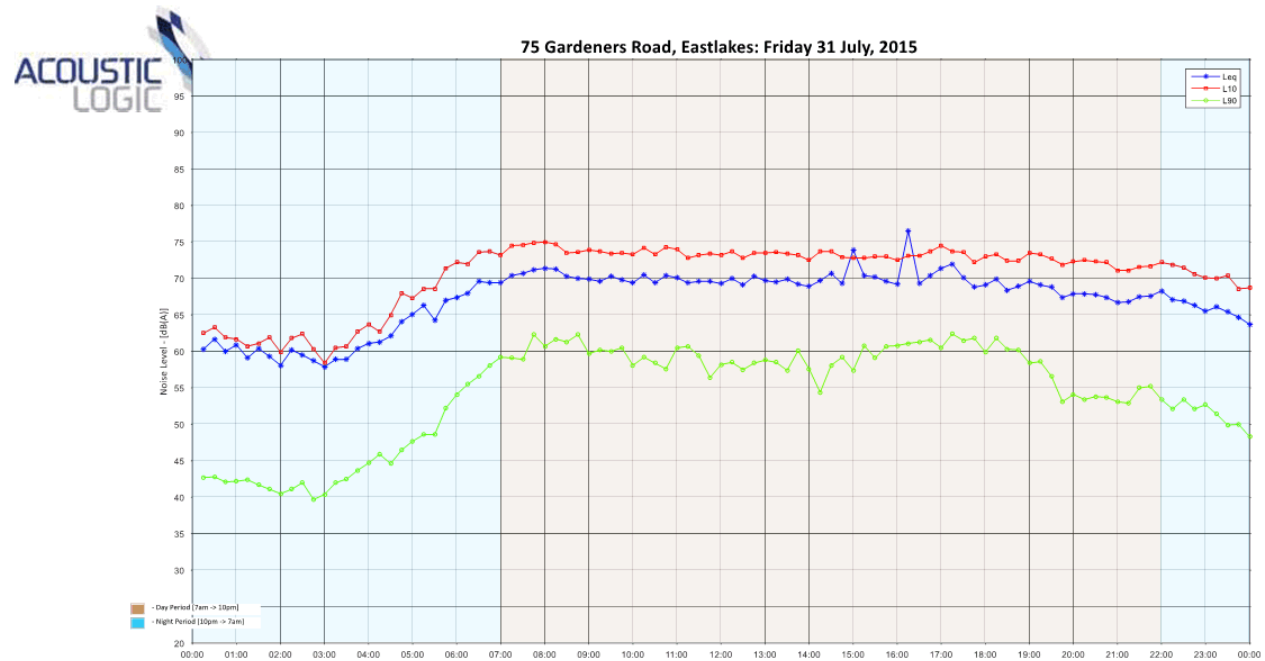
Unattended Noise Monitoring Data

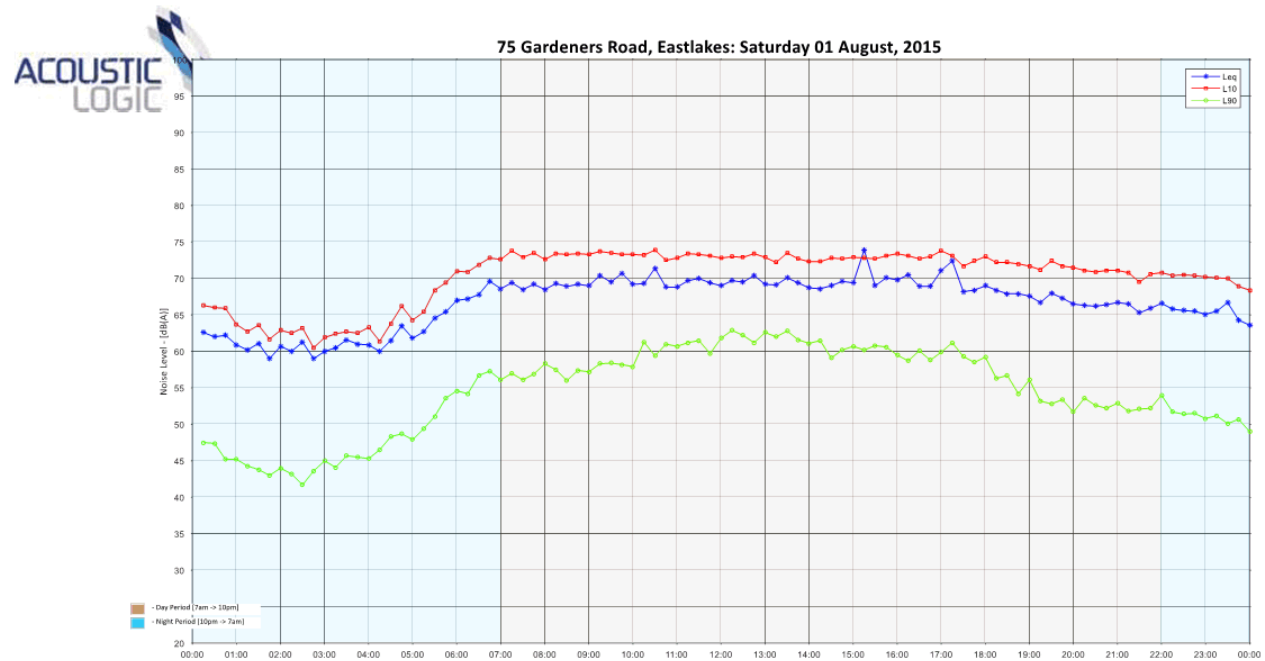


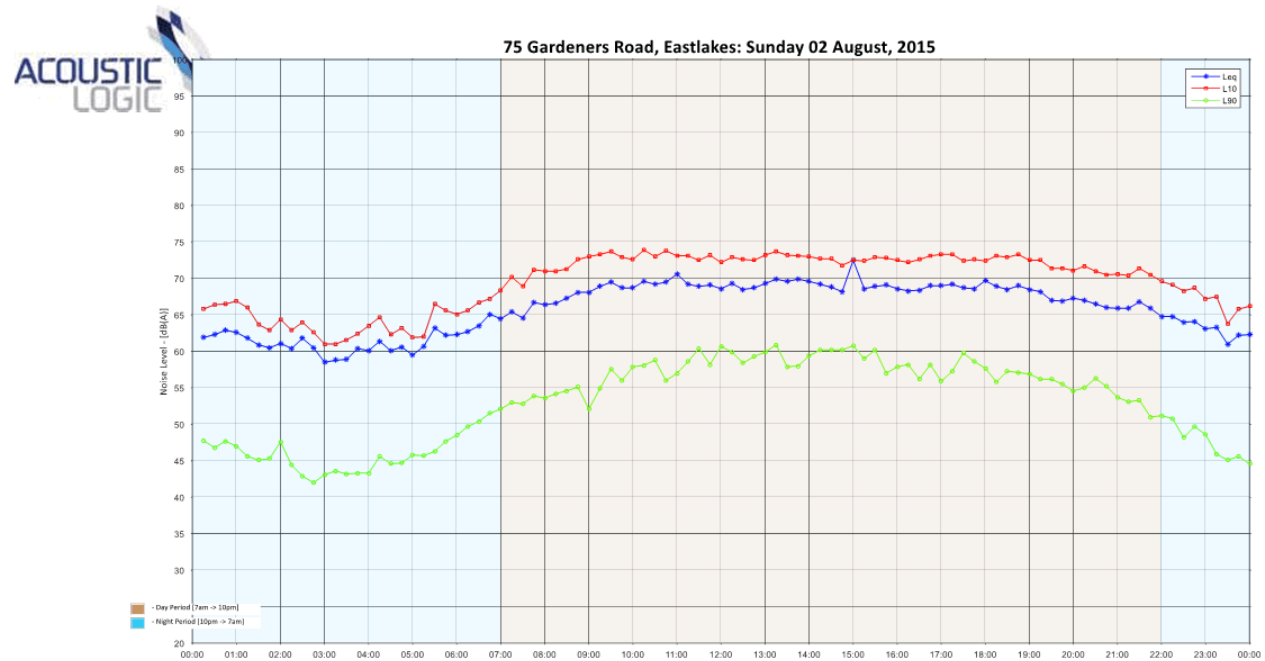


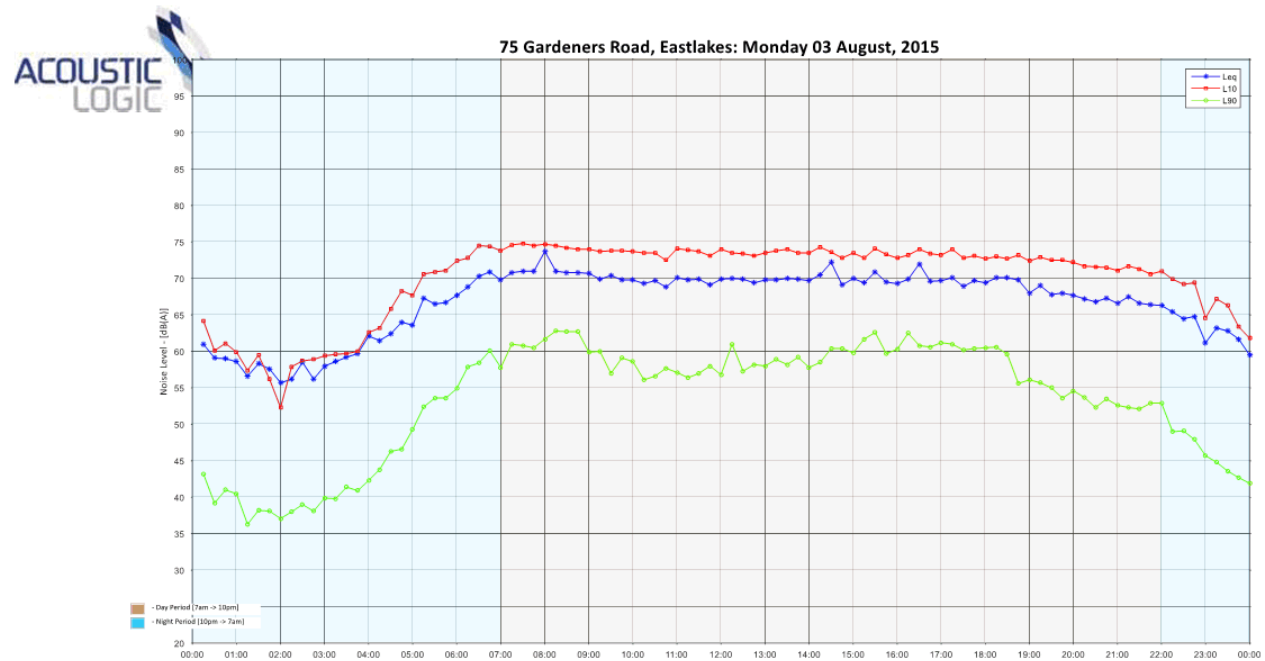


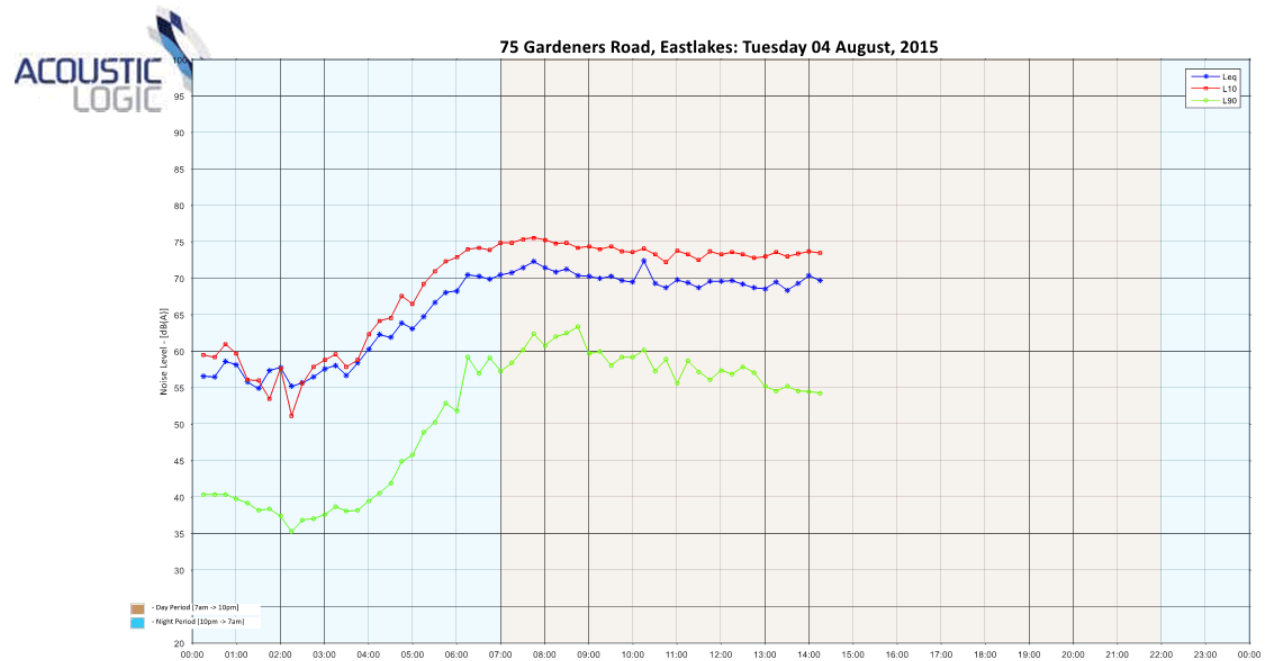


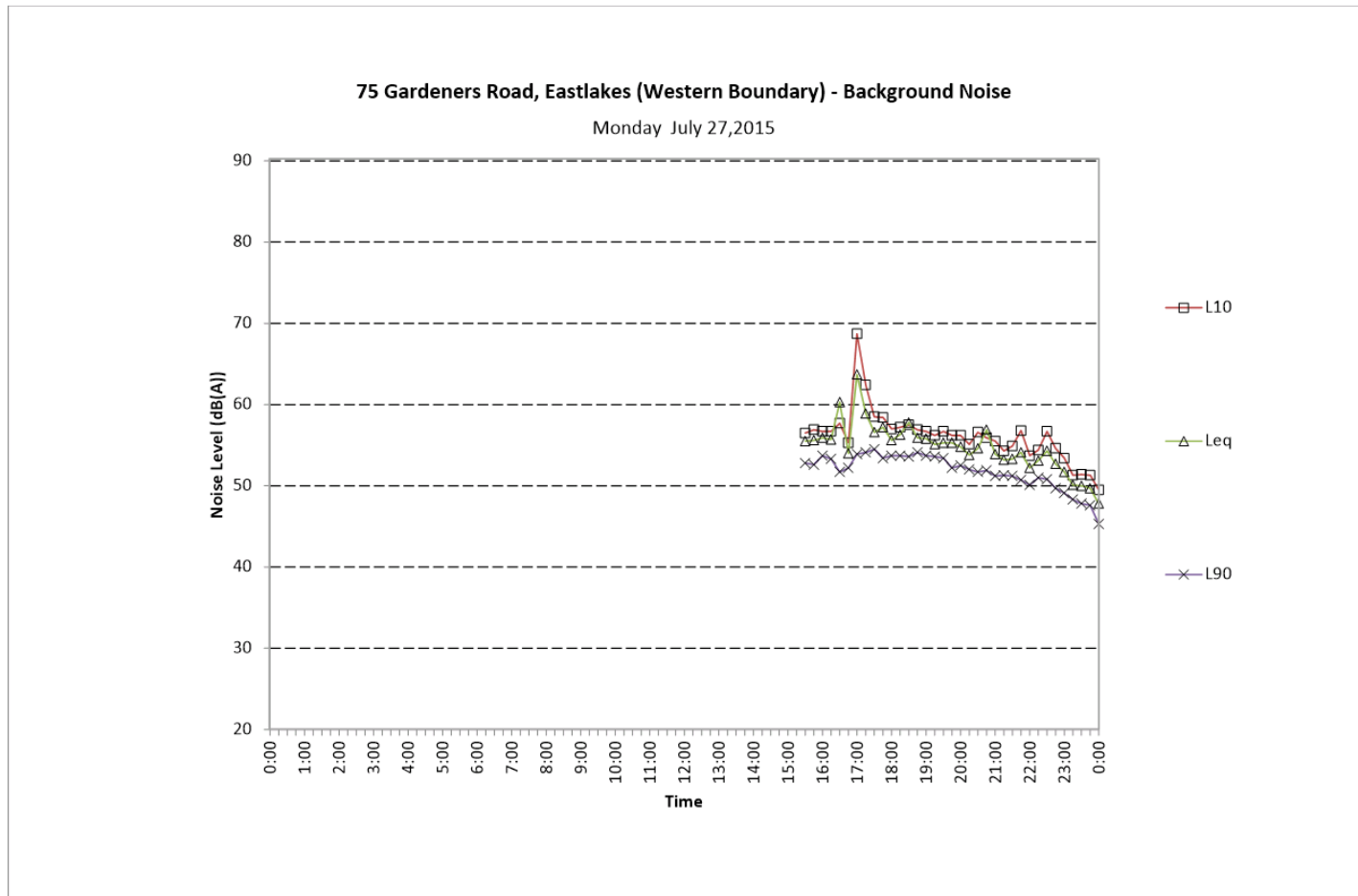




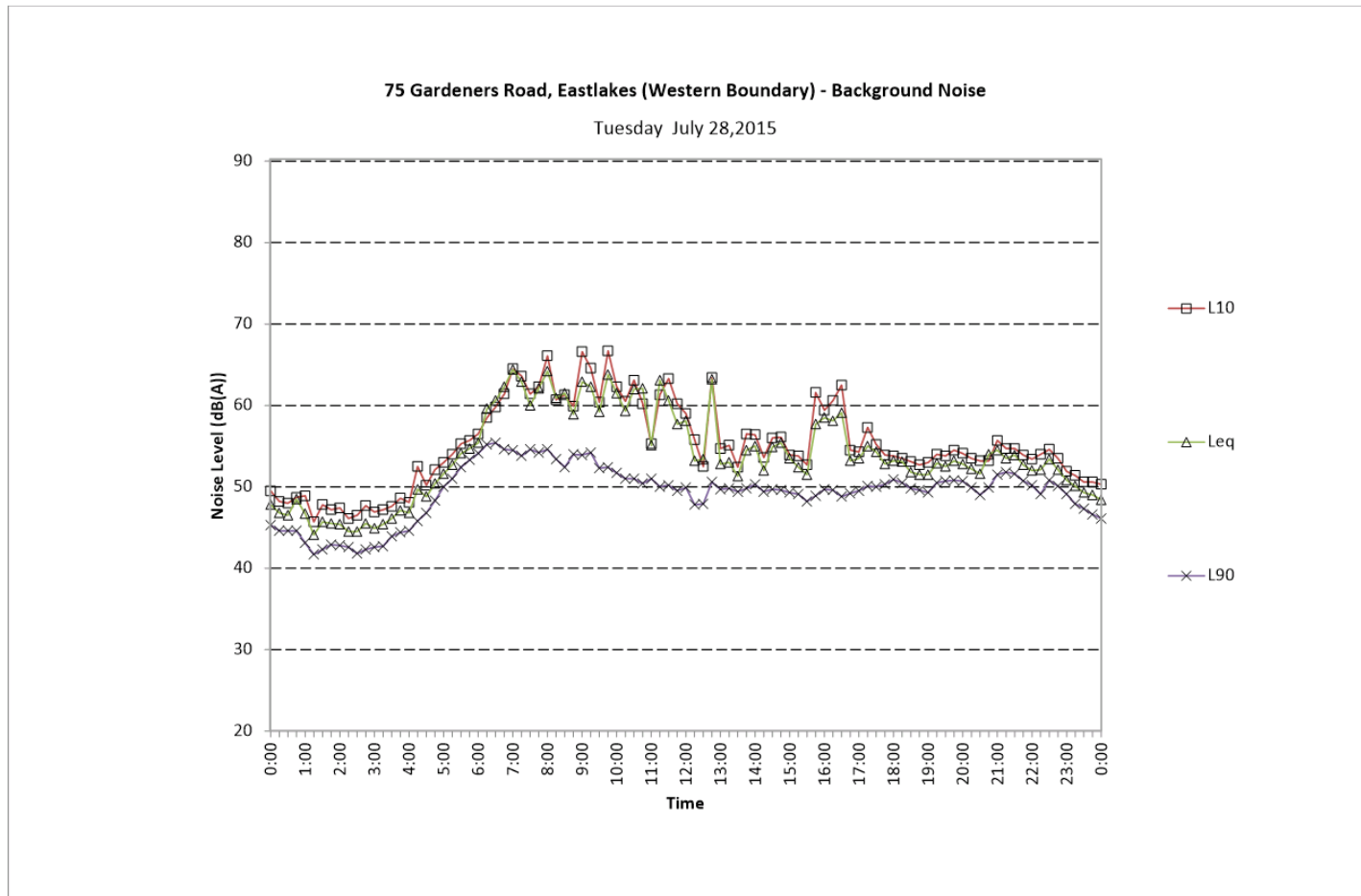




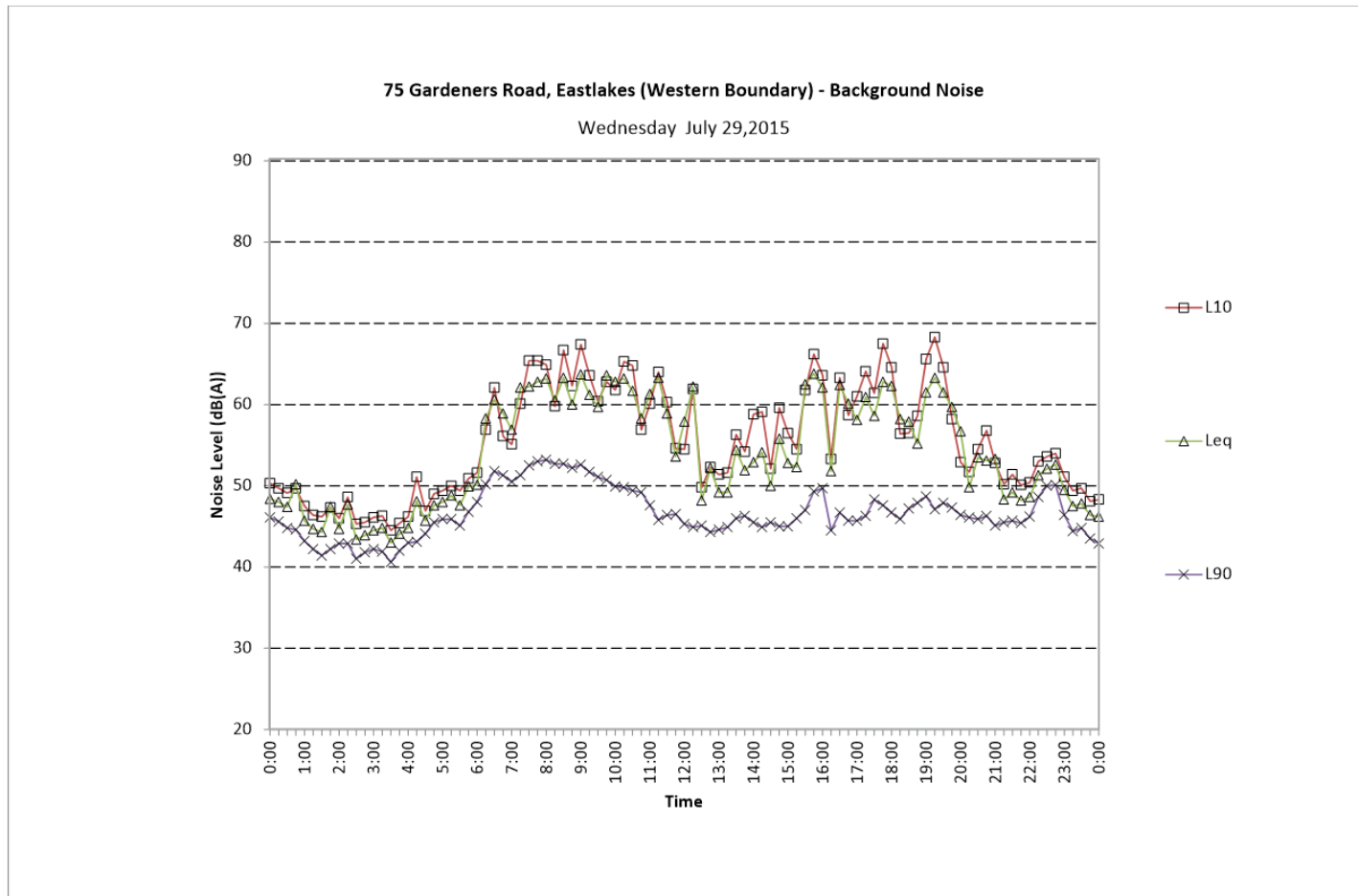




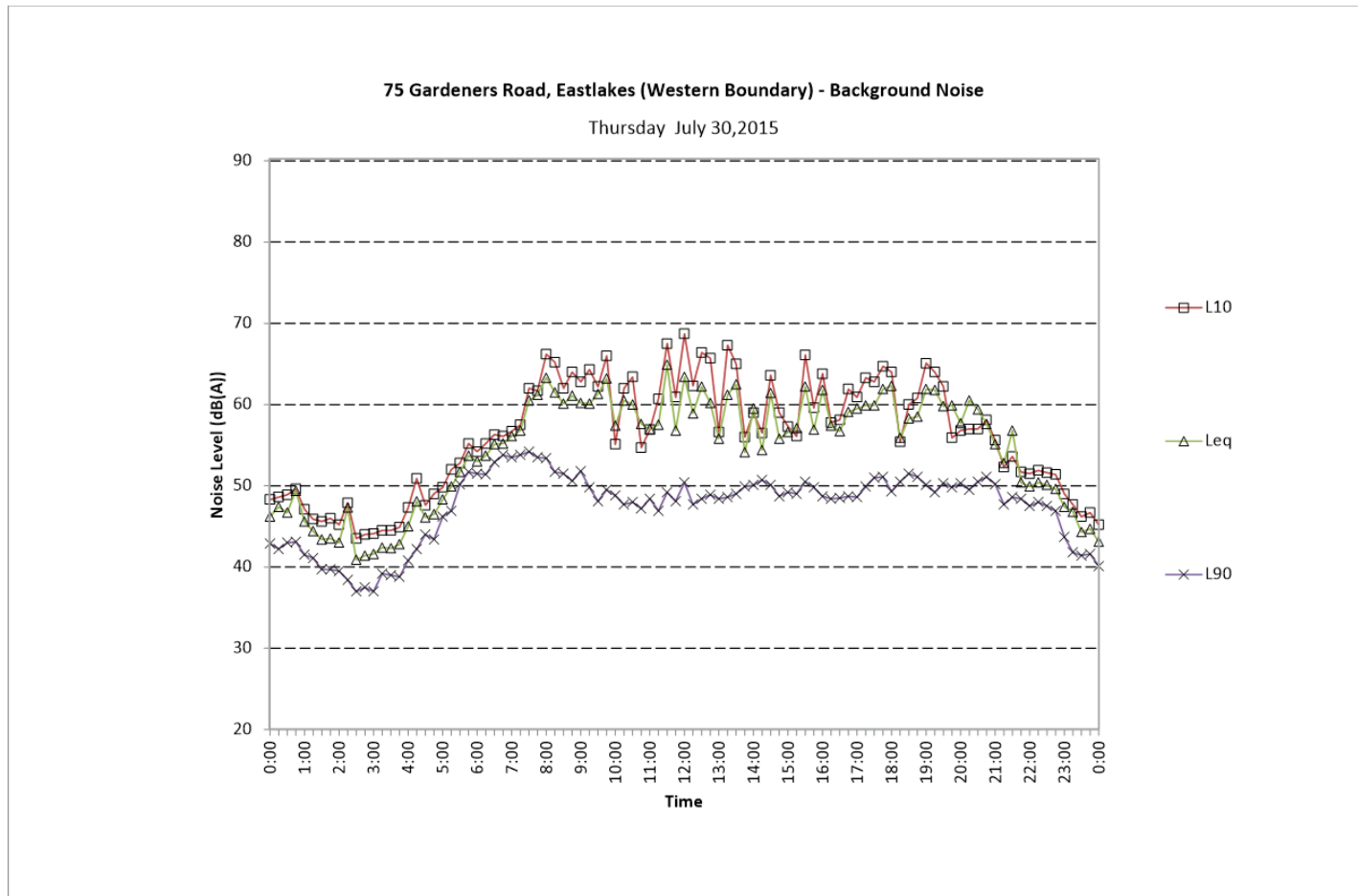
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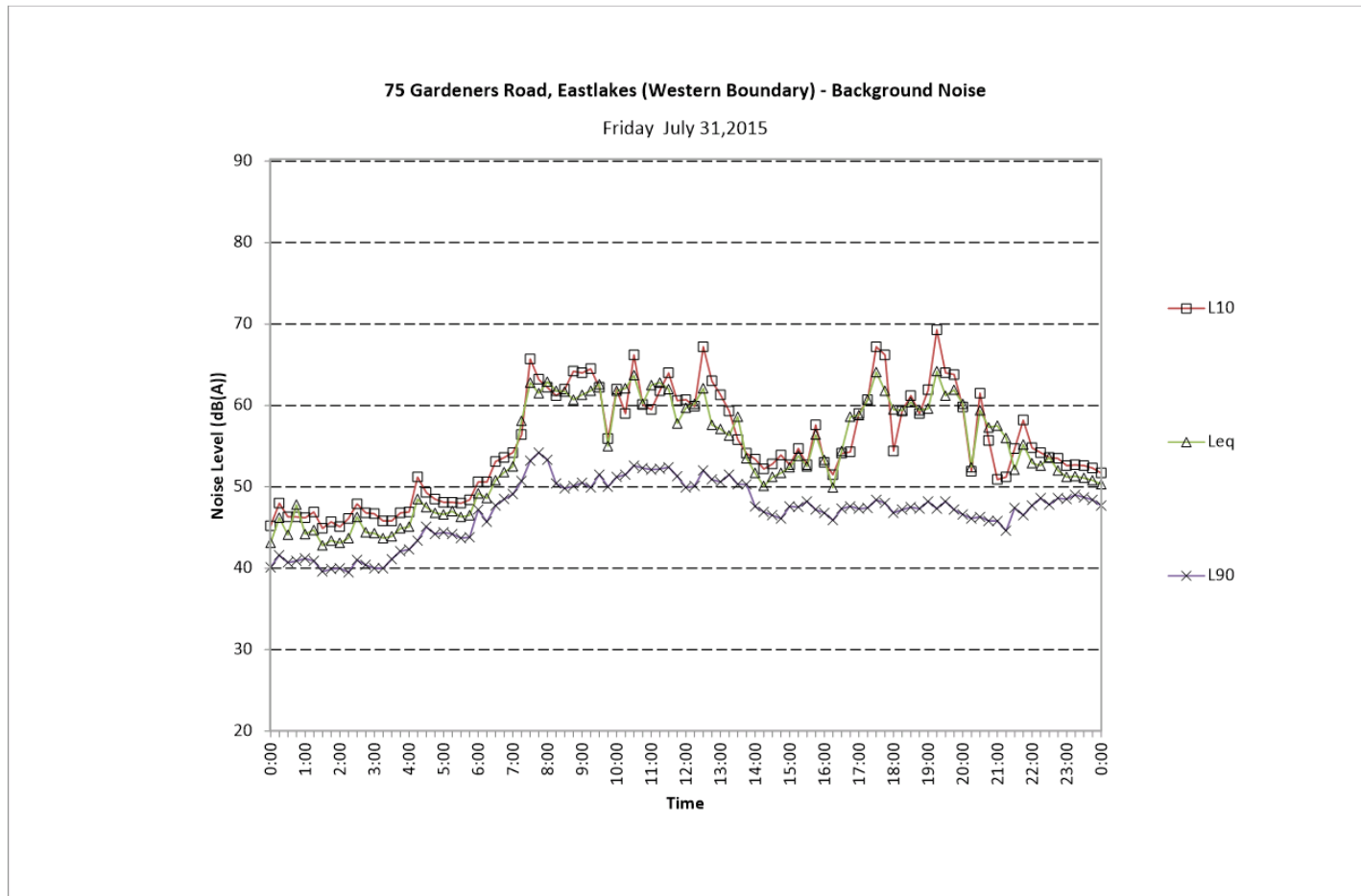
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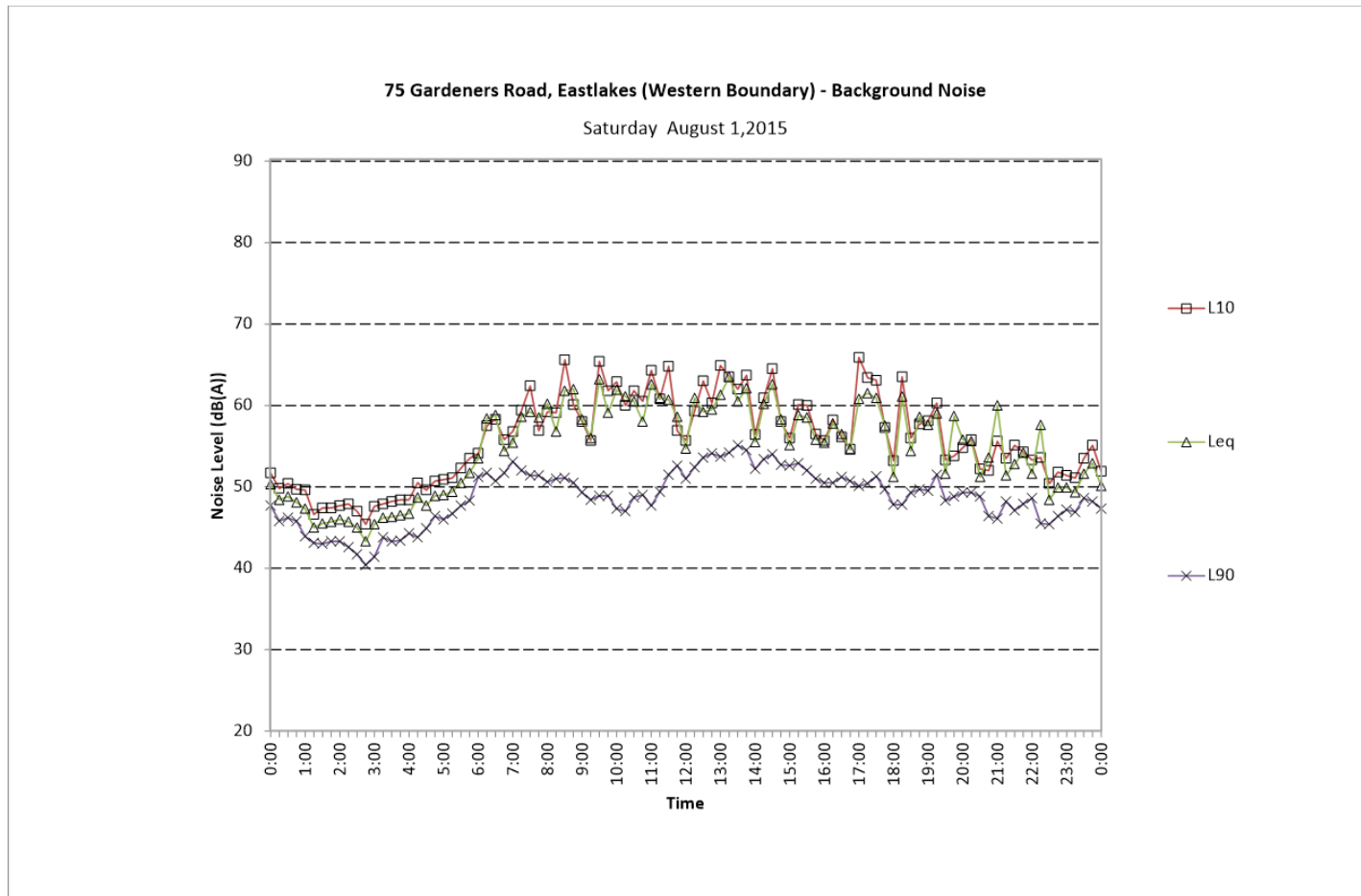
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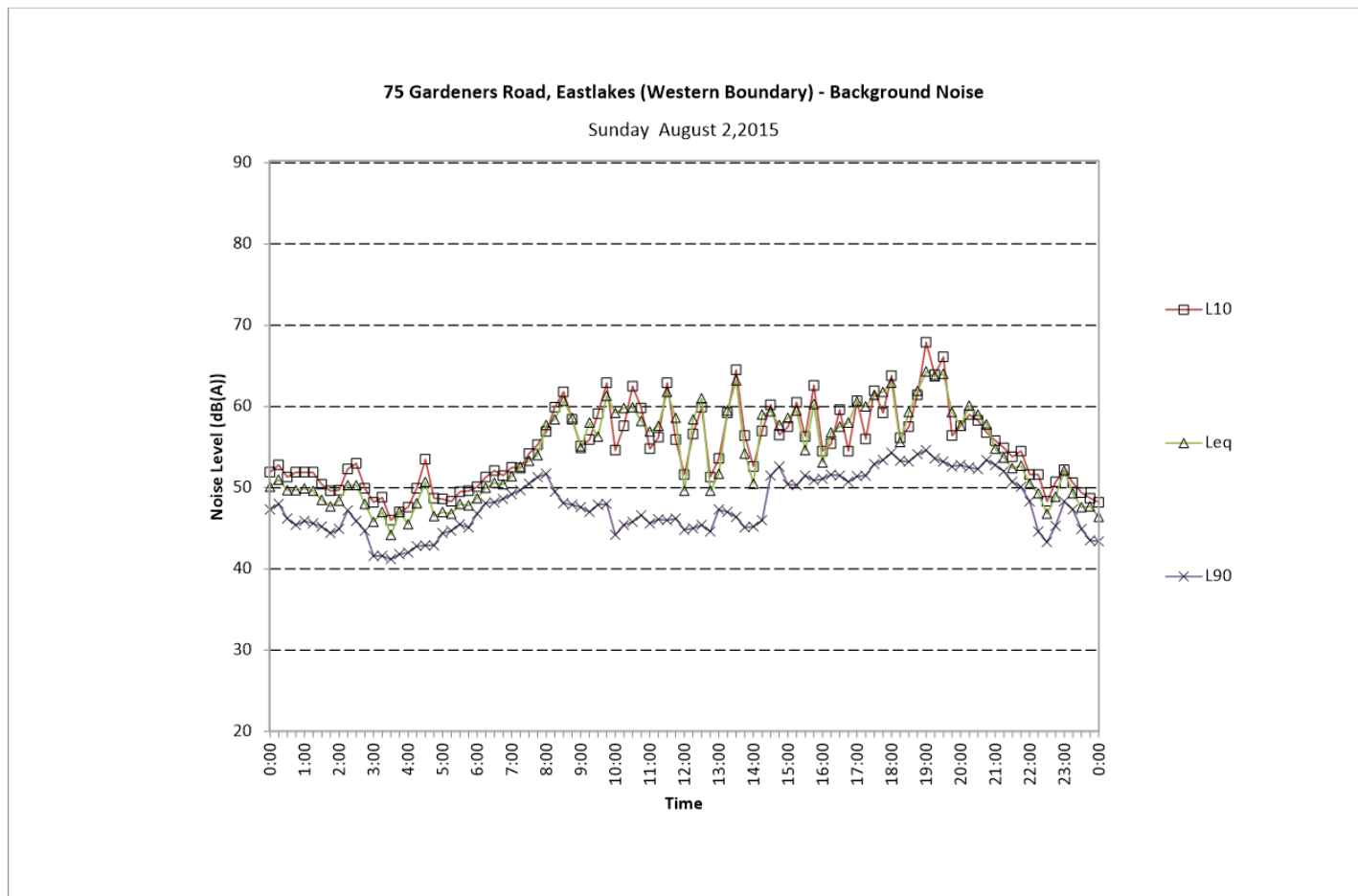
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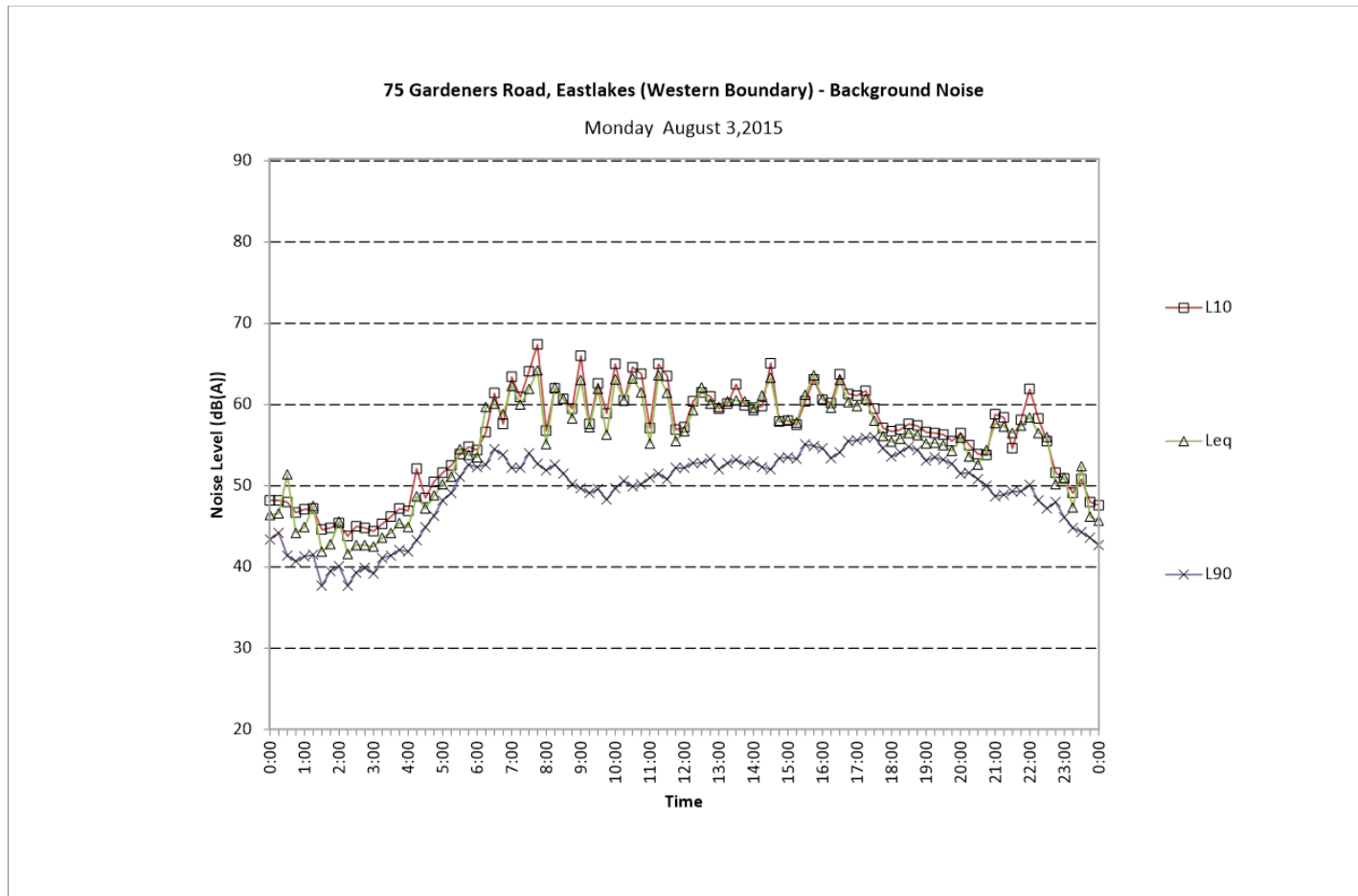
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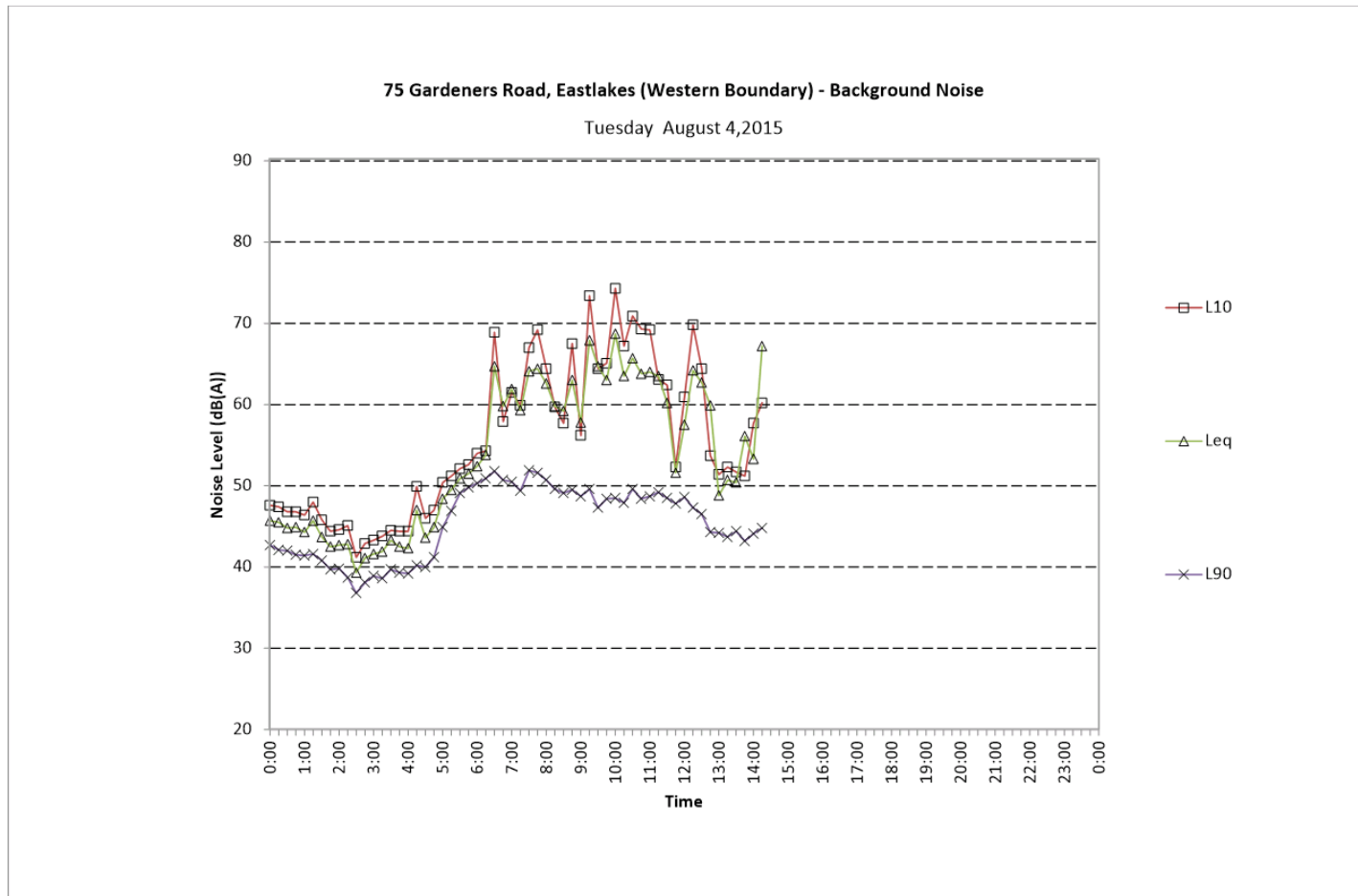
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