

Meeting Date: Tuesday 14 March 2017
Location: Council Chambers, Level 1A, 1 Pope Street, Ryde
Time: 5.00pm

NOTICE OF BUSINESS

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1 CONFIRMATION OF MINUTES - Meeting held on 14 February 2017

Report prepared by: Senior Coordinator - Governance

File No.: CLM/17/1/3/2 - BP17/155

REPORT SUMMARY

In accordance with Council's Code of Meeting Practice, a motion or discussion with respect to such minutes shall not be in order except with regard to their accuracy as a true record of the proceedings.

RECOMMENDATION:

That the Minutes of the Planning and Environment Committee 1/17, held on 14 February 2017, be confirmed.

ATTACHMENTS

- 1** Minutes - Planning and Environment Committee Meeting - 14 February 2017

ITEM 1 (continued)

ATTACHMENT 1

**Planning and Environment Committee
MINUTES OF MEETING NO. 1/17**

Meeting Date: Tuesday 14 February 2017
Location: Council Chambers, Level 1A, 1 Pope Street, Ryde
Time: 5.00pm

Councillors Present: The Mayor, Councillor Pickering and Councillors Etmekdjian (Chairperson), Laxale and Stott.

Apologies: Councillor Yedelian OAM.

Leave of Absence: Councillor Pendleton.

Absent: Councillors Maggio, Salvestro-Martin and Simon.

Note: In the absence of Councillor Yedelian OAM, the Deputy Chairperson – Councillor Etmekdjian chaired the meeting.

Note: The Mayor, Councillor Pickering arrived at the meeting at 6.18pm during consideration of Item 5. He was not present for consideration or voting on Items 1, 2, 3, and 4.

Staff Present: Acting General Manager, Acting Director – Customer and Community Services, Acting Director – Corporate and Organisational Support Services, Acting Director – City Planning and Development, Acting Manager – Assessment, Acting Manager – City Planning, Manager – Risk, Audit and Governance, General Counsel, Senior Coordinator – Major Developments, Senior Coordinator – Development Assessment, Senior Town Planner, Planning Consultant (Creative Planning Solutions), Senior Coordinator – Governance, Governance, Risk and Audit Coordinator and Administration Officer – Councillor Support.

DISCLOSURES OF INTEREST

There were no disclosures of interest.

1 CONFIRMATION OF MINUTES - Meeting held on 6 December 2016

Note: The Mayor, Councillor Pickering was not present for consideration or voting on this Item.

ITEM 1 (continued)

ATTACHMENT 1

RESOLUTION: (Moved by Councillors Stott and Laxale)

That the Minutes of the Planning and Environment Committee 10/16, held on 6 December 2016, be confirmed.

Record of the Voting:

For the Motion: Unanimous

Note: This is now a resolution of Council in accordance with the Committee's delegated powers.

**2 12 EMU STREET, WEST RYDE. LOT 9 DP 27511 AND LOT 8 DP 27511.
Application pursuant to Section 96(2) of the Environmental Planning and
Assessment Act, 1979 to amend the approved demolition, new two-storey
dwelling, pavillion, landscaping and fencing. LDA2015/0217. Section 96 No
MOD2016/0110.**

Note: The Mayor, Councillor Pickering was not present for consideration or voting on this Item.

Note: Mariloy Keegan (objector), Peter Keegan (objector) and Horst Klemt (representing Marjorie Hosking – objector) and Doug Cummins (representing the owner) addressed the meeting in relation to this Item.

RECOMMENDATION: (Moved by Councillors Laxale and Stott)

- (a) That Section 96 application to modify Local Development Application No. MOD2016/0110 at 12 Emu Street, West Ryde being LOT 9 DP 27511 AND LOT 8 DP 27511 be refused for the reason that it presents as a three storey building to the rear Winbourne East Street, West Ryde elevation, which contravenes the Ryde DCP 2014.
- (b) That the persons who made submissions be advised of Council's decision.

On being put to the Meeting, Councillor Etmekdjian abstained from the voting and accordingly his vote was recorded Against the Motion.

Record of the Voting:

For the Motion: Councillors Laxale and Stott

Against the Motion: Councillor Etmekdjian

Note: This matter will be dealt with at the Council Meeting to be held on **28 FEBRUARY 2017** as dissenting votes were recorded and substantive changes were made to the published recommendation.

ITEM 1 (continued)

ATTACHMENT 1

3 1139 VICTORIA ROAD, WEST RYDE. LOT 1 DP 34953. Local Development Application for new two storey boarding house development comprising twelve (12) boarding rooms under State Environmental Planning Policy (Affordable Rental Housing) 2009. (APL2016/0003 to LDA2015/0274).

Note: The Mayor, Councillor Pickering was not present for consideration or voting on this Item.

Note: Greg Leather (representing Mawad Investments Pty Ltd – applicant) addressed the meeting in relation to this Item.

Note: A Memorandum from the Acting Director – City Planning and Development dated 14 February 2017 was tabled in relation to this Item and a copy is ON FILE.

RECOMMENDATION: (Moved by Councillors Etmekdjian and Stott)

- (a) That this matter be deferred to Council for consideration.
- (b) That the persons who made submissions be advised of Council's decision.

Record of the Voting:

For the Motion: Councillors Etmekdjian and Stott

Against the Motion: Councillor Laxale

Note: This matter will be dealt with at the Council Meeting to be held on **28 FEBRUARY 2017** as dissenting votes were recorded and substantive changes were made to the published recommendation.

4 24 CHAMPION ROAD, TENNYSON POINT. LOT B DP 387809. Local Development Application for Demolition, new two storey dwelling. LDA2016/0144.

Note: The Mayor, Councillor Pickering was not present for consideration or voting on this Item.

Note: Nick Steele (objector), Glen Noble (objector) and Bassam Batshon (applicant) addressed the meeting in relation to this Item.

Note: An email with four photographs from Nick and Alana Steele dated 13 February 2017 was tabled in relation to this Item and a copy is ON FILE.

ITEM 1 (continued)

ATTACHMENT 1

RESOLUTION: (Moved by Councillors Stott and Laxale)

- (a) That Local Development Application No. LDA2016/144 at 24 Champion Road, Tennyson Point being LOT B DP 387809 be approved subject to the **ATTACHED** conditions (**ATTACHMENT 1**).
- (b) That the persons who made submissions be notified of Council's decision.

Record of the Voting:

For the Motion: Unanimous

Note: This is now a resolution of Council in accordance with the Committee's delegated powers.

5 6 AND 10 CLERMONT AVENUE AND 7, 8 AND 9 JENNIFER STREET, RYDE - LOT Y AND X IN DP 418160 AND LOTS 7, 8 AND 9 DP 28069. Development Application – Demolition including tree removal; staged construction of seniors housing development comprising a residential care facility and in-fill self-care housing over basement parking. LDA2016/0051.

Note: Tony Catalano (objector), Kevin Page (objector) and Mark Handley (representing Engine Room Venture Management – applicant) addressed the meeting in relation to this Item.

Note: A Memorandum from the Acting Director – City Planning and Development dated 13 February 2017 together with a letter dated 10 November 2016 from Ausgrid was tabled in relation to this Item and a copy is ON FILE.

Note: A Memorandum from the Acting Director – City Planning and Development dated 14 February 2017 was tabled in relation to this Item and a copy is ON FILE.

Note: An email from Tina and Tony Catalano dated 13 February 2017 was tabled in relation to this Item and a copy is ON FILE.

Note: Plans from Tony Catalano were tabled in relation to this Item and a copy is ON FILE.

Note: A document outlining an Alternate Resolution for this Item from Kevin Page was tabled in relation to this Item and a copy is ON FILE.

Note: Councillor Stott left the meeting at 6.16pm.

ITEM 1 (continued)

ATTACHMENT 1

ADJOURNMENT

The Chairperson, Councillor Etmekdjian adjourned the meeting due to a lack of quorum, the time being 6.16pm.

Councillors Present: Councillors Etmekdjian (Chairperson) and Laxale.

Apologies: Councillor Yedelian OAM.

Leave of Absence: Councillor Pendleton.

Absent: Councillors Maggio, Salvestro-Martin, Simon and Stott.

Note: The Mayor, Councillor Pickering arrived at the meeting at 6.18pm.

MEETING RECONVENED

The Meeting reconvened at 6.18pm on Tuesday, 14 February 2017 in the Council Chambers, Level 1A, 1 Pope Street, Ryde.

The following Councillors were present:

The Mayor, Councillor Pickering and Councillors Etmekdjian (Chairperson) and Laxale.

Apologies: Councillor Yedelian OAM.

Leave of Absence: Councillor Pendleton.

Absent: Councillors Maggio, Salvestro-Martin, Simon and Stott.

Staff Present: Acting General Manager, Acting Director – Customer and Community Services, Acting Director – Corporate and Organisational Support Services, Acting Director – City Planning and Development, Acting Manager – Assessment, Acting Manager – City Planning, Manager – Risk, Audit and Governance, General Counsel, Senior Coordinator – Major Developments, Senior Coordinator – Development Assessment, Senior Town Planner, Planning Consultant (Creative Planning Solutions), Senior Coordinator – Governance, Governance, Risk and Audit Coordinator and Administration Officer – Councillor Support.

Note: Councillor Stott returned to the meeting at 6.20pm.

ITEM 1 (continued)

ATTACHMENT 1

ADJOURNMENT

RESOLUTION: (Moved by Councillor Etmekdjian and the Mayor, Councillor Pickering)

That the meeting be adjourned to reconvene following the opening of the Ryde Civic Hub Committee Meeting on Tuesday, 14 February 2017 in the Council Chambers, Level 1A, 1 Pope Street, Ryde the time being 6.29pm.

Record of Voting:

For the Motion: Unanimous

Councillors Present: The Mayor, Councillor Pickering and Councillors Etmekdjian (Chairperson), Laxale and Stott.

Apologies: Councillor Yedelian OAM.

Leave of Absence: Councillor Pendleton.

Absent: Councillors Maggio, Salvestro-Martin and Simon.

MEETING RECONVENED

The Meeting reconvened at 6.30pm on Tuesday, 14 February 2017 in the Council Chambers, Level 1A, 1 Pope Street, Ryde.

The following Councillors were present:

The Mayor, Councillor Pickering and Councillors Etmekdjian (Chairperson), Laxale and Stott.

Apologies: Councillor Yedelian OAM.

Leave of Absence: Councillor Pendleton.

Absent: Councillors Maggio, Salvestro-Martin and Simon.

Staff Present: Acting General Manager, Acting Director – Customer and Community Services, Acting Director – Corporate and Organisational Support Services, Acting Director – City Planning and Development, Acting Manager – Assessment, Acting Manager – City Planning, Manager – Risk, Audit and Governance, General Counsel, Senior Coordinator – Major Developments, Senior Coordinator – Development Assessment, Senior Town Planner, Planning Consultant (Creative Planning Solutions), Senior Coordinator – Governance, Governance, Risk and Audit Coordinator and Administration Officer – Councillor Support.

ITEM 1 (continued)

ATTACHMENT 1

RECOMMENDATION: (Moved by Councillors Laxale and Stott)

- (a) That Local Development Application No. LDA2016/0051 at 6 and 10 Clermont Avenue and 7, 8 and 9 Jennifer Street, Ryde be approved subject to the **ATTACHED** conditions – see **Attachment 1** with the following amendments:
- i. That the Construction Traffic Management Plan (Condition 64) and Noise Management Plan (Condition 86) are to be made available by the applicant to the local residents on request.
 - ii. That the Construction Traffic Management Plan (Condition 64) is to include a new point IX *“That parking for construction workers is to be provided on site wherever possible throughout the staging of the development and a detailed plan is to be provided”*.
 - iii. Condition 163 be amended to include:
 - That the Applicant is to advise of any changes to telecommunications in Jennifer Street and Clermont Avenue throughout the development to the local residents.
 - iv. That Condition 7 be amended to reduce the building activities on the site so works cease at 6pm Monday to Friday and 1pm Saturday.
 - v. That Deferred Commencement Condition No. 2 be amended to read as follows:

Electricity Substation. The electricity substation (presently shown facing Clermont Avenue and located on the western side of the driveway leading to the basement) shall be relocated in an easterly direction to at least 10 metres from the north eastern corner of No 4 Clermont Avenue along the Clermont Avenue frontage. Such relocation shall occur in accordance with the requirements of any Utility Provider (such as Ausgrid, Sydney Water etc). In this regard, full details of the new location of the substation, as well as required landscaping and/or screening of the electricity substation shall be submitted to Council. Details shall include:

 - (a) Details clearly showing the new location of the substation;
 - (b) Details of the landscaping to be used to screen the substation, including species type, and number to be planted, expected height at maturity, and pot sizes;
 - (c) Details of any structure to be erected to provide a physical screen to the substation, including colours and external materials to be used in construction.

ITEM 1 (continued)

ATTACHMENT 1

vi. That Condition 50 be amended to read as follows:

A – Contribution Type	B – Contribution Amount
<i>Community & Cultural Facilities</i>	\$17,479.99
<i>Open Space & Recreation Facilities</i>	\$43,031.90
<i>Civic & Urban Improvements</i>	\$14,636.01
<i>Roads & Traffic Management Facilities</i>	\$1,996.46
<i>Cycleways</i>	\$1,247.07
<i>Stormwater Management Facilities</i>	\$3,963.85
<i>Plan Administration</i>	\$336.22
The total contribution is	\$82,691.50

These are contributions under the provisions of Section 94 of the Environmental Planning and Assessment Act, 1979 as specified in Section 94 Development Contributions Plan 2007 Interim Update (2014), effective from 10 December 2014.

The above amounts are current at the date of this consent, and are subject to **quarterly** adjustment for inflation on the basis of the contribution rates that are applicable at time of payment. Such adjustment for inflation is by reference to the Consumer Price Index published by the Australian Bureau of Statistics (Catalogue No 5206.0) – and may result in contribution amounts that differ from those shown above.

The contribution must be paid **prior to the issue of any Construction Certificate**. Payment may be by EFTPOS (debit card only), CASH or a BANK CHEQUE made payable to the **City of Ryde**. Personal or company cheques will not be accepted.

A copy of the Section 94 Development Contributions Plan may be inspected at the Ryde Customer Service Centre, 1 Pope Street Ryde (corner Pope and Devlin Streets, within Top Ryde City Shopping Centre) or on Council's website <http://www.ryde.nsw.gov.au>.

(b) That the persons who made submissions be advised of Council's decision.

Record of the Voting:

For the Motion: Unanimous

Note: This matter will be dealt with at the Council Meeting to be held on **28 FEBRUARY 2017** as substantive changes were made to the published recommendation.

ITEM 1 (continued)

ATTACHMENT 1

6 MACQUARIE PARK CAR PARKING CONTROLS

RESOLUTION: (Moved by The Mayor, Councillor Pickering and Councillor Stott)

- (a) That Council adopt and exercise the delegation issued by the Minister for Planning to make the amendments described in this report to Ryde Local Environmental Plan 2014.
- (b) That Council adopt amendments to Ryde Development Control Plan Part 4.5 and Part 9.3 as shown in **ATTACHMENT 2** and **ATTACHMENT 3**.
- (c) That Council give public notice in the local newspaper of its decision with respect to the draft amending Ryde Development Control Plan (RDCP) 2014 within 28 days of its decision, and provide the Secretary of the Department of Planning and Environment with a copy of the plan in accordance with the Environmental Planning and Assessment Regulation 2000.
- (d) That the adopted amendments to the RDCP come into effect 14 days from publication of the public notice.
- (e) That Council notify all community members who made a submission regarding the planning proposal of its decision.

Record of the Voting:

For the Motion: Unanimous

Note: This is now a resolution of Council in accordance with the Committee's delegated powers.

The meeting closed at 7.05pm.

CONFIRMED THIS 14TH DAY OF MARCH 2017.

Chairperson

2 84 WARING STREET, MARSFIELD - LOT 9 IN DP22520 Local Development Application for Demolition, and construction of a two-storey, ten (10) room boarding house. LDA2016/0339.

Report prepared by: Creative Planning Solutions; Senior Coordinator - Development Assessment

Report approved by: Acting Manager - Assessment; Acting Director - City Planning and Development

File Number: GRP/09/5/6/2 - BP17/188

1. Report Summary

Applicant: Hongfei Xu

Owners: Hongfei Xu

Date lodged: 22 July 2016

This report considers a development application (DA) for demolition of the existing dwelling house on the site and construction of a two (2) storey, ten (10) room boarding house under the provisions of *State Environmental Planning Policy (Affordable Rental Housing) 2009*. The boarding house is to accommodate a maximum of ten (10) lodgers.

The application was notified to surrounding properties between 10 August and 7 September 2016 in accordance with the provisions of the *Ryde Development Control Plan 2014* (DCP2014) – Part 2.1, Notification of Development Applications. Three (3) letters objecting to the development have been received from the adjoining property owner at 82 Waring Street, Marsfield – two of which were in the form of petitions containing a total of twenty (20) signatures.

The key planning objections/issues raised in the submissions are summarised and outlined below:

- Visual privacy concerns from overlooking;
- Noise impacts from the operation of the boarding house;
- Prevalence of unauthorised boarding houses in the local area;
- Waste collection, maintenance and management of the boarding house;
- Inadequate parking provisions, particularly given the on-street parking restrictions;
- Overdevelopment of the site, including concerns with floor space ratio, and up to 20 lodgers occupying the boarding rooms;
- Concerns the garage will be used as additional boarding rooms;
- Inadequate clothes drying facilities;
- Negative social impacts from the boarding house on the local area.

ITEM 2 (continued)

The proposal has been assessed against the provisions of *State Environmental Planning Policy (Affordable Rental Housing) 2009*, *Ryde Local Environmental Plan 2014*, and DCP2014. The areas of non-compliance or issue can be summarised as follows:

Non compliances justifiable:

Part 3.3 Dwelling Houses and Dual Occupancy (Attached)

- **Deep Soil Area:** Ryde DCP 2014 contains a requirement for dwelling houses/dual occupancy buildings to contain a deep soil area measuring 8m x 8m. The deep soil area in the backyard of the boarding house has minimum dimensions of 4.5m x 8m.
- **Topography and excavation:** Ryde DCP 2014 contains a requirement for the maximum fill within the building envelope not to exceed 900mm. The amount of fill within the building envelope is up to 1.24m (at maximum).
- **Rear setbacks:** Ryde DCP 2014 contains a rear setback requirement of 8m or 25% of the site length (ie 9.25m required as the site). The proposed rear setback varies from 1.377m to 3.7m for the attached garage and 10.9m for the boarding house portion of the building. The garage component fails to comply with the minimum 9.25m rear setback control.
- **Landscape requirements:** Ryde DCP 2014 requires at least one tree capable of reaching a mature height of 15m to be planted in the rear yard. The applicant has proposed to plant this tree within the front yard instead, and include a tree capable of reaching a mature height of 6m in the rear yard as an alternative.

Non compliances / Issues to be resolved via condition:

Part 3.3 Dwelling Houses and Dual Occupancy (Attached)

Visual and Acoustic Privacy:

- Potential overlooking from north-west facing windows arises due to the elevated ground floor level of the boarding house. A condition is proposed for privacy screens/opaque glazing on this elevation to reduce overlooking potential.
- The proposed elevated rear porch may give rise to overlooking of the neighbouring private open space. A condition is recommended for a privacy screen to the side of the porch to reduce overlooking potential.

ITEM 2 (continued)

- The proposed sliding doors to the communal living area are near the neighbouring windows and private open space which may impact acoustic privacy. A condition is recommended for the replacement of the sliding door with a single self-closing door to ensure noise is not transmitted from the communal living area.

Side/Rear fencing:

- No details are provided of side and rear fencing. A condition is recommended to ensure compliance with DCP2014 should replacement fencing occur.

Part 3.5 Boarding Houses

Internal Building Design

- No side gates are proposed to side setbacks and rear yard. A condition for lockable side gates to prevent unauthorised access to rear yard is recommended.
- No details are provided in respect of exterior lighting. A condition for sensor lighting to be provided at the side setback areas and common areas is recommended.
- No details of the kitchenettes within the boarding rooms is provided. A condition to ensure these kitchenettes have a minimum 0.5m² bench space, space for a small fridge, cupboards and shelves is recommended.

Clothes Drying Facilities

- The proposed clothes drying facilities do not meet the minimum requirements of DCP2014, neither for the external clothes line or internal drying facilities. A condition of consent will be included to ensure compliance with these provisions of DCP2014.

Management

- Occupiers of adjoining properties are required to be provided with a 24-hour phone number for a principal contact for the use in the event of an emergency. A condition to this effect will be included in the draft consent.

The proposal includes additional conditions which have been recommended by Council's technical officers which were referred the proposal as part of the DA assessment.

ITEM 2 (continued)

Despite the non-compliances outlined above and the issues of concern raised in submissions, it is considered the proposal is generally satisfactory for approval as discussed in the body of the report. For this reason, the subject DA is recommended for approval subject to conditions.

Reason for Referral to Planning and Environment Committee: Proposed boarding house in the R2 Low Density Residential zone.

Public Submissions: Three (3) submissions received, two of which included petitions containing a total of twenty (20) signatures.

SEPP 1 (or clause 4.6 RLEP 2014) objection required? None required.

Value of works: \$743,924

RECOMMENDATION:

- (a) That Local Development Application No. LDA2016/0339 at 84 Waring Street, Marsfield be approved subject to the **ATTACHED** conditions – see **Attachment 1**.
- (b) That the persons who made submissions be advised of Council's decision.

ATTACHMENTS

- 1** Draft Conditions of Consent
- 2** Ryde Development Control Plan 2014 Compliance Check
- 3** State Environmental Planning Policy (Affordable Rental Housing SEPP) 2009 Compliance Check
- 4** A4 Plans
- 5** A3 Plans - subject to copyright provisions - CIRCULATED UNDER SEPARATE COVER

Report Prepared By:
Ben Tesoriero Planning Consultant
Creative Planning Solutions

Chris Young
Senior Coordinator - Development Assessment

Report Approved By:
Vince Galletto
Acting Manager - Assessment

Liz Coad
Acting Director - City Planning and Development

ITEM 2 (continued)

2. Site (*Refer to attached map overleaf*)

Address	: 84 Waring Street, Marsfield (LOT 9 DP 225200)
Site Area	: 581.74m ² 43.00m curved frontage to Waring Street 39.38m north-western side boundary 22.41m south-eastern rear boundary <i>Note: All areas and dimensions obtained from DP225200.</i>
Topography and Vegetation	: The subject site has falls from RL74.8 in the southern portion of the site adjacent to the existing garage, to RL72.9 in the northern portion of the site adjacent to Waring Street. This fall occurs over a distance of approximately 37m for an average gradient of 1:19. The site is clear of any significant vegetation, and includes only garden variety plants and shrubs.
Existing Buildings	: The site currently includes a single storey dwelling house and also a detached brick garage adjacent to the southern boundary. Vehicular access to the property is via the long axis frontage to Waring Street. The proposed boarding house, garage and driveway cross-over are to be located in a similar location to the existing arrangements.
Planning Controls Zoning	: State Environmental Planning Policy (Affordable Rental Housing) 2009 R2 – Low Density Residential under Ryde Local Environmental Plan 2014
Other	: Ryde Development Control Plan 2014

ITEM 2 (continued)



Air Photo of subject site, including location of objector's property (NOTE: Two of the letters from the neighbour were signed by 20 local residents).

Source: Ryde Maps/Air Photo



Image of the existing dwelling house and detached garage at 84 Waring Street looking north-west from Waring Street. The proposed boarding house and garage are to be positioned in a similar position.

Source: www.google.com.au

ITEM 2 (continued)

3. Councillor Representations

None.

4. Political Donations or Gifts

None disclosed in applicant's DA submission or in any submission received.

5. Proposal

The proposed development is for the demolition of the existing single storey dwelling house on the site, along with associated structures, and the construction of a two-storey, ten (10) room boarding house. Details of the proposed development are as follows:

Boarding Room and Communal Facilities

- Ten (10) single occupancy boarding rooms for a total capacity of ten (10) lodgers. This includes five (5) boarding rooms on the ground floor and five (5) boarding rooms on the first floor.
- Two (2) of the ten (10) boarding rooms have been designed to be capable for occupation by a disabled person. These are located on the ground floor of the building.
- Of the ten (10) boarding rooms – all contain an en-suite bathroom and a built-in-robe; and six of the units contain a kitchenette.
- No separate office is provided for a boarding house manager (as this is not required under the ARHSEPP), however the boarding house manager will visit the site at least twice per week.
- An open plan communal lounge and kitchen is provided on the ground floor. The kitchen includes a four (4) burner cooktop and a double sink.
- A communal lounge room is also provided on the first floor of the building.
- A communal open space area is provided in the rear yard which is accessed directly from the communal living area on the ground floor.
- A communal laundry room is provided on the ground floor which provides access for disabled persons.

ITEM 2 (continued)

- The development includes two (2) car spaces within an attached double garage, two (2) motor cycle spaces in an open hard stand area adjacent to the driveway, and up to four (4) bicycle spaces adjacent to the garage.

Ground Floor

The Ground Floor of the boarding house is entered via two separate front doors which both have single storey entrance porticos. The primary front door is located on the north-eastern front corner of the building facing Waring Street and the secondary front door is located adjacent to the attached garage and driveway also facing Waring Street. The ground floor includes a main corridor with three (3) boarding rooms and a storage cupboard on the eastern side and two (2) boarding rooms, a laundry room, an open plan communal lounge and kitchen, and stairs to the first floor on the south-western side. Of the five (5) boarding rooms on the ground floor, all contain an en-suite bathroom, two (2) contain a kitchenette, and two (2) are accessible. At the southern end of the corridor is a door accessing an attached double garage.

First Floor

The First Floor of the boarding house consists of five (5) boarding rooms, all of which contain an en-suite and four (4) contain a kitchenette. The first floor also includes two (2) storage rooms, a common lounge room and stairs to the ground floor.

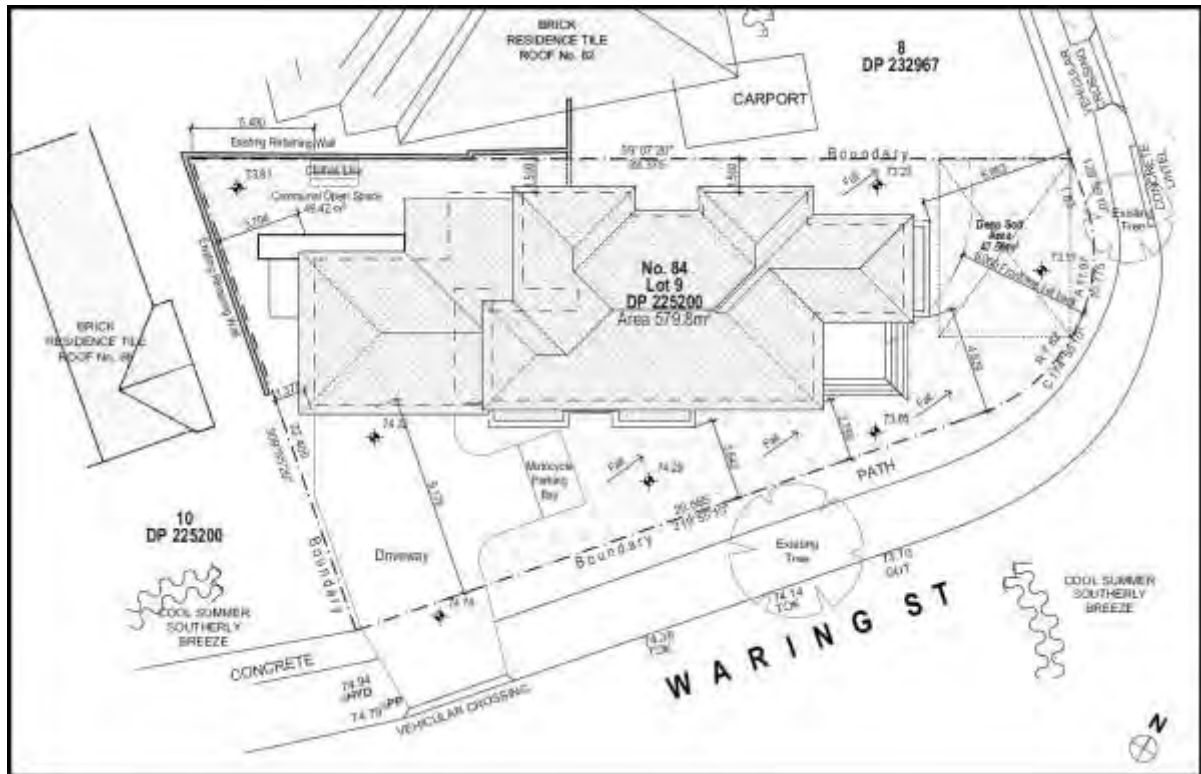
External

Externally the front setback area consists of boundary planting beds, open lawn, a tree to be planted, and a driveway to the attached double garage. The rear setback consists of a small elevated porch and stairs providing a transition from the communal living area to the rear yard. The rear yard includes open lawn and boundary planting beds including a tree to be planted in the rear corner of the site.

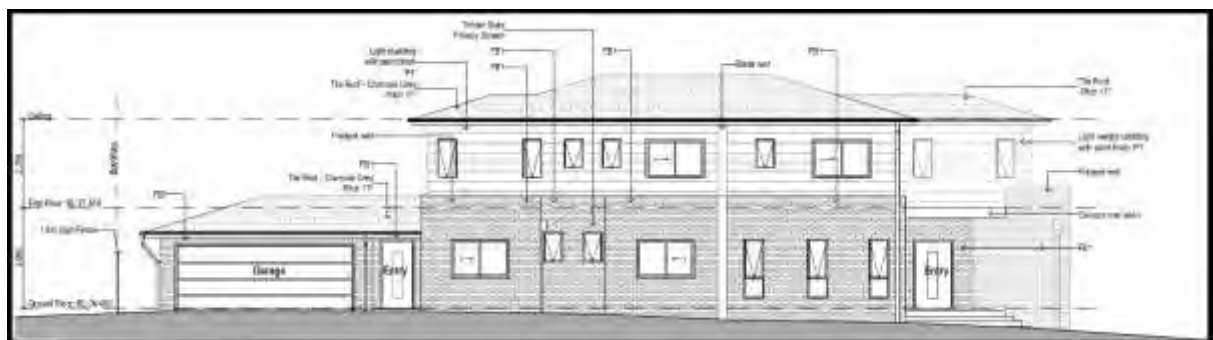
There is no front fence proposed, however an existing retaining wall to the north-eastern front boundary of the site is to be replaced with a new retaining wall to the front boundary which will act as a small solid front fence for a portion of the frontage.

ITEM 2 (continued)

The following is the site plan and front elevation of the proposed development.



Site Plan of proposed development.
Source: Applicant DA Plans



Front (south-east) elevation to Waring Street.
Source: Applicant DA plans

6. Background

The DA was lodged with Council on 22 July 2016, then notified and advertised in accordance with the provisions of DCP2014 from 10 August to 7 September 2016. In response, three (3) submissions objecting to the proposal were received, all from the adjoining property at No 82 Waring Street (to the north-west). Two of these submissions were also signed by a total of 20 adjoining/nearby residents.

ITEM 2 (continued)

The issues of concern raised by the neighbours are discussed in the Submissions section of this report (below).

On 14 October 2016, a letter was sent to the applicant to request the following additional information (in relation to Development Engineering matters):

Assessment of the engineering components of the proposed development has revealed the following matters need to be addressed;

- The Location of the detention basin should be limited to the front yard of the boarding house. Extension of the basin towards the side court yard is not acceptable. The maximum depth of the basin is to be limited to 400mm for aesthetic reasons.*
- The volume and the discharge from the OSD basin have been calculated incorrectly. The basin volume should allow for the pervious area directed into the basin or alternatively above ground OSD tanks should be provided. The correct discharge rates and the site storage should be used in OSD calculations. Refer to the calculation sheet in Council's DCP 2014 Part 8.2.*
- Applicant to show the location of undesignated disabled space on the plan as per BCA requirements. If proposed garage is used for this purpose, extra door height requirements apply.*

The applicant provided a response to these Development Engineering matters on 18 November and 1 December 2016. Importantly, these did not result in any change to the architectural plans, and therefore neighbour re-notification was not required.

The amended plans were referred to Council's Senior Development Engineer, who has advised that they satisfy the concerns previously raised, and conditions of consent have been provided if Council is mindful to approve the application.

7. Submissions

The application was notified to surrounding properties between 10 August and 7 September 2016 in accordance with the provisions of the DCP2014, – Part 2.1, Notification of Development Applications. Three (3) letters objecting to the development, have been received from the adjoining property owner at 82 Waring Street, to the north-west of the site. Two (2) of these submissions were signed by a total of twenty (20) local residents.

The key planning objections/issues raised in the submissions are summarised and outlined below. This is followed by a response from the Assessing Officer to each objection.

ITEM 2 (continued)

A – Visual Privacy. *Concerns have been raised with regard to level of overlooking that will result from the proposed boarding house development to adjoining properties. In particular to the adjoining land at 82 Waring Street.*

Assessing Officer Comments: The site survey submitted with the DA indicates the existing single storey dwelling house has a finished floor level of RL74.48. The proposed boarding house will have a finished ground floor level of RL74.45. Accordingly, the ground floor levels of the existing and proposed buildings are of comparable height which is beneficial when attempting to minimise overlooking impacts.

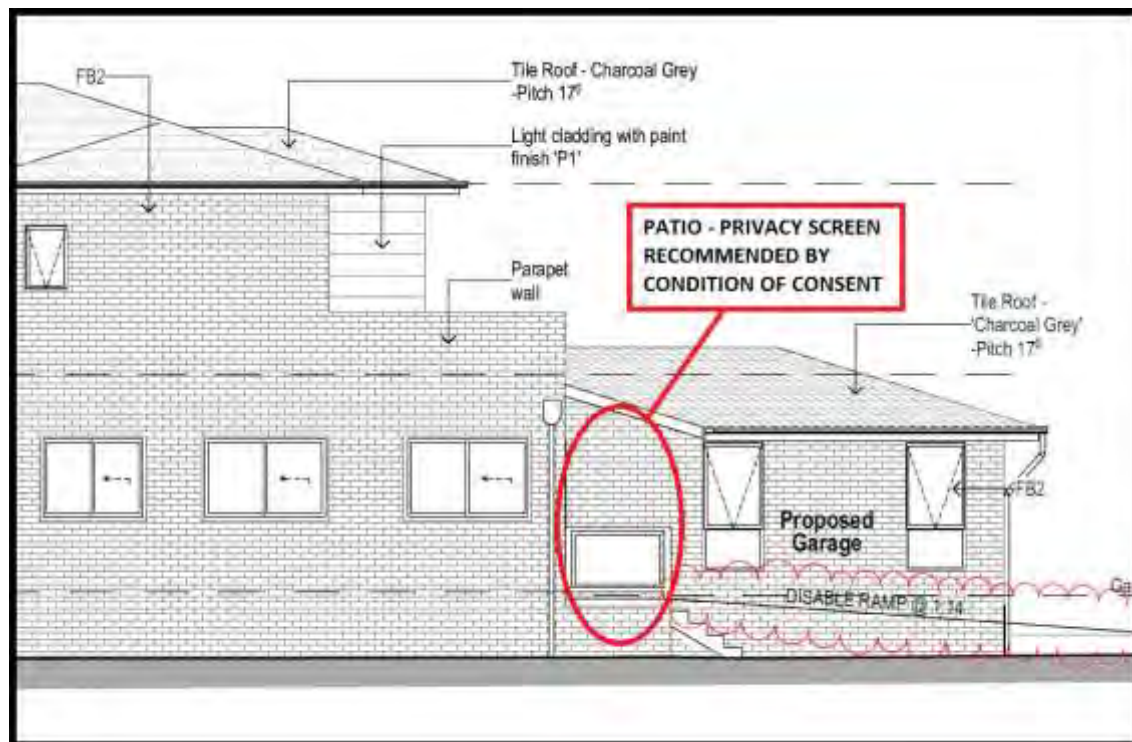
At RL74.45, the proposed ground floor of the boarding house approximately 900mm above the existing ground level (EGL), and at the very front of the building up to 1.24m above EGL. At the north-western side of the building this may give rise to potential overlooking of the adjoining property at 82 Waring Street from living room windows and boarding room windows which face the north-west.

Due to the slope of the land, the proposal is not considered to include excessive fill, however this elevated ground floor level could be better addressed to minimise overlooking impacts. Also, the proposed boarding house will include a boarding room on the first floor with a north-westerly facing window which may give rise to overlooking of the adjoining property.

For these reasons, a condition has been recommended for the installation of privacy screens or opaque glazing to all habitable room windows on the north-western elevation of the proposed boarding house – see below.

In addition to the northern elevation windows, a small patio is proposed adjacent to the communal living room on the ground floor of the boarding house. This patio is elevated approximately 900mm above existing ground level, and as such may give rise to overlooking of the adjoining property to the north-west at 82 Waring Street – see extract of north-west elevation drawing below.

ITEM 2 (continued)



Extract of North-West Elevation, showing location of patio where a privacy screen is recommended.

Source: Applicant DA plans, marked up.

Accordingly, the following conditions of consent have been recommended to ensure visual privacy is maintained to adjoining property to the north-west:

Privacy Screens/Opaque Glazing – north-western elevation. Fixed louvered privacy screens or opaque glazing is to be installed to all habitable room windows on the north-western elevation of the building to maintain adequate visual privacy to the adjoining property at 82 Waring Street, Marsfield. The privacy screens or opaque glazing to the windows is to be installed to a height of 1.6 metres above the finished ground floor level and finished first floor level. Details demonstrating compliance with this condition are to be submitted with the **Construction Certificate**.

Privacy screen to side of rear porch. A privacy screen is to be installed on the north-western end of the elevated porch located adjacent to the communal living area and the rear yard to minimise the potential for overlooking to the adjoining property. The privacy screen is to be least 1.6m, but not more than 2m, above the finished floor level of the porch, is to have no individual opening more than 30mm wide, and is to have a total area of all openings that is no more than 30% of the surface area of the screen. Details demonstrating compliance with this condition are to be submitted with the **Construction Certificate**.

ITEM 2 (continued)

With the imposition of the above recommended conditions, the neighbouring concerns in relation to overlooking are considered to have been addressed.

Note: Given the subject site is on a corner, the only other adjoining property is located at 86 Waring Street. No unacceptable overlooking of this property is envisaged by virtue of the sufficient rear setback (approx. 10m) to the habitable areas of the boarding house, and the positioning of the garage in-between.

B – Noise Impacts. *Concerns have been raised by objectors with regard to potential noise impacts arising through the operation of the boarding house development.*

Assessing Officer Comments: Boarding houses are a type of residential accommodation under the provisions of the *Ryde Local Environmental Plan 2014* (LEP2014), and as such, are not a land use which is generally considered to give rise to significant noise impacts.

However, to help mitigate noise impacts from the development, the applicant has submitted a detailed Plan of Management which includes measures to minimise impacts on adjoining residents, this includes the following house rules:

- No loud music or television noise is permitted after 10pm;
- No parties or gatherings are permitted upon the premises after 10pm;
- No visitors other than residents of the property are permitted after 10pm;
- No use of the outdoor areas is permitted after 10pm; and
- No smoking in areas which may affect the amenity of other residents of the boarding house or of residents of neighbouring properties.

It is the intention that this Plan of Management will form part of Council's conditions of consent, and as such, the above noise mitigation measures and house rules will become binding. Notwithstanding, it is recommended that the following specific conditions of consent are imposed to safeguard the acoustic amenity of adjacent residential properties and to ensure that the boarding house operates consistently in accordance with its plan of management and good neighbour obligations therein.

Approved number of lodgers – *The approved number of lodgers within the boarding house must not exceed ten (10) persons at any time.*

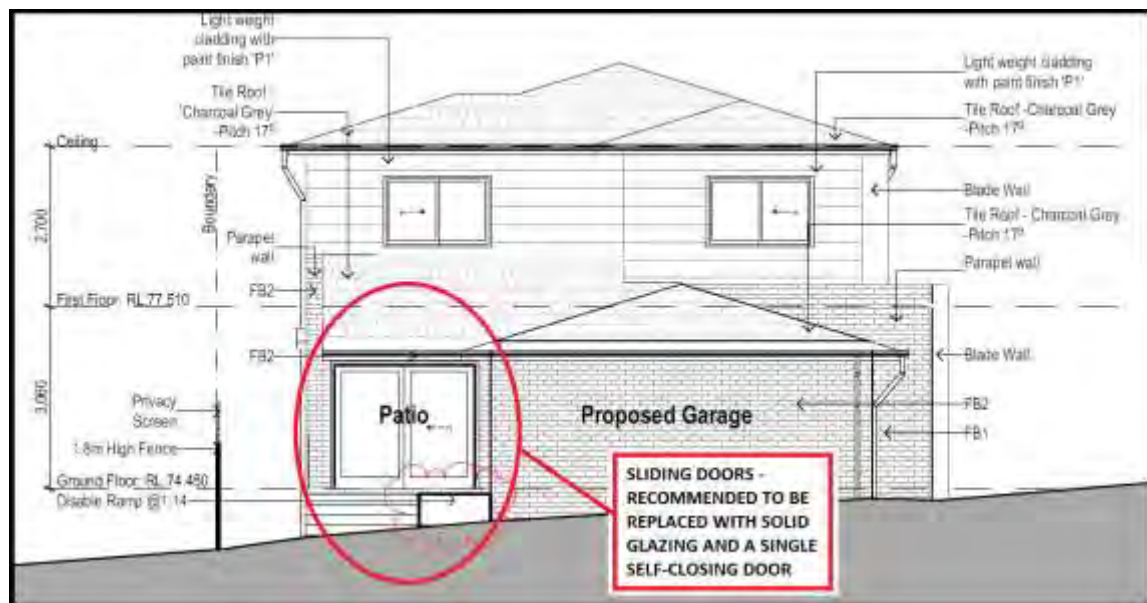
Use of Communal Outdoor Areas – *The use of the communal outdoor areas of the boarding house are restricted to 7am to 10pm.*

ITEM 2 (continued)

An important consideration when looking at the likely noise impacts of the proposal is the existing acoustic environment. In this regard, it is noted the subject site is directly opposite the Epping Road corridor, which is a classified main road that receives over 40,000 vehicle movements per day. Accordingly the subject site is located in an area with higher than usual background noise. As such, any noise from the proposed boarding house is unlikely to be over and above the background noise level in this location.

Despite the above, the layout of the boarding house development has appropriately considered noise impacts on adjoining property in most cases. For example, the first floor communal room only includes windows on the southern elevation which faces the corner of Waring Street. Additionally, side windows of the ground floor communal room and kitchen are adjacent to the driveway, car port and side setback areas of the adjoining dwelling house only.

However, the proposal does include sliding doors on the western elevation of the communal lounge room on the ground floor of the boarding house – see drawing below.



South-West elevation of proposed development, showing location of sliding doors to communal lounge room, to be replaced with solid glazing and a single self-closing door.

Source: Applicant DA plans, marked up.

Concern is raised that with the sliding doors open, noise from this communal room may transfer to the adjoining properties at 82 Waring Street and 86 Waring Street and impact on the acoustic privacy of the neighbours. In this regard, the following condition is recommended to replace the sliding doors with solid glazing and a single self-closing door. This would still allow solar access to the communal room, whilst minimising the transfer of noise and acoustic impact on adjoining property.

ITEM 2 (continued)

Sliding Doors to Communal Room. *The sliding doors on the south-west elevation of the communal lounge room be replaced with solid glazing and a single self-closing door to minimise the transfer of noise and reduce the acoustic impact of this room on the adjoining properties. Details of compliance are to be submitted and approved by the Principal Certifying Authority prior to the issue of a **Construction Certificate**.*

As part of the assessment of the subject DA, the proposal was referred to Council's Environmental Health Officers for comment. As part of their assessment, noise impacts from the operation of the boarding house were considered, and conditions of consent have been recommended in relation to offensive noise, noise and vibration from plant or equipment, and the potential requirement of an acoustic report to demonstrate compliance with the relevant noise and vibration criteria.

Given the above, the proposal is considered acceptable when having regard to noise impacts.

C – Unauthorised boarding houses. *Concerns have been raised by objectors with regard to the prevalence of unauthorised boarding houses within the local area, and the subsequent impacts that arise on surrounding properties.*

Assessing Officer Comments: The concerns raised by residents in relation to illegal boarding houses in the area are noted, however this is a separate issue to that which is considered in this report, which is an entirely new boarding house proposal on a site which has no history of unauthorised use as a boarding house.

Residents are also reminded that the City of Ryde encourages reporting of illegal boarding houses through its website, at: <http://www.ryde.nsw.gov.au/Business-and-Development/Housing/Affordable-Rental-Housing/Report-Illegal-Boarding-Houses>.

The proposed boarding house is however lawfully seeking consent pursuant to the provisions of *State Environmental Planning Policy (Affordable Rental Housing) 2009* (ARHSEPP).

The ARHSEPP includes specific development standards and design criteria, which together with the *Ryde Development Control Plan 2014* (DCP2014) will ensure the proposal achieves satisfactory amenity for residents, while at the same time minimises the potential impact on adjoining development.

The introduction of lawfully approved, and appropriately managed boarding houses in the area will increase the supply of legitimate affordable rental housing, and through competition put downward pressure on the illegal boarding house market.

ITEM 2 (continued)

Unlike illegal boarding houses, Council and residents can be aware of the location of such developments, and through imposition of conditions of consent ensure they operate to established standards.

For this reason, many of the impacts residents are concerned about can be more appropriately regulated.

D – Waste collection and maintenance of the boarding house. *The objectors have raised concern over the appropriateness of the applicant's proposed waste storage and collection arrangements. Concerns have also been raised over the general maintenance of the boarding house, along with how this will be arranged.*

Assessing Officer Comments: As part of the assessment of the subject DA, the proposal has been referred to Council's Environmental Health Officers (EHO) for comment. As part of this referral, EHO have advised they have no objections to the proposal, subject to the following three conditions of consent in relation to waste storage and handling:

Storage and disposal of wastes. *All wastes generated on the premises must be stored and disposed of in an environmentally acceptable manner.*

Waste containers. *An adequate number of suitable waste containers must be kept on the premises for the storage of garbage and recycling waste.*

Maintenance of waste storage areas. *All waste storage areas must be maintained in a clean and tidy condition at all times.*

In addition to the above recommended conditions by Council's Environmental Health Officer, the applicant has submitted a detailed Plan of Management which covers operational waste, maintenance and management of the boarding house. The following are extracts from the submitted Plan of Management:

- ***Waste minimisation and recycling*** – a cleaner will attend the Boarding House twice weekly to ensure that the Common Areas, Private Open Space, Car parking and outside the Boarding House are kept clean, tidy and disinfected to a professional standard.
- ***Provisions of safety measures for all residents*** – internal signage will be prominently displayed to provide the Manager and Agent contact details, as well as emergency contact details for essential services... and cleaning services.

ITEM 2 (continued)

- **Maintenance** – The Boarding house will be well maintained by a Manager who will be responsible for the maintenance and up-keep of the Boarding House. The Manager will be in attendance at the Boarding House at least twice a week. The Boarding House will have agreed contractors for the Boarding House (i.e. plumbers, electricians, and security staff) who will be responsible for maintenance and safety of the Boarding House.
- **Cleaning and maintenance** – The subject premises are at all times to be maintained in a safe and healthy condition. In this regard all common areas are to be cleaned to a professional standard at least once a week. The cleaning and maintenance is to occur to both fixtures and fitting in the area. In addition, all boarders are to be made aware, upon their entering into an agreement to occupy, of their responsibilities in relation to the maintenance and cleaning of the facility. Further, the common open space areas are to be maintained in a neat and orderly manner. This will require twice/month mowing and garden maintenance during spring and summer and once/month mowing and garden maintenance during autumn and winter.
- **Waste management and recycling** – residents of the facility are encouraged where possible to take advantage of Council's waste and recycling facilities. It is the responsibility of the boarder to sort garbage and place it in the appropriate receptacles. The manager is to be responsible for the collection arrangements, including making sure that the waste containers are placed adjacent to the kerb on the day of collection and removed back onto the property promptly after collection, and including the servicing of special waste such as "sharps" and/or sanitary napkin receptacles.

Where receptacles are provided for the disposal of sanitary napkins, these are to be serviced and readily cleaned on a regular basis. Collection responsibilities of the manager include all regular garbage, recycling and green waste collection services, as well as household clean-up collection, ensuring goods for collection are managed in accordance with Council's collection requirements.

- **House Rules**

- Item 2 – Maintenance of rooms: Residents must maintain their rooms in a clean manner and in a way that does not interfere with the reasonable comfort of other residents, and in a way that does not create a fire or health hazard. Residents must not intentionally or recklessly damage or destroy any part of their rooms or a facility in the Boarding House.
- Item 5 – Garbage: Is to be enclosed in a plastic bag (tied at the top) and placed in the bins in the garbage area. No domestic rubbish, food scraps, food wrappers, goods or materials are to be left in the hallways, common areas or outside the Boarding House.

ITEM 2 (continued)

With the above measures in place, it is considered the applicant has appropriately considered maintenance of the boarding house, along with operational waste and how this is managed. This has also been addressed by Council's Environmental Health Officer as indicated in the Referrals section of this report.

It is noted that there is a slight discrepancy in the submitted Plan of Management. On page 4 of the document, reference is made to cleaners attending to the Boarding House twice weekly, however on page 5 it is outlined this will occur at least once per week. In order to address this inconsistency, and to ensure the boarding house is cleaned and maintained to an acceptable standard, the following condition is recommended to ensure cleaning takes place twice per week as committed to within the Plan of Management.

Boarding House Cleaning. A cleaner is required to attend the Boarding House twice weekly to ensure that the Common Areas, Private Open Space, Car parking and outside the Boarding House are kept clean, tidy and disinfected to a professional standard.

It is noted the Plan of Management is to be included as part of Council's conditions of consent, and as such, the commitments made therein will be binding.

Given the above, the objectors concerns with regard to the operational waste and maintenance of the boarding house are considered to have been satisfactorily addressed by the commitments made within the Plan of Management, and the recommended conditions by Council's EHO.

Objectors are also advised that Council officers have the right to carry out periodic inspections of the boarding house premises to ensure compliance with relevant standards is maintained. An advisory note to this effect has been included in the draft consent.

E – Parking. Concerns have been raised the proposal includes inadequate parking to cater for the demand generated by the proposed boarding house development, particularly given the parking restrictions that are in place on the surrounding streets.

Assessing Officer Comments: Clause 29 of the ARHSEPP provides development standards that cannot be used to refuse consent for boarding houses made pursuant to the ARHSEPP. In relation to parking, if a site is located within an 'accessible area' (i.e. within specified proximity to public transport), consent cannot be refused on the basis of parking if at least 0.2 parking spaces are provided for each boarding room.

Given the proposal includes ten (10) boarding rooms, a minimum of 2 parking spaces is required. The development proposes two (2) car parking spaces within an attached double garage which therefore complies with this requirement.

ITEM 2 (continued)

It is noted that the ARHSEPP also requires one (1) parking space be provided for each employed person in conjunction with the boarding house who is a resident on site. Although the proposal outlines that a manager will visit the boarding house twice a week, the manager will not reside on site, and therefore is not required to have a dedicated parking space.

Having regard to the above, the proposal achieves compliance with the parking provisions of clause 29, and the proposal cannot be refused on the basis of parking.

It is also noted that clause 30 of the ARHSEPP provides standards for bicycle and motorcycle parking. Specifically that one bicycle space and one motorcycle space is to be provided for every five (5) boarding rooms.

Given the proposal includes ten (10) boarding rooms, a total of two (2) motorcycle and bicycle parking spaces are required for the proposal.

The proposal will provide for two (2) motorcycle parking spaces and up to four (4) bicycle parking spaces. Accordingly, compliance with the balance of the parking provisions contained within the ARHSEPP are also achieved.

It is noted the parking requirements outlined within DCP2014 for boarding houses in accessible areas generally reflect the same parking provisions contained within the ARHSEPP. The exception being that unlike the ARHSEPP, DCP2014 requires a parking space for each person employed in connection with the development, whether or not they reside on site.

In this circumstance one may argue a third parking space for the boarding house manager is required. However, given the proposal includes less than 20 lodgers, a boarding house manager is not a requirement under the planning controls. Further, the applicant has stated that the boarding house manager is to only attend the site twice per week. In this regard, it is considered onerous to require a parking space for the boarding house manager given one is not otherwise required for the development, and the little time the manager will be onsite.

Further it is noted that given compliance is achieved with the parking provisions of the ARHSEPP, the parking provisions of DCP2014 are dismissed in this instance.

As part of the assessment of the DA, the proposal was referred to Council's Senior Development Engineer. The response from Council's Senior Development Engineer has indicated that the parking provisions associated with the subject site are satisfactory, both in terms of quantity and functionality.

Given the above, the proposal is deemed to be satisfactory in relation to parking.

ITEM 2 (continued)

F – Overdevelopment of the site. Concerns have been raised by the objectors in relation to the overdevelopment of the site, including the proposal's floor space ratio, and claims that up to 20 lodgers will occupy the development.

Assessing Officer Comments: Ryde LEP 2014 prescribes a maximum floor space ratio (FSR) of 0.5:1.

The proposal has been assessed as having a gross floor area of 288.75m², which equates to an FSR of 0.496:1 which complies with the 0.5:1 maximum under LEP2014.

By achieving compliance with this numerical standard, the proposal is able to satisfy the objectives of the control which is to provide effective control over the bulk of development, and allow appropriate levels of development for specific areas.

With a building height of 7.69m, it is also noted the proposal achieves satisfactory compliance with Council's 9.5m building height limit under LEP2014. By achieving compliance with this control, the proposal is able to satisfy the building height objectives which are to ensure buildings are in keeping with the character of the local area, and minimise impacts on adjoining development.

With regard to the number of lodgers residing in the boarding house, it is noted the applicant is seeking consent for ten (10) single occupancy boarding rooms within the building. As such, the maximum number of lodgers within the building is 10, and not 20 as noted in the objection.

To ensure no more than no more than 10 lodgers occupy the boarding house, the following conditions of consent are recommended:

Occupants. No boarding room is to be occupied by more than 1 adult lodger.

Approved number of lodgers – The approved number of lodgers within the boarding house must not exceed ten (10) persons at any time.

Given the proposal's ability to achieve compliance with Council's key development standards governing the bulk and scale of development, the proposal is not considered to represent an overdevelopment of the site. Further, with the imposition of the above condition in relation to the number of lodgers residing at the development, objectors can be satisfied the boarding house will not become overcrowded.

G – Use of garage as additional boarding rooms. Concerns have been raised by the objectors in relation to the potential use of the garage for additional boarding rooms.

ITEM 2 (continued)

Assessing Officer Comments: The attached double garage to the boarding house is being recommended for approval as a garage only, and as such is recognised by Council as a non-habitable space. The stamped approved plans that will form part of any consent for the boarding house will clearly show that this component of the building is for vehicular parking purposes only.

Should the applicant take it upon themselves to utilise the garage as additional boarding rooms without obtaining the appropriate consents, then Council would reserve the right to take enforcement action for non-compliance with the approved plans or conditions. This may include penalty notices, orders or further court action.

Council's standard conditions of consent specify that except where otherwise provided in the consent, the development is to be carried out strictly in accordance with the approved plans (stamped approved by Council) and supporting documents.

The above measures are considered satisfactory to ensure the garage will not be utilised as an additional boarding room, and if it were to be, then scope for enforcement action by Council is possible.

Objectors are again advised that Council officers have the right to carry out periodic inspections of the boarding house premises to ensure compliance is maintained. An advisory note to this effect has been included in the draft consent.

H – Clothes drying facilities. Concerns have been raised by the objectors that the proposal includes inadequate clothes drying facilities.

Assessing Officer Comments: The provisions of Section 3.6 of Part 3.5 of DCP2014 prescribe a minimum 15m² clothes drying area is required for every 12 residents. This clothes drying area is to be outdoors, and can be retractable. The proposal is to include a clothes line within the rear yard that has an area of 2.64m², and as such fails to meet the minimum requirements of DCP2014.

Additionally, insufficient information has been provided in relation to internal clothes drying arrangements to confirm compliance with DCP2014.

There is scope within the rear yard to extend the proposed clothes line to comply with the provisions of DCP2014, and also scope within the boarding house to include a clothes dryer. Accordingly the following condition of consent has been recommended.

ITEM 2 (continued)

Clothes Drying Facilities. Internal and external clothes drying facilities are to be provided for the boarding house in compliance with the provisions contained within Part 3.5 of the Ryde Development Control Plan 2014. Such internal clothes drying facilities may take the form of mechanical clothes dryers provided within the internal laundry. Details are to be submitted to and approved by the Principal Certifying Authority prior to the issue of a **Construction Certificate.**

I – Social Impact. Concerns have been raised over the social impacts this will arise from the boarding house on the local area, including noise, loss of privacy, rubbish/waste, and unmaintained boarding houses being a blight on the streetscape.

Assessing Officer Comments: Issues raised in relation to noise, loss of privacy and maintenance/upkeep of the proposed boarding house have already been addressed earlier in the responses to the objections. These issues are considered to have been satisfactorily addressed by the applicant in their Plan of Management, design of the boarding house, or through imposition of conditions of consent.

On the topic of social impact, it is also necessary to consider what positive social impacts may arise from the proposed affordable rental housing development.

In this regard, it is well reported that Sydney has a shortage of affordable housing which gives rise to significant social impacts.

A review of recent available online data¹ has revealed that rental affordability within the Greater Sydney region has reached a critical position, whereby the average household is required to spend 28% of their household income on rent in order to access a rental dwelling.

In Marsfield, rental affordability fares even worse, whereby at least 38% of an average household's income is required to be spent to access a rental dwelling. This effectively places Marsfield in a category of severely unaffordable rents.

The City of Ryde Affordable Housing Policy 2016-2031 outlines there is a significant lack of affordable housing in the City of Ryde. The Policy goes on to outline that the shortfall has reached crisis levels, and is having a significant negative impact on communities and the local economy through the loss of key workers. It is estimated that by 2031, the Ryde local government area will be in need of 10,700 affordable housing dwellings for key workers.

¹ Rental Affordability Index – RAI Release Report – Community Sector Banking, Shelter Australia and SGS Economic and Planning, November 2015

ITEM 2 (continued)

The guiding principles of the Policy is to increase the amount of affordable housing available in the City of Ryde, and to encourage a diverse range of housing in the City of Ryde. Boarding houses are recognised within the Policy as contributing to this housing diversity.

Based on the above, the social benefits of the proposed boarding house – through provision of more affordable rental housing – are considered to outweigh the negative social impacts that are claimed to arise from the objectors.

8. SEPP1 (or clause 4.6 RLEP 2014) objection required?

None required as the assessment of the subject DA has not identified any development standards that are required to be varied.

9. Policy Implications

Relevant Provisions of Environmental Planning Instruments etc:

(a) Ryde Local Environmental Plan 2014

Zoning

Under the Ryde Local Environmental Plan 2014 (LEP2014), the zoning of the subject site is R2 Low Density Residential. Despite the proposal being lodged pursuant to the ARHSEPP, it is noted that boarding houses are a permissible form of development within the R2 Low Density Residential zone.

Aims and objectives for residential zones:

- *To provide for the housing needs of the community within a low density residential environment.*
- *To enable other land uses that provide facilities or services to meet the day to day needs of residents.*
- *To provide for a variety of housing types.*

The proposed development is considered to satisfy the objectives for residential developments as it will provide a range of housing types for the community within a low density residential environment, and ensures the general low scale of the surrounding area is maintained via compliant building heights, floor space ratio, and satisfactory setbacks.

The proposal is not considered to detract from the streetscape and includes a form and appearance consistent with the existing and emerging character of buildings recently approved in the local area.

ITEM 2 (continued)

Principal Development Standards

A full assessment of the proposal against the relevant principal development standards contained within the LEP2014 is illustrated in the Compliance Check held in **Attachment 2**. A summary of the key development standards is provided below:

LEP 2014	PROPOSAL	COMPLIANCE
4.3(2) Height 9.5m maximum building height.	The proposed boarding house is to have a maximum building height of 7.69m	Yes
4.4(2) & 4.4A(1) FSR 0.5:1 maximum FSR	The proposed boarding house has a FSR of 0.496:1	Yes

(b) State Environmental Planning Policy (Affordable Rental Housing) 2009

State Environmental Planning Policy (Affordable Rental Housing) 2009 (ARHSEPP) allows for the development of new generation and traditional boarding houses in residential, mixed use and some commercial zones.

The proposed has been lodged pursuant to the provisions of the ARHSEPP. Given the ARHSEPP is an environmental planning instrument, it becomes a matter for consideration in the assessment of the subject development application.

It is important to note that Clause 8 of the ARHSEPP indicates where there is an inconsistency between the ARHSEPP and any other environmental planning instrument (i.e. LEP 2014), whether made before or after the commencement of this ARHSEPP, the ARHSEPP prevails to the extent of the inconsistency.

A full assessment of the proposed development is contained within the Compliance Check table contained in **Attachment 2**. The following provides a brief overview of the proposed development performance against the key provisions of the ARHSEPP relating to boarding house developments.

- **Clause 26** prescribes those zones to which the boarding house provisions of the ARHSEPP applies. The subject site is identified as being within the R2 Low Density Residential zone under the provisions of the LEP 2014. The R2 Low Density Residential zone is a prescribed zone under Clause 26, and as such the subject site is considered to be land to which the ARHSEPP boarding house provisions apply.

ITEM 2 (continued)

- **Clause 27(1)** outlines development to which the boarding house provisions of the ARHSEPP apply. A boarding house is defined within the Dictionary of LEP2014 as:

boarding house means a building that:

- (a) *is wholly or partly let in lodgings, and*
- (b) *provides lodgers with a principal place of residence for 3 months or more, and*
- (c) *may have shared facilities, such as a communal living room, bathroom, kitchen or laundry, and*
- (d) *has rooms, some or all of which may have private kitchen and bathroom facilities, that accommodate one or more lodgers,*

but does not include backpackers' accommodation, a group home, hotel or motel accommodation, seniors housing or a serviced apartment.

A review of the plans submitted as part of the proposed development indicates the proposal would meet the above definition for a 'boarding house'. As such the proposal is considered to be development to which the boarding house provisions of the ARHSEPP apply.

- **Clause 27(2)** and **Clause 27(3)** indicate that despite the provisions of Clause 27(1) the boarding house provisions of the ARHSEPP do not apply to development on land within the R2 Low Density Residential zone unless it is located within an 'accessible area' and secondly within the Sydney region.

An accessible area is defined under the ARHSEPP as:

accessible area means land that is within:

- (a) *800 metres walking distance of a public entrance to a railway station or a wharf from which a Sydney Ferries ferry service operates, or*
- (b) *400 metres walking distance of a public entrance to a light rail station or, in the case of a light rail station with no entrance, 400 metres walking distance of a platform of the light rail station, or*
- (c) *400 metres walking distance of a bus stop used by a regular bus service (within the meaning of the Passenger Transport Act 1990) that has at least one bus per hour servicing the bus stop between 06.00 and 21.00 each day from Monday to Friday (both days inclusive) and between 08.00 and 18.00 on each Saturday and Sunday.*

ITEM 2 (continued)

The development site is located approximately 300m walking distance from the nearest compliant bus stop (ID: 212253) located on Herring Road near Booth Street. The bus stop is used by a regular bus service (Route No. 295) which has at least one bus per hour between 0600 and 2100 each day Monday to Friday and between 0800 and 1800 on Saturday and Sunday.

On this basis, the boarding house provisions of the ARHSEPP apply to the proposed development.



Site is 300m from bus stop ID: 212221 which is serviced by a regular bus service indicating that the site is located within an accessible area pursuant to the ARHSEPP.

Source: <https://www.google.com.au>

- **Clause 28** indicates that development for the purposes of a boarding house to which the ARHSEPP applies may be carried out with consent. In this regard it is noted that the subject DA has been lodged with Council seeking consent. As such, this is consistent with the provisions of Clause 28.

ITEM 2 (continued)

- **Clause 29** provides standards that cannot be used to refuse consent. For example, a consent authority cannot refuse consent to development to which the ARHSEPP applies on the basis of bulk and scale, building height, landscaped area, solar access, private open space, parking, or accommodation size if minimum standards outlined within the ARHSEPP are met.

As indicated in the Compliance Check contained in **Attachment 2**, the proposed development achieves the minimum standards established by the ARHSEPP, so in this regard, it is acknowledged that development consent for the proposed development cannot be refused on any of the following grounds:

- bulk and scale,
 - building height,
 - landscaped area,
 - solar access,
 - private open space,
 - parking, or
 - accommodation size.
- **Clause 30** provides minimum standards for boarding house developments under the ARHSEPP. Specifically, it states that unless the listed standards are met, a consent authority must not grant consent to an ARHSEPP boarding house development.

Again, the Compliance Check contained in **Attachment 2** provides a detailed assessment of how the proposed development performs against each of these development standards. The outcome of this assessment has determined that the proposed boarding house development satisfactorily complies with each of the specified standards.

- **Clause 30A** outlines that a consent authority must not consent to development under the ARHSEPP unless it has taken into consideration whether the design of the development is compatible with the character of the local area.

An assessment of the compatibility of the proposed development with the local character of the area has been undertaken, pursuant to Schedule 1 of Part 3.5 of the DCP2014 which provides a guideline for local character assessment for boarding houses. The assessment has revealed that the proposed boarding house is consistent with the local character. This is largely because the bulk, scale and proportion of the proposed boarding house is consistent with the locality. The building achieves a consistent height and footprint, whilst providing appropriate front, side and rear setbacks consistent with the existing dwelling on the site (to be demolished) and the local area.

ITEM 2 (continued)

Furthermore, the proposal includes expansive landscaped areas across the large corner frontage of the site and in the rear yard which is consistent with the landscaped setbacks typical in the locality.

It is also important to note that the NSW Land and Environment Court has consistently ruled that a development's compatibility with the local area is not about 'sameness' but rather a proposal's ability to exist in harmony with surrounding development.

In this regard, given the proposal's high level of compliance with the relevant planning controls, and minimal environmental impact, the boarding house is considered capable of existing in harmony with the local area.

(b) Ryde Local Environmental Plan 2014

(b) Other Relevant State Environmental Planning Policies (SEPPs)

State and Sydney Regional Environmental Planning Policies

SEPP BASIX:

A compliant BASIX Certificate (No 742870M) has been submitted with the development application. A standard condition has been included in the Draft Consent requiring compliance with this BASIX certificate.

The subject DA has also been referred to Council's Building Surveyor team who has advised there are no objections to the proposed development subject to the inclusion of conditions of consent which are outlined in the referral comments within this report.

(c) Any draft environmental planning instruments (i.e. LEPs)

No draft environmental planning instruments have been identified as being applicable to the proposed development.

(d) The provisions of any development control plan applying to the land

Ryde Development Control Plan 2014

Part 3.3 Dwelling Houses and Part 3.5 Boarding Houses

The proposal has been assessed using the development controls contained in Ryde Development Control Plan 2014 (DCP2014) and a full assessment is detailed in the Compliance Checks contained in **Attachment 2**. The following is an assessment of the non-compliances of the subject DA against the key components of the DCP2014.

ITEM 2 (continued)

Non-Compliances justifiable:

As covered by Section 79C(3A)(b) of the *Environmental Planning and Assessment Act 1979* (the Act), if a development control plan contains provisions that relate to the development that is the subject of a development application, the consent authority is to be flexible in applying those provisions and allow reasonable alternative solutions that achieve the objects of those standards for dealing with that aspect of the development.

With the above in mind, the following outlines those aspects of the proposal which have been assessed as non-compliant with the applicable development controls under DCP2014, but nonetheless have been determined acceptable as they are able to achieve the objects of those standards.

1. **Deep Soil Areas:** Section 2.6.1 of Part 3.3 of the DCP2014 prescribes development controls for deep soil areas. Specifically, the DCP2014 stipulates the following:

b. The deep soil area must include:

i. an area with minimum dimensions of 8m x 8m in the backyard

The proposal includes a deep soil area in the backyard with minimum dimensions of 4.5m x 8m. As such, this contravenes the requirements of the above components of DCP2014 which requires an 8m x 8m deep soil area in the backyard.

The objectives relating to deep soil area are outlined below:

1. *To ensure that land retains its ability to absorb rain water so as to reduce stormwater runoff and to increase the moisture level of the soil for the use of trees and other vegetation.*
2. *To ensure that each building allotment has a minimum deep soil area.*
3. *To retain and enhance vegetation corridors.*
4. *To provide space for mature tree growth and other vegetation.*
5. *To generally retain existing mature trees and vegetation.*
6. *To enable movement of fauna along vegetation corridors.*

ITEM 2 (continued)

Although not complying with controls relating to deep soil area, this non-compliance with Council's numerical control can be supported as it is capable of meeting the above objectives for the following reasons:

- Overall the proposal includes a sufficient amount of deep soil area at 39% of site area, exceeding the minimum requirement of 35%. This area includes a communal open space area in the rear yard of the site which also exceeds the minimum requirements under the ARHSEPP.
- Given the compliant level of deep soil across the site and given the application has been reviewed by Council's Development Engineer who raised no objection subject to conditions, the development is considered to appropriately minimise stormwater runoff.
- The non-compliance with the 8m x 8m minimum dimensions of a deep soil area is largely due to the corner allotment which results in no clear rear setback area. Consistent with the existing dwelling on the site, the proposal includes a large front and secondary front setback area to Waring Street which is where the majority of the deep soil area is provided rather than in the rear yard. Given this is consistent with the existing dwelling, this is considered an appropriate deep soil arrangement across the site.
- The 4.5m x 8m rear yard deep soil area provided is sufficient to provide an open lawn area, boundary planter beds, and tree planting.
- The proposed rear deep soil area provides a continuation of the existing contiguous vegetation strip to the rear of the properties fronting Waring Street. In fact, the proposed rear deep soil area expands the width of this area as compared to the adjoining property, 82 Waring Street, which only provides a rear deep soil area depth of 4m compared to the proposal which provides a depth of over 9m.
- The proposal provides an area consistent with the adjoining dwellings to the north-west which have the same orientation to the site.
- No trees or significant vegetation is proposed to be removed.

Given the above, the proposed non-compliances with the deep soil controls contained within the DCP2014 are considered justifiable in this instance, particularly having regard to the provisions of Section 79C(3A)(b) of the Act.

ITEM 2 (continued)



Diagram indicating the 4.5m x 8m deep soil area provide in the backyard of the boarding house. This demonstrates that the minimum dimensions of the deep soil area does not comply with the DCP.

Source: Applicant Landscape Plan, marked up.



Aerial Photograph indicating the contiguous rear vegetation strip and the adjoining property, 82 Waring Street, which provides less deep soil depth than the proposal.

Source: Nearmap.com.au - edited for diagrammatic purposes by CPS.

ITEM 2 (continued)

- 2. Topography and Excavation:** Section 2.6.2 of Part 3.3 of the DCP2014 prescribes development controls for topography and excavation. Specifically, the DCP2014 stipulates the following:

- b. The area under the dwelling footprint may be excavated or filled so long as:*
iii. the maximum height of fill is 900mm.

An assessment of the fill arrangements within the proposed dwelling footprint, as per the submitted architectural plans and survey, have revealed that the maximum level of fill is 1.24m in the front north-western corner of the building. This exceeds the abovementioned control by 324mm.

The objectives relating to topography and excavation are outlined below:-

- 1. To retain natural ground levels and existing landform.*
- 2. To create consistency along streetscapes.*
- 3. To minimise the extent of excavation and fill.*
- 4. To ensure that excavation and fill does not result in an unreasonable loss of privacy or security for neighbours.*

Although not complying with the controls relating to topography, this non-compliance with Council's numerical controls can be supported for the following reasons:

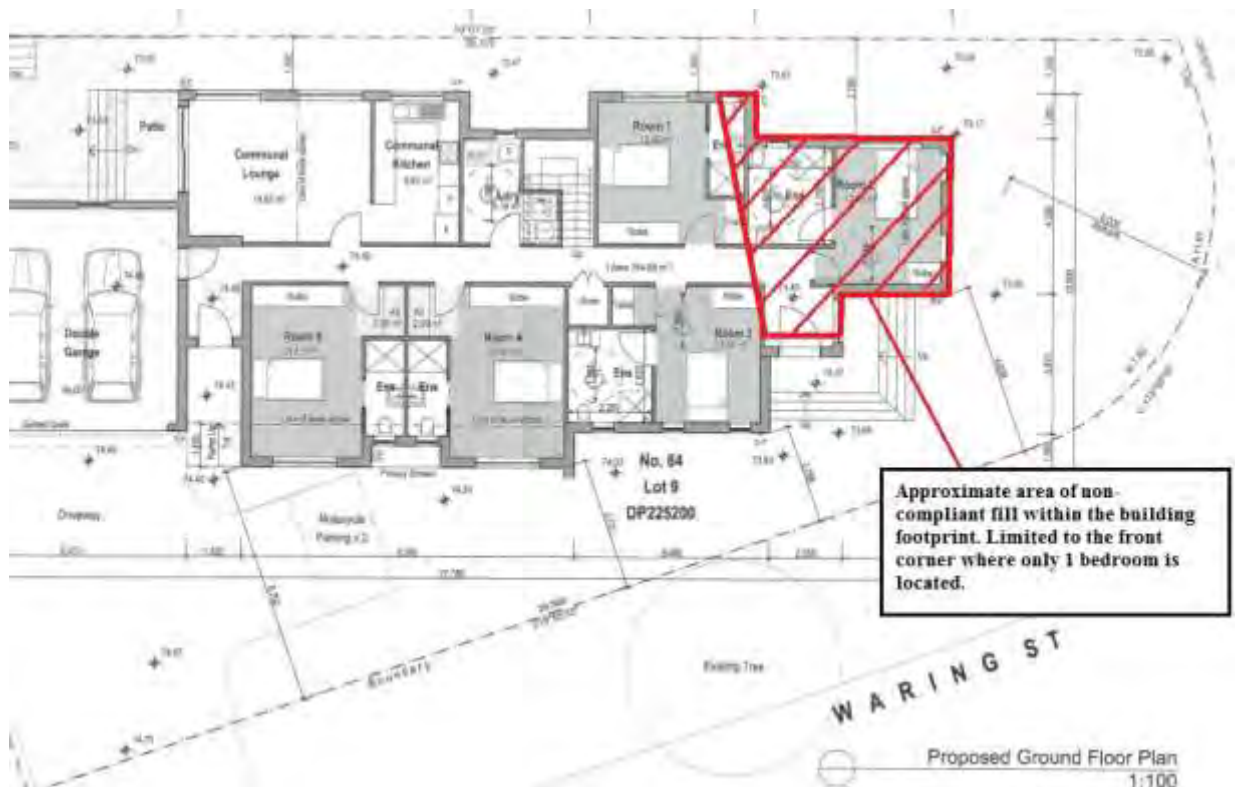
- The natural ground levels outside the building footprint are proposed to be retained and as such the natural landform of the site is considered to be retained.
- The proposed ground floor level of the boarding house is the same as the existing dwelling on the site and as such retains the existing streetscape presentation.
- The exceedance of the maximum 900mm fill control within the building footprint is limited to the northern front corner of the building where the land falls towards the street. There is only one boarding room in this location which principally overlooks the street and front setback areas of adjoining property.
- The minor exceedance in the level of fill does not contribute to any additional bulk and scale to the building as it is well below the height limit (proposed 7.69m, max 9.5m) and provides compliant setbacks to the front and north-western side boundaries.

Despite the above, it is acknowledged that boarding rooms are likely to be more frequently occupied than traditional bedrooms within dwelling houses. Additionally, although Room 1, the Communal Kitchen, Communal Lounge and Porch include compliant levels of fill, these areas are still elevated above natural ground level.

ITEM 2 (continued)

Accordingly, it is considered reasonable in the circumstances of the case that privacy screens or opaque glazing be installed to a height of 1.6m for all windows on the north-western elevation of the building which potentially overlook the adjoining property at 82 Waring Street. Reference is made to the assessment of the proposal against Council's visual privacy controls later in this report for an extract of the conditions to be included.

Given the above, the proposed non-compliance with the topography and excavation controls contained within the DCP2014 is considered justifiable in this instance, particularly having regard to the provisions of Section 79C(3A)(b) of the Act, and the recommended conditions of consent.



**Floor Plan showing the area of non-compliant fill within the building footprint.
Source: Applicant DA plans, edited.**

ITEM 2 (continued)



**North-west elevation showing area of non-compliant fill within the building footprint.
Source: Applicant DA plans, edited.**

- 3. Rear setback:** Section 2.9.3 in Part 3.3 of the DCP2014 prescribes development controls for rear setbacks. Specifically, Section 2.9.3 stipulates that the rear of dwellings are to be setback from the rear boundary a minimum distance of 25% of the length of the site or 8m, whichever is the greater. For 84 Waring Street, 25% of the length of the site is 9.25m, which is greater than 8m and is therefore the minimum required rear setback.

The proposed setback to the rear south-western boundary is 1.377m to 3.7m for the attached garage portion and 10.9m for the habitable areas of the boarding house. Accordingly, the garage component of the boarding house does not meet the required minimum rear setback of 9.25m.

The objectives relating to rear setbacks are outlined below:

- 1. To provide an area for private outdoor recreation and relaxation.*
- 2. To allow space for vegetation, mature trees and deep soil zones.*
- 3. To separate dwellings to achieve privacy.*
- 4. To enable contiguous vegetation corridors across blocks.*

Although not complying with controls relating to rear setbacks, this non-compliance with Council's numerical control can be supported as it is capable of meeting the above objectives for the following reasons:

- The site is located on a near 90 degree bend to Waring Street, making the site essentially a corner site with a large frontage to Waring Street which bends around with the road. Given the corner nature of the site, the south-western 'rear' boundary is essentially a side boundary as it adjoins the side of 86 Waring Street and does not adjoin any rear boundaries of other allotments. Accordingly, the proposed setback for the garage of 1.377 to 3.7m is considered acceptable and consistent with a typical side setback for a garage.

ITEM 2 (continued)

- The non-compliant rear setback is only for the garage. The habitable areas on the south-western elevation (rear elevation) are setback a compliant 10.9m and the first floor boarding rooms are setback further at 12m. Accordingly, the reduced setback is only for the single storey garage component of the building which will not impact adjoining properties by way of privacy, overshadowing or excessive bulk.
- The proposal includes a compliant level of communal open space for the boarding house within the rear setback area.
- The proposal includes deep soil area in the rear setback that provides a continuation of the existing contiguous vegetation strip to the rear of the properties fronting Waring Street. In fact, the proposed rear deep soil area expands the width of this area as compared to the adjoining property, 82 Waring Street, which only provides a rear deep soil area with a depth of 4m compared to the proposal which provides a depth of over 9m.
- Large areas of deep soil have been provided in the expansive front setback area which wraps around the curved frontage of the site. This provides significantly more deep soil in the front than on a typical mid-block site. The proposed deep soil areas allow sufficient space for vegetation and mature trees across the site.

Given the above, the proposed non-compliance with the rear setback control contained within the DCP2014 is considered justifiable in this instance, particularly having regard to the provisions of Section 79C(3A)(b) of the Act.

ITEM 2 (continued)



Diagram showing the rear setbacks of the proposed boarding house.
Source: Ground Floor Plan by applicant, edited for diagrammatic purposes by CPS

- 4. Landscaping:** Section 2.13 of Part 3.3 of DCP2014 prescribes controls in relation to landscaping. In particular, the rear garden is to have at least one tree capable of a minimum mature height of 15m with a spreading canopy.

An assessment of the submitted landscape plan has identified that the proposal includes the planting of one tree in the rear yard which will be capable of reaching a mature height of 6m.

Despite this being non-compliant with the provisions of DCP2014, this arrangement is considered justifiable for the following reasons.

- The landscape plan submitted with the DA includes the planting of an Angophora Costata 'Smooth-Barked Apple', within the north-eastern front setback to Waring Street. This tree has a mature height of 15m.
- Given the irregular shape and alignment of the subject site, it is considered more appropriate that larger tree planting take place within the substantial front setback areas which accommodate the bulk of the site's deep soil area.

ITEM 2 (continued)

- As previously outlined, given the corner nature of the site, the south-western 'rear' boundary is essentially a side boundary as it adjoins the side of 86 Waring Street and does not adjoin any rear boundaries of other allotments. In this regard, one may argue that this control within DCP2014 does not technically apply to this location of the site.
- Substantial tree planting is not included within the rear yards of adjoining properties at 82 to 74 Waring Street, and as such, by not including a tree capable of reaching a mature height of 15m, the proposal will not be inconsistent with the prevailing character of rear yards adjoining the site.

Given the above, the proposed non-compliance with the location of mature tree planting control is considered justifiable in this instance.

Non-compliances / issues – Resolved via condition

Privacy and Amenity

Section 2.14 of Part 3.3 of the DCP2014 prescribes development controls relating to the Privacy (Visual and Acoustic) and Amenity. This is to ensure that developments provide an acceptable level of safety, amenity and privacy for occupants and also adjoining properties. The controls stipulate that dwellings are to be designed to minimise and mitigate any impacts on the visual and acoustic privacy of neighbouring buildings and on the amenity of future residents.

Visual Privacy

As touched on earlier in this report, a substantial component of the proposed ground floor of the boarding house is approximately 900mm above the existing ground level (EGL), and a small portion at the front to the site is up to 1.24m above EGL. At 900mm above EGL the proposed boarding house is compliant with Council's fill controls. However this may still give rise to potential overlooking of the adjoining property at 82 Waring Street from living room windows and boarding room windows which face the north-west.

Due to the slope of the land, the proposal is not considered to include excessive fill, however this elevated ground floor level could be better treated to minimise overlooking impacts. Also, the proposed boarding house will include a boarding room on the first floor with a north-westerly facing window which may give rise to overlooking of the adjoining property.

For these reasons, a condition has been recommended for the installation of privacy screens or opaque glazing to all habitable room windows on the north-western elevation of the proposed boarding house – see below.

ITEM 2 (continued)

Privacy Screens/Opaque Glazing – north-western elevation. Fixed louvered privacy screens or opaque glazing is to be installed to all habitable room windows on the north-western elevation of the building to maintain adequate visual privacy to the adjoining property at 82 Waring Street, Marsfield. The privacy screens or opaque glazing to the windows is to be installed to a height of 1.6 metres above the finished ground floor level and finished first floor level. Details demonstrating compliance with this condition are to be submitted with the **Construction Certificate**.

The proposed development also includes an elevated porch adjoining the living area providing access to the rear yard. Concern is raised that there will be potential for overlooking into the rear yard of the adjoining property 82 Waring Street from both the porch and portions of the communal living area adjacent to the porch. In this regard, the following condition is recommended to include a privacy screen on the north-western side of the porch.

Privacy screen to side of rear porch. A privacy screen is to be installed on the north-western end of the elevated porch located adjacent to the communal living area and the rear yard to minimise the potential for overlooking to the adjoining property. The privacy screen is to be least 1.6m, but not more than 2m, above the finished floor level of the porch, is to have no individual opening more than 30mm wide, and is to have a total area of all openings that is no more than 30% of the surface area of the screen. Details of compliance are to be submitted and approved by the Principal Certifying Authority prior to the issue of a **Construction Certificate**.

Acoustic Privacy

The proposed development includes sliding doors on the south-western elevation of the communal living/dining/kitchen on the ground floor of the boarding house. Concern is raised that with the sliding doors open, noise from this communal room may transfer to the adjoining properties at 82 Waring Street and 86 Waring Street and impact on the acoustic privacy of the neighbours. In this regard, the following condition is recommended to replace the sliding doors with solid glazing and a single self-closing door. This would still allow solar access to the communal room, whilst minimising the transfer of noise and acoustic impact on adjoining property.

Sliding Doors to Communal Room. The sliding doors on the south-west elevation of the communal living/dining/kitchen room be replaced with solid glazing and a single self-closing door to minimise the transfer of noise and reduce the acoustic impact of this room on the adjoining properties. Details of compliance are to be submitted and approved by the Principal Certifying Authority prior to the issue of a **Construction Certificate**.

ITEM 2 (continued)

It is also noted the submitted Plan of Management states the following in relation to minimising the impacts on residents.

So as to minimise impacts upon the residents of adjoining premises as well as residents of the building the following rules are to apply:

- a. No loud music or television noise is permitted after 10.00pm.*
- b. No parties or gatherings are permitted upon the premises after 10.00pm.*
- c. No visitors other than residents of the property are permitted after 10.00pm.*
- d. No use of the outdoor areas is permitted after 10.00pm.*
- e. No smoking in areas which may affect the amenity of other residents of the boarding house or of residents of neighbouring properties.*

The submitted Plan of Management will be included within Condition 1 of the consent and can only be amended with the agreement of Council in writing. Copies of the approved Plan of Management must be provided to the relevant managing agent, and the house rules are required to be on display and available at all times to lodgers.

Notwithstanding the above, it is recommended that the following specific conditions of consent are imposed to safeguard the acoustic amenity of adjacent residential properties and to ensure that the boarding house operates consistently in accordance with its plan of management and good neighbour obligations therein.

Approved number of lodgers – *The approved number of lodgers within the boarding house must not exceed ten (10) persons at any time.*

Use of Communal Outdoor Areas – *The use of the communal outdoor areas of the boarding house are restricted to 7am to 10pm.*

Further again to the above, the proposal was referred to Council's Environmental Health Officers who have assessed the potential operational noise impacts of the proposed boarding house, and recommended support for the development, subject to conditions. Reference is made to the referral response section earlier in this report for details.

Internal Building Design

Section 3.6 of Part 3.5 of the DCP2014 prescribes development controls relating to the internal building design of boarding house developments. This is to ensure all new boarding houses provide an acceptable level of safety, amenity and privacy for occupants and also adjoining properties. Particular components of this control seek to avoid dark and less visible areas, and locate communal and common areas in safe and accessible locations. Also outlined is provisions for lighting to

ITEM 2 (continued)

common areas be provided in a fashion that maintains safety and security, without compromising on the amenity of occupants or properties adjoining the development. The controls also seek to provide adequate space and facilities within boarding room kitchenettes.

An assessment of the subject DA has revealed that no gates are shown to be provided to the side and rear of the development. Furthermore these areas may potentially provide dark and non-visible areas. In addition the subject DA has failed to identify specific details on the common area lighting arrangements for the proposed development and has also failed to provide details on the kitchenettes within select boarding rooms.

Accordingly, the following conditions of consent are recommended to ensure that side entry gates are proposed and that they are lockable, sensor lighting is provided to these setback areas and that the lighting arrangements for the proposed development are designed to comply with the provisions of the DCP 2014. Also, a condition has been recommended to ensure the kitchenettes are provided with adequate bench space, space for a small fridge, cupboards and shelves:

Side entry gates – Side gates are to be installed within north-western and south-western side setbacks to provide security to the side and rear of the boarding house. The gates must be provided with a keypad locking mechanism to prevent unauthorised access into these areas. Details indicating compliance with this condition shall be submitted to the Principal Certifying Authority prior to the issue of a **Construction Certificate**.

Sensor Lighting – Sensor lighting is to be provided to the side gates (conditioned to be installed) within the north-western and south-western side setback areas. Details are to be submitted to the Principal Certifying Authority for approval prior to the issue of a **Construction Certificate**. The details to include certification from an appropriately qualified person that there will be no offensive glare onto adjoining residents or boarding rooms within the development.

Lighting of common areas (driveways etc). – Details of lighting for internal driveways, common areas and the street frontage shall be submitted for approval prior to issue of the **Construction Certificate**. The details to include certification from an appropriately qualified person that there will be no offensive glare onto adjoining residents or boarding rooms within the development.

Kitchenettes – All boarding room kitchenettes are to have a minimum of 0.5m² of bench space, space for a small fridge, cupboards and shelves. Details are to be submitted to the Principal Certifying Authority for approval prior to the issue of a **Construction Certificate**.

ITEM 2 (continued)

Clothes Drying Facilities

The Table within Section 3.6 of Part 3.5 of DCP2014 prescribes development controls relating to drying facilities for boarding houses. Specifically, external and internal drying facilities are to be provided. Whilst the proposal includes sufficient external clothes drying areas, details of indoor clothes drying facilities are not provided. Such facilities could readily be provided within the internal laundry, and as such are to be addressed by imposition of the following condition:

Clothes Drying Facilities. Internal and external clothes drying facilities are to be provided for the boarding house in compliance with the provisions contained within Part 3.5 of the Ryde Development Control Plan 2014. Such internal clothes drying facilities may take the form of mechanical clothes dryers provided within the internal laundry. Details are to be submitted to and approved by the Principal Certifying Authority prior to the issue of a **Construction Certificate**.

Boarding House Management

Section 4 of Part 3.5 of the DCP2014 provides development controls relating to the management of boarding houses to ensure they are well maintained and operated in a manner that ensures a high level of amenity for the occupants as well as for adjoining residents.

It is also specified that occupiers of adjacent properties be provided with a 24 hour telephone number for a principal contact (for example owner or manager) for use in the event of an emergency.

It is noted that that subject DA does not detail on the plans or within the accompanying documentation that these management controls will be satisfactorily complied with. As such, it is considered appropriate that the following condition be included as an operational condition of consent:

Boarding House Management. Occupiers of all adjacent properties are to be provided with a 24 hour telephone number for a principal contact (for example owner or manager) for use in the event of an emergency.

Council's Section 94 Development Contributions Plan

Council's Section 94 Development Contributions Plan requires a contribution for the provision of various additional services required as a result of increased development. Boarding house developments are currently charged at a rate of \$7230.70 per bedroom (ie total of \$72,307.30 for this development), minus a credit (of \$20,000) for one residential dwelling which could be erected on this residentially-zoned property without attracting Section 94 contributions.

ITEM 2 (continued)

The contributions that are payable with respect to the increase housing density on the subject site (*being for residential development outside the Macquarie Park Area*) are as follows:

A – Contribution Type	B – Contribution Amount
Community & Cultural Facilities	\$11,057.06
Open Space & Recreation Facilities	\$27,220.35
Civic & Urban Improvements	\$9,258.19
Roads & Traffic Management Facilities	\$1,262.84
Cycleways	\$788.88
Stormwater Management Facilities	\$2,507.30
Plan Administration	\$212.68
The total contribution is	\$52,307.30

A condition for the payment of a Section 94 Contribution of **\$52,307.30** has been included in the draft conditions of consent.

10. Likely impacts of the Development

(a) Built Environment

A thorough assessment of the impacts of the proposed development on the built environment has been undertaken as part of the completed assessment of the proposed development. This has included a compliance check against all relevant planning controls, a character assessment, detailed assessment report, as well as referral to Council's Development Engineer, Building Surveyor, and Environmental Health Officer.

The resultant impacts of the proposed boarding house on the built environment are considered to result in a development that is consistent with the desired future character of the low density residential area, consistent with the aims and objectives of the City of Ryde Affordable Housing Policy 2016-2031, and consistent with the nature of development in Ryde and the wider local government area.

As a result, the proposed development is considered to be satisfactory in terms of impacts on the built environment, subject to the recommended conditions of consent.

(b) Natural Environment

Given the nature of the proposed development being for the construction of a new boarding house within an existing suburban environment, and given the development includes vegetation removal that has been assessed as being satisfactory by Council's Consultant Landscape Architect, it is considered there will be no significant negative impact upon the natural environment as a result of the proposal.

ITEM 2 (continued)

11. Suitability of the site for the development

A review of Council's map of Environmentally Sensitive Areas (held on file) identifies no environmental constraint affecting the subject property.

In this regard the subject site is considered to be suitable when having regard to environmental planning hazards.

The proposed boarding house is a permissible form of development on the subject site, both under the ARHSEPP for which LDA2016/0339 has been lodged, and also under the provisions of the LEP2014. Further the subject site is located in an 'accessible area' when having regard to its proximity to public transport services and the provisions of the ARHSEPP.

The subject site has also been determined to be compatible with the character of the local area. This is because the building to accommodate the boarding house is of a bulk and scale that is consistent with the provisions of the local planning controls, and in harmony with the low density residential environment surrounding the site and the existing heritage item and heritage conservation area nearby.

Given the above, it is considered that the proposed development is suitable for the subject site.

12. The Public Interest

The development substantially complies with the provisions of the ARHSEPP and also Council's current development controls. Additionally, it has been determined that the proposed built form is in keeping with the existing and desired future character of the low density residential area.

The proposal will provide for much needed affordable housing within the City of Ryde, and is consistent with the City of Ryde Affordable Housing Policy 2016-2031.

Objections raised by local residents as part of the notification process for the DA have been addressed via conditions of consent where appropriate to mitigate the impacts of the proposal to an acceptable level.

Having regard to the above, it is considered that approval of the DA would be in the public interest.

ITEM 2 (continued)

13. Consultation – Internal and External

Internal Referrals

Senior Development Engineer: As noted in the Background Section of this report, additional information was required in relation to Development Engineering matters. The additional information received has been assessed by Council's Senior Development Engineer who has raised no objection subject to conditions of consent.

The following comments have been provided by Council's Senior Development Engineer:

Stormwater Management

The proposed stormwater management system for the development discharges to the existing kerb inlet pit in Waring Street and incorporates an above ground onsite detention basin in the front yard. There is some minor error in the OSD calculations and the applicant is required to provide additional 5.0m³ of OSD volume. This has been conditioned as an additional 5000 litre OSD offset water tank which should be connected to the drainage system.

Public Domain

Footpath paving exists along the frontage of Waring Street.

Vehicle Access and Parking

The height of the garage door should be suitable (2.5m) for disable access due to parking within the garage.

The proposal requires 2 bicycle parking spaces and two motor cycle parking spaces which have been provided.

Recommendation

There are no objections to the proposed development with respect to the engineering components, subject to the application of the following conditions.

Building Surveyor: The proposed development was referred to Council's Building Surveyor who has provided no objection to the proposed development subject to conditions of consent.

ITEM 2 (continued)

Environmental Health Officer: The proposed development was referred to Council's Environmental Health Officer (EHO) who has outlined no objection to the development application subject to the imposition appropriate conditions consent. These conditions cover standards for places of shared accommodation, storage and disposal of wastes, waste containers, maintenance of waste storage areas, offensive noise, noise and vibration from plant or equipment, and the potential for Council's requiring an acoustic report demonstrating compliance with the relevant noise and vibration criteria.

The EHO comments also recommend inserting an advisory note within the consent detailing Council officers may carry out periodic inspections of the premises to ensure compliance with the relevant standards.

External Referrals

No external referrals.

14. Critical Dates

There are no critical dates or deadlines to be met.

15. Financial Impact

Adoption of the option(s) outlined in this report will have no financial impact.

16. Other Options

None relevant.

17. Conclusion

The proposed development has been assessed using the heads of consideration listed in Section 79C of the Environmental Planning and Assessment Act 1979 and is generally considered to be satisfactory for approval.

It is noted that although some non-compliances with the DCP2014 were identified, these were either considered to either be justifiable given the circumstances of the subject site and the nature of the boarding house development proposed, or alternatively addressed via imposition of consent conditions.

The proposed boarding house development is being lodged pursuant to the provisions of the ARHSEPP. The design of the boarding house is considered to be consistent with this policy.

On the above basis, LDA2016/0339 at 84 Waring Street, Marsfield is recommended for approval subject to conditions.

ITEM 2 (continued)

ATTACHMENT 1

**DRAFT CONDITIONS OF CONSENT
84 WARING STREET MARSFIELD
LDA2016/339**

GENERAL

The following conditions of consent included in this Part identify the requirements, terms and limitations imposed on this development.

1. **Approved Plans/Documents.** Except where otherwise provided in this consent, the development is to be carried out strictly in accordance with the following plans (stamped approved by Council) and support documents:

Document Description	Date	Plan No/Reference
Site Plan and Analysis	13.07.2016	DA01 – Revision A
Demolition and Waste Management Plan	13.07.2016	DA02 – Revision A
Ground Floor Plan	18.11.2016	DA03 – Revision B
First Floor Plan	13.07.2016	DA04 – Revision A
Roof Plan	13.07.2016	DA05 – Revision A
East and West Elevation	18.11.2016	DA06 – Revision B
South and North Elevation	18.11.2016	DA07 – Revision B
Section A-A	13.07.2016	DA08 – Revision A
Landscape Plan	13.07.2016	DA10 – Revision A
Drainage Plan, OSD Plan and Details	06.12.2015	Sheet 1 & 2 – Issue B prepared by NITMA Consulting
Plan of Management	July 2016	Navlon Solutions
Site Waste Minimisation and Management Plan (SWMMP)	13.07.2016	Nilesh Munot
Access/Compliance Report	04.07.2016	PSE Access Consulting

2. **Building Code of Australia.** All building works approved by this consent must be carried out in accordance with the requirements of the Building Code of Australia.
3. **BASIX.** Compliance with all commitments listed in BASIX Certificate(s) numbered 742870M, dated 8 July 2016.
4. **Hours of work.** Building activities (including demolition) may only be carried out between 7.00am and 7.00pm Monday to Friday (other than public holidays) and between 8.00am and 4.00pm on Saturday. No building activities are to be carried out at any time on a Sunday or a public holiday.

ITEM 2 (continued)

ATTACHMENT 1

5. **Hoardings.**
 - (a) A hoarding or fence must be erected between the work site and any adjoining public place.
 - (b) An awning is to be erected, sufficient to prevent any substance from, or in connection with, the work falling into the public place.
 - (c) Any hoarding, fence or awning erected pursuant this consent is to be removed when the work has been completed.
6. **Illumination of public place.** Any public place affected by works must be kept lit between sunset and sunrise if it is likely to be hazardous to persons in the public place.
7. **Development to be within site boundaries.** The development must be constructed wholly within the boundaries of the premises. No portion of the proposed structure shall encroach onto the adjoining properties. Gates must be installed so they do not open onto any footpath.
8. **Public space.** The public way must not be obstructed by any materials, vehicles, refuse, skips or the like, under any circumstances, without prior approval from Council.
9. **Public Utilities.** Compliance with the requirements (including financial costs) of any relevant utility provider (e.g. Energy Australia, Sydney Water, Telstra, RMS, Council etc) in relation to any connections, works, repairs, relocation, replacements and/or adjustments to public infrastructure or services affected by the development.
10. **Roads Act.** Any works performed in, on or over a public road pursuant to this consent must be carried out in accordance with this consent and with the Road Opening Permit issued by Council as required under section 139 of the Roads Act 1993.
11. **Bicycle parking.** An area shall be designated for motorbike and bicycle parking on the site. A bicycle parking rack must be provided.
12. **Facilities.** Adequate kitchen, bathroom and laundry facilities must be available for the use of the lodgers.
13. **Communal Living Room.** A communal living room must be provided for the use of the lodgers.
14. **Laundries.** Laundries and drying facilities must comply with the requirements of Part 3.5 *Boarding Houses* -City of Ryde Development Control Plan 2014.

ITEM 2 (continued)

ATTACHMENT 1

15. **Ventilation.** The premises being ventilated in accordance with the requirement of the Building Code of Australia.
16. **Boarding House Management.** The name and contact details of the manager or managing agent is to be displayed at all times externally at the front entrance on the boarding house. Additionally, occupiers of all adjacent properties are to be provided with a 24 hour telephone number for a principal contact (for example owner or manager) for use in the event of an emergency.

Engineering Conditions

17. **Design and Construction Standards.** All engineering plans and work shall be carried out in accordance with the relevant Australian Standard *and City of Ryde Development Control Plan 2014 Section 8* except as amended by other conditions.
18. **Service Alterations.** All mains, services, poles, etc., which require alteration shall be altered at the applicant's expense.
19. **Restoration.** Public areas must be maintained in a safe condition at all times. Restoration of disturbed road and footway areas for the purpose of connection to public utilities will be carried out by Council following submission of a permit application and payment of appropriate fees. Repairs of damage to any public stormwater drainage facility will be carried out by Council following receipt of payment. Restoration of any disused gutter crossings will be carried out by Council following receipt of the relevant payment.
20. **Road Activity Permits.** To carry out work in, on or over a public road, the Consent of Council is required as per the Roads Act 1993. Prior to issue of a Construction Certificate and commencement of any work, permits for the following activities, as required and as specified in the form "*Road Activity Permits Checklist*" (available from Councils website) are to be obtained and copies submitted to Council with the *Notice of Intention to Commence Work*.
 - a) Road Use Permit - The applicant shall obtain a Road Use Permit where any area of the public road or footpath is to be occupied as construction workspace, other than activities covered by a Road Opening Permit or if a Work Zone Permit is not obtained. The permit does not grant exemption from parking regulations.
 - b) Work Zone Permit - The applicant shall obtain a Work Zone Permit where it is proposed to reserve an area of road pavement for the parking of vehicles associated with a construction site. Separate application is required with a Traffic Management Plan for standing of construction vehicles in a trafficable lane. A Roads and Maritime Services Work Zone Permit shall be obtained for State Roads.

ITEM 2 (continued)

ATTACHMENT 1

- c) Road Opening Permit - The applicant shall apply for a road-opening permit and pay the required fee where a new pipeline is to be constructed within or across the road pavement or footpath. Additional road opening permits and fees are required where there are connections to public utility services (e.g. telephone, telecommunications, electricity, sewer, water or gas) within the road reserve. No opening of the road or footpath surface shall be carried out without this permit being obtained and a copy kept on the site.
- d) Elevated Tower, Crane or Concrete Pump Permit - The applicant shall obtain an Elevated Tower, Crane or Concrete Pump Permit where any of these items of plant are placed on Council's roads or footpaths. This permit is in addition to either a Road Use Permit or a Work Zone Permit.
- e) Crane Airspace Permit - The applicant shall obtain a Crane Over Airspace Permit where a crane on private land is operating in the air space of a Council road or footpath. Approval from the Roads and Maritime Services for works on or near State Roads is required prior to lodgement of an application with Council. A separate application for a Work Zone Permit is required for any construction vehicles or plant on the adjoining road or footpath associated with use of the crane.
- f) Hoarding Permit - The applicant shall obtain a Hoarding Permit and pay the required fee where erection of protective hoarding along the street frontage of the property is required. The fee payable is for a minimum period of 6 months and should the period is extended an adjustment of the fee will be made on completion of the works. The site must be fenced to a minimum height of 1.8 metres prior to the commencement of construction and throughout demolition and/or excavation and must comply with WorkCover (New South Wales) requirements.
- g) Skip Bin on Nature Strip - The applicant shall obtain approval and pay the required fee to place a Skip Bin on the nature strip where it is not practical to locate the bin on private property. No permit will be issued to place skips within the carriageway of any public road.

DEMOLITION CONDITIONS

The following conditions are imposed to ensure compliance with relevant legislation and Australian Standards, and to ensure that the amenity of the neighbourhood is protected.

A Construction Certificate is not required for Demolition.

ITEM 2 (continued)

ATTACHMENT 1

21. **Provision of contact details/neighbour notification.** At least 7 days before any demolition work commences:
 - (a) Council must be notified of the following particulars:
 - (i) The name, address, telephone contact details and licence number of the person responsible for carrying out the work; and
 - (ii) The date the work is due to commence and the expected completion date
 - (b) A written notice must be placed in the letter box of each property identified in the attached locality plan advising of the date the work is due to commence.
22. **Compliance with Australian Standards.** All demolition work is to be carried out in accordance with the requirements of the relevant Australian Standard(s).
23. **Excavation**
 - (a) All excavations and backfilling associated with the development must be executed safely, properly guarded and protected to prevent the activities from being dangerous to life or property and, in accordance with the design of a structural engineer.
 - (b) A Demolition Work Method Statement must be prepared by a licensed demolisher who is registered with the Work Cover Authority, in accordance with AS 2601-2001: *The Demolition of Structures*, or its latest version. The applicant must provide a copy of the Statement to Council prior to commencement of demolition work.
24. **Asbestos.** Where asbestos is present during demolition work, the work must be carried out in accordance with the guidelines for asbestos work published by WorkCover New South Wales.
25. **Asbestos – disposal.** All asbestos wastes must be disposed of at a landfill facility licensed by the New South Wales Environmental Protection Authority to receive that waste. Copies of the disposal dockets must be retained by the person performing the work for at least 3 years and be submitted to Council on request.
26. **Waste management plan.** Demolition material must be managed in accordance with the approved waste management plan.
27. **Disposal of demolition waste.** All demolition waste must be transported to a facility or place that can lawfully be used as a waste facility for those wastes.

ITEM 2 (continued)

ATTACHMENT 1

Imported fill

28. **Imported fill – type.** All imported fill must be Virgin Excavated Natural Material as defined in the *Protection of the Environment Operations Act 1997*.

PRIOR TO CONSTRUCTION CERTIFICATE

A Construction Certificate must be obtained from a Principal Certifying Authority to carry out the relevant building works approved under this consent. All conditions in this Section of the consent must be complied with before a Construction Certificate can be issued.

Council Officers can provide these services and further information can be obtained from Council's Customer Service Centre on 9952 8222.

Unless an alternative approval authority is specified (eg Council or government agency), the Principal Certifying Authority is responsible for determining compliance with the conditions in this Section of the consent.

Details of compliance with the conditions, including plans, supporting documents or other written evidence must be submitted to the Principal Certifying Authority.

29. **Section 94.** A monetary contribution for the services in Column A and for the amount in Column B shall be made to Council as follows:

A – Contribution Type	B – Contribution Amount
Community & Cultural Facilities	\$11,057.06
Open Space & Recreation Facilities	\$27,220.35
Civic & Urban Improvements	\$9,258.19
Roads & Traffic Management Facilities	\$1,262.84
Cycleways	\$788.88
Stormwater Management Facilities	\$2,507.30
Plan Administration	\$212.68
The total contribution is	\$52,307.30

These are contributions under the provisions of Section 94 of the Environmental Planning and Assessment Act, 1979 as specified in Section 94 Development Contributions Plan 2007 Interim Update (2014), effective from 10 December 2014.

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ATTACHMENT 1

The above amounts are current at the date of this consent, and are subject to **quarterly** adjustment for inflation on the basis of the contribution rates that are applicable at time of payment. Such adjustment for inflation is by reference to the Consumer Price Index published by the Australian Bureau of Statistics (Catalogue No 5206.0) – and may result in contribution amounts that differ from those shown above.

The contribution must be paid **prior to the issue of any Construction Certificate**. Payment may be by EFTPOS (debit card only), CASH or a BANK CHEQUE made payable to the **City of Ryde**. Personal or company cheques will not be accepted.

A copy of the Section 94 Development Contributions Plan may be inspected at the Ryde Planning and Business Centre, 1 Pope Street Ryde (corner Pope and Devlin Streets, within Top Ryde City Shopping Centre) or on Council's website <http://www.ryde.nsw.gov.au>.

30. **Compliance with Australian Standards.** The development is required to be carried out in accordance with all relevant Australian Standards. Details demonstrating compliance with the relevant Australian Standard are to be submitted to the Principal Certifying Authority prior to the issue of the **Construction Certificate**.
31. **Structural Certification.** The applicant must engage a qualified practising structural engineer to provide structural certification in accordance with relevant BCA requirements prior to the release of the **Construction Certificate**.
32. **Security deposit.** The Council must be provided with security for the purposes of section 80A(6) of the *Environmental Planning and Assessment Act 1979* in a sum determined by reference to Council's Management Plan prior to the release of the **Construction Certificate**. (category: OR other buildings with delivery of bricks or concrete or machine excavation)
33. **Fees.** The following fees must be paid to Council in accordance with Council's Management Plan prior to the release of the **Construction Certificate**:
 - (a) Infrastructure Restoration and Administration Fee
 - (b) Enforcement Levy
34. **Alignment Levels.** The applicant is to apply to Council, pay the required fee, and have issued site specific alignment levels by Council prior to the issue of the **Construction Certificate**.

ITEM 2 (continued)

ATTACHMENT 1

35. **Boundary Levels.** The levels of the street alignment shall be obtained from Council. These levels shall be incorporated into the design of the internal driveway, carparking areas, landscaping and stormwater drainage plans and must be obtained prior to the issue of the construction certificate.
36. **Long Service Levy.** Documentary evidence of payment of the Long Service Levy under Section 34 of the Building and Construction Industry Long Service Payments Act 1986 is to be submitted to the Principal Certifying Authority prior to the issuing of the **Construction Certificate**.
37. **Sydney Water Tap in™.** The approved plans must be submitted to the Sydney Water Tap in™ on-line service to determine whether the development will affect any Sydney Water sewer or water main, stormwater drains and/or easement, and if further requirements need to be met.

The Sydney Water Sydney Water Tap in™ service provides 24/7 access to a range of services, including:

- building plan approvals
- connection and disconnection approvals
- diagrams
- trade waste approvals
- pressure information
- water meter installations
- pressure boosting and pump approvals
- changes to an existing service or asset, eg relocating or moving an asset.

Sydney Water's [Tap in™](https://www.sydneywater.com.au/SW/plumbing-building-developing/building/sydney-water-tap-in/index.htm) online service is available at:
<https://www.sydneywater.com.au/SW/plumbing-building-developing/building/sydney-water-tap-in/index.htm>

38. **Reflectivity of materials.** Roofing and other external materials must be of low glare and reflectivity. Details of finished external surface materials, including colours and texture must be provided to the Principal Certifying Authority prior to the release of the **Construction Certificate**.
39. **Fencing.** Fencing is to be in accordance with Council's DCP 2014: Part 3.3 – Dwelling Houses and Dual Occupancy (attached) – Section 2.16 - Fences. Details of compliance are to be provided in the plans for the **Construction Certificate**.

ITEM 2 (continued)

ATTACHMENT 1

40. **Lighting of common areas (driveways etc).** Details of lighting for internal driveways, common areas, and the street frontage shall be submitted for approval prior to issue of the **Construction Certificate**. The details to include certification from an appropriately qualified person that there will be no offensive glare onto adjoining residents.
41. **Clothes Drying Facilities.** Internal and external clothes drying facilities are to be provided for the boarding house in compliance with the provisions contained within Part 3.5 of the Ryde Development Control Plan 2014. Such internal clothes drying facilities may take the form of mechanical clothes dryers provided within the internal laundry. Details are to be submitted to and approved by the Principal Certifying Authority prior to the issue of a **Construction Certificate**.
42. **Sliding Doors to Communal Room.** The sliding doors on the south-west elevation of the communal living/dining/kitchen room be replaced with solid glazing and a single self-closing door to minimise the transfer of noise and reduce the acoustic impact of this room on the adjoining properties. Details of compliance are to be submitted and approved by the Principal Certifying Authority prior to the issue of a **Construction Certificate**.
43. **Privacy screen to side of rear porch.** A privacy screen is to be installed on the north-western end of the elevated porch located adjacent to the communal living area and the rear yard to minimise the potential for overlooking to the adjoining property. The privacy screen is to be least 1.6m, but not more than 2m, above the finished floor level of the porch, is to have no individual opening more than 30mm wide, and is to have a total area of all openings that is no more than 30% of the surface area of the screen. Details of compliance are to be submitted and approved by the Principal Certifying Authority prior to the issue of a **Construction Certificate**.
44. **Privacy Screens/Opaque Glazing – northern elevation.** Fixed louvered privacy screens or opaque glazing is to be installed to all habitable room windows on the northern elevation of the building to maintain adequate visual privacy to the adjoining property at 82 Waring Street, Marsfield. The privacy screens or opaque glazing to the windows is to be installed to a height of 1.6 metres above the finished ground floor level and finished first floor level. Details demonstrating compliance with this condition are to be submitted with the **Construction Certificate**.

ITEM 2 (continued)

ATTACHMENT 1

45. **Side entry gates** – Side gates are to be installed within north-western and south-western side setbacks to provide security to the side and rear of the boarding house. The gates must be provided with a keypad locking mechanism to prevent unauthorised access into these areas. Details indicating compliance with this condition shall be submitted to the Principal Certifying Authority prior to the issue of a **Construction Certificate**.
46. **Sensor Lighting** – Sensor lighting is to be provided to the side gates (conditioned to be installed) within the north-western and south-western side setback areas. Details are to be submitted to the Principal Certifying Authority for approval prior to the issue of a **Construction Certificate**. The details to include certification from an appropriately qualified person that there will be no offensive glare onto adjoining residents or boarding rooms within the development.
47. **Kitchenettes** – All boarding room kitchenettes are to have a minimum of 0.5m² of bench space, space for a small fridge, cupboards and shelves. Details are to be submitted to the Principal Certifying Authority for approval prior to the issue of a **Construction Certificate**.
48. **Accessibility Report**. An Accessibility Report is to be submitted as part of the Construction Certificate (CC) documentation. Information presented for CC stage will include details of tactile indicators, accessible ground surfaces, grates within the accessible path of travel and stairways (handrails).

Engineering Conditions

49. **Boundary Levels**. The levels of the street alignment shall be obtained from Council. These levels shall be incorporated into the design of the internal driveway, carparking areas, landscaping and stormwater drainage plans and must be obtained prior to the issue of the construction certificate.
50. **Car Parking & Access**. All internal driveway gradients, vehicle turning areas, garage opening widths/heights and parking space dimensions, headroom clearances etc shall be designed to comply with AS 2890 Part 1 for 'Off Street Parking' & Part 6 for 'Off-Street Parking for People with Disabilities' where applicable.

Plans and engineering certification, indicating compliance with this condition are to be submitted with the Construction Certificate application.

51. **Council Inspections**. A Council engineer must inspect the stormwater connection to the existing Council stormwater pipeline. Council shall be notified prior to commencement of works for inspections. An inspection fee of \$152.00 shall be paid to Council prior to the issue of the Construction Certificate.

ITEM 2 (continued)

ATTACHMENT 1

52. **On-Site Stormwater Detention.** Stormwater runoff from all impervious areas shall be collected and piped by gravity flow to Waring Street via an on-site detention system designed in accordance with the City of Ryde, Development Control Plan 2014: - Part 8.2; Stormwater & Floodplain Management. The concept drainage design prepared by Nitma Consulting Pty Ltd Project No 2451H sheet 1 & 2 Issue 'C' dated 18/11/16 shall be amended to incorporate but not be limited to the following:

- a. Provision of total 15.9 m³ of onsite detention volume for the development. Accordingly additional 5.0m³ of water tank as an OSD offset volume shall be provided to the drainage system and connect this for water reuse within the building.
- b. Provision of 500mm spillway towards the street for the OSD basin at maximum water level which is RL 72.9. All other walls around the basin to be 100mm above the spillway level.
- c. All gutters, downpipes and pipeline conveying stormwater runoff to the OSD tank are to be designed for the 1 in 100 year, 5 minute duration storm event.
- d. Ensure consistency between the architectural plans & the stormwater plans

Detailed engineering plans including certification from an accredited hydraulic engineer indicating compliance with this condition & DCP 2014 are to be submitted with the Construction Certificate application.

53. **Water Tank First Flush.** A first flush mechanism is to be designed and constructed with the water tank system. Details of the first flush system are to be submitted with the construction certificate application.
54. **Erosion and Sediment Control Plan.** An *Erosion and Sediment Control Plan (ESCP)* shall be prepared by a suitably qualified consultant in accordance with the guidelines set out in the manual "*Managing Urban Stormwater, Soils and Construction*" prepared by the Landcom. These devices shall be maintained during the construction works and replaced where considered necessary.

The following details are to be included in drawings accompanying the *Erosion and Sediment Control Plan*

- a) Existing and final contours
- b) The location of all earthworks, including roads, areas of cut and fill
- c) Location of all impervious areas
- d) **Location and design criteria of erosion and sediment control structures,**
- e) Location and description of existing vegetation
- f) Site access point/s and means of limiting material leaving the site
- g) Location of proposed vegetated buffer strips
- h) Location of critical areas (drainage lines, water bodies and unstable slopes)

ITEM 2 (continued)

ATTACHMENT 1

- i) Location of stockpiles
- j) Means of diversion of uncontaminated upper catchment around disturbed areas
- k) Procedures for maintenance of erosion and sediment controls
- l) Details for any staging of works
- m) Details and procedures for dust control.

PRIOR TO COMMENCEMENT OF CONSTRUCTION

Prior to the commencement of any demolition, excavation, or building work the following conditions in this Part of the Consent must be satisfied, and all relevant requirements complied with at all times during the operation of this consent.

55. Site Sign

- (a) A sign must be erected in a prominent position on site, prior to the commencement of construction:
 - (i) showing the name, address and telephone number of the Principal Certifying Authority for the work,
 - (ii) showing the name of the principal contractor (if any) or the person responsible for the works and a telephone number on which that person may be contacted outside working hours, and
 - (iii) stating that unauthorised entry to the work site is prohibited.
- (b) Any such sign must be maintained while the building work, subdivision work or demolition work is being carried out, but must be removed when the work has been completed.

56. Residential building work – insurance. In the case of residential building work for which the Home Building Act 1989 requires there to be a contract of insurance in force in accordance with Part 6 of that Act, that such a contract of insurance is in force before any building work authorised to be carried out by the consent commences.

57. Residential building work – provision of information. Residential building work within the meaning of the Home Building Act 1989 must not be carried out unless the PCA has given the Council written notice of the following information:

- (a) in the case of work for which a principal contractor is required to be appointed:
 - (i) the name and licence number of the principal contractor; and
 - (ii) the name of the insurer by which the work is insured under Part 6 of that Act.

ITEM 2 (continued)

ATTACHMENT 1

- (b) in the case of work to be done by an owner-builder:
 - (i) the name of the owner-builder; and
 - (ii) if the owner-builder is required to hold an owner-builder permit under that Act, the number of the owner-builder permit.

If any of the above arrangements are changed while the work is in progress so that the information notified under this condition becomes out of date, further work must not be carried out unless the PCA for the development to which the work relates has given the Council written notice of the updated information (if Council is not the PCA).

58. Excavation adjacent to adjoining land

- (a) If an excavation extends below the level of the base of the footings of a building on an adjoining allotment of land, the person causing the excavation must, at their own expense, protect and support the adjoining premises from possible damage from the excavation, and where necessary, underpin the adjoining premises to prevent any such damage.
- (b) The applicant must give at least seven (7) days notice to the adjoining owner(s) prior to excavating.
- (c) An owner of the adjoining allotment of land is not liable for any part of the cost of work carried out for the purposes of this condition, whether carried out on the allotment of land being excavated or on the adjoining allotment of land.

- 59. Safety fencing.** The site must be fenced prior to the commencement of construction, and throughout demolition and/or excavation and must comply with WorkCover New South Wales requirements and be a minimum of 1.8m in height.

Engineering Conditions

- 60. Sediment and Erosion Control.** The applicant shall install appropriate sediment control devices in accordance with an approved plan **prior** to any earthworks being carried out on the site. These devices shall be maintained during the construction period and replaced where considered necessary. Suitable erosion control management procedures shall be practiced. This condition is imposed in order to protect downstream properties, Council's drainage system and natural watercourses from sediment build-up transferred by stormwater runoff from the site.
- 61. Compliance Certificate.** A Compliance Certificate should be obtained confirming that the constructed erosion and sediment control measures comply with the construction plan and City of Ryde, Development Control Plan 2014: - Part 8.1; Construction Activities.

ITEM 2 (continued)

ATTACHMENT 1

62. **Council Inspections.** A Council engineer must inspect the stormwater connection to the existing Council stormwater pit in Waring Street. Applicant to contact Council's City Works & Infrastructure Section for inspections. Inspection fees shall apply in accordance with Council's fees & charges.
63. **Traffic Management.** Traffic management procedures and systems must be in place and practised during the construction period to ensure safety and minimise the effect on adjoining pedestrian and vehicular traffic systems. These procedures and systems must be in accordance with AS 1742.3 1996 and City of Ryde, Development Control Plan 2014 Part 8.1 Construction Activities.

DURING CONSTRUCTION

Unless otherwise specified, the following conditions in this Part of the consent must be complied with at all times during the construction period. Where applicable, the requirements under previous Parts of the consent must be implemented and maintained at all times during the construction period.

64. **Critical stage inspections.** The person having the benefit of this consent is required to notify the Principal Certifying Authority during construction to ensure that the critical stage inspections are undertaken, as required under clause 162A(4) of the *Environmental Planning and Assessment Regulation 2000*.
65. **Survey of footings/walls.** All footings and walls within 1 metre of a boundary must be set out by a registered surveyor. On commencement of brickwork or wall construction a survey and report must be prepared indicating the position of external walls in relation to the boundaries of the allotment.
66. **Sediment/dust control.** No sediment, dust, soil or similar material shall leave the site during construction work.
67. **Use of fill/excavated material.** Excavated material must not be reused on the property except as follows:
- (a) Fill is allowed under this consent;
 - (b) The material constitutes Virgin Excavated Natural Material as defined in the *Protection of the Environment Operations Act 1997*;
 - (c) the material is reused only to the extent that fill is allowed by the consent.
68. **Construction materials.** All materials associated with construction must be retained within the site.

ITEM 2 (continued)

ATTACHMENT 1

69. Site Facilities

The following facilities must be provided on the site:

- (a) toilet facilities in accordance with WorkCover NSW requirements, at a ratio of one toilet per every 20 employees, and
- (b) a garbage receptacle for food scraps and papers, with a tight fitting lid.

70. Site maintenance

The applicant must ensure that:

- (a) approved sediment and erosion control measures are installed and maintained during the construction period;
- (b) building materials and equipment are stored wholly within the work site unless an approval to store them elsewhere is held;
- (c) the site is clear of waste and debris at the completion of the works.

71. Work within public road. At all times work is being undertaken within a public road, adequate precautions shall be taken to warn, instruct and guide road users safely around the work site. Traffic control devices shall satisfy the minimum standards outlined in Australian Standard No. AS1742.3-1996 "Traffic Control Devices for Work on Roads".

PRIOR TO OCCUPATION CERTIFICATE

An Occupation Certificate must be obtained from a Principal Certifying Authority prior to commencement of occupation of any part of the development, or prior to the commencement of a change of use of a building.

Prior to issue, the Principal Certifying Authority must ensure that all works are completed in compliance with the approved construction certificate plans and all conditions of this Development Consent.

Unless an alternative approval authority is specified (eg Council or government agency), the Principal Certifying Authority is responsible for determining compliance with conditions in this Part of the consent. Details to demonstrate compliance with all conditions, including plans, documentation, or other written evidence must be submitted to the Principal Certifying Authority.

72. BASIX. The submission of documentary evidence of compliance with all commitments listed in BASIX Certificate(s) numbered 742870M, dated 8 July 2016.

73. Landscaping. All landscaping works approved by condition 1 are to be completed prior to the issue of the final **Occupation Certificate**.

ITEM 2 (continued)

ATTACHMENT 1

74. **Fire safety matters.** At the completion of all works, a Fire Safety Certificate must be prepared, which references all the Essential Fire Safety Measures applicable and the relative standards of Performance (as per Schedule of Fire Safety Measures). This certificate must be prominently displayed in the building and copies must be sent to Council and the Fire and Rescue NSW.

Details demonstrating compliance are to be submitted to the Principal Certifying Authority prior to the issue of any Occupation Certificate.

Each year the Owners must send to the Council and the Fire and Rescue NSW an annual Fire Safety Statement which confirms that all the Essential Fire Safety Measures continue to perform to the original design standard.

75. **Sydney Water – Section 73.** A Section 73 Compliance Certificate under the Sydney Water Act 1994 must be obtained from Sydney Water Corporation. Application must be made through an authorised Water Servicing Co-ordinator. Please refer to the Building Developing and Plumbing section of the web site www.sydneywater.com.au then refer to “Water Servicing Coordinator” under “Developing Your Land” or telephone 13 20 92 for assistance.

Following application a “Notice of Requirements” will advise of water and sewer infrastructure to be built and charges to be paid. Please make early contact with the Co-ordinator, since building of water/sewer infrastructure can be time consuming and may impact on other services and building, driveway or landscape design.

Details demonstrating compliance are to be submitted to the Principal Certifying Authority prior to the issue of any Occupation Certificate.

76. **Letterboxes and street/house numbering.** All letterboxes and house numbering are to be designed and constructed to be accessible from the public way. Council must be contacted in relation to any specific requirements for street numbering.
77. **Registration of the Premises.** The owner must register the premises with Council’s Environmental Health Unit before operations commence and must renew the registration annually.
78. **Notices.** A schedule showing the numeral designating each bedroom and the number of lodgers permitted to be accommodated in each must be conspicuously displayed near the entrance of the premises. The schedule shall also include the name and contact telephone number of the owner or the current person responsible for care of the premises. Each bedroom must be clearly numbered in accordance with the schedule.

ITEM 2 (continued)
Engineering Conditions

ATTACHMENT 1

79. **Vehicle Footpath Crossings.** Concrete footpath crossings shall be constructed at all locations where vehicles cross the footpath, to protect it from damage resulting from the vehicle traffic. The location, design and construction shall conform to the requirements of Council. Crossings are to be constructed in plain reinforced concrete and finished levels shall conform with property alignment levels issued by Council's City Works & Infrastructure Division. Kerbs shall not be returned to the alignment line. Bridge and pipe crossings will not be permitted.
80. **On-Site Stormwater Detention System - Marker Plate.** Each on-site detention system basin shall be indicated on the site by fixing a marker plate. This plate is to be of minimum size: 100mm x 75mm and is to be made from non-corrosive metal or 4mm thick laminated plastic. It is to be fixed in a prominent position to the nearest concrete or permanent surface or access grate. The wording on the marker plate is described in City of Ryde, Development Control Plan 2014: - Part 8.2; Stormwater & Floodplain Management. An approved plate may be purchased from Council's Customer Service Centre on presentation of a completed City of Ryde OSD certification form.
81. **Work-as-Executed Plan.** A Work-as-Executed plan signed by a Registered Surveyor clearly showing the surveyor's name and the date, the stormwater drainage, including the on-site stormwater detention system if one has been constructed and finished ground levels **is to be submitted to the Principal Certifying Authority (PCA)** and to Ryde City Council if Council is not the nominated PCA.
82. **Drainage Construction.** The stormwater drainage on the site is to be constructed in accordance with plan the Construction Certificate version of **Project No 2451H Sheets 1 & 2 issue C dated 18/11/16 prepared by Nitma Consulting Pty Ltd & as amended in red by Council and conditions of this consent.**
83. **Damaged Footpath Paving Construction.** The applicant shall, at no cost to Council, construct any damaged concrete footpath paving across the frontage of the property in Waring Street. A compliance certificate from the Council's City Works & Infrastructure shall be obtained upon completion of any damaged footpath paving works indicating that all works have been completed to Council's satisfaction and submitted to the Principal Certifying Authority.
84. **Compliance Certificates – Engineering.** Compliance Certificates should be obtained for the following (If Council is appointed the Principal Certifying Authority [PCA] then the appropriate inspection fee is to be paid to Council) and **submitted to the PCA:**

ITEM 2 (continued)

ATTACHMENT 1

- Confirming that all vehicular footway and gutter (layback) crossings are constructed in accordance with the construction plan requirements and Ryde City Council's Development Control Plan 2014: - Part 8.3; Driveways
- Confirming that the driveway is constructed in accordance with the construction plan requirements and Ryde City Development Control Plan 2014: - Part 8.3; Driveways.
- Confirming that the site drainage system (including the on-site detention storage system) servicing the development complies with the construction plan requirements and City of Ryde, Development Control Plan 2014: - Part 8.2; Stormwater & Floodplain Management
- Confirming that after completion of all construction work and landscaping, all areas adjacent the site, the site drainage system (including the on-site detention system), and the trunk drainage system immediately downstream of the subject site (next pit), have been cleaned of all sand, silt, old formwork, and other debris.
- Confirmation from Council that connection to Council pipe has been inspected and complies with Council requirements.

85. **Positive Covenant, OSD.** The creation of a Positive Covenant under Section 88 of the Conveyancing Act 1919, burdening the property with the requirement to maintain the stormwater detention system on the property. The terms of the instruments are to be generally in accordance with the Council's draft terms of Section 88E instrument for Maintenance of Stormwater Detention Systems and to the satisfaction of Council.

OPERATIONAL CONDITIONS

The conditions in this Part of the consent relate to the on-going operation of the development and shall be complied with at all times.

86. **Occupants.** No boarding room is to be occupied by more than 1 adult lodger.
87. **Approved number of lodgers.** The approved number of lodgers within the Boarding House must not exceed ten (10) persons at any time.
88. **Use of Communal Outdoor Areas.** The use of the communal outdoor areas of the boarding house are restricted to 7am to 10pm.
89. **Standards for places of shared accommodation.** The premises must comply with the standards for places of shared accommodation under the *Local Government (General) Regulation 2005*.

ITEM 2 (continued)

ATTACHMENT 1

90. **Offensive noise.** The use of the premises must not cause the emission of 'offensive noise' as defined in the *Protection of the Environment Operations Act 1997*.
91. **Noise and vibration from plant and equipment.** Unless otherwise provided in this consent, the operation of any plant or equipment installed on the premises must not cause:
- (a) The emission of noise that exceeds the background noise level by more than 5dBA when measured at, or computed for, the most affected point, on or within the boundary of the most affected receiver. Modifying factor corrections must be applied for tonal, impulsive, low frequency or intermittent noise in accordance with the New South Wales Industrial Noise Policy (EPA, 2000).
 - (b) An internal noise level in any adjoining occupancy that exceeds the recommended design sound levels specified in Australian/New Zealand Standard AS/NZS 2107:2000 *Acoustics – Recommended design sound levels and reverberation times for building interiors*.
 - (c) The transmission of vibration to any place of different occupancy.
92. **Council may require acoustical consultant's report.** Council may require the submission of a report from an appropriately qualified acoustical consultant demonstrating compliance with the relevant noise and vibration criteria.
93. **Waste storage/disposal – method.** All wastes generated on the premises must be stored and disposed of in an environmentally acceptable manner.
94. **Waste storage/disposal – containers.** An adequate number of suitable waste containers must be kept on the premises for the storage of garbage and trade waste.
95. **Waste storage/disposal – recycling.** Wastes for recycling should be the stored in separate bins or containers and transported to a facility where the wastes will be recycled or re-used.
96. **Waste Containers.** Waste containers must return to the storage area as soon as possible after servicing.
97. **Waste Storage Areas.** Waste storage area must be of adequate size to allow easy access for use and servicing. Waste storage areas and waste containers must be maintained in a clean and tidy condition at all times.
98. **Boarding House Cleaning.** A cleaner is required to attend the Boarding House twice weekly to ensure that the Common Areas, Private Open Space, Car parking and outside the Boarding House are kept clean, tidy and disinfected to a professional standard.

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99. **Maintenance.** Open space areas, including any lawns, gardens, or landscaped areas must be regularly maintained and kept in a clean and tidy condition at all times.

ADVISORY NOTES

Inspection Services:

1. **Inspections and fees** – Council officers may carry out periodic inspections of the premises to ensure compliance with relevant environmental health standards and Council may charge an approved fee for this service in accordance with Section 608 of the *Local Government Act 1993*. The approved fees are contained in Council's Management Plan and may be viewed or downloaded at www.ryde.nsw.gov.au.

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COMPLIANCE TABLE - Ryde Development Control Plan 2014

LDA No:	LDA2016/0339
Date Plans Rec'd	22 July 2016
Address:	84 Waring Street, Marsfield
Proposal:	Demolition and construction of a two (2) storey, ten (10) room boarding house under the provisions of <i>State Environmental Planning Policy (Affordable Rental Housing) 2009</i> .
Constraints Identified:	Nil

Part 3.5 of the Ryde Development Control Plan 2014 (DCP2014) provides the development controls which are applicable to boarding house developments in the City of Ryde. However, as per Section 1.6 of this Part, applicable controls for boarding houses are also contained within:

- Part 3.3 - Dwelling Houses and Dual Occupancy (Attached),
- Part 3.4 - Multi Dwelling Housing [for Low Density Residential zone] in 3.0 Development Types,
- all parts in 4.0 Urban Centres, and
- all parts in 5.0 Special Areas with respect to local area character; and
- Part 7.1 Energy Smart, Water Wise; Part 7.2 Waste Minimisation and Management; and Part 9.3 Parking Controls.

As such, the following tables brings together the applicable development controls from all Parts of DCP2014 and assesses the proposed development performance against each of these controls.

DCP 2014	PROPOSED	COMPLIANCE
Part 3.3 – Dwelling Houses and Dual Occupancy (attached)		
Section 2.1 Desired Future Character		
Development is to be consistent with the desired future character of the low density residential areas.	The proposed development is considered to be consistent with the desired future character of the low density residential area because the proposal is low scale, as established by its two-storey height, compliant building height, compliant FSR, landscaped setting, and	Yes

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DCP 2014	PROPOSED	COMPLIANCE
	<p>compatible streetscape presentation. Furthermore the desired future character is also maintained as the proposed building largely occupies the same footprint as the existing dwelling on the site.</p> <p>The compatibility of the proposed development is also demonstrated further by the high level of compliance achieved with the relevant planning controls (see assessment in this table).</p>	
Section 2.2 Dwelling Houses		
– To have a landscaped setting which includes significant deep soil areas at front and rear.	Front and rear gardens proposed both with significant deep soil areas capable of supporting a variety of vegetation.	Yes
– Maximum 2 storeys.	Proposal is for a two storey boarding house.	Yes
– Dwellings to address street	The boarding house development is considered to adequately address Waring Street through provision of appropriate windows facing the street, as well as clear sightlines to the front door of the building.	Yes
– Garage/carports not visually prominent features.	The proposal includes a double garage facing Waring Street. The double garage is typical of new dwellings in the streetscape and is appropriately integrated into the building such that it does not form a visually prominent feature.	Yes

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DCP 2014	PROPOSED	COMPLIANCE
Section 2.5 Public Domain Amenity		
<ul style="list-style-type: none"> • Streetscape <ul style="list-style-type: none"> – Front doors and windows are to face the street. Side entries to be clearly apparent. 	The front door of the boarding house faces Waring Street and is considered to be clearly apparent from the street frontage. The boarding house incorporates front facing windows.	Yes
<ul style="list-style-type: none"> – Single storey entrance porticos. 	Single storey entrance portico proposed.	Yes
<ul style="list-style-type: none"> – Articulated street facades. 	The building being on a corner has two facades to Waring Street both of which are articulated.	Yes
<ul style="list-style-type: none"> • Public Views and Vistas <ul style="list-style-type: none"> – A view corridor is to be provided along at least one side allotment boundary where there is an existing or potential view to the water from the street. Landscaping is not to restrict views. 	No water views are available from the street or across the site.	N/A
<ul style="list-style-type: none"> – Garages/carports and outbuildings are not to be located within view corridor if they obstruct view. 	N/A - refer above.	N/A
<ul style="list-style-type: none"> – Fence 70% open where height is >900mm 	N/A - refer above.	N/A
<ul style="list-style-type: none"> • Pedestrian & Vehicle Safety <ul style="list-style-type: none"> – Car parking located to accommodate sightlines to footpath & road. 	Proposed car parking is located within a double garage that is sufficiently setback from the street frontage to allow for sightlines to the footpath and road. Council's Development Engineer has assessed the proposal and deemed it to be satisfactory, subject to conditions.	Yes

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DCP 2014	PROPOSED	COMPLIANCE
– Fencing that blocks sight line is to be splayed.	No front fence is proposed and side fencing is not considered to block sightlines.	N/A
Section 2.5 Site Configuration		
• Deep Soil Areas – 35% of site area min. – Min 8x8m deep soil area in backyard. – Front yard to have deep soil area (only hard paved area to be driveway, pedestrian path and garden walls).	224.5m ² approx. (39% of site area). Proposal includes a deep soil area in the backyard of the boarding house with min. dimensions of 4.5m x 8m which does not comply. The front yard area which wraps around the front of the building, being on a corner, is deep soil with the only hard paved area being the driveway.	Yes No – Justifiable Yes
• Topography & Excavation Within building footprint: – Max cut: 1.2m – Max fill: 900mm Outside building footprint: – Max cut: 900mm – Max fill: 500mm – No fill between side of building and boundary or close to rear boundary	No cut is proposed within the building footprint Fill is proposed across the majority of the building footprint to a maximum of 1.24m in the front northern corner of the building (GF 74.45 – EGL 73.21) which does not comply. No cut is proposed outside the building footprint. No fill is proposed outside the building footprint. No cut or fill is proposed outside the building footprint including adjacent to the side and rear boundaries.	Yes No – Justifiable Yes Yes Yes

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DCP 2014	PROPOSED	COMPLIANCE
<ul style="list-style-type: none"> - No fill in overland flow path - Max ht retaining wall 900mm 	<p>The site is not subject to overland flow.</p> <p>The existing retaining wall in the western rear corner of the site is proposed to be retained. Insufficient information has been provided to determine the exact height of this retaining wall, however given the minimal slope of the site it is unlikely to exceed 900mm and because it is existing it is considered acceptable.</p> <p>The existing retaining wall (max height approx. 350mm) in the northern front corner of the site is proposed to be replaced with a new retaining wall to allow some levelling for landscaping in this corner of the site. The retaining wall will have a maximum height of approximately 400mm along the street frontage which complies.</p>	<p>N/A</p> <p>Yes</p>
Section 2.7 Floor Space Ratio		
<ul style="list-style-type: none"> - Ground floor - First floor - Total (Gross Floor Area) - Less 36m² (double) or 18m² (single) allowance for parking FSR (max 0.5:1) <p>Note: Excludes wall thicknesses, lifts/stairs; basement storage/vehicle access/garbage area; terraces/balconies with walls <1.4m; void areas.</p>	<p>164.26m² 124.50m²</p> <p>288.75m² Less 36m² (double garage)</p> <p>0.496:1 (area from DP225200 – 581.74m²)</p>	<p>Yes</p>

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DCP 2014	PROPOSED	COMPLIANCE
Section 2.8 Height		
<ul style="list-style-type: none"> - 2 storeys maximum (storey) incl basement elevated greater than 1.2m above EGL). - 1 storey maximum above attached garage incl semi-basement or at-grade garages. 	2 storey boarding house proposed. Single storey proposed above garage.	Yes Yes
Wall plate <ul style="list-style-type: none"> - 7.5m max above FGL or - 8m max to top of parapet. 	<u>Wall plate height</u> TOW RL80.21 (approx.) FGL: RL75.6 TOW Height = 4.6m (Northern elevation)	Yes
NB: <i>TOW = Top of Wall</i> <i>EGL = Existing Ground Level</i> <i>FGL = Finished Ground Level</i>		
<ul style="list-style-type: none"> - 9.5m Overall Height 	<u>Building Height</u> Roof ridge height RL: 81.6 EGL below ridge (lowest point) RL: 73.9 Overall Height (max)= 7.69m	Yes
NB: EGL – Existing ground Level		
<ul style="list-style-type: none"> - Habitable rooms to have 2.4m floor to ceiling height (min). 	Minimum ceiling height for habitable rooms is 2.7m.	Yes
Section 2.9 Setbacks		
<ul style="list-style-type: none"> • Front - 6m to façade (generally) 	The proposed front setback varies from 6m – 6.863m which complies. Note. The site is located on a near 90 degree bend in Waring Street making the site essentially a corner site with a frontage to Waring Street which bends around with the road. Given the orientation of the site running generally from the north-east to the south-	Yes

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DCP 2014	PROPOSED	COMPLIANCE
<ul style="list-style-type: none"> - Secondary street setback minimum of 2m 	<p>west the primary street setback is considered to be to the shorter north-eastern portion of the frontage to Waring Street.</p> <p>The proposed secondary street setback varies from 2.789m-10m which complies.</p> <p>Note. The site is located on a near 90 degree bend in Waring Street making the site essentially a corner site with a frontage to Waring Street which bends around with the road.</p>	Yes
<ul style="list-style-type: none"> - Garage setback 1m from the dwelling façade 	<p>Given the orientation of the site running generally from the north-east to the south-west the secondary street setback is considered to be to the longer south-eastern portion of the frontage to Waring Street.</p> <p>Proposed attached garage is setback 1m behind the front façade.</p>	Yes
<ul style="list-style-type: none"> - Wall above is to align with outside face of garage below. 	<p>No wall above garage.</p>	N/A
<ul style="list-style-type: none"> - Front setback free of ancillary elements e.g. RWT,A/C 	<p>Front setback only includes landscaping and a driveway to the garage and is therefore free of ancillary elements.</p>	Yes
<ul style="list-style-type: none"> • Side <ul style="list-style-type: none"> ○ Two storey dwelling <ul style="list-style-type: none"> - 1.5m to wall, includes balconies etc. 	<p>North-Western side/rear – 1.5m-2.76m for the boarding house portion of the building and 4.6m for the attached garage.</p>	Yes

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DCP 2014	PROPOSED	COMPLIANCE
<ul style="list-style-type: none"> Rear <ul style="list-style-type: none"> 8m to rear of dwelling OR 25% of the length of the site, whichever is greater. <p>Note. Average site length is 37m and 25% equates to 9.25m</p>	<p>South-Western rear – 1.377m-3.7m for the attached garage and 10.9m for the boarding house portion of the building. This does not comply with the rear setback control OF 9.25m</p>	<p>No – Justifiable</p>
Section 2.10 Car Parking & Access		
<ul style="list-style-type: none"> General <ul style="list-style-type: none"> Dwelling: 2 spaces max, 1 space min. Where possible access off secondary street frontages or laneways is preferable. Garage or carport may be in front if no other suitable position, no vehicular access to side or rear Max 6m wide or 50% of frontage, whichever is less. Behind building façade. Garages <ul style="list-style-type: none"> Garages setback 1m from façade. Total width of garage doors visible from public space must not exceed 5.7m and not be recessed more than 300mm behind the outside face of the building element immediately above. 	<p>Boarding house proposed, as such a different car parking rate applies – refer to ARHSEPP Compliance Check.</p> <p>No secondary street frontages or laneways are available to subject site.</p> <p>Attached garage 1m behind the front façade is proposed.</p> <p>Proposed attached garage has a width of 5.5m.</p> <p>Proposed garage is 1m behind the building front façade.</p> <p>Proposed garage is 1m behind the building front façade.</p> <p>Proposed attached garage door has a width of 5.5m and is not recessed more than 300mm behind the garage front wall.</p>	<p>N/A</p> <p>N/A</p> <p>N/A</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p>

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DCP 2014	PROPOSED	COMPLIANCE
<ul style="list-style-type: none"> Garage windows are to be at least 900mm away from boundary. 	Two (2) garage windows proposed at the rear which are 4.5m from the boundary.	Yes
<ul style="list-style-type: none"> Free standing garages are to have a max GFA of 36m². 	Attached garage proposed.	N/A
<ul style="list-style-type: none"> Solid doors required 	Solid garage door proposed.	Yes
<ul style="list-style-type: none"> Materials in keeping or complementary to dwelling. 	Proposed garage door materials considered to complement the boarding house.	Yes
<ul style="list-style-type: none"> Parking Space Sizes (AS) <ul style="list-style-type: none"> Double garages: 5.4m w (min) Internal length: 5.4m (min) 	6.2m	Yes
	5.98m	Yes
<ul style="list-style-type: none"> Driveways <ul style="list-style-type: none"> Extent of driveways minimised 	Extent of driveway has been minimised.	Yes
Section 2.12 Landscaping		
<ul style="list-style-type: none"> Trees & Landscaping <ul style="list-style-type: none"> Major trees retained where practicable. 	No major trees on the site.	N/A
<ul style="list-style-type: none"> If bushland adjoining use native indigenous species for 10m from boundary 	No bushland adjoining.	N/A
<ul style="list-style-type: none"> Physical connection to be provided between dwelling and outdoor spaces where the ground floor is elevated above NGL e.g. stairs, terraces. 	Proposal provides a physical connection between the boarding house and outdoor spaces in the form of a patio and stairs from the communal living area to the rear private open space.	Yes
<ul style="list-style-type: none"> Obstruction-free pathway on one side of dwelling (excl cnr allotments or rear lane access). 	Obstruction free path of travel provided on both sides of the boarding house.	Yes
<ul style="list-style-type: none"> Front yard to have at least 1 tree with mature ht of 10m min and a spreading canopy. 	Landscape plan indicates a tree proposed to be planted in the front yard capable of reaching 15m in height.	Yes

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ATTACHMENT 2

DCP 2014	PROPOSED	COMPLIANCE
<ul style="list-style-type: none"> – Backyard to have at least 1 tree with mature ht of 15m min and a spreading canopy. 	<p>Landscape plan indicates a tree proposed to be planted in the rear yard capable of reaching 6m in height. This does not comply.</p>	<p>No – Justifiable</p>
<ul style="list-style-type: none"> – Hedging or screen planting on boundary mature plants reaching no more than 2.7m. 	<p>Some boundary planting/ screen planting is proposed reaching a maximum height of 2m.</p>	<p>Yes</p>
<ul style="list-style-type: none"> – OSD generally not to be located in front setback unless under driveway. 	<p>OSD is proposed in the front northern corner of the site which does not comply.</p>	<p>No – Justifiable</p>
<ul style="list-style-type: none"> • Landscaping for lots with Urban Bushland or Overland Flow constraints 	<p>No urban bushland or overland flow.</p>	
<ul style="list-style-type: none"> – Where lot is adjoining bushland protect, retain and use only native indigenous vegetation for distance of 10m from building adjoining bushland. 	<p>Significant vegetation is to be retained and protected within the rear yard.</p>	<p>N/A</p>
<ul style="list-style-type: none"> – No fill allowed in overland flow areas. 	<p>The site is not identified as being subject to overland flow.</p>	<p>N/A</p>
<ul style="list-style-type: none"> – Fences in Overland Flow areas must be of open construction so it doesn't impede the flow of water. 	<p>The site is not identified as being subject to overland flow.</p>	<p>N/A</p>
Section 2.13 Dwelling Amenity		
<ul style="list-style-type: none"> • Daylight and Sunlight Access 		
<ul style="list-style-type: none"> – Living areas to face north where orientation makes this possible. 	<p>The proposed communal living area faces north-west to south-west which is considered to be the most appropriate orientation for solar access on this site.</p>	<p>Yes</p>
<ul style="list-style-type: none"> – Increase side setback for side living areas (4m preferred) where north is the side boundary. 	<p>North is not the side boundary.</p>	<p>N/A</p>

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ATTACHMENT 2

DCP 2014	PROPOSED	COMPLIANCE
<u>Subject Dwelling:</u> <ul style="list-style-type: none"> Subject dwelling north facing living area windows are to receive at least 3 hrs of sunlight to a portion of their surface between 9am and 3pm on June 21. Private Open space of subject dwelling is to receive at least 2 hours sunlight between 9am and 3pm on June 21. 	<p>Shadow diagrams indicate the communal living area will receive approximately 5 hours sunlight from 9am-2pm on June 21 to a portion of the north-western facing windows.</p> <p>Shadow diagrams indicate the rear private open space area will receive 6 hours sunlight from 9am-3pm on June 21.</p>	<p>Yes</p> <p>Yes</p>
<u>Neighbouring properties are to receive:</u> <ul style="list-style-type: none"> 2 hours sunlight to at least 50% of adjoining principal ground level open space between 9am and 3pm on June 21. 	<p>Shadow diagrams indicate that shadows from the proposed boarding house will only fall on a small portion of the side setback area of No. 86 Waring Street from 9am-11am and the remainder of the day will fall on the street.</p> <p>No adjoining private open space will be overshadowed.</p>	<p>Yes</p>
<ul style="list-style-type: none"> At least 3 hours sunlight to a portion of the surface of north facing adjoining living area windows between 9am and 3pm on June 21. 	<p>Shadow diagrams indicate that shadows from the proposed boarding house will only fall on a small portion of the side setback area of No. 86 Waring Street from 9am-11am and the remainder of the day will fall on the street.</p> <p>No adjoining windows will be overshadowed.</p>	<p>Yes</p>
<ul style="list-style-type: none"> Visual Privacy <ul style="list-style-type: none"> Orientate windows of living areas, balconies and outdoor living areas to the front and rear of dwelling. 	<p>The proposed boarding house includes two communal living areas with the primary area on the</p>	<p>Yes</p>

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ATTACHMENT 2

DCP 2014	PROPOSED	COMPLIANCE
<ul style="list-style-type: none"> – Windows of living, dining, family etc. placed so there are no close or direct views to adjoining dwelling or open space. – Side windows offset from adjoining windows. – Terraces, balconies etc. are not to overlook neighbouring dwellings/private open space. 	<p>ground floor and a secondary area located on the first floor. The ground floor living area is oriented to the rear however also includes north-western side facing windows which are acceptable as side fencing and the lower level of the adjoining site will mean that the side fencing will screen any potential overlooking.</p>	
	<p>The first floor living area is oriented to the street. Refer above.</p>	Yes
	<p>All side facing windows are offset either laterally or vertically from the adjoining windows.</p>	Yes
	<p>High level windows are provided to the first floor windows on the northern elevation which is the nearest to neighbouring properties which will maintain privacy.</p> <p>The proposal does not include any first floor balconies.</p> <p>The proposal does include a small elevated landing which leads down to the private open space. This is elevated approximately 900mm and as such may allow for some cross views of the adjoining rear yard of No. 82 Waring Street. A privacy screen on</p>	<p>No – Resolved via condition</p>

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DCP 2014	PROPOSED	COMPLIANCE
<ul style="list-style-type: none"> • Acoustic Privacy <ul style="list-style-type: none"> - Layout of rooms in dual occupancies (attached) are to minimise noise impacts between dwellings e.g.: place adjoining living areas near each other and adjoining bedrooms near each other. • View Sharing <ul style="list-style-type: none"> - The siting of development is to provide for view sharing. • Cross Ventilation <ul style="list-style-type: none"> - Plan layout is to optimise access to prevailing breezes and to provide for cross ventilation. 	<p>the north-western side of the landing will minimise this potential for overlooking and as such a condition is recommended to require the inclusion of a privacy screen.</p> <p>The proposed development is not a dual occupancy, but rather a boarding house development. Nevertheless, it is considered that the boarding house has a satisfactory design and layout to minimise the transmission of noise with bedrooms appropriately separated from common areas and thoroughfares.</p> <p>No significant views across the subject site.</p> <p>Cross-ventilation will be achieved to the communal living area with windows on the south-western and north-western façade of the building which will optimise access to the prevailing cooling southerly summer breezes.</p>	<p>Yes</p> <p>N/A</p> <p>Yes</p>
Section 2.14 External Building Elements		
<ul style="list-style-type: none"> • Roof <ul style="list-style-type: none"> - Articulated. - 450mm eaves overhang minimum. - Not to be trafficable Terrace. 	<p>Articulated hipped roof form proposed.</p> <p>Eaves overhang 450mm.</p> <p>No proposed trafficable terrace.</p>	<p>Yes</p> <p>Yes</p> <p>N/A</p>

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ATTACHMENT 2

DCP 2014	PROPOSED	COMPLIANCE
- Skylights to be minimised and placed symmetrically.	No skylights proposed.	N/A
- Front roof plane is not to have both dormer windows and skylights.	No dormer windows proposed.	N/A
- Attic to be within roof space	No attic proposed.	N/A
Section 2.15 Fences		
<ul style="list-style-type: none"> Front/return: <ul style="list-style-type: none"> - To reflect design of dwelling. - To reflect character and height of neighbouring fences. - Max 900mm high for solid (picket can be 1m). - Max 1.8m high if 50% open (any solid base max 900mm). - Retaining walls on front building max 900mm. - No colourbond or paling - Max pier width 350mm. Side/rear fencing: <ul style="list-style-type: none"> - 1.8m max o/a height. 	No proposed front/return fencing. As above. As above. As above. As above. As above. As above. As above.	N/A N/A N/A N/A N/A N/A N/A
	No details provided of side and rear fencing. Compliance with DCP to be conditioned.	Condition
Part 3.5: Boarding Houses		
Section 2.3 Development subject to provisions of Part 2 of the ARHSEPP		
(a) All boarding house developments are to be designed to be compatible with the character of the local area.	An assessment of the compatibility of the proposed development with the local character of the area has been undertaken, pursuant to Schedule 1 of Part 3.5 of the DCP2014. The assessment has revealed that the proposed boarding house is consistent with the local character of the low density area as established by DCP2014. This is largely because the bulk, scale and proportion of the proposed	Yes

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ATTACHMENT 2

DCP 2014	PROPOSED	COMPLIANCE
<p>(b) Where external changes, including building and/or construction work, are proposed, a Local Area Character Statement is to be prepared and submitted with the development application.</p> <p>(c) Boarding house development located in the vicinity of a Heritage Item or within a Heritage Conservation Area must be designed sympathetically to the significance of the Heritage Conservation Area/Item.</p> <p>(d) The design of boarding house development is to take into consideration any desired future character objectives of urban centres identified under the RLEP2014, RLEP (Gladesville Town Centre and Victoria Road</p>	<p>boarding house is consistent with the locality. The building achieves a consistent height and footprint, whilst providing appropriate front, side and rear setbacks consistent with the existing dwelling on the site (to be demolished) and the local area.</p> <p>A Local Area Character Assessment is contained within the Statement of Environmental Effects submitted with the development application. This assessment appropriately utilises the methodology set out in Schedule 2 of Part 3.5 of DCP2014 on the matter of establishing the 'local area' to which the site relates, and also the questions to be answered in determining whether a development is compatible with this established local area.</p> <p>The subject site does not contain a heritage item, is not within the vicinity of a heritage item and is not within a heritage conservation area.</p> <p>The proposed site is not within any of the urban centres identified in LEP2014 or DCP2014.</p>	<p>Yes</p> <p>N/A</p> <p>N/A</p>

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ATTACHMENT 2

DCP 2014	PROPOSED	COMPLIANCE
Corridor) 2014 and Part 4 Urban Centres of this DCP.		
Size and Scale		
(e) In the R1 General Residential and R2 Low Density Residential zones, a maximum number of 12 bedrooms per boarding house will be permitted.	The subject site is located within the R2 zone and 10 boarding rooms are proposed.	Yes
(f) Notwithstanding compliance with numerical standards under the ARHSEPP and LEP, applicants must demonstrate that the bulk and relative mass of development is acceptable for the street and adjoining dwellings in terms of:	See Part 3.3 of DCP2014 Compliance check above.	Yes
(i) Overshadowing and privacy	As above	Yes
(ii) Streetscape (bulk and scale)	As above	Yes
(iii) Building setbacks	As above	Yes
(iv) Parking and traffic generation	Refer to ARHSEPP Compliance Check.	Yes
(v) Landscape requirements	See Part 3.3 of DCP 2014 Compliance check above.	Yes
(vi) Visual impact and impact on existing views (this must address view sharing)	As above	Yes
(vii) Any significant trees on site, and	As above	Yes
(viii) Lot size, shape and topography.	As above	Yes
Parking and Traffic		
(g) Parking spaces and access are not to be located within communal open space areas or landscaped areas.	Parking is proposed within an attached double garage not within the communal open space or landscaped areas.	Yes
(h) Notwithstanding the requirements of Part 9.3 Parking Controls under this DCP, a	Proposal is for a boarding house with 10 bedrooms.	N/A

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ATTACHMENT 2

DCP 2014	PROPOSED	COMPLIANCE
boarding house development for 30 or more bedrooms is to be supported by a Traffic and Parking Impact Assessment Report, prepared by a suitably qualified person.		
Section 3.2 Privacy (Acoustic and Visual) and Amenity		
(a) The main entrance of the boarding house is to be located and designed to address the front (street) elevation.	The boarding house development is considered to adequately address Waring Street through provision of appropriate windows facing the street, as well as clear sightlines to the front door.	Yes
(b) Access ways to the front entrance of the boarding house are to be located away from windows to boarding rooms to maximise privacy and amenity for lodgers.	Access ways to the front entrance are considered to be appropriately located away from windows to boarding rooms.	Yes
(c) Boarding houses are to be designed to minimise and mitigate any impacts on the visual and acoustic privacy of neighbouring buildings and on the amenity of future residents.	Some north-west facing windows may give rise to overlooking due to the elevated ground floor level. To be conditioned.	No - conditon
(d) An acoustic report prepared by a suitably qualified acoustic consultant may be required where there is the potential for noise impacts on occupants and neighbours.	No acoustic report submitted, however due to the design and layout of the boarding house, it is considered that there is limited potential for noise impact on occupants and neighbours.	Yes
	Furthermore, the submitted SEE has detailed that acoustic privacy will be mitigated by the operation of the boarding house in accordance with the	

ITEM 2 (continued)

ATTACHMENT 2

DCP 2014	PROPOSED	COMPLIANCE
	submitted Plan of Management.	
Section 3.3 Accessibility		
(a) All boarding house developments are to be accompanied by an Accessibility Report which addresses the accessibility requirements for people with disabilities, where required, under the BCA and Disability (Access to Premises – Buildings) Standards 2010.	The submitted Access Report confirms that accessibility can be appropriately achieved, subject to complying with the recommendations provided within the report.	Yes
Section 3.4 Waste Minimisation and Management		
(a) Waste storage and recycling facilities shall be provided on the premises in accordance with the requirements for boarding houses contained in Part 7.2 Waste Minimisation and Management of this DCP.	See Part 7.2 below.	
Section 3.5 Sustainability and Energy Efficiency		
A BASIX Certificate is to be submitted with the Development Application.	BASIX Certificate (No. 742870M, dated 8 July 2016) submitted that demonstrates compliance with thermal, energy and water.	Yes
Section 3.6 Internal Building Design		
(a) As a minimum, in the R2 Low Density Residential zone (and where Class 1b under the BCA) boarding houses shall make provision for the following facilities within each building;		
(i) storage for occupants;	A 4.6sqm storage room and a 1.82sqm storage room is provided on the first floor, and a storage cupboard is provided on the ground floor.	Yes
(ii) laundry facilities;	Adequate laundry facilities are proposed with a communal laundry room of appropriate size provided.	Yes

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DCP 2014	PROPOSED	COMPLIANCE
(iii) sanitary facilities.	Adequate sanitary facilities are proposed with each room containing an en-suite bathroom of appropriate size.	Yes
(d) All boarding house developments are to be designed to optimise safety and security, both internal to the development and for the public domain by employing design criteria including:	The proposed boarding house has been referred to Council's Building Surveyors, Environmental Health Officers, and Development Engineers. The proposal has been deemed satisfactory subject to conditions. No apparent safety concerns with the proposal's design have been identified as part of the planning assessment.	
(e)		
(i) maximising overlooking of public and communal spaces while maintaining internal privacy;	The boarding house design maximises overlooking of public and communal spaces to ensure appropriate passive surveillance of such areas while maintain internal and cross boundary privacy through utilisation of privacy screens where necessary.	Yes
(ii) avoiding dark and non-visible areas;	The main entry is provided at the front of the site clearly visible from the large frontage that wraps around the bend of Waring Street.	Yes
(iii) locating communal and common areas in safe and accessible locations;	Communal and common areas are considered to be safe and accessible subject to conditions stated above.	Yes
(iv) providing lighting appropriate to the location and desired activities;	Statement of Environmental Effects outlines that no major outdoor lighting is proposed. This is acceptable as the site is in a low density residential area and is located on a	Yes – subject to conditions of consent

ITEM 2 (continued)

ATTACHMENT 2

DCP 2014	PROPOSED	COMPLIANCE
<p>(v) providing clear definition between public and private spaces.</p> <p>Specific Rooms, Areas and Facilities</p> <p>(f) The development is to be designed to meet the requirements identified in the following table.</p> <p>(i) Bedrooms / Boarding Rooms:</p> <p>(a) Boarding rooms are to be designed as the principal place of residence for occupants.</p>	<p>highly visible corner that will receive sufficient ambient light from street lights. Council's standard conditions relating to the provision of lighting is also recommended to ensure obtrusive effects of common area lighting is minimised.</p> <p>A clear definition between the public and private spaces has been provided. The building typically takes on the appearance of a two storey dwelling house, and as such the typical public and private land definitions associated with dwelling houses are inherent in the design of the proposed boarding house development.</p> <p>See assessment below.</p> <p>The boarding house has been designed as a principal place of residence for occupants, and provides appropriately sized bedrooms, some with kitchenettes, and all with en-suites, along with a common kitchen, living room, laundry, storage room, and indoor and outdoor common areas. This design is considered to cater to the needs of occupants to</p>	<p>Yes</p> <p>Yes</p>

ITEM 2 (continued)

ATTACHMENT 2

DCP 2014	PROPOSED	COMPLIANCE
	ensure the boarding house is capable of being used as a place of residence into the future.	
(b) No boarding rooms shall open directly onto communal living, dining and kitchen areas.	No boarding rooms open onto the communal living, kitchen and dining areas which is within an enclosed open plan room at the rear of the building.	Yes
(c) Each boarding room (excluding any private kitchen or bathroom facilities) must comply with the minimum areas identified in the ARHSEPP. Plans shall clearly show the size and maximum occupation of each room. Boarding rooms less than the minimum size will not be supported.	All boarding rooms excluding any private kitchen or bathroom facilities have a minimum of 12m ² for single lodgers.	Yes
(d) Where additional facilities are proposed in boarding rooms, the following additional gross floor areas apply:		
(i) Minimum 2.1m ² for any ensuite, which must comprise a hand basin and toilet; plus	All exceed 2.1m ² .	Yes
(ii) 0.8m ² for any shower in the ensuite (in addition to above); plus	All exceed 0.8m ² .	Yes
(iii) 1.1m ² for any laundry, which must comprise a wash tub and washing machine; plus	Laundry has an area of 6.2sqm. As shown on the submitted plans, there is adequate space for at least one wash tub and washing machine.	Yes

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DCP 2014	PROPOSED	COMPLIANCE
(iv) 2m ² for any kitchenette, which must comprise a small fridge, cupboards and shelves (in addition to required wardrobe space), a microwave, and a minimum of 0.5m ² bench area.	All kitchenettes provided in the boarding rooms are 2m ² . No details of the kitchenettes have been provided, as such it is recommended a condition is included that requires a minimum of 0.5sqm bench area, space for a small fridge, cupboards and shelves are provided in the kitchenettes.	Yes – subject to conditions
(ii) Communal Living Rooms		
(a) Indoor communal living rooms/areas are to be located:		
(i) near commonly used spaces, such as kitchen, laundry, lobby entry area, or manager's office;	Open plan living and kitchen room provided.	Yes
(ii) adjacent to the communal open space; and	Living room is adjacent to the communal open space.	Yes
(iii) where they will have a minimal impact on bedrooms and adjoining properties in terms of noise generation.	The location of the proposed living room will have minimal impact on the bedrooms as no bedrooms open directly onto the communal room. The communal room is oriented to the rear on the ground floor which is sufficiently separated from neighbouring properties to minimise impacts.	Yes
(b) Class 1b boarding houses must have indoor communal living areas of a minimum 12.5m ² or 1.25m ² /resident, whichever is greater. Class 3 Boarding Houses must provide a common living area a minimum 15m ² in area, with a further 15m ² provided for each additional 12	Communal living room has an area of 20m ² .	Yes

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DCP 2014	PROPOSED	COMPLIANCE
<p>persons thereafter.</p> <p>Note: 10 residents proposed, therefore 12.5m² of indoor communal living areas required.</p> <p>(c) Openings are to be oriented away from adjoining residential properties to minimise overlooking and maximise privacy and amenity.</p> <p>(iii) Communal Kitchen and Dining Areas</p> <p>(a) Where communal kitchens are provided, they are to be in a location accessible to all residents.</p> <p>(b) A communal kitchen area is to be provided with a minimum area of 6.5m² in total or 1.2m² for each resident occupying a boarding room that does not contain a kitchenette, whichever is greater, and is to contain:</p> <p>(i) One sink for every 6 people, or part thereof, with running hot and cold water; and</p>	<p>A large sliding door, in association with the communal area, opens to the rear of the site which is the furthest boundary from the living area. Given the living area is at ground level and over 10m from the rear boundary it is considered to minimise overlooking and maximise privacy.</p> <p>The communal kitchen is provided on the ground floor easily accessible to all residents. An Accessibility Report has been submitted that has been assessed by Council's Building Surveyor who has indicated no objection to the proposed development subject to conditions.</p> <p>4 rooms do not contain a kitchenette, therefore a 8.8sqm communal kitchen area is required.</p> <p>Proposed communal kitchen has an area of 9.9sqm.</p> <p>2 sinks required for 10 people. As shown on the</p>	<p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p>

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DCP 2014	PROPOSED	COMPLIANCE
(ii) One stove top cooker for every 6 people, or part thereof, with adequate exhaust ventilation.	plans, 2 sinks are provided within the communal kitchen. 2 stove top cookers required for 10 people. As shown on the plans, 4 stove top cookers provided within communal kitchen.	Yes
(c) A combined kitchen and dining area must have a minimum area of 15m ² with an additional 1m ² per room in a development that contains 12 or more bedrooms.	10 bedrooms requires a combined kitchen and dining area of 15m ² . A combined kitchen, living and dining area of 29.8m ² is provided.	Yes
(d) No bathrooms, toilets or boarding rooms shall open directly on to communal kitchen facilities.	No bathrooms, toilets or boarding rooms open directly on to communal kitchen.	Yes
(e) Where food is proposed to be provided as part of Boarding House operations, or is for sale, kitchen and food areas shall comply with the National Code for the Construction and Fitout of Food Premises and be provided with sufficient ventilation in accordance with the BCA.	Not proposed within subject boarding house.	N/A
(f) Kitchen facilities shall be available for all lodgers 24 hours per day/ 7 days per week.	Kitchen available 24/7. This is not described otherwise within the applicant's submission.	Yes
(iv) Bathroom Facilities		
(a) In all boarding houses communal bathroom facilities must be in an accessible location for all occupants 24 hours per day.	The proposed development includes en-suite bathrooms in each of the boarding rooms that meet the minimum requirements.	Yes
(b) Bathrooms should be a minimum of 5m ² .	No communal bathrooms proposed – see above.	N/A

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ATTACHMENT 2

DCP 2014	PROPOSED	COMPLIANCE
<p>(c) Where ensuite bathroom facilities are provided in boarding rooms, the overall facilities must comply with the minimum facility requirements for the total occupancy of the overall premises.</p> <p>(v) Laundries and Drying Facilities</p> <p>(a) Laundry and drying facilities are to be provided for all lodgers. Where lodgers do not have their own laundry facilities, the following is to be provided:</p> <p>(i) A minimum space of 4m² for every 12 lodgers; an additional 3m² for every additional 12 lodgers or part thereof;</p> <p>(ii) 15m² external clothes drying area for every 12 residents in an outdoor area (can be retractable).</p> <p>(b) Outside drying areas shall be located in a communal open space in a location which maximises solar access and ensures that the usability of the space is not compromised.</p> <p>(c) Internal drying and laundry facilities shall be located in a safe and accessible location for all residents, and separate from communal kitchen facilities.</p>	<p>The proposed development includes en-suite bathrooms in each of the boarding rooms. As demonstrated above, these en-suite bathrooms comply with the facility requirements previously in this table – i.e. minimum hand wash basin, shower, laundry and kitchenette sizes.</p> <p>A 4m² communal laundry is required for 10 lodgers. The submitted plans indicate that a 6.2m² laundry is to be provided adjacent to the hallway on the ground floor. Sufficient clothes drying areas are provided to the rear of the building. Outside drying area is located in the rear private open space area in a location which maximises solar access and will not impact negatively from a visual perspective on the street.</p> <p>Internal drying and laundry facilities are provided in a dedicated room on the ground floor.</p>	<p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p>

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ATTACHMENT 2

DCP 2014	PROPOSED	COMPLIANCE
(vi) Management Office Design (a) Where management offices are to be provided, they are to be located at a central, visible point which is convenient to occupants of and visitors to the boarding house.	No management office required due to size of the proposed boarding house development.	Yes
Section 4.0 Management		
(a) All boarding houses are required to be managed by a manager who has overall responsibility including the operation, administration, cleanliness, and maintenance and fire safety of the premises. Management arrangements are to be set out in a Plan of Management.	Boarding house proposed to be managed jointly by an off-site manager and Real Estate Agent, as covered in the Plan of Management submitted by the applicant. Condition to be imposed binding the Plan of Management.	Yes – Condition
(b) A Plan of Management is to be submitted with each Development Application for a boarding house. The Plan of Management, as a minimum, must address the ongoing management and operational aspects of the boarding house identified in the template attached to this Part (refer Schedule 2 Template for Plan of Management).	A Plan of Management has been submitted as part of the proposed development which has been assessed as satisfactory when having regard to the template contained within Schedule 2 of Part 3.5 of DCP 2014.	Yes
(c) The name and contact details of the manager or managing agent is to be displayed at all times externally at the front entrance on the boarding house.	The submitted Plan of Management indicates the contact details of the Manager and Agent will be provided to Council and the Manager will be contactable 24 hours per day, 7 days per week. A clearly visible sign with the contact details of the manager and agent will be displayed externally at the	Yes

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ATTACHMENT 2

DCP 2014	PROPOSED	COMPLIANCE
(d) Occupiers of adjacent properties are to be provided with a 24 hour telephone number for a principal contact (for example owner or manager) for use in the event of an emergency.	front entrance of the boarding house and internally in the common area. The Plan of Management has not specifically outlined that the contact details will be provided to neighbours.	No – Resolved via condition
Part 7.2 – Waste Minimisation and Management		
Section 2.3 All Developments		
(a) Developments must provide space on-site for the sorting and storage of waste in containers suitable for collection.	Space on-site is provided for the sorting and storage of waste to the rear/side of the development.	Yes
(b) The size of storage areas and number of storage containers required must be sufficient to handle and store the waste likely to be generated and stored on the premises between collections.	<p>Proposal requires 40L per person per week of general waste & 35L per person per week of recyclable waste = 400L general waste and 350L recyclable.</p> <p>The submitted Waste and Environmental Management Plan has indicated: 1 x 140L General Waste 1 x 240L Recycling 1 x 240L Green Waste</p> <p>This does not meet the aforementioned requirements.</p> <p>Despite this, Council's Environmental Health Officer's have assessed the proposed development and determined the proposed</p>	Yes

ITEM 2 (continued)

ATTACHMENT 2

DCP 2014	PROPOSED	COMPLIANCE
<p>(c) Additional space must be provided for the storage of bulky wastes where appropriate.</p> <p>(d) Allowance must be made for the storage of green waste where relevant.</p> <p>(e) All waste containers must be stored within the boundaries of the site unless otherwise approved by Council under Section 68 of the Local Government Act 1993.</p> <p>(f) All applications for development, including demolition, construction and the ongoing use of a site/premises, must be accompanied by:</p> <p>(i) a Site Waste Minimisation and Management Plan (SWMMP);</p> <p>(ii) location and design details of waste storage facilities on the site.</p>	<p>waste arrangements to be satisfactory, subject to conditions of consent. In this regard, to proposal is considered to satisfactorily comply.</p> <p>No significant bulky waste likely to be generated by the proposed boarding house.</p> <p>Allowance made for the storage of 1 x 240L green waste bin in the garbage storage bin area located to the side/rear of the development.</p> <p>All waste containers proposed to be contained within the site to the side/rear of the development.</p> <p>A SWMMP has been submitted</p> <p>Location details of waste storage facilities have been provided in a dedicated hard stand area located to the south-western rear/side of the development.</p>	<p>N/A</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p>

ITEM 2 (continued)

ATTACHMENT 2

DCP 2014	PROPOSED	COMPLIANCE
(g) In all development, waste and recycling storage areas and facilities should be provided and be located in positions that:		
(i) provide easy, direct and convenient access for the users of the facility;	Proposed garbage area located in easy, direct and convenient location adjacent to the garage.	Yes
(ii) permit easy transfer of bins to the collection point if relocation of bins is required;	Proposed garbage area permits easy transfer of bins to collection point (street kerb) via the adjacent driveway.	Yes
(iii) permit easy, direct and convenient access for collection service providers;	Proposed garbage collection will utilise street kerb collection.	N/A
(iv) do not intrude on car parking, landscaping, access and turning areas required for the type and scale of development;	Proposed garbage storage area does not intrude on car parking, landscaping, access or turning areas.	Yes
(v) do not reduce amenity (minimises the potential for noise, odour and other amenity and environmental impacts on residents and other occupants);	Proposed garbage storage area to the south-eastern side/rear of the development adjacent to the garage is a typical location that is not near to bedrooms or living areas of the development or adjoining properties.	Yes
(vi) maximize protection of trees and significant vegetation.	No impact on trees on site.	Yes
(h) In cases where the waste storage areas and facilities are likely to be visible from the street, the design and location of waste storage areas/facilities should be such that they compliment the design of both the development and the surrounding streetscape. Design elements such as fencing,	Waste storage area will not be visible from street as it will be provided to the south-eastern side/rear of the development behind fencing.	Yes

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DCP 2014	PROPOSED	COMPLIANCE
landscaping and roof treatments may be used.		
(i) No incineration devices are permitted.	No incineration devices proposed.	N/A
(j) A collection point for waste collection is to be identified on the plans submitted with the development application. The collection point must be conveniently located for users and services purposes and sited so that waste collection vehicles do not impede the access to the site or car parking facilities when servicing the bins so that waste can be safely and easily collected.	Proposed garbage collection will utilise street kerb collection.	Yes
(k) The path for wheeling bins between the waste and recycling storage room/area and the vehicle collection point must be free of steps and kerbs and, in the case of residential development, of a gradient of less than 14:1, and for all other development types, of a grade to the satisfaction of Council. The waste storage area must be as close as practicable to the collection point.	Proposed path from storage area to street kerb is free of steps and kerbs and has only a minor gradient to the street. Council's Environmental Health Officer's have assessed the proposed development and determined the proposed waste arrangements to be satisfactory, subject to conditions of consent. In this regard, the proposal is considered to satisfactorily comply.	Yes
(l) Access driveways and service areas for waste collection vehicles must be designed in accordance with Australian Standard AS 2890.2-2002 <i>Parking Facilities – Part 2: Off-street commercial vehicle facilities</i> .	No waste collection vehicles entering the site.	N/A

ITEM 2 (continued)

ATTACHMENT 2

DCP 2014	PROPOSED	COMPLIANCE
(m) All waste facilities must comply with the Building Code of Australia (BCA) and all relevant Australian Standards (AS).	The proposal has been referred to Council's Building Surveyor and Environmental Health Officers who have indicated no objection to the proposed development subject to conditions.	Yes
(n) Heritage conservation considerations may alter requirements of this Part in the refurbishment of existing buildings. Designs should be discussed with Council's Heritage Advisor.	The subject site does not contain a heritage item, is not within the vicinity of a heritage item, and is not within a heritage conservation area.	N/A
(o) Any equipment, such as volume reducing equipment, will be required to be installed in accordance with the manufacturer's instructions.	No equipment required to be installed.	N/A
(p) Where commercial food preparation is carried out on the premises, the waste storage area is to be designed with a cover to exclude rainwater and a floor to be graded and drained to the sewerage system. The area is to be readily accessible for servicing and suitably screened from public view.	No commercial food preparation proposed to be carried out on site.	N/A
Section 2.4 – Demolition and Construction		
(a) Demolition activity must comply with relevant Australian Standards and WorkCover requirements.	To comply	To comply
(b) Demolition is to be carried out using the process of deconstruction where materials are carefully dismantled and sorted. A Demolition Work Plan is required to be submitted.	To comply	To comply

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ATTACHMENT 2

DCP 2014	PROPOSED	COMPLIANCE
(c) A dedicated area is to be allocated on-site for the stockpile of materials for reuse, recycling or disposal and for site waste bins (for surplus and unwanted materials).	Noted, to be covered by Standard Condition.	To comply
(d) Construction materials are to be stored away from the waste materials stored on-site for collection to enable easy access for waste collectors.	Noted, to be covered by Standard Condition.	To comply
Section 2.6 Multi Dwelling Housing developments (3 or more dwellings) and Residential Flat Buildings (up to 3 storeys)		
<ul style="list-style-type: none"> All Developments (a) Space must be provided inside each dwelling for receptacles to store garbage and recycling material. The area is to have the capacity to store two day's worth of materials.	Space available to store two days worth of garbage and recycling materials included to the satisfaction of Council's EHO provided within three bins to be stored adjacent to the garage.	Yes
<ul style="list-style-type: none"> Communal Bin Storage – larger scale developments (b) Multi Dwelling Housing developments that do not meet the requirements for individual bin storage, and Residential Flat Developments of up to 3 storeys, must have communal bin storage areas designed and constructed in accordance with Schedule 4: S4.1. Residential Bin Storage Areas .	Individual bin storage is not proposed. A communal bin storage area is provided adjacent to the garage.	Yes
(c) Communal bin storage areas are to be located so as they can be screened from the street and in a position which is convenient for users and waste collection staff.	A communal bin storage area is provided adjacent to the garage.	Yes

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DCP 2014	PROPOSED	COMPLIANCE
(d) To facilitate servicing by waste collection staff, communal bin storage areas must not be more than 15 metres from the street kerb.	Communal bin storage area <15m from kerb.	Yes
(e) For developments where bulk bins are provided for waste (i.e. 660/1100 litre skip bins) the bulk bins should be contained within waste and recycling storage rooms designed and constructed in accordance with the requirements of Schedule 4 (refer S4.2 Waste and Recycling Storage Rooms).	Bulk bins not provided.	N/A
(f) For developments comprising 30 or more dwellings, a separate room or undercover caged area of a minimum 5 square metres, with instructive signage must be provided for the storage of bulky discarded items such as furniture and white goods, awaiting Council pickup, to prevent illegal dumping in the public domain. Bulky items storage areas should be located adjacent to waste storage areas.	Not applicable to subject proposal.	N/A
(g) Where collection vehicles are required to drive into a property to collect waste and recycling, adequate access must be provided for the users, waste collection staff and collection vehicles, and:	Collection vehicles not required to drive into property.	N/A
(i) the site must be designed to allow collection vehicles to enter and exit the property in a forward direction with minimal need for reversing and to be operated with adequate clearances; and (ii) the access and manoeuvring space are to be suitable for the collection vehicle		

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DCP 2014	PROPOSED	COMPLIANCE
in terms of pavement strength, spatial design, access width and clearances. Appendix C Collection Vehicles and Appendix D Vehicle access/Turning Circles under the Better Practice Guide for Waste Management in Multi-Unit Dwellings, DECC 2008 are to be used as a guide.		
Part 8.2 – Stormwater Management		
<ul style="list-style-type: none"> Stormwater - Drainage is to be piped in accordance with Part 8.2 – Stormwater Management. 	Application has been referred to Council's Development Engineer who has indicated no objection to the proposed development, subject to conditions.	Yes
Part 9.2 – Access for People with Disabilities		
Accessible path required from the street to the front door, where the level of land permits.	Accessible path from the street to the front door, provided. The application was referred to Council's Building Surveyor who has indicated the proposal is satisfactory, subject to conditions.	Yes
Part 9.3 – Parking Controls		
Section 2.2 Residential Land-Uses		
<ul style="list-style-type: none"> Boarding Houses – accessible area: (a) At least 0.2 parking spaces / boarding room (1 space / 5 boarding rooms). In terms of dwelling size this equates to: (i) At least 0.2 parking spaces/dwelling containing 1 bedroom (ii) At least 0.5 parking spaces / dwelling containing 2 bedrooms (iii) At least 1 parking space / dwelling containing 3 or more bedrooms 	<p>The subject site is located within an 'accessible area', pursuant to Clause 27 and the definitions contained in the ARH SEPP.</p> <ul style="list-style-type: none"> Two (2) car parking spaces are required / two (2) car parking spaces are proposed within an attached double garage. 	Yes

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DCP 2014	PROPOSED	COMPLIANCE
(b) Not more than 1 parking space for each person employed in connection with the development.	0 employee spaces are proposed as no employees are proposed to reside at the subject boarding house development. A manager will attend the site at least twice a week and it is anticipated that on-street parking will be utilised.	Yes
Section 2.7 Bicycle Parking		
(b) Bicycle and motor cycle parking is to be provided for boarding house development in accordance with the requirements of State Environmental Planning Policy (Affordable Rental Housing) 2009, and Part 3.6 Boarding Houses under this DCP.	ARH SEPP requires: 2 motorcycle spaces and 2 bicycle spaces. Proposed: 2 motorcycle and 4 bicycle spaces.	Yes
(c) Bicycle parking should be designed in accordance with AS 2890.3 Parking facilities - Bicycle parking facilities.	To be addressed via standard condition.	Yes
(d) Bicycle parking and access should ensure that potential conflicts with vehicles are minimised.	Bicycle parking and access will not conflict with vehicles.	Yes
(e) Bicycle parking is to be secure and located undercover with easy access from the street and building entries.	Bicycle parking is located in a secure location outside of the view from the public domain.	Yes
(f) Bicycle parking is to be located in accordance with Safer by Design principles	Bicycle parking is considered to be safe and in a secure located outside of the view from the public domain.	Yes
(h) Provide secure bicycle storage in all residential developments except for developments with a minimum of 600m ² , dwelling houses and multi-unit (villa) housing.	Secure parking to be conditioned.	Yes – Subject to condition

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ATTACHMENT 2

DCP 2014	PROPOSED	COMPLIANCE
Part 9.5 – Tree Preservation		
<p>Where the removal of tree(s) is associated with the redevelopment of a site, or a neighbouring site, the applicant is required to demonstrate that an alternative design(s) is not feasible and retaining the tree(s) is not possible in order to provide adequate clearance between the tree(s) and the proposed building and the driveway.</p> <p>Note: A site analysis is to be undertaken to identify the site constraints and opportunities including trees located on the site and neighbouring sites. In planning for a development, consideration must be given to building/site design that retains healthy trees, as Council does not normally allow the removal of trees to allow a development to proceed. The site analysis must also describe the impact of the proposed development on neighbouring trees. This is particularly important where neighbouring trees are close to the property boundary. The main issues are potential damage to the roots of neighbouring trees (possibly leading to instability and/or health deterioration), and canopy spread/shade from neighbouring trees that must be taken into account during the landscape design of the new development.</p>	<p>There are no trees located on the subject site. There are two trees in the street frontage which are proposed to be retained.</p>	<p>Yes</p>

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BASIX	PROPOSAL	COMPLIANCE
All ticked "DA plans" commitments on the BASIX Certificate are to be shown on plans (list) BASIX Cert 742870M dated 8 July 2016	BASIX commitments indicated on plans.	Yes

Summary of Issues/Non compliances:

Non compliances justifiable:

Part 3.3 Dwelling Houses and Dual Occupancy (Attached)

Deep Soil Areas

- The deep soil area in the backyard of the boarding house has minimum dimensions of 4.5m x 8m. This does not comply with the minimum 8m x 8m deep soil area required.

Topography & Excavation

- The amount of fill within the building envelope is up to 1.24m. This exceeds the maximum 900mm by 324mm.

Setbacks

- The south-western rear setback varies from 1.377m to 3.7m for the attached garage and 10.9m for the boarding house portion of the building. The garage component exceeds the minimum 9.25m rear setback control.

Landscaping

- DCP2014 requires at least one tree capable of reaching a mature height of 15m to be planted in the rear yard. The applicant has proposed to plant this tree within the front yard instead, and include a smaller 6m high tree at maturity in the rear yard.

Non compliances / Issues to be resolved via condition:

Part 3.3 Dwelling Houses and Dual Occupancy (Attached)

Visual and Acoustic Privacy

- Potential overlooking from north facing windows due to the elevated ground floor level of the dwelling. A condition is proposed for privacy screens/opaque glazing on this elevation to reduce overlooking potential.

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- An elevated rear porch is proposed which would give rise to overlooking of the neighbouring private open space. It is recommended a condition be included for a privacy screen to the side of the porch to reduce overlooking potential.
- The proposed sliding doors to the communal living area are near the neighbouring windows and private open space which may impact acoustic privacy. It is recommended a condition is included requiring the replacement of the sliding door with a single self-closing door to ensure noise is not transmitted from the communal living area.

Side/Rear fencing

- No details are provided of side and rear fencing. It is recommended a condition is included to ensure compliance with DCP2014 should replacement fencing occur.

Part 3.5 Boarding Houses

Internal Building Design

- No side gates are proposed to side setbacks and rear yard. A condition for side lockable side gates to prevent unauthorised access to rear yard is recommended.
- No details on lighting is provided. A condition for sensor lighting to be provided at the side setback areas and common areas is recommended.
- No details of the kitchenettes within the boarding rooms is provided. A condition to ensure these kitchenettes have a minimum 0.5sqm bench space, space for a small fridge, cupboards and shelves is recommended.

Clothes Drying Facilities

- *The proposed clothes drying facilities do not meet the minimum requirements of DCP2014, neither for the external clothes line or internal drying facilities. A condition of consent will be included to ensure compliance with these provisions of DCP2014.*

Management

- Occupiers of adjoining properties are required to be provided with a 24-hour phone number for a principal contact for the use in the event of an emergency.

ITEM 2 (continued)

ATTACHMENT 3

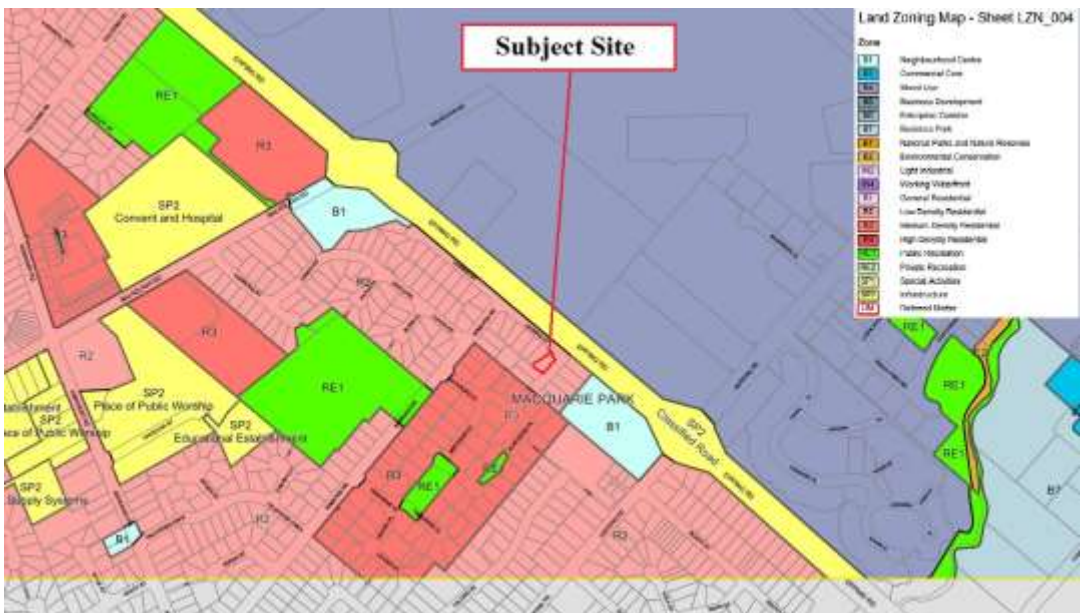
COMPLIANCE TABLE – State Environmental Planning Policy (Affordable Rental Housing SEPP) 2009 (ARHSEPP)

LDA No:	LDA2016/0339
Date Plans Rec'd	22 July 2016
Address:	84 Waring Street, Marsfield
Proposal:	Demolition and construction of a two (2) storey, ten (10) room boarding house under the provisions of the ARHSEPP
Constraints Identified:	Nil

ARH SEPP 2009 Division 3	Proposed	Compliance
26 Land to which Division applies		
This Division applies to land within any of the following land use zones or within a land use zone that is equivalent to any of those zones: (a) Zone R1 General Residential, (b) Zone R2 Low Density Residential, (c) Zone R3 Medium Density Residential, (d) Zone R4 High Density Residential, (e) Zone B1 Neighbourhood Centre, (f) Zone B2 Local Centre, (g) Zone B4 Mixed Use.	The subject site is zoned R2 Low Density Residential under the provisions of LEP2014 (refer to Figure 1 below). As such the subject site is land to which Division 3 'Boarding Houses' of the ARHSEPP applies.	Yes

ITEM 2 (continued)

ATTACHMENT 3

ARH SEPP 2009 Division 3	Proposed	Compliance
 <p>Figure 1 - LEP2014 Zoning Map Extract – Demonstrating the subject site being zoned R2 and as such constituting land to which Division 3 of the ARHSEPP applies.</p>		

27 Development to which Division applies

<p>(1) This Division applies to development, on land to which this Division applies, for the purposes of boarding houses.</p> <p>A 'boarding house' is defined under the RLEP2014 as:</p> <p><i>boarding house</i> means a building that:</p> <ul style="list-style-type: none"> (a) is wholly or partly let in lodgings, and (b) provides lodgers with a principal place of residence for 3 months or more, and (c) may have shared facilities, such as a communal living room, bathroom, kitchen or laundry, and (d) has rooms, some or all of which may have private kitchen 	<p>(1) The SEE and DA lodgement form submitted with the subject DA specifies that the proposal is for the purposes of a 'boarding house'.</p> <p>A review of the plans submitted as part of the proposed development indicates the proposal would meet the definition for a 'boarding house' under the provisions of the 'Standard Instrument'.</p> <p>Note: Pursuant to clause 4 of the ARHSEPP a word or expression used in the ARHSEPP generally has the same meaning as it has in the standard instrument (as in force immediately before the commencement of</p>	<p>Yes</p>
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ITEM 2 (continued)

ATTACHMENT 3

ARH SEPP 2009 Division 3	Proposed	Compliance
<p><i>and bathroom facilities, that accommodate one or more lodgers, but does not include backpackers' accommodation, a group home, hotel or motel accommodation, seniors housing or a serviced apartment.</i></p>	<p>the <i>Standard Instrument (Local Environmental Plans) Amendment Order 2011</i>) unless it is otherwise defined in this Policy.</p>	
<p>(2) Despite subclause (1), this Division does not apply to development on land within Zone R2 Low Density Residential or within a land use zone that is equivalent to that zone in the Sydney region unless the land is within an accessible area.</p> <p><i>accessible area</i> means land that is within:</p> <p>(a) 800 metres walking distance of a public entrance to a railway station or a wharf from which a Sydney Ferries ferry service operates, or</p> <p>(b) 400 metres walking distance of a public entrance to a light rail station or, in the case of a light rail station with no entrance, 400 metres walking distance of a platform of the light rail station, or</p> <p>(c) 400 metres walking distance of a bus stop used by a regular bus service (within the meaning of the Passenger Transport Act 1990) that has at least one bus per hour servicing the bus stop between 06.00 and 21.00 each day from Monday to Friday (both days inclusive) and between 08.00 and 18.00 on each Saturday and Sunday.</p>	<p>(2) The subject site is within zone R2 Low Density Residential under LEP2014. Additionally the subject site is within an 'accessible area' for the following reason:</p> <ul style="list-style-type: none"> Consistent with the definition for 'accessible area' and 'walking distance' in clause 4 of the ARHSEPP, the development site is located approximately 300m walking distance from the nearest compliant bus stop (ID: 212253) located on Herring Road near Booth Street. Although a bus stop has been identified on the southern side of Epping Road 10m to the north of the intersection of Epping Road and Sobraon Road the services at this stop do not meet the frequency requirements of the ARHSEPP. The bus stop is used by a regular bus service (Route no. 288) which has at least one bus per hour between 0600 and 2100 each day Monday to Friday and between 0800 and 1800 on Saturday and Sunday. 	<p>Yes</p>

ITEM 2 (continued)

ATTACHMENT 3

ARH SEPP 2009 Division 3	Proposed	Compliance
<p>walking distance means the shortest distance between 2 points measured along a route that may be safely walked by a pedestrian using, as far as reasonably practicable, public footpaths and pedestrian crossings.</p> <p>regular bus service means any regular passenger service conducted by bus (including any transitway service).</p> <p>regular passenger service means a public passenger service conducted according to regular routes and timetables, but does not include a tourist service or a long-distance service.</p>		
<p>(3) Despite subclause (1), this Division does not apply to development on land within Zone R2 Low Density Residential or within a land use zone that is equivalent to that zone that is not in the Sydney region unless all or part of the development is within 400 metres walking distance of land within Zone B2 Local Centre or Zone B4 Mixed Use or within a land use zone that is equivalent to any of those zones.</p>	<p>(3) The subject site is located within Marsfield, which is within the Sydney region.</p>	N/A
28 Development may be carried out with consent		
<p>Development to which this division applies may be carried out with consent.</p>	<p>Noted, the proposed boarding house is the subject of a development application (LDA2016/0339) and as such is seeking development consent.</p>	Noted
29 Standards that cannot be used to refuse consent		
<p>(1) A consent authority must not refuse consent to development to which this Division applies on</p>		


ITEM 2 (continued)

ATTACHMENT 3

ARH SEPP 2009 Division 3	Proposed	Compliance
<p>the grounds of density or scale if the density and scale of the buildings when expressed as a floor space ratio are not more than:</p> <p>(a) the existing maximum floor space ratio for any form of residential accommodation permitted on the land, or</p> <p>(b) if the development is on land within a zone in which no residential accommodation is permitted—the existing maximum floor space ratio for any form of development permitted on the land, or</p> <p>(c) if the development is on land within a zone in which residential flat buildings are permitted and the land does not contain a heritage item that is identified in an environmental planning instrument or an interim heritage order or on the State Heritage Register—the existing maximum floor space ratio for any form of residential accommodation permitted on the land, plus:</p> <p>(i) 0.5:1, if the existing maximum floor space ratio is 2.5:1 or less, or</p> <p>(ii) 20% of the existing maximum floor space ratio, if the existing maximum floor space ratio is greater than 2.5:1.</p>	<p>(a) The maximum floor space ratio for permitted on the subject site, per the Ryde LEP 2014 is 0.5:1. As detailed in the DCP2014 Compliance Table an FSR of 0.496:1 is proposed.</p> <p>(b) Proposed development is not within a zone in which no residential accommodation is permitted.</p> <p>(c) Proposed development is not within a zone in which RFBs are permitted.</p>	<p>Yes</p> <p>N/A</p> <p>N/A</p>

ITEM 2 (continued)

ATTACHMENT 3

ARH SEPP 2009 Division 3	Proposed	Compliance
<div>  </div> <p>Figure 2. Ryde LEP 2014 FSR map extract – FSR of 0.5:1 applies to the site.</p>		
<p>(2) A consent authority must not refuse consent to development to which this Division applies on any of the following grounds:</p> <p>(a) Building height if the building height of all proposed buildings is not more than the maximum building height permitted under another environmental planning instrument for any building on the land,</p> <p>(b) Landscaped area if the landscape treatment of the front setback area is compatible with the streetscape in which the building is located,</p>	<p>(a) Under the Ryde LEP 2014, the maximum height allowed on the subject site is 9.5m. The proposal is for a building with a maximum height of 7.69m as detailed in the Ryde DCP 2014 Compliance Check.</p> <p>(b) The front setback areas in the streetscape primarily consist of open lawn with some small tree and a single width driveways accessing carports and garages to the sides of the dwellings.</p>	<p>Yes</p> <p>Yes</p>

ITEM 2 (continued)

ATTACHMENT 3

ARH SEPP 2009 Division 3	Proposed	Compliance
<p>(c) Solar access where the development provides for one or more communal living rooms, if at least one of those rooms receives a minimum of 3 hours direct sunlight between 9am and 3pm in mid-winter,</p>	<p>The proposed development includes a compatible landscape treatment within the front setback area which, given the corner location of the site, extends around the northern and eastern frontage of the property. The proposed landscape treatment includes primarily open lawn areas with a tree to be planted in the north-western front corner and some hedging along a portion of the front boundary. The front setback will also include a double width driveway accessing the proposed attached double garage which is compatible in the street.</p> <p>(c) The proposal includes two (2) communal living areas with the primary area located on the ground floor in the western corner of the building and a smaller secondary area located on the first floor at the front eastern portion of the building.</p> <p>The shadow studies submitted indicate that the ground floor communal living room will receive approximately 5 hours direct sunlight between 9am and 3pm in mid-winter and the first floor living area will receive 6 hours direct sunlight between 9am and 3pm in mid-winter.</p>	<p>Yes</p>

ITEM 2 (continued)

ATTACHMENT 3

ARH SEPP 2009 Division 3	Proposed	Compliance
<p>(d) Private Open Space if at least the following private open space areas are provided (other than the front setback area):</p> <p>(i) one area of at least 20 square metres with a minimum dimension of 3 metres is provided for the use of the lodgers,</p> <p>(ii) if accommodation is provided on site for a boarding house manager—one area of at least 8 square metres with a minimum dimension of 2.5 metres is provided adjacent to that accommodation,</p>	<p>(i) A private open space area for the lodgers is proposed in the rear yard of the site. This has an area of 46.42sqm with a minimum dimension of 4.6m which complies with the requirements.</p> <p>(ii) No accommodation is to be provided for a boarding house manager.</p>	<p>Yes</p> <p>N/A</p>
<p>(e) Parking If:</p> <p>(i) in the case of development in an accessible area—at least 0.2 parking spaces are provided for each boarding room, and</p>	<p>The subject site is located within an 'accessible area', pursuant to clause 27 and the definitions contained in the ARH SEPP due to its proximity to a bus stop located on Herring Road which is used by a regular bus service. As such, two (2) car parking spaces are required for the 10 boarding rooms.</p> <p>The proposed development includes two (2) car parking spaces within an attached double garage.</p>	<p>Yes</p>
<p>(ii) in the case of development not in an accessible area—at least 0.4 parking spaces are provided for each boarding room, and</p>	<p>(ii) Proposed development is in an accessible area.</p>	<p>N/A</p>

ITEM 2 (continued)

ATTACHMENT 3

ARH SEPP 2009 Division 3	Proposed	Compliance
<p>(iii) in the case of any development—not more than 1 parking space is provided for each person employed in connection with the development and who is resident on site,</p> <p>(f) Accommodation size If each boarding room has a gross floor area (excluding any area used for the purposes of private kitchen or bathroom facilities) of at least:</p> <p>(i) 12 square metres in the case of a boarding room intended to be used by a single lodger, or</p> <p>(ii) 16 square metres in any other case</p>	<p>(iii) The submitted Plan of Management indicates that no employees will reside within the premises. A boarding house manager will attend the premises at least 2 times per week.</p> <p>(i) The proposed boarding house contains ten (10) single rooms, which are at least 12m² (excluding any area used for the purposes of private kitchen or bathroom facilities)</p> <p>(ii) The proposed boarding house does not contain any rooms intended to be used by more than one lodger.</p>	<p>N/A</p> <p>Yes</p> <p>N/A</p>
<p>(3) A boarding house may have private kitchen or bathroom facilities in each boarding room but is not required to have those facilities in any boarding room.</p>	<p>Each boarding room has private facilities, including a kitchenette and en-suite bathroom.</p>	<p>Yes</p>
<p>(4) A consent authority may consent to development to which this Division applies whether or not the development complies with the standards set out in subclauses (1) or (2).</p>	<p>Noted, however as demonstrated above, the proposal complies with the standards set out in subclauses (1) and (2).</p>	<p>Noted</p>

ITEM 2 (continued)

ATTACHMENT 3

ARH SEPP 2009 Division 3	Proposed	Compliance
30 Standards for boarding houses		
<p>(1) A consent authority must not consent to development to which this Division applies unless it is satisfied of each of the following:</p> <p>(a) if a boarding house has 5 or more boarding rooms, at least one communal living room will be provided,</p> <p>(b) no boarding room will have a gross floor area (excluding any area used for the purposes of private kitchen or bathroom facilities) of more than 25 square metres,</p> <p>(c) no boarding room will be occupied by more than 2 adult lodgers,</p> <p>(d) adequate bathroom and kitchen facilities will be available within the boarding house for the use of each lodger,</p> <p>(e) if the boarding house has capacity to accommodate 20 or more lodgers, a boarding room or on site dwelling will be provided for a boarding house manager,</p>	<p>(a) The proposed boarding house includes 10 rooms. Two communal living rooms are provided.</p> <p>(b) The proposed boarding house does not contain any boarding rooms with a GFA of more than 25m² (excluding any area used for the purposes of private kitchen or bathroom facilities)</p> <p>(c) The submitted SEE has indicated that boarding rooms will not be occupied by more than 1 adult lodger. 10 single boarding rooms are proposed, for a total capacity of 10 lodgers.</p> <p>(d) Adequate bathroom and kitchen facilities are provided for all lodgers. Each boarding room will contain an en-suite bathroom and kitchenette. To compliment this a full-sized kitchen is provided within the common area.</p> <p>(e) The proposed boarding house proposes to accommodate a maximum of 10 lodgers.</p>	<p>Yes</p> <p>Yes</p> <p>Yes</p> <p>N/A</p> <p>Yes</p>

ITEM 2 (continued)

ATTACHMENT 3

ARH SEPP 2009 Division 3	Proposed	Compliance
<p>(f) (Repealed)</p> <p>(g) if the boarding house is on land zoned primarily for commercial purposes, no part of the ground floor of the boarding house that fronts a street will be used for residential purposes unless another environmental planning instrument permits such a use,</p> <p>(h) at least one parking space will be provided for a bicycle, and one will be provided for a motorcycle, for every 5 boarding rooms.</p>	<p>(g) The proposed boarding house is not on land zoned primarily for commercial purposes.</p> <p>(h) 10 boarding rooms are proposed.</p> <p>Requirement: 2 bicycle and 2 motorcycle spaces.</p> <p>Proposed: 2 motorcycle and 4 bicycle spaces.</p> <p>Motorcycle parking is to be located on a hardstand area adjoining the driveway. Bicycle parking is located within the south-western side setback.</p>	<p>N/A</p>
<p>(2) Subclause (1) does not apply to development for the purposes of minor alterations or additions to an existing boarding house.</p>	<p>(2) Proposed development is not for purposes of minor alterations or additions to an existing boarding house, but rather the construction of a new boarding house.</p>	<p>N/A</p>

ITEM 2 (continued)

ATTACHMENT 3

ARH SEPP 2009 Division 3	Proposed	Compliance
30A Character of local area		
<p>A consent authority must not consent to development to which this Division applies unless it has taken into consideration whether the design of the development is compatible with the character of the local area.</p>	<p>The submitted SEE has provided an adequate Local Character Assessment, pursuant to Schedule 1 of Part 3.5 of the DCP2014.</p> <p>An assessment of the compatibility of the proposed development with the local character of the area has been undertaken, pursuant to Schedule 1 of Part 3.5 of the DCP2014. The assessment has revealed that the proposed boarding house is consistent with the local character. This is largely because the bulk, scale and proportion of the proposed boarding house is consistent with the locality. The building achieves a consistent height and footprint, whilst providing appropriate front, side and rear setbacks consistent with the existing dwelling on the site (to be demolished) and the local area.</p> <p>Furthermore, the proposal includes expansive landscaped areas across the large corner frontage of the site and in the rear yard which is consistent with the landscaped setbacks typical in the locality.</p> <p>It is also important to note that the NSW Land and Environment Court has consistently ruled that a development's compatibility with the local area is not about 'sameness' but rather a</p>	<p>Yes</p>

ITEM 2 (continued)

ATTACHMENT 3

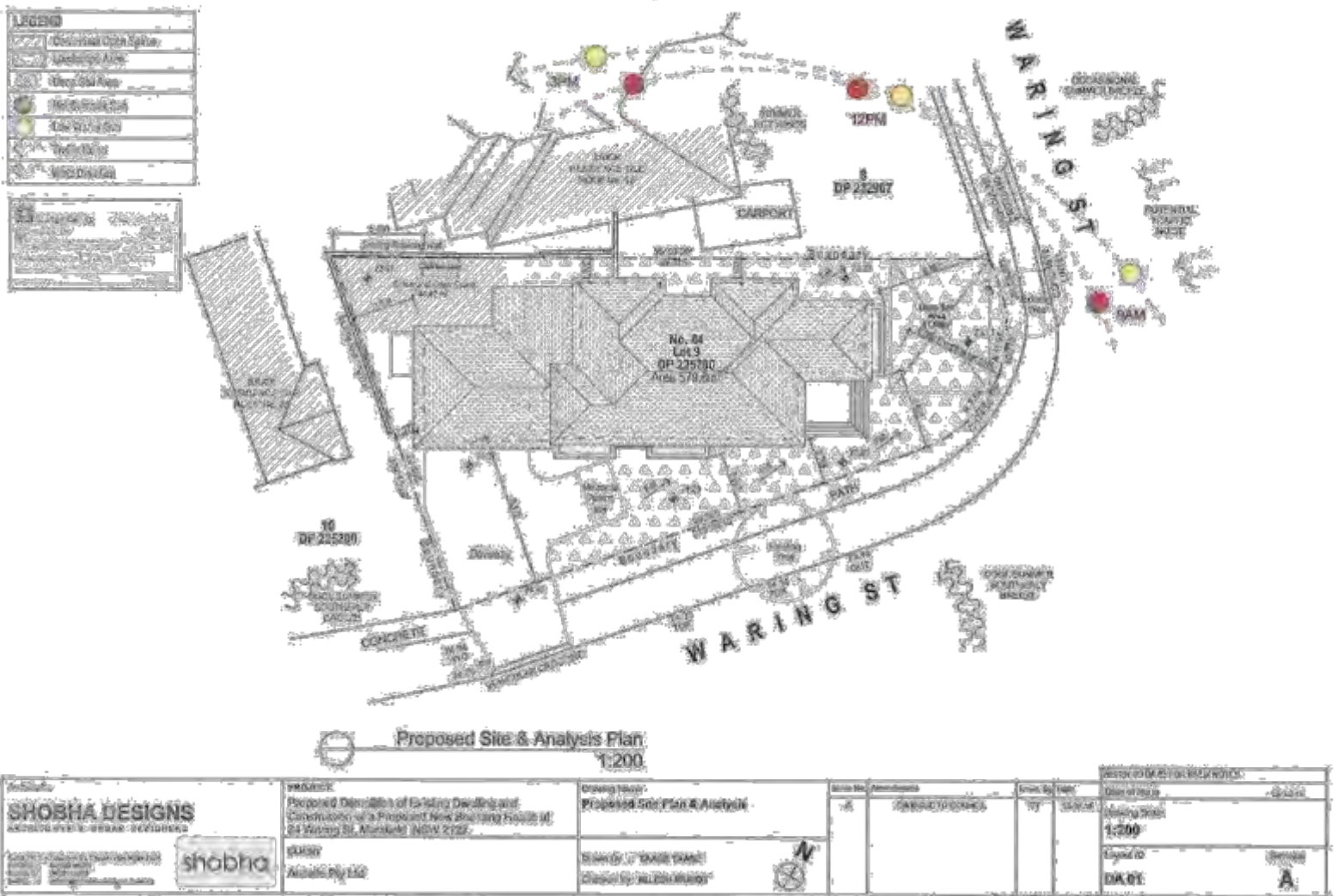
ARH SEPP 2009 Division 3	Proposed	Compliance
	<p>proposal's ability to exist in harmony with surrounding development.</p> <p>In this regard, given the proposal's high level of compliance with the relevant planning controls, and minimal environmental impact, it is considered capable of existing in harmony with the local area.</p>	

Summary of Issues/Non compliances:

Nil – no identified non-compliances with the provisions of the ARHSEPP relating to boarding houses.

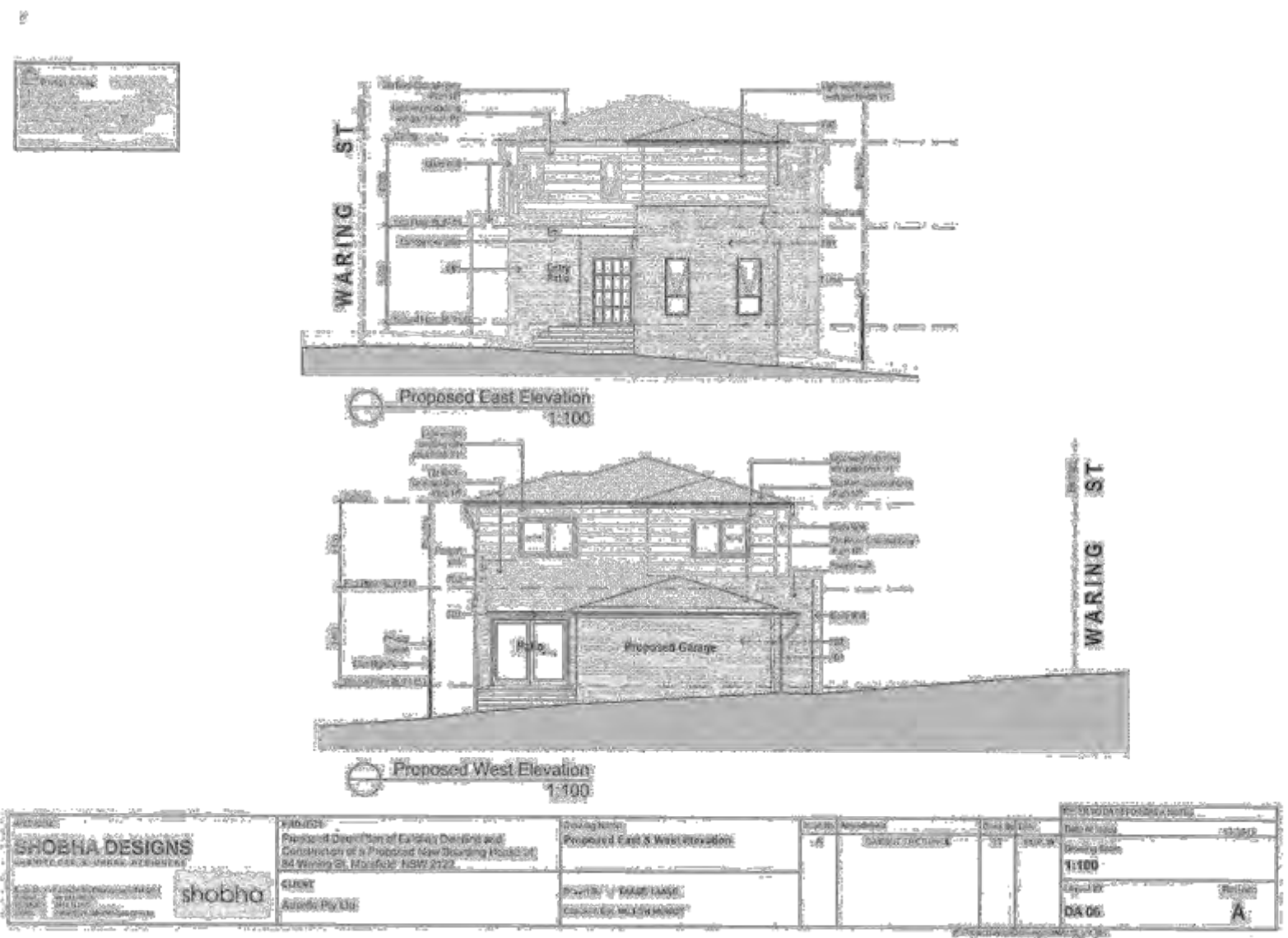
ITEM 2 (continued)

ATTACHMENT 4



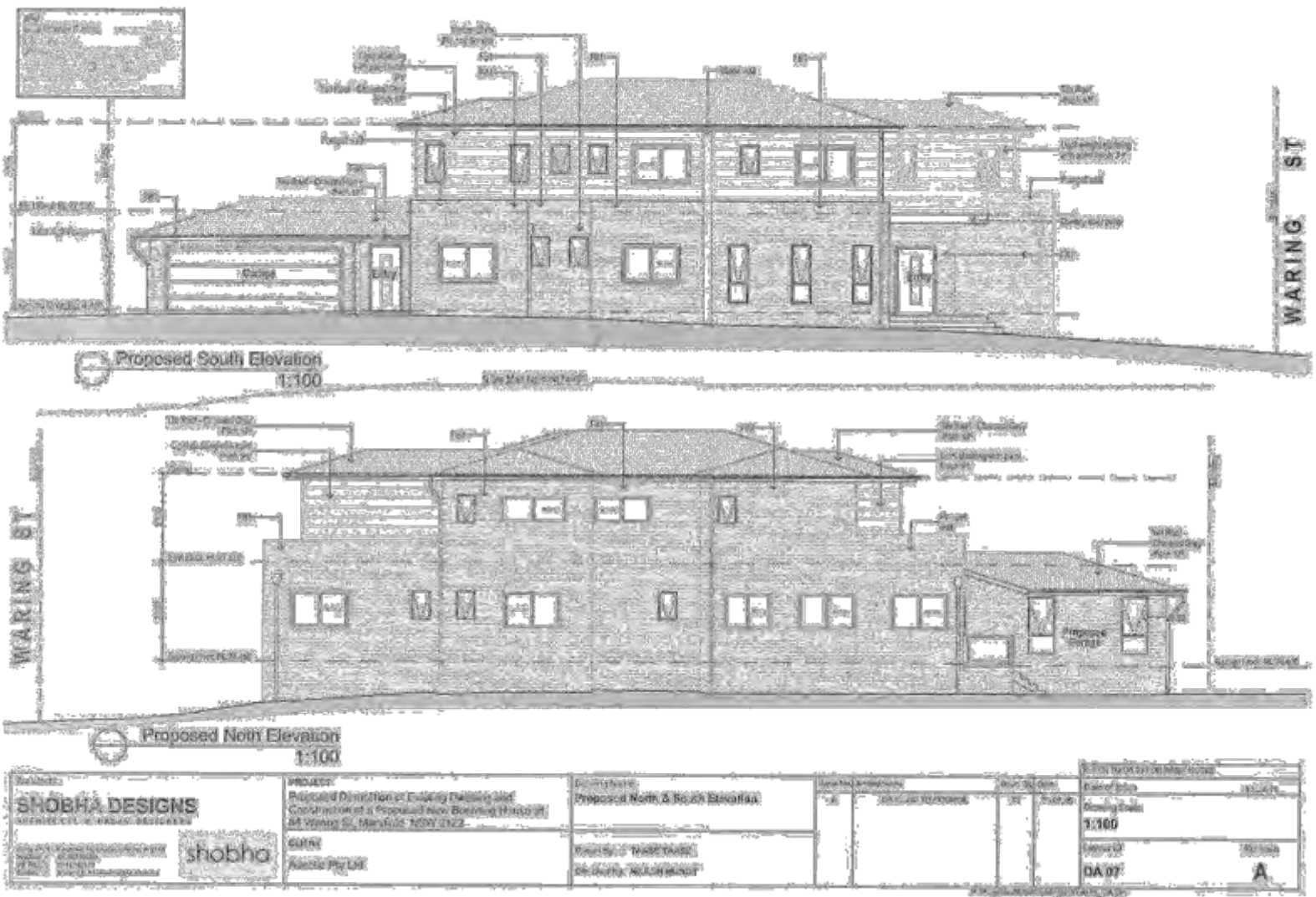
ITEM 2 (continued)

ATTACHMENT 4



ITEM 2 (continued)

ATTACHMENT 4

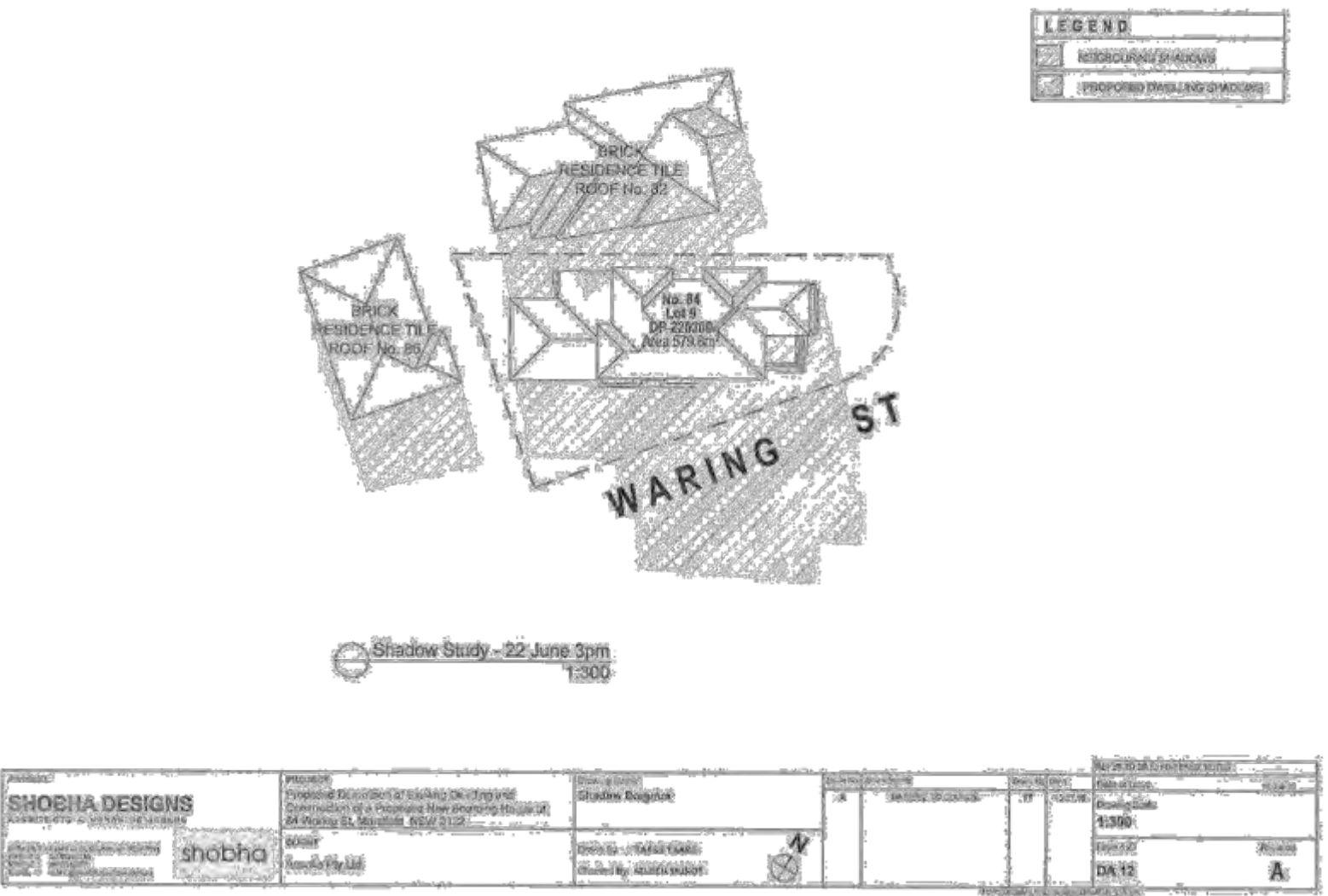


ATTACHMENT 4



ITEM 2 (continued)

ATTACHMENT 4



3 45-61 WATERLOO ROAD PLANNING PROPOSAL TO REZONE PART OF THE SITE TO PUBLIC RECREATION

Report prepared by: Senior Coordinator - Strategic Planning
File No.: GRP/09/6/10 - BP17/140

REPORT SUMMARY

This report summarises the outcomes of community consultation for the planning proposal at 45-61 Waterloo Road, North Ryde.

The planning proposal includes amendments to the statutory controls within Ryde Local Environmental Plan 2014 (RLEP) as they apply to 45-61 Waterloo Road, Macquarie Park (known as “the site”) so as to achieve a future public park and transfer the permissible floor space from the proposed park to the remainder of the site.

Council considered a report on the planning proposal at its meeting on 10 November 2015 and resolved to proceed to Gateway subject to:

- i. Removal of the proposal to amend the Macquarie Park Corridor Parking Restrictions Map; and*
- ii. The provision by the proponent of a satisfactory Stage 1 Site Assessment Contamination Report; and*
- iii. The minimum width of the proposed park fronting Waterloo Road being 63m in accordance with the funding agreement between the Council and the NSW Minister for Planning (or as near as possible in order to cater for functions including informal sport, active and passive recreation, trade expos and events).*

The previous report is included in **ATTACHMENT 1**.

A Site Investigation Report was provided to address Council’s resolution and was sufficient to proceed to exhibition. However, to satisfy State Environmental Planning Policy (SEPP) 55 a revised site investigation report was required to address additional issues.

The site is required to be remediated due to contamination consequential to fuel tanks that were removed in 2006. The information provided is sufficient for Council to be satisfied that the land may be remediated for the proposed purpose. However, the validation of successful remediation and a site audit statement will be required by Council prior to actual use as a park. This matter will need to be addressed separately through any land sale and embellishment process.

ITEM 3 (continued)

In addition to item (iii) of the Council resolution, the Council also resolved to delegate to the General Manager to negotiate any minor adjustments to the position or dimensions of the Park that will only serve to improve the overall desired functional requirements of the Park. This negotiation occurred and the Council then obtained a “gateway” determination from the NSW Department of Planning and Environment (DPE), to allow public exhibition and consultation to proceed. Public exhibition and consultation occurred from 4 May to 1 June 2016. The report on the exhibition has been awaiting receipt of a revised Site Investigation Report. The report received on 3 February 2017 from Government Property NSW and meets the requirements of State Environmental Policy 55 for the planning authority to be satisfied that land may be remediated if necessary for the proposed land use.

A copy of the amended planning proposal as submitted in response to Council's requirements and placed on exhibition is included in **ATTACHMENT 2**.

The planning proposal seeks to:

- Rezone a 7,000m² portion of the site fronting Waterloo Road from B3 Commercial Core to RE1 Public Recreation;
- Amend the maximum floor space ratio (FSR) development standard in order to:
 - remove the FSR limit applying to the new area zoned RE1 Public Recreation; and
 - evenly distribute the park site area and existing split FSRs of 1:1 and 2:1 at a unified rate of 2.26:1 across the land that will continue to be zoned B3 Commercial Core;
- Amend the maximum height of building development standard to:
 - remove the height limit applying to the new area zoned RE1 Public Recreation; and
 - amend the height controls in the south-west corner of the site to reflect those adjacent and the proposed location of the park;
- Include the 7,000m² public open space area on the relevant Land Acquisition Reservation Map as "Local Open Space";
- Amend the Macquarie Park Corridor Precinct Incentive Floor Space Ratio Map in order to:
 - remove the FSR limit applying to the new area zoned RE1 Public Recreation; and

ITEM 3 (continued)

- distribute the existing FSR at a rate of 3.66:1 across the land zoned B3 Commercial Core;
- Amend the Macquarie Park Corridor Precinct Incentive Height of Buildings Map in order to remove the height limit applying to the new area zoned RE1 Public Recreation.

The following is permitted with consent in the RE1 zone: Business identification signs, Community facilities, Environmental facilities, Kiosks, Recreation areas, Recreation facilities (indoor), Recreation facilities (outdoor), Restaurants or cafes, Roads.

The public exhibition and consultation included notification to approximately 1200 recipients. As a result two (2) submissions were received from the community. One submission commented that the proposed park is too small and that Macquarie Park requires more open space. The second submission did not respond specifically to the amendments to facilitate the proposed public park but commented that there are too many cars in Macquarie Park. A third submission was received after the exhibition closed. This submission supported the planning proposal and argued for pedestrian and cycle links from Lane Cove Road to the shopping centre and from Talavera Road through the Dexus site and the proposed park to Waterloo Road.

RECOMMENDATION:

- (a) That the Council endorse that Ryde LEP 2014, as it relates to 45-61 Waterloo Road Macquarie Park, be amended as follows:
 - i. Rezone a 7,000m² portion of the site fronting Waterloo Road from B3 Commercial Core to RE1 Public Recreation;
 - ii. Amend the maximum floor space ratio (FSR) development standard in order to:
 - remove the FSR limit applying to the new area zoned RE1 Public Recreation; and
 - evenly distribute the park site area and existing split FSRs of 1:1 and 2:1 at a unified rate of 2.26:1 across the land zoned B3 Commercial Core;
 - iii. Amend the maximum height of building development standard to:
 - remove the height limit applying to the new area zoned RE1 Public Recreation; and

ITEM 3 (continued)

- amend the height controls in the south-west corner of the site to reflect those adjacent and the proposed location of the park;
- iv. Include the 7,000m² public open space area on the relevant Land Acquisition Reservation Map as "Local Open Space";
- v. Amend the Macquarie Park Corridor Precinct Incentive Floor Space Ratio Map in order to:
 - remove the FSR limit applying to the new area zoned RE1 Public Recreation; and
 - distribute the existing FSR at a rate of 3.66:1 across the land zoned B3 Commercial Core;
 - Amend the Macquarie Park Corridor Precinct Incentive Height of Buildings Map in order to remove the height limit applying to the new area zoned RE1 Public Recreation.
- (b) That Council adopt and exercise the delegation issued by the Department of Planning and Environment to make the amendments described in the attached report to Ryde Local Environmental Plan 2014.
- (c) That the Council forward Ryde Local Environmental Plan 2014 as amended above, to the Department of Planning and Environment with a request that the Plan be notified on the NSW Legislation website.

ATTACHMENTS

- 1 Planning Proposal - Provision of Park – 45 to 61 Waterloo Road, Macquarie Park
- 2 45 to 61 Waterloo Road, Macquarie Park. Attached planning proposal and associated supporting documentation - NSW State Property Authority

Report Prepared By:

Lexie Macdonald
Senior Coordinator - Strategic Planning

Report Approved By:

Dyalan Govender
Acting Manager - City Planning

Liz Coad
Acting Director - City Planning and Development

ITEM 3 (continued)

Discussion

Site Description and Location

The site is 45-61 Waterloo Road, Macquarie Park and is located on the northern side of Waterloo Road to west the of its intersection with Lane Cove Road. The legal description is Lot 102 in DP1130630.

The site is generally rectangular in shape, with a site width of approximately 221m, a site length of approximately 178m and a total area of 3.897 hectares.

An aerial photograph provided in the proponent's submission is included below as Figure 1.



Figure 1: the site

To the north of the site are a variety of commercial buildings separated by private green spaces, with heights ranging between approximately 5- 7 storeys.

To the east of the site is a 3 storey office building, as well as a warehousing building further to the north-east. The warehousing building currently has a zero lot boundary setback to the site, with no windows along the relevant wall.

ITEM 3 (continued)

A small building to the south-east of the site is used by Sydney Trains for servicing the Epping-Chatswood Railway Line. This land is owned by Sydney Trains and does not form part of this PP.

To the west of the site is a two story office/warehouse building.

Topography/Vegetation

The site generally slopes from a high point at the east towards the west. A gully runs along the western frontage and which is bisected by the property boundary between the site and adjacent 63-71 Waterloo Road. The site contains vegetation around the property boundaries, and scattered trees throughout the middle of the site. The location of the existing trees on site can be seen in Figure 1 above.

A detailed description of the site, the surrounding context and the existing planning regime is provided in the previous report to the Council Meeting of 10 November 2015, included at **ATTACHMENT 1**.

Background

Ryde Development Control Plan Part 4.5 Macquarie Park identifies a proposed park on State Government owned land at 45-61 Waterloo Road Macquarie Park. This new park will address an open space deficiency for the precinct identified by the Ryde Integrated Open Space Plan.

On 22 September 2015 Council considered correspondence from the DPE and Government Property NSW (GPNSW) regarding the next steps for Council to secure the delivery of a new public park at 45-61 Waterloo Road, Macquarie Park.

Following Council's resolution of 9 June 2015 to seek guarantees from the NSW Government for the provision of a 7000sqm park and related \$6 million funding, the General Manager convened a meeting with senior representatives from DPE and GPNSW on 14 August 2015.

In order to address Council's concerns regarding the lack of certainty that the park and associated funding would be provided, DPE and GPNSW agreed to:

- Submit a planning proposal to rezone the land 'RE1 Public Recreation' and transfer the floor space ratio FSR from the park area to the remainder of the site;
- Submit a subdivision application to Council to create a separate parcel for the park;
- Council to purchase the park from GPNSW at an amount to be agreed and undertake park embellishments;
- DPE will update the funding agreement to provide Council with flexibility in the \$6 million funding split between acquisition and embellishment costs.

ITEM 3 (continued)

The previous report to the Council Meeting of 10 November 2015 (**ATTACHMENT 1**) addressed the planning proposal as submitted. The planning proposal as publicly exhibited addressed the matters contained in that report as well as changes required as a result of the Council resolution of 10 November 2015 as follows:

- (a) *That the Council support the Planning Proposal for 45-61 Waterloo Road, Macquarie Park proceeding to a Gateway determination, subject to the matters identified below in item (b), on the grounds that:*
 - i. *The Planning Proposal will facilitate the delivery of a public park on the subject site, an identified public need in the location and as agreed in the funding agreement established between the Council and the NSW Government.*
 - ii. *The proposal is consistent with strategic direction of A Plan for Growing Sydney, the Ryde Local Environmental Plan 2014 and Ryde Development Control Plan Part 4.5 Macquarie Park Corridor.*
- (b) *That the Council support the Planning Proposal to proceed to Gateway determination subject to:*
 - i. *Removal of the proposal to amend the Macquarie Park Corridor Parking Restrictions Map; and*
 - ii. *The provision by the proponent of a satisfactory Stage 1 Site Assessment Contamination Report; and*
 - iii. *The minimum width of the proposed park fronting Waterloo Road being 63m in accordance with the funding agreement between the Council and the NSW Minister for Planning (or as near as possible in order to cater for functions including informal sport, active and passive recreation, trade expos and events).*
- (c) *That Council delegate to the General Manager to finalise, prior to the submission of the Planning Proposal for a Gateway Determination:*
 - i. *The milestone date at which provision of the site contamination report will be accepted by Council.*
 - ii. *Any minor adjustments to the position or dimensions of the Park that will only serve to improve the overall desired functional requirements of the Park.*
- (d) *That Council waive fees in the amount of \$58,000 applicable to the rezoning at the request of the proponent and in recognition of the anticipated community benefit.*
- (e) *The proponent is advised in writing of the Council's decision.*

ITEM 3 (continued)

- (f) *That the Planning Proposal is publicly exhibited as soon as practicable upon issue of the Gateway Determination.*

The following outlines the “gateway plan-making process”, a summary of required content of a planning proposal and the assessment of the subject planning proposal.

Gateway Plan-Making Process

1. **Planning proposal** – this is an explanation of the effect of and justification for the proposed plan to change the planning provisions of a site or area which is prepared by a proponent or the relevant planning authority such as Council.

The relevant planning authority decides whether or not to proceed at this stage.
2. **Gateway** – determination by the Minister for Planning or delegate if the planning proposal should proceed, and under what conditions it will proceed. This step is made prior to, and informs the community consultation process.
3. **Community Consultation** – the proposal is publicly exhibited (generally low impact proposals for 14 days, others for 28 days).
4. **Assessment** – the relevant planning authority (in this case the Council) considers public submissions.

The relevant planning authority may decide to vary the proposal or not to proceed. Where proposals are to proceed, it is Parliamentary Counsel which prepares a draft local environmental plan – the legal instrument.

The planning proposal is currently at this point in the process.

5. **Decision** – the making of the plan by the Minister (or delegate).

State Environmental Planning Policy 55

The Council resolution of 10 November 2015 included, in part, the provision by the proponent of a satisfactory Stage 1 Site Assessment Contamination Report. The Site Investigation Report (contamination report) was provided by Government Property NSW and exhibited together with the Planning Proposal.

ITEM 3 (continued)

A review by the Council's Environmental Health section concluded that the contamination report was prepared on the basis of a future commercial use; not for use as a park (and the requirements are different). The review determined that the proponent needs to revise the contamination report and also provide a Remediation Action Plan for the proposed park use prior to the rezoning being completed in order to comply with State Environmental Planning Policy 55 clause 6(1) which requires contamination and remediation to be considered in any zoning or rezoning proposal as follows:

- 1) *In preparing an environmental planning instrument, a planning authority is not to include in a particular zone (within the meaning of the instrument) any land specified in subclause (4) if the inclusion of the land in that zone would permit a change of use of the land, unless:*
 - I. *the planning authority has considered whether the land is contaminated, and*
 - II. *if the land is contaminated, the planning authority is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for all the purposes for which land in the zone concerned is permitted to be used, and*
 - III. *if the land requires remediation to be made suitable for any purpose for which land in that zone is permitted to be used, the planning authority is satisfied that the land will be so remediated before the land is used for that purpose.*

In summary, if the land is contaminated, the planning authority must be satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for all the purposes for which land in the zone concerned is permitted to be used.

Land Contamination

The site history review indicates that the site has been owned by various people and organisations since 1918:

- 1918 - 1945: The site was owned by various people, including farmers.
- 1945 - 1963: The site was owned by a builder.
- 1963 - 1988: The site was owned by the Metropolitan Water, Sewerage & Drainage Board, which used the site as a construction depot.
- 1988 - 2010: The site was used Sydney Water Corporation, the State Rail Authority of NSW and Transport Infrastructure NSW.
- 2010 - Present: The site has been owned by the State Property Authority.

ITEM 3 (continued)

WorkCover records indicate that there were 12 underground tanks on the site used to store fuel for vehicles that were decommissioned in 2006. Based on the site history, the report indicates that the underground fuel storage tanks are the source of potential contaminants. The report concludes that remediation is required to remove contaminated soils and that a remediation action plan should be prepared prior to the remediation taking place.

The report also concludes that additional groundwater monitoring and test boreholes should be carried out to meet EPA guidelines.

The Council wrote to the proponent requesting a revised Site Investigation Report for the condition of the land to be compared to the criteria for recreational use, not commercial/industrial use and address the following:

- (a) Additional sampling to comply with the EPA's Sampling Design Guidelines.*
- (b) Additional groundwater monitoring to determine whether the groundwater is impacted by hydrocarbons.*
- (c) Clarification whether the underground storage tanks were removed during decommissioning process.*
- (d) Comparison of the results with the criteria for recreational use.*
- (e) Re-consideration of the potential for elevated metal concentrations to impact on shallow-rooted plants.*
- (f) A clear statement that the land is suitable for use as a park or can be made suitable for that use.*
- (g) If remediation work is required, a summary of the remediation options available.*
- (h) If remediation work is required, whether the work is considered to be Category 1 or Category 2 remediation work.*
- (i) If remediation work is required, a detailed remediation action plan should also be prepared for the site so that a cost estimate can be obtained for the work.*

A revised site investigation report and a remediation action plan were received on 3 February 2017. Additional boreholes were drilled on the site to comply with the EPA's Sampling Design Guidelines and soil and groundwater samples collected and analysed for the contaminants identified in the original site investigation report. The revised report concludes that the site will require remediation and successful validation to published criteria suitable for the end use (public open space).

ITEM 3 (continued)

A review of the revised Remedial Action Plan revealed the following:

- (a) The underground fuel storage tanks that were removed in 2006 are considered to be the source of the contamination on the site.
- (b) The remediation option proposed is to remove the contaminated material from the site and transport it to a waste facility licensed to receive hydrocarbon impacted soils. Clean fill material, classified as virgin excavated natural material (VENM) will then be brought onto the site to backfill the excavations.
- (c) The exact extent of remediation excavation will be defined during the remedial works. However, based on the data collected, it is expected to extend to at least 2 m BGL to the weathered shale layer in the area where the fuel tanks had been located.
- (d) An unexpected findings protocol is also proposed to deal with any unexpected contamination issues found on the site.

The above reports indicate that the site can be remediated to the extent necessary for the proposed use.

While it is appropriate to proceed with the amendments to the LEP to rezone the land, it is recommended that prior to use as open space the site remediation must be validated as being successful and a site audit statement issued to confirm that the site is suitable for the proposed use (open space). This matter will need to be addressed separately through the land sale and embellishment process.

Consultation

The public exhibition and community consultation was carried out in accordance with legislative requirements and the gateway determination. The gateway determination required a minimum public exhibition of 14 days, with no consultation with any public authorities required. The consultation process included:

- Exhibition period 4 May to 1 June 2016.
- Advertisement in the Northern District Times with circulation across the Ryde local government area.
- Letters to 19 adjoining and surrounding land owners.
- Approximately 1200 emails within Macquarie Park via *Macquarie Park Connected + Smart*.
- Provision of exhibition material:
 - On the Council's website
 - At the Ryde Planning and Business Centre
 - At North Ryde Library

ITEM 3 (continued)

Two submissions were received by the closing date. One submission commented that the proposed park is too small and that additional open space is needed in Macquarie Park. The second submission did not comment on amendments to RLEP or on the proposed public park but instead commented that there are too many cars already in Macquarie Park.

A third submission was received after the exhibition closed. This submission supported the planning proposal and argued for pedestrian and cycle links from Lane Cove Road to the shopping centre and from Talavera Road through the Dexus site and the proposed park to Waterloo Road.

In response to the submissions the following points are made:

- The planning for the proposed park has arisen from the Council's identification of an open space deficiency for the precinct as detailed in the Ryde Integrated Open Space Plan. The strategic analysis and planning associated with identification of the subject site for a future open space is detailed in the previous report considered by Council, included in **ATTACHMENT 1**. While future circumstances may change, the proposal is meeting a currently identified need and an identified strategic outcome.
- The proposal, of itself, does not amend any anticipated development outcomes for the subject site. The statutory controls that currently allow urban redevelopment of that part of the site which is to be the park are being removed and are to be redistributed to the residue of "the site". There is no net change to the anticipated floor space outcome and as a result there is no additional car parking or traffic generation that will result from the planning proposal.
- Council's Development Control Plan requires pedestrian through site links and pedestrian paths with all new roads. As a result the links requested are already catered for in the planning controls.

Gateway Determination

The gateway determination of the Department of Planning and Environment was issued on 23 March 2016 and included the following requirements:

- be made publicly available for a minimum of 14 days; and
- The timeframe for completing the LEP is to be 9 months (i.e. Complete by 1 January 2017).

ITEM 3 (continued)

- Prior to finalisation, the planning proposal is to be amended to demonstrate consistency with any available findings of the Macquarie Park strategic planning review work being undertaken by the Department in consultation with Ryde Council.

On 21 November 2016 Council received an extension to complete the LEP amendment until 30 June 2017.

The Macquarie Park Strategic Investigation is delayed and the outcomes not yet available. The work-in-progress has acknowledged the open space shortfall in Macquarie Park and formulated ideas around new parkland as envisioned in this Planning Proposal. It is therefore considered appropriate to finalise this planning proposal.

Government Property NSW has lodged a Development Application with Council to subdivide the land consistent with this planning proposal, the park dimensions and location. Under the DA, two lots will be created paving the way for the transfer of the parkland (Lot 1) to Council. Lot 2 has been placed for sale by tender. It is anticipated this subdivision application will be determined in March 2017.

Financial Implications

The planning proposal is required to ensure Council's planning controls allow the delivery of the park, which will be obtained by Council through an existing Funding Agreement with the Minister for Planning under which the State Government is providing \$6 million for the purchase and embellishment of the park.

Policy Implications

The recommendation of this report is that the planning proposal should proceed as it is consistent with the policy framework for the site, as discussed in this report.

Critical Dates and Timeframes

The gateway determination requires completion of the plan making process for this amended LEP by the DPE to be 9 months from the week following the gateway determination date, being 23 March 2016. This was subsequently extended to 30 June 2017. Council has the delegation to make the plan.

ITEM 3 (continued)

Options

The Council's options are:

Option 1: Support the exhibited planning proposal.

This is the recommended option as the amendments to RLEP will facilitate the delivery of the public park, in response to public open space being identified as a desired strategic outcome on this site in Macquarie Park.

There have been no matters arising from the public exhibition and consultation that warrant changes to the planning proposal or the desired strategic outcome.

Option 2: Not proceed with the planning proposal.

This option is not supported. If there is no amendment to the RLEP the delivery of the public park may not occur.

Conclusion

Ryde DCP Part 4.5 Macquarie Park Corridor identifies a proposed park on State Government owned land at 45-61 Waterloo Road Macquarie Park. This new park will address an open space deficiency for the precinct identified by the Ryde Integrated Open Space Plan.

The Council has previously considered correspondence from the DPE and GPNSW regarding the next steps for Council to secure the delivery of the new public park.

GPNSW have lodged a planning proposal, as agreed with Council, in order to rezone the relevant land 'RE1 Public Recreation' and transfer the FSR from the park area to the remainder of the site.

The planning proposal is consistent with the strategic planning framework of both the City of Ryde, through its local planning regime, and the State Government, through *A Plan for Growing Sydney*. The planning proposal is also consistent with the provisions of the DPE *A Guide to Preparing Planning Proposals*.

The planning proposal, in establishing the statutory framework for the delivery of the new park, will provide a significant public benefit and will also retain the opportunity for commercial development and employment on the remainder of the site.

For all of the above reasons the planning proposal, as exhibited, is recommended to proceed.

ITEM 3 (continued)

It is noted that currently, the land remains in the ownership of the NSW State Government. A Development Application for the subdivision of the land has been lodged and is currently under assessment. Government Properties NSW have undertaken to provide a draft valuation report with a view to finalising the terms of transfer. \$6 million of funding has been provided to Council under the Precinct Support Scheme for the purchase and embellishment of the park.

ITEM 3 (continued)

ATTACHMENT 1

**PLANNING PROPOSAL - PROVISION OF PARK - 45-61
WATERLOO ROAD MACQUARIE PARK**

Report prepared by: SJB Planning; Supervisor - Strategic Planning
File No.: GRP/09/6/8 - BP15/1628

REPORT SUMMARY

In June 2014 Council and the Department of Planning and Environment entered into a funding agreement for the delivery of a 7000m² park at 45-61 Waterloo Rd, Macquarie Park. Under the agreement The NSW Government is providing \$6 million through the Precinct Support Scheme in connection with the North Ryde Station Urban Activation Precinct.

On 9 June 2015 Council resolved to seek guarantees from the NSW Government for the provision of the 7000 m² park and the related \$6 million funding, and in accordance with this resolution the General Manager convened a meeting with senior representatives from the Department and Government Property NSW on 14 August 2015.

It was agreed at the meeting on 14 August 2015 that one of the necessary steps to secure the delivery of the park is the submission of a Planning Proposal (PP) to identify the park, rezone the relevant land "RE1 Public Recreation" and to transfer the Floor Space Ration (FSR) from the park area to the remainder of the site. Government Property NSW (GPNSW) agreed to undertake the proposal and has lodged a Planning Proposal with Council for this purpose (**Attachment 2**). This report seeks Council's recommendation with respect to the proposal.

The PP was accompanied by a request that the Council waive the applicable fees associated with the amendments to the LEP. This request is supported because the PP will provide significant community benefit as outlined within this report. It also noted that the PP is required to ensure Council's planning controls allow the delivery of the park, which will be provided to Council as part of an existing Funding Agreement through which the State Government is providing \$6 million for the purchase and embellishment of the park.

Specifically, the PP submitted by GPNSW (**Attachment 1**), seeks to:

- rezone a 7,000m² portion in centre of the site fronting Waterloo Road from B3 Commercial Core to RE1 Public Recreation in order to facilitate the creation of the new public park;
- amend the maximum floor space ratio (FSR) development standard in order to:
 - remove the FSR capacity applying to the new area zoned RE1; and

ITEM 3 (continued)

ATTACHMENT 1

- evenly distribute the FSR from the park site and existing split FSRs of 1:1 and 2:1 at a unified rate of 2.26:1 across the land that will continue to be zoned B3 Commercial Core;
- amend the maximum height of building development standard to:
 - remove the height limit applying to the new area zoned RE1; and
 - amend the height controls in the south-west corner of the site to reflect those adjacent and the proposed location of the park;
- include the 7,000m² public open space area on the relevant Land Acquisition Reservation Map as “Local Open Space”;
- amend the Macquarie Park Corridor Parking Restrictions Map in order to:
 - remove the parking restrictions limit applying to the new area zoned RE1; and
 - evenly distribute the existing split maximum parking rates of 1 space 46m² gross floor area (GFA) and 1 space / 80m² GFA at a unified rate of 1 space / 75m² GFA across the land zoned B3 Commercial Core;
- amend the Macquarie Park Corridor Precinct Incentive FSR Map in order to:
 - remove the FSR applying to the new area zoned RE1; and
 - distribute the existing FSR applying to the whole of the site at a rate of 3.66:1 across the land remaining zoned B3 Commercial Core;
- amend the Macquarie Park Corridor Precinct Incentive Height of Buildings Map in order to remove the height limit applying to the new area zoned RE1.

The site is currently zoned B3 Commercial Core. The proposed changes to the FSR development standard, to be a flat rate of 2.26:1 across the land to remain zoned B3, equates to the same GFA potential that is achievable under the current controls for the site. As a result there will be no greater density achieved on the site than is currently available. The proposed changes to the building height controls reflect the current LEP building heights within the Macquarie Park Corridor.

The proposal provides for a 7000m² park with a minimum width of 59.18m. Council's current Development Control Plan (DCP) indicates a minimum of 65m to ensure the multiple requirements of the site, including informal active recreation, passive recreation, and events, can all be accommodated. It is noted that the lighting and parking that will service the park will be provided in the adjacent road reserves and as such, the funding agreement provided for a minimum park width of 63m. It is recommended that this be addressed by resolving to proceed to Gateway subject to the park dimensions being aligned with the funding agreement.

ITEM 3 (continued)

ATTACHMENT 1

The proposal also seeks amendments to the Macquarie Park Corridor Parking Restrictions Map to remove the limit applying to the park and to evenly distribute the maximum rates across the land to be zoned B3 Commercial Core. As Council is preparing a separate Planning Proposal that will amend the Macquarie Park Corridor Parking Restrictions Map it is recommended that this aspect is removed from the current proposal.

A contamination report is also required prior to the planning amendments being completed. This report will identify if any contamination is present on the site and if so, propose required remediation action.

The review of the PP concludes that as the concerns noted above (re width, parking, contamination) are proposed to be dealt with in the recommendation, the PP can be supported subject to conditions as:

1. The PP achieves consistency with NSW strategic planning framework e.g. *A Plan for Growing Sydney* and North Subregional Plan.
2. The PP achieves consistency with the City of Ryde strategic planning framework e.g. Macquarie Park Corridor Review, RLEP and Ryde DCP - Part 4.5 Macquarie Park Corridor.
3. The proposed controls are appropriate in the locality because:
 - a. There is a need for additional public open space in the Macquarie Park Corridor as identified in the Ryde Integrated Open Space Plan.
 - b. Whilst noting the need for additional public open space, there is also a need to ensure that the provision of that open space does not result in any net loss of development potential and associated future employment provision on the site, under both the existing and incentive floor space controls.

RECOMMENDATION:

- (a) That the Council support the Planning Proposal for 45-61 Waterloo Road, Macquarie Park proceeding to a Gateway determination, subject to the matters identified below in item (b), on the grounds that:
 - i. The Planning Proposal will facilitate the delivery of a public park on the subject site, an identified public need in the location and as agreed in the funding agreement established between the Council and the NSW Government.
 - ii. The proposal is consistent with strategic direction of *A Plan for Growing Sydney*, the Ryde Local Environmental Plan 2014 and Ryde Development Control Plan Part 4.5 Macquarie Park Corridor.

ITEM 3 (continued)

ATTACHMENT 1

- (b) That the Council support the Planning Proposal to proceed to Gateway determination subject to:
 - i. Removal of the proposal to amend the Macquarie Park Corridor Parking Restrictions Map; and
 - ii. The provision by the proponent of a satisfactory Stage 1 Site Assessment Contamination Report; and
 - iii. The minimum width of the proposed park fronting Waterloo Road being 63m in accordance with the funding agreement between the Council and the NSW Minister for Planning (or as near as possible in order to cater for functions including informal sport, active and passive recreation, trade expos and events).
- (c) That Council delegate to the General Manager to finalise, prior to the submission of the Planning Proposal for a Gateway Determination:
 - i. The milestone date at which provision of the site contamination report will be accepted by Council.
 - ii. Any minor adjustments to the position or dimensions of the Park that will only serve to improve the overall desired functional requirements of the Park.
- (d) That Council waive fees in the amount of \$58,000 applicable to the rezoning at the request of the proponent and in recognition of the anticipated community benefit.
- (e) The proponent is advised in writing of the Council's decision.
- (f) That the Planning Proposal is publicly exhibited as soon as practicable upon issue of the Gateway Determination.

ATTACHMENTS

- 1** 45-61 Waterloo Rd Planning Proposal submitted by Government Property NSW 14 Oct 2015
- 2** 45-61 Waterloo Rd Macquarie Park Planning Proposal_Cover Letter submitted 14 Oct 2015
- 3** Correspondence - Proposed Park 45-61 WATERLOO ROAD, MACQUARIE PARK
- 4** 45-61 Waterloo Rd Macquarie Park - Concept Design Plan

ITEM 3 (continued)

ATTACHMENT 1

Report Prepared By:

**Stuart McDonald Director Planning, Sydney
SJB Planning**

**Lexie Macdonald
Supervisor - Strategic Planning**

Report Approved By:

**Dyalan Govender
Acting Manager - Strategic City**

**Sam Cappelli
Manager - Environment, Health and Building**

ITEM 3 (continued)

ATTACHMENT 1

Background

Ryde Development Control Plan Part 4.5 Macquarie Park Corridor identifies a proposed park on State Government owned land at 45-61 Waterloo Road Macquarie Park. This new park will address an open space deficiency for the precinct identified by the Ryde Integrated Open Space Plan.

In June 2014 Council and the Department of Planning and Environment entered into a funding agreement for the delivery of a 7000 m² park at 45-61 Waterloo Rd, Macquarie Park. Under the agreement The NSW Government is providing \$6 million under the Precinct Support Scheme in connection with the North Ryde Station Urban Activation Precinct.

On 9 June 2015 Council resolved to seek guarantees from the NSW government for the provision of a 7000m² park and related \$6 million funding, and in accordance with this resolution the General Manager convened a meeting with senior representatives from the Department and Government Property NSW on 14 August 2015.

On 22 September 2015 Council considered correspondence from the Department of Planning and Environment (DoPE) (**Attachment 3**) and Government Property NSW regarding the next steps for Council to secure the delivery of a new public park at 45-61 Waterloo Road, Macquarie Park.

In order to address Council's concerns regarding the lack of certainty that the park and associated funding would be provided, the Department (DoPE) and Government Property NSW (GPNSW) agreed to the following approach:

- GPNSW to submit a Planning Proposal to rezone the land 'RE1 Public Recreation' and transfer the FSR from the park area to the remainder of the site;
- Following gazettal of the rezoning, GPNSW to submit a subdivision application to Council to create a separate parcel for the park;
- Council to purchase the park from GPNSW at an agreed value and embellish in accordance with revised milestones; and
- DoPE will update the funding agreement to provide Council with flexibility in the \$6 million funding split between acquisition and embellishment costs.

This report addresses the PP submitted by GPNSW as part of the approach outlined in the correspondence of 22 September 2015.

ITEM 3 (continued)

ATTACHMENT 1

Discussion

The following outlines the “gateway plan-making process”, a summary of required content of a PP and the assessment of the subject PP.

Gateway Plan Making Process

1. **Planning Proposal (PP)** – this is an explanation of the effect of and justification for the proposed plan to change the planning provisions of a site or area which is prepared by a proponent or the relevant planning authority such as Council.

The relevant planning authority (City of Ryde Council) decides whether or not to proceed at this stage.

2. **Gateway** – determination by the Minister for Planning or delegate if the planning proposal should proceed, and under what conditions it will proceed. This step is made prior to, and informs the community consultation process.

3. **Community Consultation** – the proposal is publicly exhibited (generally low impact proposals for 14 days, others for 28 days).

4. **Assessment** – the relevant planning authority considers public submissions.

The relevant planning authority may decide to vary the proposal or not to proceed. Where proposals are to proceed, it is Parliamentary Counsel which prepares a draft local environmental plan – the legal instrument.

5. **Decision** – the making of the plan by the Minister (or delegate).

According to section 55 of the Environmental Planning and Assessment Act 1979, a PP must include:

- A **statement** of objectives and intended outcomes of the proposal
- An **explanation** of the provisions of the proposal;
- A **justification** of the objectives, outcomes and provisions including the process for implementation;
- **Maps where relevant**, containing the appropriate detail are to be submitted, including land use zones; and
- Details of the **community consultation** that will be undertaken.

The report relates to step 1 of the Plan making process. The key areas addressed in this report in the assessment of the subject PP are:

1. Site Description and Context
2. Current Planning Controls

ITEM 3 (continued)

ATTACHMENT 1

3. Strategic Context
4. Proposed amendment to RLEP
5. Appraisal of the PP

1. SITE DESCRIPTION AND CONTEXT

Site Description and Location

The site is 45-61 Waterloo Road, Macquarie Park and is located on the western side of Waterloo Road to the north of its intersection with Lane Cove Road. The legal description is Lot 102 in DP1130630.

The site is generally rectangular in shape, with a site width of approximately 221m, a site length of approximately 178m and a total area of 3.897 hectares.

An aerial photograph provided in the proponent's submission is included below as Figure 1.



Figure 1: the site

To the north of the site are a variety of medium density commercial buildings separated by private green spaces, with heights ranging between approximately 5- 7 storeys.

ITEM 3 (continued)

ATTACHMENT 1

To the east of the site is a three storey office building, as well as a warehousing building further to the north-east. The warehousing building currently has a zero lot boundary to the site, with no windows along the relevant wall.

To the south-east of the site is also a small building used by Sydney Trains for servicing of the Epping-Chatswood Railway Line. This land is owned by Sydney Trains and does not form part of this PP.

To the west of the site is a two story office/warehouse building.

Topography/Vegetation

The site generally slopes from a high point at the east towards the west. A gully runs along the western frontage and which is bisected by the property boundary between the site and adjacent 63-71 Waterloo Road. The site contains vegetation around the property boundaries, and only contains scattered trees throughout the middle of the site. The location of the existing trees on site can be seen in Figure 1 above.

Stormwater/Flooding

Part of the subject site is located within Macquarie Park Floodplain Risk Management Study & Plan and is identified as being affected by flooding (see Figure 2).

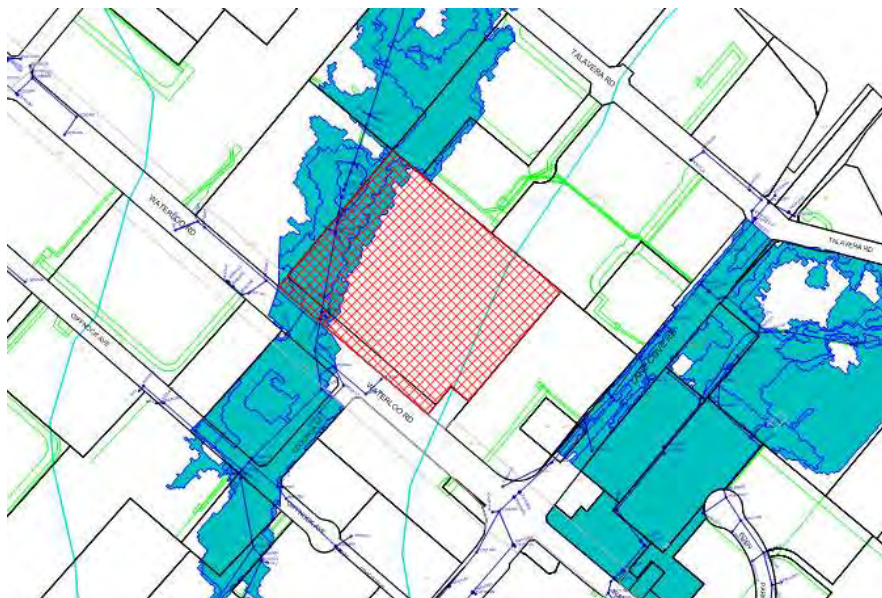


Figure 2: Flood mapping

The land proposed to be rezoned is not within the flood affected area. Notwithstanding it is noted that the proposed open space area is likely to be predominantly permeable which will be an improvement, in terms of stormwater management, when compared to the current hard surfaces.

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ATTACHMENT 1

With regard to the remainder of the site, as per the current B3 zoning, the impacts of any future proposed commercial development, particularly at the western boundary of the site identified as flood prone, will be the subject of future assessment, i.e. nothing changes from the current circumstances.

Given the existing B3 zoning and the nature of the PP no further information regarding stormwater/flooding is needed for the PP to proceed to Gateway.

BROADER CONTEXT

The site is located in the Macquarie Park Corridor, which is bounded by arterial roads, being the M2 Motorway, Epping Road and Delhi Road. On the southern side of Epping Road the Corridor is adjoining by low density residential development.

The Macquarie Park Corridor in turn forms a part of Sydney's Global Economic Corridor and is a specialised commercial precinct, with more than 800,000m² of commercially zoned land, being a mix of B3 Commercial Core, B4 Mixed Use and B7 Business Park.

2. CURRENT PLANNING CONTROLS

Zoning and Land Use

The subject site is zoned B3 Commercial Core under the RLEP. An extract of the zoning map is shown in Figure 3.

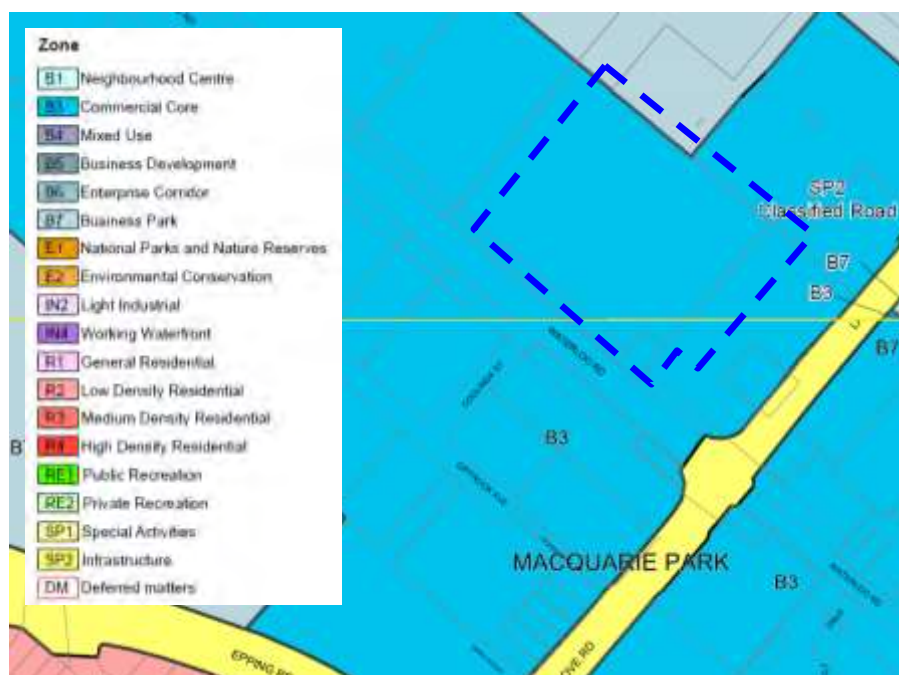


Figure 3: RLEP zoning map

ITEM 3 (continued)

ATTACHMENT 1

RLEP Existing Development Standards

Height of Buildings	Floor space ratio (FSR)
<p>The maximum height of buildings permitted on the site varies as follows:</p> <ul style="list-style-type: none"> • 9.5m height limit at the south-western corner of the site; • 37m height limit at the south-eastern corner of the site; and • 30m height limit for the remainder of the site. <p>The height of buildings map is included below in Figure 4.</p>	<p>The FSR permitted on the site is 1:1 at the north-west of the site, and 2:1 for the remainder of the site. See FSR map included as Figure 5.</p>
Incentive Height	Incentive FSR
<p>Under Clause 6.9 and the relevant <i>Macquarie Park Corridor Precinct Incentive Height of Buildings Map</i> a maximum building height on the site is 65m if the consent authority is satisfied that:</p> <p><i>(a) there will be adequate provision for recreation areas and an access network, and</i></p> <p><i>(b) the configuration and location of the recreation areas will be appropriate for the recreational purposes of the precinct, and</i></p> <p><i>(c) the configuration and location of the access network will allow a suitable level of connectivity within the precinct.</i></p>	<p>Under Clause 6.9 <i>Macquarie Park Corridor Precinct Incentive Floor Space Ratio Map</i> provides for a maximum FSR of 3:1 across the whole site if the consent authority is satisfied that:</p> <p><i>(a) there will be adequate provision for recreation areas and an access network, and</i></p> <p><i>(b) the configuration and location of the recreation areas will be appropriate for the recreational purposes of the precinct, and</i></p> <p><i>(c) the configuration and location of the access network will allow a suitable level of connectivity within the precinct.</i></p>
Car Parking	
<p>The maximum rate of car parking provision varies across the site:</p> <ul style="list-style-type: none"> • in part 1 space/46m² usable floor space • majority 1 space/80m² usable floor space 	

ITEM 3 (continued)

ATTACHMENT 1



Figure 4: RLEP Existing Height of buildings map

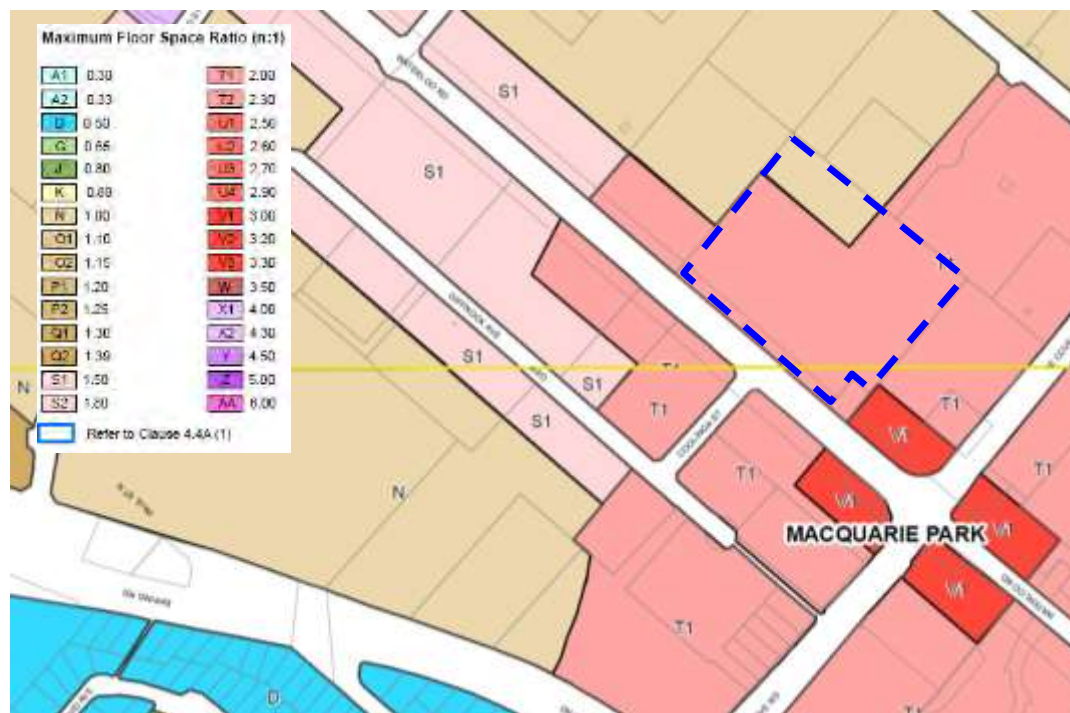


Figure 5: RLEP Existing FSR map

ITEM 3 (continued)

ATTACHMENT 1

Ryde Development Control Plan (RDCP)

The RDCP includes a number of objectives and controls applicable to the site.

In particular, in the context of this PP, Part 4.5 *Macquarie Park Corridor* of the DCP includes the key aim:

8. To create an open space network that will:

- a. Include a network of diverse active and passive recreation spaces to support the residential and working populations of the Corridor.*
- b. Provide safe, accessible, sustainable, well used and designed public open spaces within the Corridor.*

Section 5 of Part 4.5 identifies the location of new public space within the Corridor to create a new open space network. The key public open space/parks included in the Macquarie Park Corridor Structure Plan includes “Central Park”, identified as “No 5” in the extract of the relevant DCP figure included below in Figure 6.



Figure 6: Location of Central Park (No 5) on the subject site

The DCP identifies that Central Park is to be:

- a minimum of 1 hectare in area
- 75m x 100m or if altered is to have a minimum of 65m in any direction
- a multi-function park that provides for active recreation (informal sport), passive recreation, community events (e.g. cinema, expos etc.), and children's play
- fronting Waterloo Road.

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Under the existing suite of planning controls applying to the site (LEP and DCP) it would have been anticipated that “Central Park” would have been delivered through the redevelopment of the site and the built form that cannot be achieved on the park would be redistributed around the remainder of the site – in other words the same physical outcome that will be achieved via the PP.

Under the funding agreement Council agreed to accept a 7000m² park measuring approximately 63m x 110m. As lighting and parking that will service the park will be provided in the adjacent road reserves the deviation from the minimum width of 65m required under the current DCP was considered acceptable.

3. STRATEGIC CONTEXT

The strategic planning framework for this PP is found in the following key documents:

- *A Plan for Growing Sydney* – December 2014
- *Inner North Subregion Draft Subregional Strategy* 2007
- *Macquarie Park Plan Review Recommendations* 2013

A Plan for Growing Sydney – December 2014

The Plan which guides land use and planning decisions for the next 20 years identifies the Government’s vision for Sydney as a strong global city, a great place to live. To achieve this vision, the Government has set down goals that Sydney will be:

1. a competitive economy with world-class services and transport;
2. a city of housing choice with homes that meet our needs and lifestyles;
3. great place to live with communities that are strong, healthy and well connected; and
4. a sustainable and resilient city that protects the natural environment and has a balanced approach to the use of land and resources.

The Plan identifies areas of Ryde as being within the Global Economic Corridor .The Plan states the Corridor generates over 41 per cent of the NSW Gross State Product (GSP) and is unique in Australia due to the extent, diversity and concentration of globally competitive industries.

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Figure 6 A Plan for Growing Sydney (page 45)

Under the Plan the Sydney area has been divided into 6 sub-regions. The City of Ryde is located in the North Subregion which also contains Hornsby, Hunters Hill , Ku ring-gai , Lane Cove , Manly, Mosman, North Sydney, Pittwater, Warringah and Willoughby Local Government areas. The Plan states the following:-

Subregional planning is the link between the big picture planning directions set out in this Plan and detailed planning controls for local areas. It will also deliver planning outcomes across local council boundaries, where coordination between State agencies and/or local government is required. (page 106)

Priorities for strategic centres include:-

Macquarie Park.

- Work with council to retain a commercial core in Macquarie Park for long-term employment growth.
- Facilitate delivery of Herring Road, Macquarie Park Priority Precinct, and North Ryde Station Priority Precinct.
- Investigate opportunities to deliver a finer-grain road network in Macquarie Park.
- Work with council to improve walking and cycling connections to North Ryde train station.

The Council has undertaken considerable recent planning of the Macquarie Park Corridor, identified as a *Strategic Centre*, in *A Plan for Growing Sydney*.

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In particular the Council has prepared a specific planning regime for Macquarie Park, represented by Amendment 1 to Ryde LEP 2014 and Part 4.5 Macquarie Park Corridor of the Ryde DCP.

This planning has resulted in planning incentives being identified in return for implementation of a fine grain street network and open space network. The PP will deliver the open space identified in the strategic framework.

Inner North Subregion Draft Subregional Strategy

The draft subregional strategy is now over 8 years old and has not been updated since prepared. Notwithstanding, it remains a relevant strategic document for consideration.

The draft Strategy highlights the following targets for the Ryde LGA:

- Employment capacity target of 21,000 additional jobs by 2031; and
- Residential target of 12,000 new dwellings by 2031.

The Strategy observes that the sub-region has experienced one of the highest rates of re-zonings of employment lands to other uses, including changes at Macquarie Park from an industrial area to a specialised centre.

As mentioned in comments above regarding *A Plan for Growing Sydney* the Council has undertaken considerable planning work with regard to Macquarie Park. The current planning regime reflects the Council's implementation of the various versions of the State Government's metropolitan strategies and the 2007 draft subregional strategy.

Key Initiative F2.1 of the draft subregional strategy includes:

- *F2.1.1 Councils should continue to maintain or enhance the provision of local open space particularly in centres and along transport corridors where urban and particularly residential growth is being located.*

The proposed park on the subject site is one of the strategic outcomes to be delivered at the local level and as a result the PP is consistent with Key Initiative F2.1.1.

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Macquarie Park Plan Review Recommendations

The *Macquarie Park Plan Review Recommendations* were prepared 2013. This was preceded by work undertaken by a multi-disciplinary consultant team comprising traffic planners, urban designers, land economists and planners that was engaged by the Council to consider an appropriate new planning regime. One of the key recommendations was the need to address a deficiency of open space, particularly to support the planned growth in the area.

The Review ultimately led to the Council preparing a Planning Proposal for Macquarie Park Corridor, inclusive of Amendment 1 to Ryde LEP 2014, and an amendment to the Ryde DCP - Part 4.5 Macquarie Park Corridor. These new provisions are now established and, as mentioned above in this report, include the delivery of a new public park on the subject site in the Ryde DCP.

The strategic planning that ultimately led to the current suite of planning controls for the Macquarie Park Corridor included a Traffic Study taking into account the planned growth of Macquarie Park. Given that the PP will not result in any greater density of development than currently envisaged then there is no requirement for further consideration of transport or traffic matters.

The PP is consistent with the Macquarie Park Plan Review Recommendations.

4. PROPOSED AMENDMENTS TO RYDE LEP 2014

Proposal

The PP submitted by GPNSW, seeks to:

- rezone a 7,000m² portion in the centre of the site fronting Waterloo Road from B3 Commercial Core to RE1 Public Recreation – see Figure 7 below;

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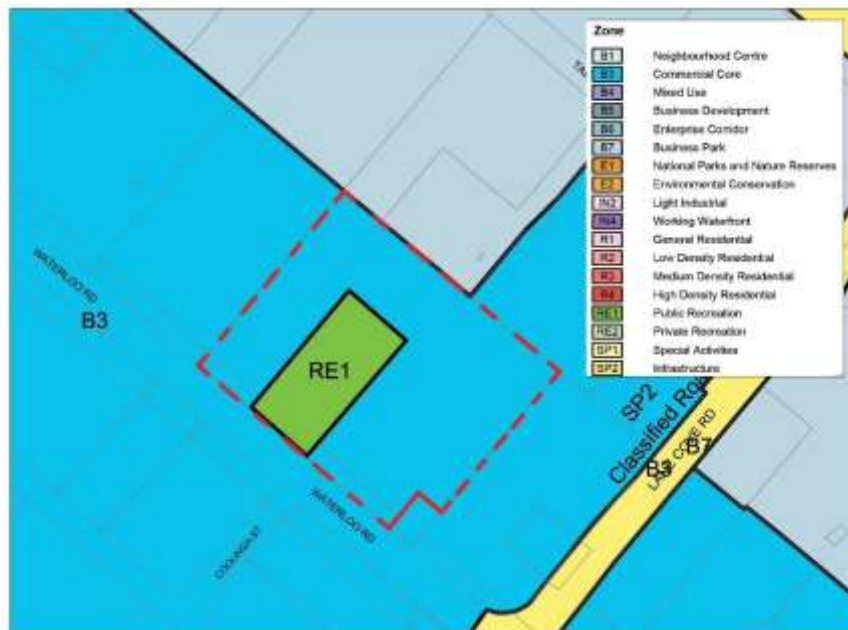


Figure 7: proposed zoning map

- amend the FSR map (see Figure 8 below) to:
 - remove the land to be zoned RE1 from the FSR map; and
 - evenly distribute the park site area and existing split FSRs of 1:1 and 2:1 at a unified rate of 2.26:1 across the land that will continue to be zoned B3 Commercial Core.



Figure 8: proposed FSR map

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- amend the maximum height of buildings map (see figure 9 below) to:
 - remove the land zoned RE1 from the height of buildings map; and
 - increase the 9m height limit in the south-west part of the site to reflect those adjacent (37m along Waterloo Road frontage, 30m away from frontage).



Figure 9: proposed height of buildings map

- include the 7,000m² public open space area on the relevant Land Acquisition Reservation Map as “Local Open Space” (see figure 10 below);



Figure 10: proposed Land Acquisition Reservation Map

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- amend the Macquarie Park Corridor Precinct Incentive Floor Space Ratio Map (see figure 11 below) in order to:
 - remove the FSR limit applying to the RE1 land; and
 - distribute the existing FSR of 3:1 applying to the whole of the site at a rate of 3.66:1 across the land zoned B3 Commercial Core.

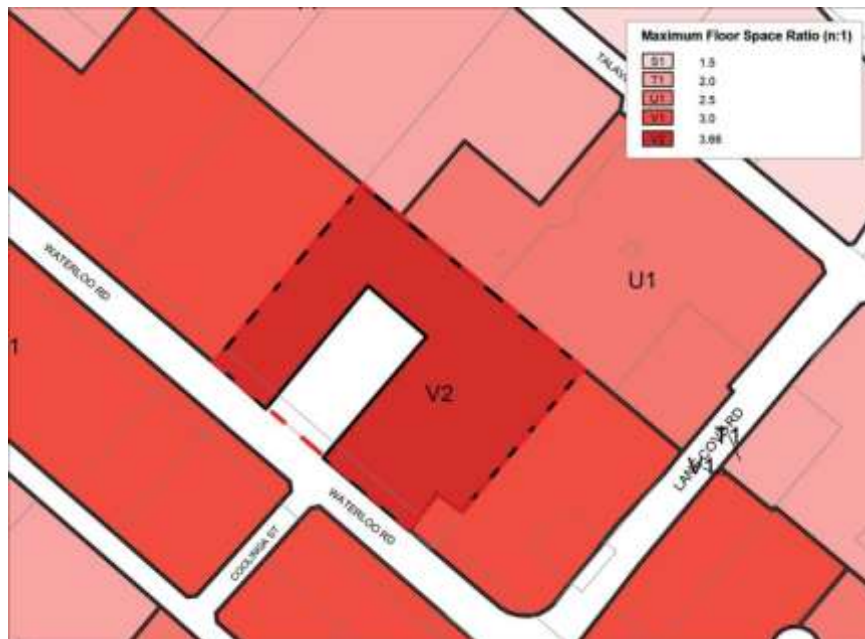


Figure 11: proposed Incentives FSR map

- amend the Macquarie Park Corridor Precinct Incentive Height of Buildings Map in order to remove the height limit applying to the RE1 land – see figure 12 below.

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Figure 12: proposed Incentives height map

All of the above amendments to RLEP are generally supported because they will give certainty to the delivery of the park and are consistent with the anticipated development potential of 45-61 Waterloo Road.

One unresolved matter at this stage arising from the above amendments is the proposed minimum width of the park. The PP as submitted has the park with a minimum width of 59.18m. The PP includes a draft plan of subdivision, an extract of which is shown below in Figure 13.

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The signed funding agreement between the Government and the Council includes the subdivision concept, with a minimum park width of 63.08m, shown below in Figure 14.

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Figure 14: park details included in signed funding agreement

The Width of the Park

The Ryde DCP adopted by Council in 2008 identified the subject park as new open space to be provided in the quantum of 11,000m², and measuring 110m x 100m.

The *Ryde Integrated Open Space Plan* adopted by Council in 24 July 2014 supported the acquisition of new parks in Macquarie Park Corridor in response to an open space deficiency in the precinct of at least 20,000m² (based on anticipated worker and residential population increases).

Given the identified needs and the nature of the site, the current DCP adopted by Council and subsequently effective 1 July 2015, sizes the park at 10,000m², measuring 75m x 100m. The DCP went on to indicate that if altered the minimum dimension of the park in any direction was to be 65m. This minimum dimension was provided to ensure the park could accommodate the multiple needs including, both passive and active recreation, informal sport space, and trade expos and events. The DCP also required at least 3 hours sunlight between 9am and 3pm June 21 to 50% of park.

In 2014 Council entered into a funding agreement with the NSW Minister for Planning in response to an offer of monies to cater for impacts of the Urban Activation program in the Macquarie Park Corridor. During negotiations Council provided a compromise with respect to the width of the park, reducing it from the 65m minimum under the DCP to 63m, as the objectives of the DCP and Council's intended uses of the space could be accommodated at this width. The funding agreement:

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- Commenced 30 June 2014.
- Set a completion date of 30 June 2017 (to implement the park).
- A total of \$6,000,000 to be provided to Council.
- Nominally \$2,009,000 to purchase the park land from Government Property NSW (subject to valuation methodology by the NSW Office of Strategic Lands).
- \$3,991,000 to embellish the park (including design and other consultant fees).
- 7000m² area in total.
- Measuring 63m x 110m approximately.

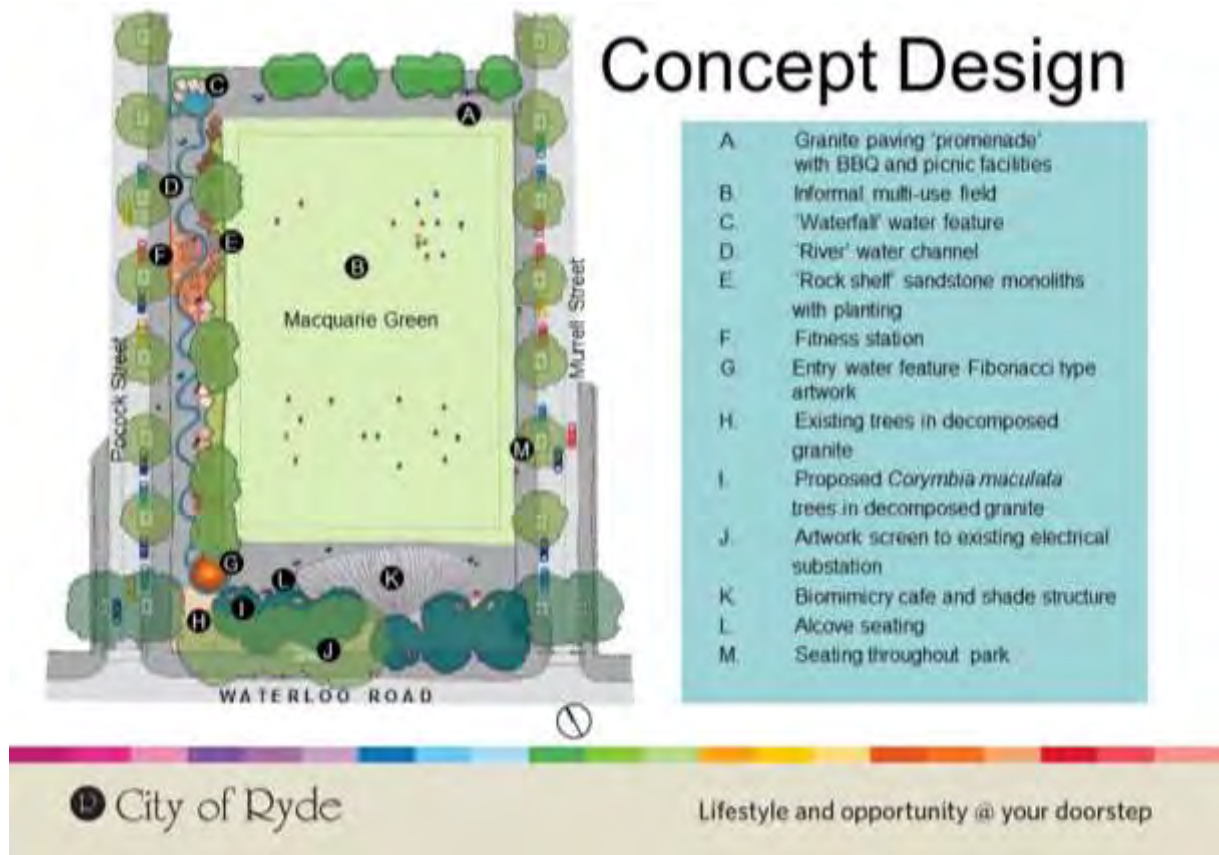
The City of Ryde has prepared a concept design (**Attachment 4**) in accordance with the objectives stated in the DCP and the dimensions provided under the funding agreement.

The brief for the park concept design included the following:

- 7000sqm, 63m wide
- Multi-functional
- Capable of hosting markets / trade expos / movies etc. - therefore large flat unencumbered areas & utilities (electrical, gas and water) required
- Provide informal soccer field / jogging track / workout stations
- Café to nominally seat 30 persons, with amenities. Must be visible from street
- To show new roads as these provide on-street parking (including disabled parking), pathways, lighting & trees
- Screen the substation
- Include a memorable / highly visible / public artwork based on the themes of:
 - Innovation and / or technology
 - Transport and movement
 - History of Macquarie Park Corridor
 - Future of Macquarie Park – specialised centre / biotech
 - Natural environment e.g. water (Note: there are 4 creek-lines across the corridor).

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The concept design draws on the themes of natural environment and the biotech / medical specialisations in Macquarie Park while also creating a playing field /green space of 48m wide x 74m long.

Given the need to accommodate informal active recreation, the design must allow for a 3m buffer around the playing field for pedestrian safety. In addition, the design also accommodates the fall across the site from south to north, which exceeds 3m. As a result of the topography, the design includes an embankment along the western side of the playing field. The following table indicates the dimensions of various playing fields:

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Playing Field Dimensions		
	length	width
FIFA Soccer	105m	68m
Football NSW 11-a-side Soccer	100m – 110m	64-75m
6-a-side soccer COR Morrison Bay	60m	40m
Netball	30.5m	15.25m
Oztag Australia	70m	50m
Macquarie Green Playing Field	74m	48m

As indicated by the table above, the park dimensions fall short of catering for formal soccer and Oztag fields, but will cater for 6-a-side soccer and other informal sports. Further reduction of the width would have a significant impact on the level of informal sporting activity that could be accommodated by the park.

Note: the proposed roads shown on the concept design are given the interim names of Pocock and Murrell to accord with the precinct road naming convention that includes associations with war and to also commemorates Ryde's direct links to World War I and the Macquarie Park Corridor's close bond with medicine. The interim street names refer to:

- Mary Anne (Bessie) Pocock, who began nursing in 1890, went to the Boer War for over two years, mentioned in despatches, awarded Kings and Queens South Africa medals. Became matron at Gladesville Hospital and in 1914 enlisted for WWI and served in numerous hospitals in Egypt, France, Belgium, and England before returning to Australia in 1919 to resume her position at Gladesville.
- Elizabeth Ellen Murrell, grew up in Gladesville. She was a nursing sister at Denistone House, enlisted 1917 went to Salonika for 12 months. Invalided home and possibly returned to her position as Matron at Denistone House.
Reference: Ryde Goes to War, 2015, Ryde and District Historical Society

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Parking

The PP also proposes to:

- amend the Macquarie Park Corridor Parking Restrictions Map in order to:
 - remove the parking restrictions limit applying to the new area zoned RE1 Public Recreation; and
 - evenly distribute the existing split maximum parking rates of 1 space 46m² gross floor area (GFA) and 1 space / 80m² GFA at a unified rate of 1 space / 75m² GFA across the land zoned B3 Commercial Core;

The proposed amendment to the parking restrictions map is not supported. At its meeting of 22 September 2015, Council considered a report on the staged review of commercial and on-street car parking rates in Macquarie Park. Arising from the report the Council resolved, inter alia, to:

- prepare a Planning Proposal to amend Ryde LEP, including Clause 4.5B Macquarie Park Corridor and the Macquarie Park Corridor Parking Restrictions Map to change the commercial car parking rates; and
- authorise the preparation of an amending Development Control Plan (DCP) to effect the change.

In effect the Planning Proposal currently in development as a response to the above resolution would remove the parking rates from the Ryde LEP and the Ryde DCP and it is expected that this proposal will be put to Council in December 2015. Rather than amend the existing parking rates as requested in the subject PP, it is recommended that this issue be addressed via the Council's wider review of parking rates in the Macquarie Park Corridor.

Objectives and Intended Outcomes

The primary objective of the PP is to establish statutory planning controls that will facilitate the delivery of a public park on the subject site, an identified public need in the location.

The intended outcomes are:

- the land identified for the park to be zoned RE1; and
- the remainder of the site to include statutory controls that will maintain the overall development potential of the site.

Justification/Need for a PP

In summary, the applicant provides the following key points for justification of the PP (**Attachment 2 page 15**):

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- The existing planning controls in RLEP do not reflect the desire of the Council to deliver a large, high quality area of public open space.
- The need for additional public open space is noted within numerous studies undertaken for the Macquarie Park Corridor.
- Whilst noting the need for additional public open space, there is also a need to ensure that the provision of that open space does not result in any net loss of development potential and associated future employment provision on the site, under both the existing and incentive floor space controls.

Support information

The PP submitted notes that the Macquarie Park Corridor is informed by several studies including:

- Allen Jack and Cottier, (2008) Macquarie Park DCP (now known as Ryde DCP 2010 Part 4.5 Macquarie Park Corridor).
- Aspect Studios, (2008) Macquarie Park Public Domain Technical Manual.
- Bitzios Consulting, (2008) Macquarie Park Growth Model: Transport Management Plan.
- Space Syntax, (2010) Macquarie Park Baseline Movement Economy Report.
- Drew Bewscher and Associates, (2010) Macquarie Park Flood Management Plan.
- Coulston, (2012) Ryde Integrated Open Space Plan.

In 2012 a multi-disciplinary team was engaged by Council to review the abovementioned (excepting the Flood Study) and to recommend:

- Height and Floor Space Ratios for inclusion in Amendment 1 to the Ryde LEP 2014;
- Practicable refinements to the Street, Pedestrian and Open Space Network Structure Plans in Ryde DCP 2010 based on financial feasibility.

Amendment 1 was then supported by the recommendations outlined in the resultant studies including:

- Architectus, (May 2013), Macquarie Park Plan Review Recommendations Paper.
- Architectus, (May 2013), Macquarie Park Plan Review Options Paper.
- Architectus, (November 2012) Macquarie Park Plan Review Issues Paper.

Ryde LEP Amendment 1 came into effect on 11 September 2015 and Ryde DCP Part 4.5 Macquarie Park (as amended) came into effect on 1 July 2015.

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ASSESSMENT OF THE PLANNING PROPOSAL

The following provides an assessment and review of the PP based on the areas required to be covered under *A guide to preparing planning proposals* issued by the Department of Planning and Environment.

Adequacy of Documentation

The documentation as submitted is generally satisfactory and addresses all necessary requirements, with the exception of land contamination. This issue is discussed further below.

Assessment of Need for the Planning Proposal

Is this planning proposal the result of any strategic study or report?

Yes – see comments above in this report regarding the extensive planning work undertaken in regard to the Macquarie Park Corridor.

Is the planning proposal the best means of achieving the objective, or is there a better way?

Yes, because it gives greater certainty to delivery of the park as stated earlier in this report.

Is the planning proposal consistent with the objectives and actions of the applicable regional or sub-regional strategy (including the Sydney Metropolitan Strategy and exhibited draft strategies)?

The State Government released *A Plan for Growing Sydney*, the latest strategic direction with respect to the future growth of Sydney, in December 2014.

Under the Plan the Sydney area has been divided into 6 subregions. The City of Ryde is located in the North Subregion which also contains Hornsby, Hunters Hill , Ku ring gai , Lane Cove , Manly, Mosman, North Sydney, Pittwater, Warringah and Willoughby Local Government areas. The Plan states the following:-

The Government will work with local councils for each subregion in Sydney to implement *A Plan for Growing Sydney*.

Subregional planning will promote good planning principles and the efficient use of land and infrastructure. It will improve liveability by identifying the locations for future housing and employment growth and by balancing growth with improvements to environmental and open space assets. It will facilitate the planning, design and development of healthy built environments... (page 106)

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While a subregional plan has yet to be delivered in terms of the *A Plan for Growing Sydney* it is considered that the PP reflects the extensive strategic planning work undertaken in recent years to deliver planned growth of the Macquarie Park Corridor.

Is the planning proposal consistent with a council's local strategy or other local strategic plan?

Yes - the proposal is consistent with the *Macquarie Park Plan Review Recommendations* and Ryde DCP Section 4.5.

Is the planning proposal consistent with applicable State Environmental Planning Policies?

The PP states (Attachment 2 page 21) that a number of State Environmental Planning Policies (SEPPs) are not relevant and in relation to relevant SEPP's:

- SEPP (Infrastructure) 2007 – consideration will occur at DA stage
- SEP 55 Remediation of Land – A Stage 1 Site Assessment will be prepared if the matter proceeds to Gateway.

In regard to SEPP 55, the Council, DoPE and Government Property NSW met on 19 October 2015 and agreed that the Stage 1 Site Assessment will be required after the issue of the Gateway determination and prior to the submission of reports to Council for a decision on whether or not to adopt the proposed amendments to the LEP. This issue is addressed in the report recommendations.

Other than the need to address SEPP 55, it is considered that the PP does not contradict any applicable State Environmental Planning Policies.

Is the planning proposal consistent with applicable Ministerial Directions (s.117 directions)?

The relevant Section 117 directions are detailed below.

Direction	Assessment
1.1 Business and Industrial Zones <i>(1) The objectives of this direction are to:</i> <i>(a) encourage employment growth in suitable locations,</i> <i>(b) protect employment land in business and industrial zones, and</i> <i>(c) support the viability of identified strategic centres.</i>	<p>The applicant maintains the proposal is consistent with the Direction as:</p> <ul style="list-style-type: none"> - The proposed development will maintain the commercial development potential of the site. - The proposal will not undermine the integrity and core purpose of the Macquarie Park Strategic Centre / commercial core and in fact will provide a public amenity to the Centre. <p><u>Assessment:</u> The PP is consistent with direction.</p>

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Direction	Assessment
<p>Flood Prone Land <i>(1) The objectives of this direction are:</i> <i>(a) to 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, and</i> <i>(b) to 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 and.</i></p>	<p>The applicant maintains the proposal is consistent with the direction for the following reasons:</p> <ul style="list-style-type: none"> - The site is identified as flood prone under the 'City of Ryde Macquarie Park Floodplain Risk Management Strategy and Plan' - Additionally, under the RDCP the site forms part of an overland flow path. - As per the current zoning, the impacts of any future proposed commercial development, particularly at the western boundary of the site identified as flood prone will be the subject of future assessment as the zoning of this portion of the site is not proposed to be changed. - The proposed open space area will likely comprise largely permeable surfaces such as grass and soil, which have the potential to improve the water absorption characteristics of that portion of the site. <p><u>Assessment:</u> the PP is consistent with the direction.</p>
<p>6.2 Reserving Land for Public Purposes Objectives <i>(a) To facilitate the provision of public services and facilities by reserving land for public purposes, and</i> <i>(b) To facilitate the removal of reservations of land for public purposes where the land is no longer required for acquisition.</i></p>	<p>The proposal seeks to rezone the relevant part land RE1 and also include amended statutory provisions that will maintain the commercial and employment development potential of the site.</p> <p><u>Assessment:</u> The PP is consistent with the Direction</p>
<p>7.1 Implementation of A Plan for Growing Sydney Objective <i>(1) The objective of this direction is to give legal effect to the planning principles; directions and priorities for subregions, strategic centre and transport gateways contained in A Plan for Growing Sydney.</i></p>	<p>The applicant maintains the proposal is consistent with A Plan for Growing Sydney.</p> <p><u>Assessment:</u> The PP is consistent with the Direction as detailed at length in this report.</p>

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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?

The land has been used for urban development for some time and contains none of the original species or habitat. The modified site has been identified for intensive urban redevelopment and a new public park.

There are no known critical endangered habitats, threatened species or ecological communities located on the site and therefore the likelihood of any negative impacts are minimal. The location of the proposed park is identified as containing “Urban Exotic / Native” species in vegetation mapping undertaken by the NSW Office of Environment and Heritage (OEH). Notwithstanding, if the matter proceeds to a gateway determination OEH would be consulted as a relevant government agency.

Are there any other likely environmental effects as a result of the planning proposal and how are they proposed to be managed?

Flooding has been identified by the proponent as the most relevant environmental issue to be considered with the PP.

The flooding affectation on the site has been discussed earlier in this report and it is concluded that the land to be rezoned is not impacted. Flooding affecting the remainder of the site will be addressed in the future and to that extent the status and future management of the issue does not change with the PP.

All other environmental considerations arising from future development, such as traffic and car parking do not change, as a result of the PP as there is no greater density of development proposed.

Has the planning proposal adequately addressed any social and economic effects?

The PP will result in a positive social outcome, with the framework established for a future urban park in the Macquarie Park Corridor. The park will provide important community infrastructure in the commercial centre.

State and Commonwealth interests

Is there adequate public infrastructure for the planning proposal?

The PP is proposing to deliver an important public asset. As there is no increase in development potential or density associated with the PP then it will not generate any increased demand for public infrastructure.

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What are the views of state and Commonwealth public authorities consulted in accordance with the Gateway determination?

No consultation with State or Commonwealth authorities has been carried out to date. However, it should be noted that:

- Government agencies were consulted regarding RLEP Amendment 1 and associated amendments to Ryde DCP (that identified the proposed park)
- a funding agreement with respect to the park acquisition and embellishment is currently in place between the DoPE and that Government Property NSW has prepared the PP.

Consultation with government agencies will occur in accordance with the gateway determination.

Financial Implications

Council should note that the lodgement of the PP is subject to the Council's Fees and Charges Schedule to amend Local Environmental Plans. Planning Proposals of this scale are subject to a fee of \$58,000. However, the PP was accompanied by a request that the Council waive the applicable fees associated with the amendments to the LEP and this may be accommodated by resolution of Council. This request is supported because the PP will provide significant community benefit as outlined within this report. It also noted that the PP is required to ensure Council's planning controls allow the delivery of the park, which will be provided to Council as part of an existing Funding Agreement through which the State Government is providing \$6 million for the purchase and embellishment of the park.

Consultation with relevant bodies

Internal Consultation

The PP was referred to the relevant Council staff for comment on matters relating to the dimensions of the open space. Council's design and open space teams have commented that a park of 63m wide will more effectively support informal sport and play than a park of 59m and will therefore deliver a more fit for purpose and functional space.

With respect to contamination staff have confirmed that a report on whether or not contamination is present on the site and if so the remediation action proposed is required prior to the planning amendments being completed.

Community Consultation

Under the gateway plan-making process, a gateway determination is required before formal community consultation on the planning proposal takes place. The consultation process will be determined by the Minister and stipulated as part of the gateway determination.

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The Department of Planning's guidelines stipulate at least 28 days community consultation for a major plan, and at least 14 days for a low impact plan.

The applicant has indicated that community consultation is to be done in accordance with 'A Guide to preparing local environmental plans'.

As part of the community consultation Council would undertake the following:-

- A public notice in local newspaper(s).
- A notice on the City of Ryde Council website.
- Written correspondence to adjoining and surrounding landowners.

Policy Implications

The recommendation of this report is that the PP should proceed as it is consistent with the policy framework for the site, as discussed in this report.

Options

Option 1

- Proceed to gateway determination and community consultation subject to:
 - Removal of the proposal to amend the Macquarie Park Corridor Parking Restrictions Map; and
 - The provision by the proponent of a satisfactory Stage 1 Site Assessment Contamination Report; and
 - The minimum width of the proposed park fronting Waterloo Road being 63m in accordance with the funding agreement between the Council and the NSW Minister for Planning (or as near as possible in order to cater for functions including informal sport, active and passive recreation, trade expos and events).

This is the recommended option for the reasons outlined in the report and Parts B and C have been added to allow the General Manager the delegation to finalise any agreed minor changes to improve Park outcomes.

Option 2

- Review the concept plan and explore options for a park at alternative dimensions to those provided under the Funding Agreement. Should Council wish to explore alternative dimensions it is recommended that Parts B and C of the proposed resolution be amended as follows:

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- (b) That the Council support the Planning Proposal to proceed to Gateway determination subject to:
- i. Removal of the proposal to amend the Macquarie Park Corridor Parking Restrictions Map; and
 - ii. The provision by the proponent of a satisfactory Stage 1 Site Assessment Contamination Report.
- (c) That Council delegate to the General Manager to negotiate, prior to the submission of the Planning Proposal for a Gateway Determination:
- i. The milestone date at which provision of the site contamination report will be accepted by Council; and
 - ii. The dimensions of the park and the provision by the proponent of an updated draft subdivision plan for the park.

This is not recommended as further reduction of the width of the park would significantly reduce the functionality of the space.

Option 3

- Not proceed with the Planning Proposal. If the Council decides not to proceed the applicant can lodge a request with the Department of Planning and Environment for a pre –gateway review.

This is not recommended as the issues relating to width, parking, and contamination can be addressed without jeopardising the provision of the park under the Funding Agreement.

It is considered that the PP should be approved to proceed for the reasons stated in the report and as addressed in the Conclusion below.

Conclusion

Ryde DCP Part 4.5 Macquarie Park Corridor identifies a proposed park on State Government owned land at 45-61 Waterloo Road Macquarie Park. This new park will address an open space deficiency for the precinct identified by the Ryde Integrated Open Space Plan.

On 22 September Council considered correspondence from the Department of Planning and Environment (DoPE) and Government Property NSW (GPNSW) regarding the next steps for Council to secure the delivery of the new public park.

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GPNSW have lodged a PP, as agreed with Council, in order to rezone the relevant land 'RE1 Public Recreation' and transfer the FSR from the park area to the remainder of the site.

The PP is consistent with the strategic planning framework of both the City of Ryde, through its local planning regime, and the State government, through *A Plan for Growing Sydney*. The PP is also consistent with the provisions of the DoPE *A Guide to Preparing Planning Proposals*.

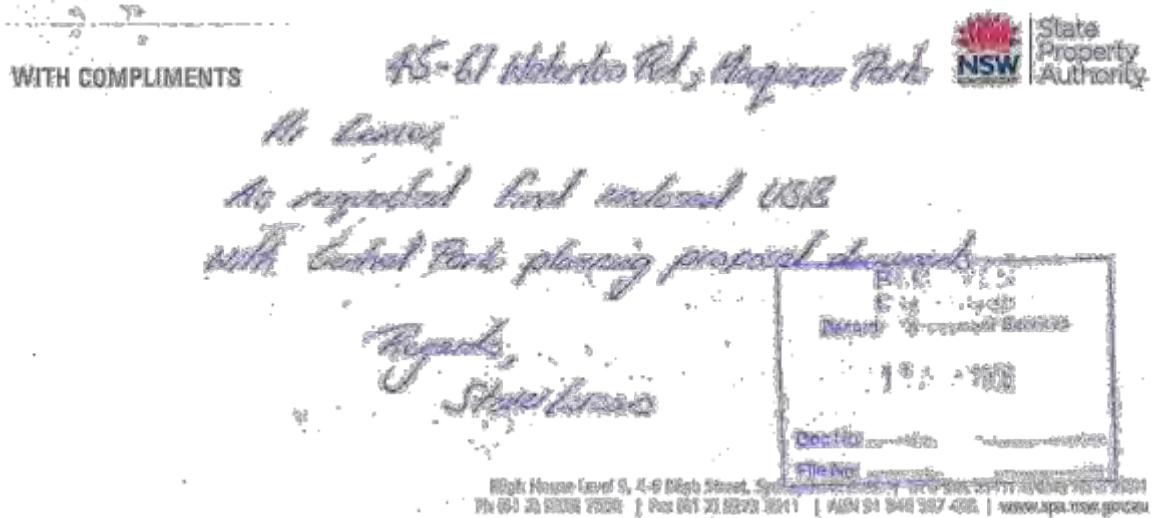
While there are issues relating to the width of the park, the proposed changes to the parking controls, and provision of a contamination report, these can be addressed and provision for this is included in the recommendation.

The PP, in establishing the statutory framework for the delivery of the new park, will provide a significant public benefit and will also retain the opportunity for commercial development and employment on the remainder of the site.

For all of the above reasons the PP is recommended to proceed.

ITEM 3 (continued)

ATTACHMENT 2



ITEM 3 (continued)

ATTACHMENT 2

Steven Lucas

From: Steven Lucas
Sent: Friday, 12 February 2016 4:59 PM
To: 'Lexie Macdonald'
Cc: Malcolm McDonald; Stacey Fishwick
Subject: 45-61 Waterloo Road, Macquarie Park - Revised Park Planning Proposal

You have received 1 files.
(Use this icon to link to the file in your inbox.)

Dear Lexie,

Following consultation with Council, GPNSW prepared a planning proposal to facilitate a public park on our site at 45-61 Waterloo Rd, Macquarie Park. On 10 November 2015, Council resolved to support for the proposal to proceed to Gateway determination, subject to:

- Removing the proposed amendments to the parking controls
- Preparation of a Contamination Report
- Increasing the width of the proposed park to 63 meters

Please find attached the amended planning proposal (incorporating Council's requirements) and associated supporting documentation (including a contamination report), for your review. I will be in contact with you shortly to discuss next steps.

Documents attached

1. Council's resolution to proceed with the park planning proposal
2. Revised site masterplan
3. Revised park planning proposal
4. Revised land subdivision plan
5. Statement of Environmental Effects for proposed land subdivision
6. Contamination report

Regards,

Steven Lucas

Senior Manager
Major Projects, Government Property NSW
T: 02 9273 3837 | M: 0417 918 982 | E: steve.lucas@property.nsw.gov.au
W: www.property.nsw.gov.au
Level 5, 4-6 Bligh St, Sydney NSW 2000



ITEM 3 (continued)

ATTACHMENT 2



ITEM 3 (continued)

ATTACHMENT 2

Political donations disclosure statement



Office use only:

Date received: ____/____/____

Planning application no. _____

This form may be used to make a political donations disclosure under section 147(3) of the *Environmental Planning and Assessment Act 1979* for applications or public submissions to the Minister or the Director-General.

Please read the following information before filling out the Disclosure Statement on pages 3 and 4 of this form. Also refer to the 'Glossary of terms' provided overleaf (for definitions of terms in *italics* below). Once completed, please attach the completed declaration to your planning application or submission.

Explanatory information

Making a planning application or a public submission to the Minister or the Director-General

Under section 147(3) of the *Environmental Planning and Assessment Act 1979* ('the Act') a person:

- (a) who makes a *relevant planning application* to the Minister or the Director-General is required to disclose all *reportable political donations* (if any) made within the *relevant period* to anyone by any person with a *financial interest* in the application, or
- (b) who makes a *relevant public submission* to the Minister or the Director-General in relation to the application is required to disclose all *reportable political donations* (if any) made within the *relevant period* to anyone by the person making the submission or any associate of that person.

How and when do you make a disclosure?

The disclosure to the Minister or the Director-General of a *reportable political donation* under section 147 of the Act is to be made:

- (a) in, or in a statement accompanying, the relevant planning application or submission if the donation is made before the application or submission is made, or
- (b) if the donation is made afterwards, in a statement of the person to whom the relevant planning application or submission was made within 7 days after the donation is made.

What information needs to be included in a disclosure?

The information requirements of a disclosure of *reportable political donations* are outlined in section 147(9) of the Act.

Pages 3 and 4 of this document include a Disclosure Statement Template which outlines the information requirements for disclosures to the Minister or to the Director-General of the Department of Planning.

Note: A separate Disclosure Statement Template is available for disclosures to councils.

Warning: A person is guilty of an offence under section 125 of the *Environmental Planning and Assessment Act 1979* in connection with the obligations under section 147 only if the person fails to make a disclosure of a *political donation* or gift in accordance with section 147 that the person knows, or ought reasonably to know, was made and is required to be disclosed under section 147.

The maximum penalty for any such offence is the maximum penalty under Part 6 of the *Election Funding and Disclosures Act 1981* for making a false statement in a declaration of disclosures lodged under that Part.

Note: The maximum penalty is currently 200 penalty units (currently \$22,000) or imprisonment for 12 months, or both.

ITEM 3 (continued)

ATTACHMENT 2

Glossary of terms (under section 147 of the *Environmental Planning and Assessment Act 1979*)

gift means a gift within the meaning of Part 6 of the *Election Funding and Disclosures Act 1981*. Note. A gift includes a gift of money or the provision of any other valuable thing or service for no consideration or inadequate consideration.

Note: Under section 84(1) of the *Election Funding and Disclosures Act 1981* gift is defined as follows:

gift means any disposition of property made by a person to another person, otherwise than by will, being a disposition made without consideration in money or money's worth or with inadequate consideration, and includes the provision of a service (other than volunteer labour) for no consideration or for inadequate consideration.

local councillor means a councillor (including the mayor) of the council of a local government area.

relevant planning application means:

- a) a formal request to the Minister, a council or the Director-General to initiate the making of an environmental planning instrument or development control plan in relation to development on a particular site, or
- b) a formal request to the Minister or the Director-General for development on a particular site to be made State significant development or declared a project to which Part 3A applies, or
- c) an application for approval of a concept plan or project under Part 3A (or for the modification of a concept plan or of the approval for a project), or
- d) an application for development consent under Part 4 (or for the modification of a development consent), or
- e) any other application or request under or for the purposes of this Act that is prescribed by the regulations as a relevant planning application, but does not include:
 - f) an application for (or for the modification of) a complying development certificate, or
 - g) an application or request made by a public authority on its own behalf or made on behalf of a public authority, or
 - h) any other application or request that is excluded from this definition by the regulations.

relevant period is the period commencing 2 years before the application or submission is made and ending when the application is determined.

relevant public submission means a written submission made by a person objecting to or supporting a relevant planning application or any development that would be authorised by the granting of the application.

reportable political donation means a reportable political donation within the meaning of Part 6 of the *Election Funding and Disclosures Act 1981* that is required to be disclosed under that Part. Note. Reportable political donations include those of or above \$1,000.

Note: Under section 66 of the *Election Funding and Disclosures Act 1981* reportable political donation is defined as follows:

66 Meaning of "reportable political donation"

- (1) For the purposes of this Act, a reportable political donation is:
 - (a) in the case of disclosures under this Part by a party, elected member, group or candidate—a political donation of or exceeding \$1,000 made to or for the benefit of the party, elected member, group or candidate, or
 - (b) in the case of disclosures under this Part by a major political donor—a political donation of or exceeding \$1,000:
 - (i) made by the major political donor to or for the benefit of a party, elected member, group or candidate, or
 - (ii) made to the major political donor.
- (2) A political donation of less than an amount specified in subsection (1) made by an entity or other person is to be treated as a reportable political donation if that and other separate political donations made by that entity or other person to the same party, elected member, group, candidate or person within the same financial year (ending 30 June) would, if aggregated, constitute a reportable political donation under subsection (1).
- (3) A political donation of less than an amount specified in subsection (1) made by an entity or other person to a party is to be treated as a reportable political donation if that and other separate political donations made by that entity or person to an associated party within the same financial year (ending 30 June) would, if aggregated, constitute a reportable political donation under subsection (1). This subsection does not apply in connection with disclosures of political donations by parties.
- (4) For the purposes of subsection (3), parties are associated parties if endorsed candidates of both parties were included in the same group in the last periodic Council election or are to be included in the same group in the next periodic Council election.

a person has a financial interest in a relevant planning application if:

- a) the person is the applicant or the person on whose behalf the application is made, or
- b) the person is an owner of the site to which the application relates or has entered into an agreement to acquire the site or any part of it, or
- c) the person is associated with a person referred to in paragraph (a) or (b) and is likely to obtain a financial gain if development that would be authorised by the application is authorised or carried out (other than a gain merely as a shareholder in a company listed on a stock exchange), or
- d) the person has any other interest relating to the application, the site or the owner of the site that is prescribed by the regulations.

persons are associated with each other if:

- a) they carry on a business together in connection with the relevant planning application (in the case of the making of any such application) or they carry on a business together that may be affected by the granting of the application (in the case of a relevant planning submission), or
- b) they are related bodies corporate under the *Corporations Act 2001* of the Commonwealth, or
- c) one is a director of a corporation and the other is any such related corporation or a director of any such related corporation, or
- d) they have any other relationship prescribed by the regulations.

ITEM 3 (continued)

ATTACHMENT 2

Political Donations Disclosure Statement to Minister or the Director-General

If you are required under section 147(3) of the Environmental Planning and Assessment Act 1979 to disclose any political donations (see Page 1 for details), please fill in this form and sign below.

Disclosure statement details				
Name of person making this disclosure <i>Shirley Fishwick</i>	Planning application reference (e.g. DA number, planning application title or reference, property address or other description)			
Your interest in the planning application (circle relevant option below)				
You are the APPLICANT <input checked="" type="radio"/> YES / <input type="radio"/> NO OR You are a PERSON MAKING A SUBMISSION IN RELATION TO AN APPLICATION <input type="radio"/> YES / <input type="radio"/> NO				
Reportable political donations made by person making this declaration or by other relevant persons				
<p><i>* State below any reportable political donations you have made over the relevant period (see glossary on page 2). If the donation was made by an entity (and not by you as an individual) include the Australian Business Number (ABN).</i></p> <p><i>If you are the applicant of a relevant planning application state below any reportable political donations that you know, or ought reasonably to know, were made by any persons with a financial interest in the planning application. Or:</i></p> <p><i>If you are a person making a submission in relation to an application, state below any reportable political donations that you know, or ought reasonably to know, were made by an associate.</i></p>				
Name of donor (or ABN if an entity)	Donor's residential address or entity's registered address or other official office of the donor	Name of party or person for whose benefit the donation was made	Date donation made	Amount/ value of donation
Please list all reportable political donations—additional space is provided overleaf if required.				
By signing below, I/we hereby declare that all information contained within this statement is accurate at the time of signing.				
Signature(s) and Date <i>[Signature] 14/3/16</i>				
Name(s) <i>Shirley Fishwick, Director, Major Projects</i>				

ITEM 3 (continued)

ATTACHMENT 2

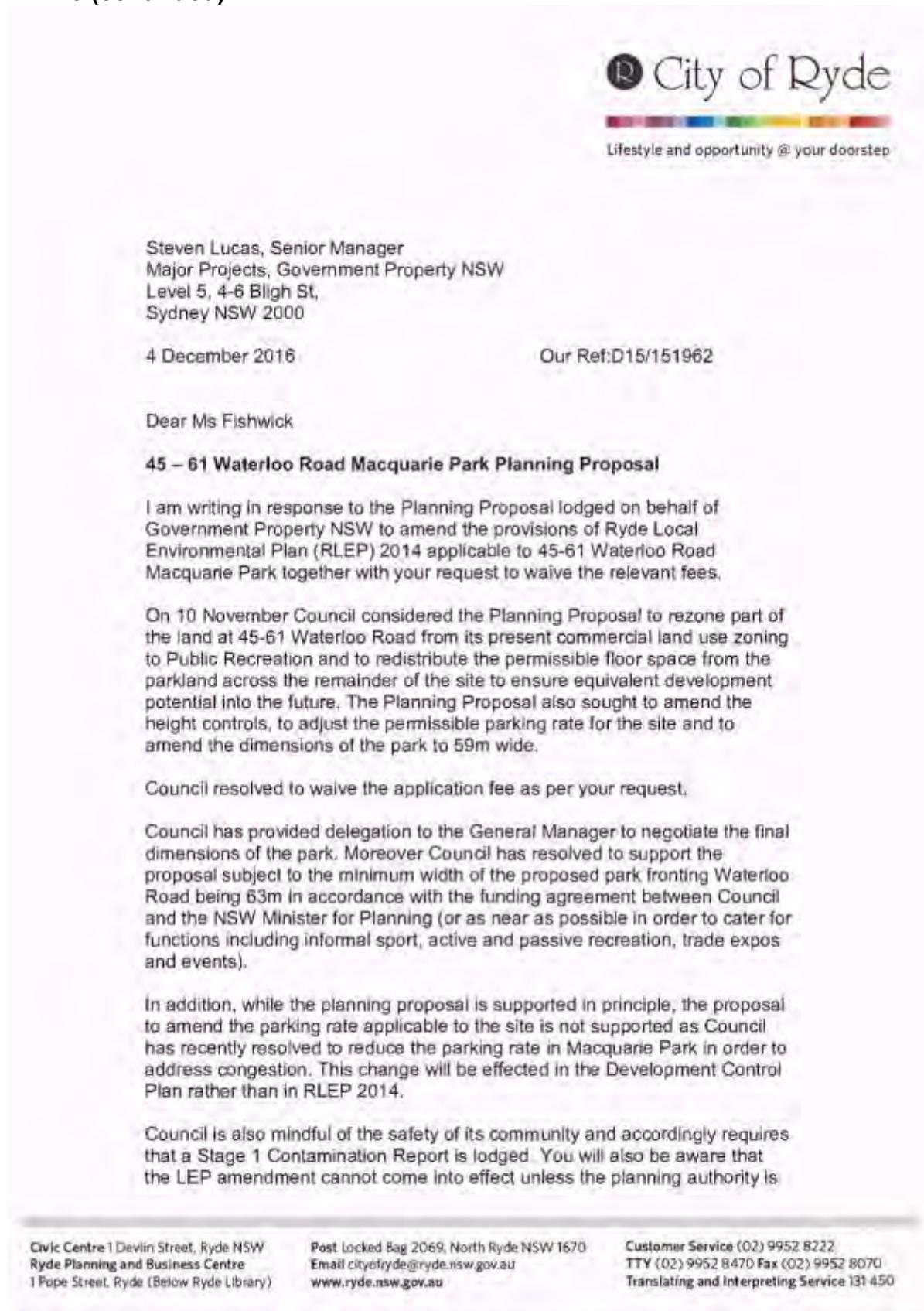
Cont...

Political Donations Disclosure Statement to Minister or the Director-General

Name of donor (or ABN if an entity)	Donor's residential address or entity's registered address or other official office of the donor	Name of party or person for whose benefit the donation was made	Date donation made	Amount/ value of donation

ITEM 3 (continued)

ATTACHMENT 2



ITEM 3 (continued)

ATTACHMENT 2

satisfied that the land, if contaminated, can be remediated for the proposed purpose. Council has provided delegation to the General Manager to negotiate a time by which the Stage 1 Contamination Report must be lodged.

Council is keen to progress this matter and we look forward to your response. Should you have any enquires on this matter or should you wish to meet to discuss this further, particularly with respect to the width and the timing of Stage 1 Contamination Report, please do not hesitate to contact Lexie Macdonald on 9952 8059 to arrange a meeting.

Yours sincerely



Dyalan Govender
Acting Manager Strategic City

Attachments:

Please find attached Council's resolutions of 10 November in full for your reference

ITEM 3 (continued)

ATTACHMENT 2

**EXTRACT FROM REPORT OF PLANNING & ENVIRONMENT
COMMITTEE
NO. 15/15 AT ITS MEETING HELD ON 10 NOVEMBER 2015**

**5 PLANNING PROPOSAL - PROVISION OF PARK - 45-61 WATERLOO ROAD
MACQUARIE PARK**

RESOLUTION: (Moved by Councillors Chung and Yedelian OAM)

- (a) That the Council support the Planning Proposal for 45-61 Waterloo Road, Macquarie Park proceeding to a Gateway determination, subject to the matters identified below in item (b), on the grounds that:
 - i. The Planning Proposal will facilitate the delivery of a public park on the subject site, an identified public need in the location and as agreed in the funding agreement established between the Council and the NSW Government.
 - ii. The proposal is consistent with strategic direction of *A Plan for Growing Sydney*, the Ryde Local Environmental Plan 2014 and Ryde Development Control Plan Part 4.5 Macquarie Park Corridor.
- (b) That the Council support the Planning Proposal to proceed to Gateway determination subject to:
 - i. Removal of the proposal to amend the Macquarie Park Corridor Parking Restrictions Map; and
 - ii. The provision by the proponent of a satisfactory Stage 1 Site Assessment Contamination Report; and
 - iii. The minimum width of the proposed park fronting Waterloo Road being 63m in accordance with the funding agreement between the Council and the NSW Minister for Planning (or as near as possible in order to cater for functions including informal sport, active and passive recreation, trade expos and events).
- (c) That Council delegate to the General Manager to finalise, prior to the submission of the Planning Proposal for a Gateway Determination:
 - i. The milestone date at which provision of the site contamination report will be accepted by Council.
 - ii. Any minor adjustments to the position or dimensions of the Park that will only serve to improve the overall desired functional requirements of the Park.

ITEM 3 (continued)

ATTACHMENT 2

- (d) That Council waive fees in the amount of \$58,000 applicable to the rezoning at the request of the proponent and in recognition of the anticipated community benefit.
- (e) The proponent is advised in writing of the Council's decision.
- (f) That the Planning Proposal is publicly exhibited as soon as practicable upon issue of the Gateway Determination.

Record of Voting:

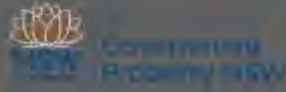
For the Motion: Unanimous

Note: This is now a resolution of Council in accordance with the Committee's delegated powers.

ITEM 3 (continued)

ATTACHMENT 2

**WOODS
BAGOT**



45-61 WATERLOO
ROAD,
MACQUARIE PARK
MASTERPLAN
10 FEBRUARY 2016



ITEM 3 (continued)

ATTACHMENT 2

The Site

45-61 Waterloo Road, Macquarie Park is located on the Western side of Waterloo Road to the North of its intersection with Lane Cove Road.

The site is mostly rectangular in shape, with a site width of approximately 221m, and a site length of approximately 178m. The total site area is approximately 38,987 m².

There is close proximity to Macquarie Park Train Station and Lane Cove Road for means of public transportation.

- 1 Site (45-61 Waterloo Rd, Macquarie Park)
- 2 Macquarie Park Train Station

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Macquarie Park Masterplan February 2016 Page 2

ITEM 3 (continued)

ATTACHMENT 2

Base Planning Controls

Ryde City Council Local Environmental Plan (LEP) 2014 is a comprehensive Plan for the City of Ryde together with the Ryde Development Control Plan (DCP) 2014 which provides the necessary framework for how developments within the City of Ryde will advance. It also balances the needs of residents, businesses and investors today with those of future generations. Ryde City Council LEP 2014 is the current planning control document for the Macquarie Park Corridor which contains legislation maps for Floor Space Ratio (FSR) and Height of Building (HOB) controls.

FSR Controls:

- Ryde LEP 2014 shows a small portion (5,599m²) of the site FSR as 1:1 and a majority (33,388m²) as 2:1 (Figure 1.1)
- Maximum GFA = 72,375m²

HOB Controls:

- Ryde LEP 2014 shows HOB as 30m across the majority of the site, 9.5m at South West corner and 37m on South East corner (towards the street frontage of Waterloo Road); Figure 1.2



Figure 1.1 Ryde LEP 2014 FSR Map
(Source: Ryde LEP 2014)



Figure 1.2 Ryde LEP 2014 HOB Map
(Source: Ryde LEP 2014)

ITEM 3 (continued)

ATTACHMENT 2

Planning Controls - Amendment No. 1

Amendment No.1 is an incentive to add Height and Floor Space Ratio Controls for the Macquarie Park Corridor to enable the implementation of new roads and parks that will support employment growth and the **evolution of Macquarie Park Corridor** from Business Park to specialised employment centre with a continued focus on research and technology (refer Sydney's Metropolitan Strategy - City of Cities: A plan for Sydney's Future)

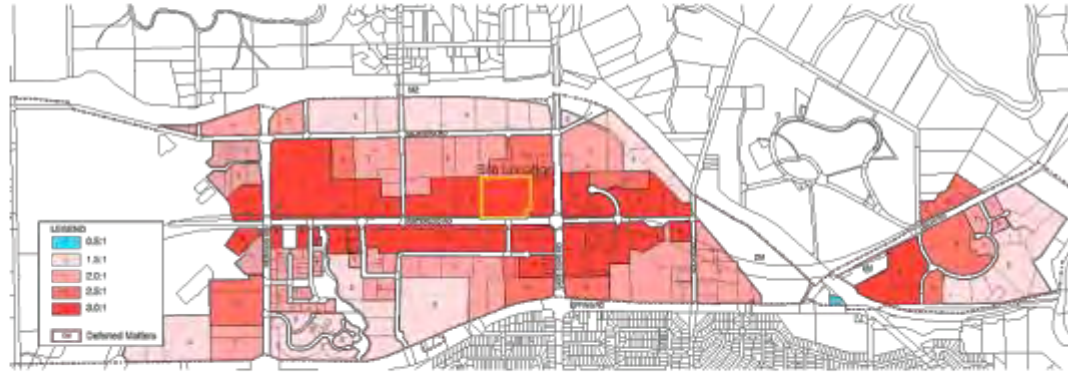


Figure 2.1 Amendment No.1 FSR Map (Source: Ryde LEP Amendment No. 1)

FSR Controls:

- Amendment No.1 applies an FSR 3.0:1 across the site, refer figure 2.1
- Maximum GFA = 116,961m² approx.

HOB Controls:

- Amendment No.1 stipulates a 65m Height of Buildings limit across the site, refer figure 2.2

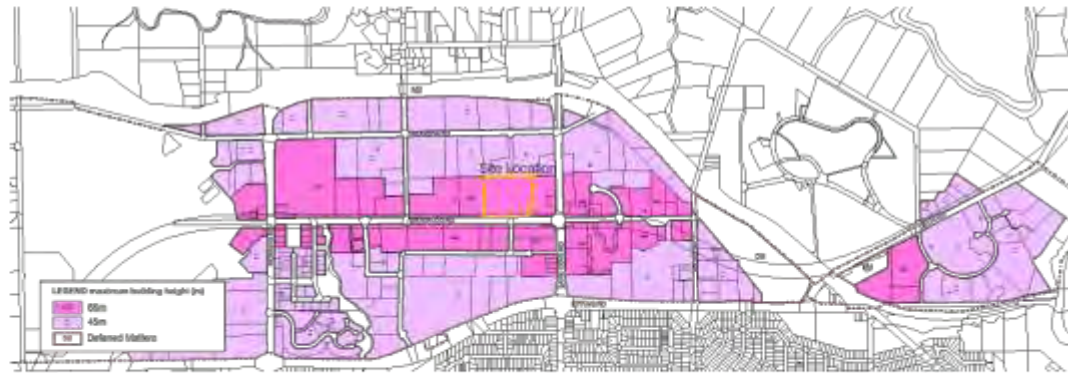


Figure 2.2 Amendment No.1 HOB Map (Source: Ryde LEP Amendment No. 1)

ITEM 3 (continued)

ATTACHMENT 2

DCP 2014 Part 4.5 Macquarie Park Corridor

Ryde City Council Development Control Plan (DCP) 2014 Part 4.5 Macquarie Park Corridor is the more detailed planning framework used to guide future development in the Macquarie Park Corridor. The DCP sets in place urban design guidelines such as the Open Space Network Plan which includes Central Park and the new road Access Network Structure Plan, established to achieve the vision for Macquarie Park as a vibrant community, as a place to live, work and visit.

The Open Space Network Plan (Figure 3.1) is a Ryde City Council map indicating the open space networks proposed across the Macquarie Park Corridor.



Figure 3.1: Open Space Network
(Source: Ryde Development Control Plan (DCP) 2014)

The Access Network Structure Plan (Figure 3.2) indicates the proposed street networks and activity centres aimed to enhance access throughout built environment.



Figure 3.2: Access Network Structure Plan
(Source: Ryde Development Control Plan (DCP) 2014)

Legend

- Study area boundary
 - Current street grid
 - M2
 - Cemetery
 - Existing passive open space
 - Railway station entry/exit
 - Existing significant trees to be retained
 - Urban plaza
 - Proposed passive open space
 - Proposed active open space
 - Lane Cove National Park
 - Fitness trail
 - Proposed new 20m road
 - Proposed new 10m road
 - Proposed new 14.6m road
 - Proposed future road (flexible location)
 - Railway station entry/exit
 - Activity Centre
 - Active Frontages
1. Macquarie University Open Space
 2. Bouens Reserve
 3. Shrimplons Creek Main Park
 4. Shrimplons Creek Linear Park Extension with oval
 5. Central Park
 6. Thomas Holt Drive Park
 7. TCA central open space
 8. Fitness Trail
 9. North Ryde Station Park
 10. Riverside Park

ITEM 3 (continued)

ATTACHMENT 2

DCP 2014 Part 4.5 Macquarie Park Corridor - Street Typologies

New streets (indicated by the Access Network Structure Plan - see figure 3.2) are to be dedicated to Council as part of a VPA.

- 14.5m wide streets (refer figure 4.1)
- 20m wide streets (refer figure 4.2)
- 8m pedestrian pathways between buildings (refer figure 4.3)



Figure 4.3: Pedestrian Ways - Typical Section
(Source: Ryde DCP 2014)

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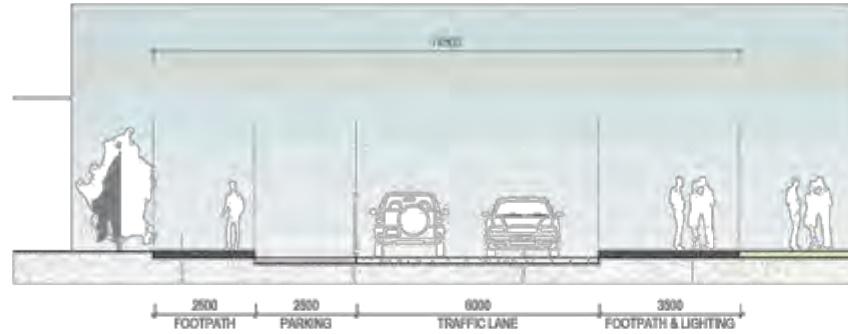


Figure 4.1: 14.5m Wide Streets - Typical Section
(Source: Ryde DCP 2014)

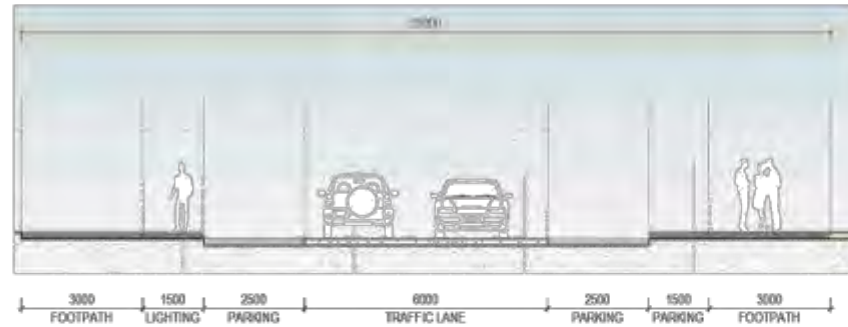


Figure 4.2: 20m Wide Streets - Typical Section
(Source: Ryde DCP 2014)

Macquarie Park Masterplan February 2016 Page 6

ITEM 3 (continued)

ATTACHMENT 2

Park Planning Proposal

The Park Planning Proposal seeks to amend the existing planning controls to accommodate a 7,000m² public park (Central Park) on the site.

Amendments proposed to Base Planning Controls

FSR Controls:

- The Planning Proposal transfers FSR from the areas identified for Central Park to the remainder of the site to maintain the sites development potential (Figure 5.1). This results in an FSR of 2.26 across the remainder of the site
- Maximum GFA = 72,290m² approx.

HOB Controls:

- The Planning proposal amends the controls to 30m to most of the site and 37m along the frontage of Waterloo Road (Figure 5.2)

Amendments proposed to Incentive Planning Controls (Amendment No. 1):

- Similar to the Base Planning Controls, the Planning Proposal seeks to transfer FSR from the areas identified for Central Park to the remainder of the site to maintain the sites development potential (Figure 5.3). This results in an FSR of 3.66 across the remainder of the site
- Maximum GFA = 117,072m² approx.
- HOB is maintained at 65m, excluding Central Park

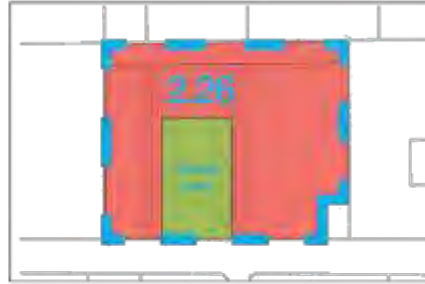


Figure 5.1 Ryde LEP FSR Map revised
(Source: JBA Planning Proposal)

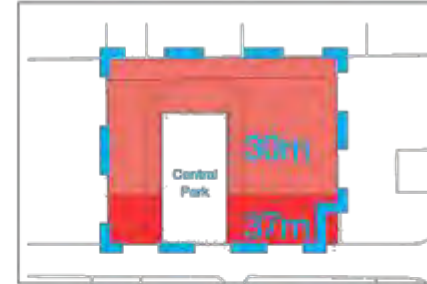


Figure 5.2 Ryde LEP HOB Map revised
(Source: JBA Planning Proposal)

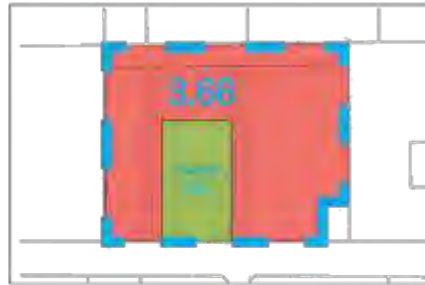


Figure 5.3 Amendment No.1 LEP FSR Map revised
(Source: JBA Planning Proposal)

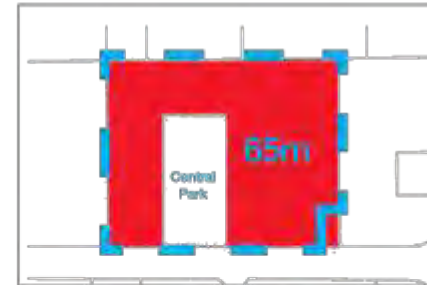


Figure 5.4 Amendment No.1 LEP HOB Map revised
(Source: JBA Planning Proposal)

ITEM 3 (continued)

ATTACHMENT 2

Central Park

Specific controls for Central Park:

- Central Park is to be located abounding Waterloo Road
- Implement new roads in accordance with Figure 3.2 on both sides of the Central Park
- Provide 10 park benches and 10 bicycle parking spaces
- Where practicable provide turf detention basin to minimum 50% of park area as the Central Park is on the overland flow alignment
- A concept design for Central Park has been prepared by Ryde City Council, refer Figure 6.1



- A. Granite paving/promenade with BBQ and picnic facilities
B. Informal multi-use field
C. 'Waterfall' water feature
D. 'River' water channel
E. 'Rock shelf' sandstone monoliths with planting
F. Fitness station
G. Entry water feature floored artwork
H. Existing trees in decomposed granite
I. Proposed Corymba maculata trees in decomposed granite
J. Artwork screen to existing electrical substation
K. Biometrically safe and shade structure
L. Alcove seating
M. Seating throughout park

Figure 6.1: Central Park Concept Design
(Source: Ryde City Council)

Figure 5.3.2 Character Images

1. Recreational night-time use (Moonlight cinema, Aspect Studios image library)
2. Group gatherings (BBQ area, Aspect Studios image library)
3. Large turf area (Citroen Park, Paris, G.Clement, 'Invested Landscapes', p.115)
4. Seating wall steps (Garden of the Ceres de San Bernado, 'Fieldwork', p.117)
5. Detention basin (Victoria Park, Sydney, Aspect Studios image library)



Figure 6.2: Central Park Concept Images
(Source: Ryde DCP 2014 Part 4.5)

ITEM 3 (continued)

ATTACHMENT 2

Macquarie Park Site Map

The opportunity to improve the urban landscape in the precinct is strongly supported by the Ryde City Council. The proposal aims to enhance an activated realm of Central Park creating places for people to stop, sit and participate.



Figure 7.2: Site Map

- 1 Site (45-61 Waterloo Rd, Macquarie Park)
- 2 Macquarie Park Train Station

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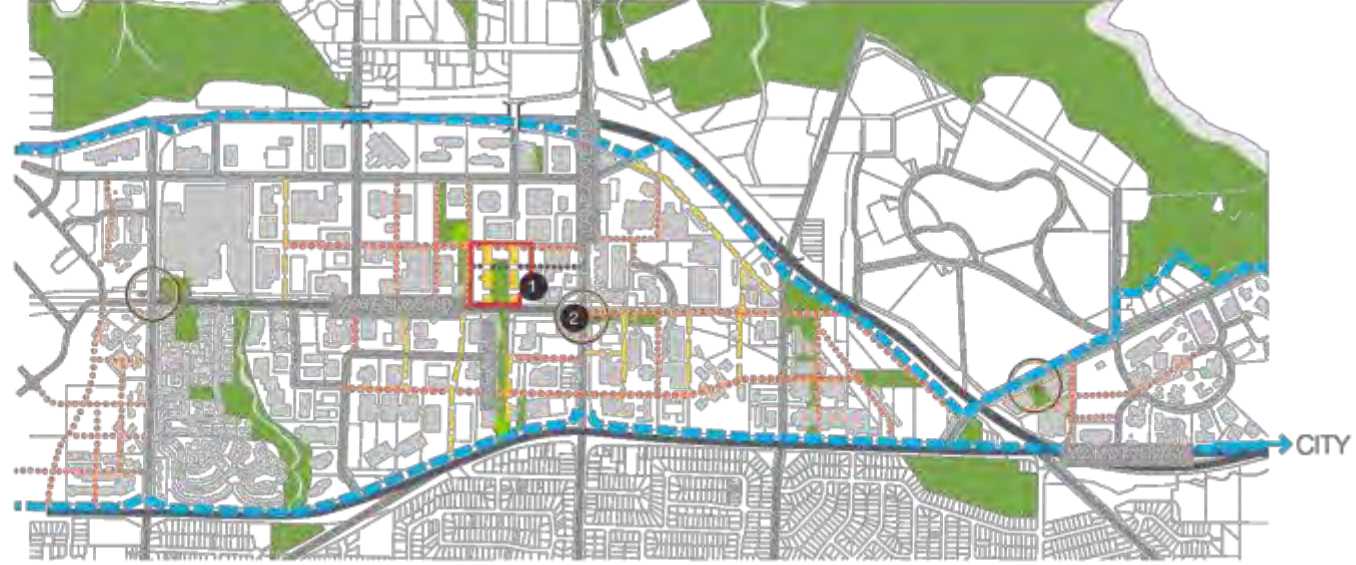


Figure 7.1: City of Ryde Macquarie Park map
(Source: Macquarie Park Public Domain Technical Manual)

- Green connection to Central Park - located in the open space network
- Pedestrian access prioritised in the 'Macquarie Park Public Domain Technical Manual'
- New road link through site (encouraged North to South intersection)
- Development of street network directly relates to open space network structure plan
- 7,000m² Central Park to be allocated on the proposed site
- The set out location of the park is determined by the new proposed streets
- Central Park to be 63m wide to the Waterloo Road street frontage

Legend

- Site Boundary
- Public open space
- New 20m Roads
- New 14.5m Roads
- Future 2.5m pedestrian link to Lane Cove Road Bus Stop (Flexible location)
- Macquarie Park Corridor
- Existing public streets
- M2 Motorway
- Train Stations
- Green Link



Macquarie Park Masterplan February 2016 Page 9

ITEM 3 (continued)

ATTACHMENT 2

Macquarie Park Site Map - Transport

The proximity to public transport and other amenities is within walking distance to the site promoting pedestrian access to transportation networks such as:

- Macquarie Park Train Station (less than a 5min walk)
- Macquarie Park Bus Interchange (less than a 15min walk)

Parking controls of 1 space / 46m² GFA and 1 space / 80m² GFA apply to the site (Figure 8.2). These are maximum calculations which are not anticipated to be required for this site due to the site's close proximity to various public transportation options.

- 1 Site (65-61 Waterloo Rd, Macquarie Park)
- 2 Macquarie Park Train Station
- 3 Macquarie University Train Station & Bus Interchange
- 4 Macquarie Shopping Centre

WOODSAGOT.COM

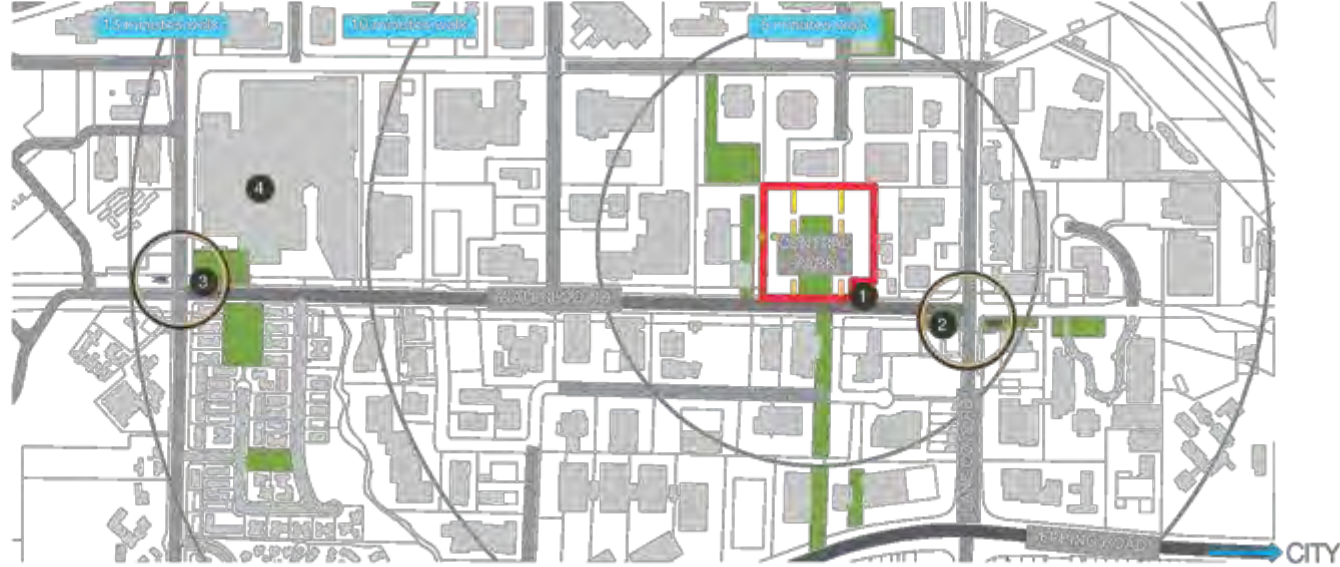


Figure 8.1: City of Ryde Macquarie Park map
(Source: Macquarie Park Public Domain Technical Manual)

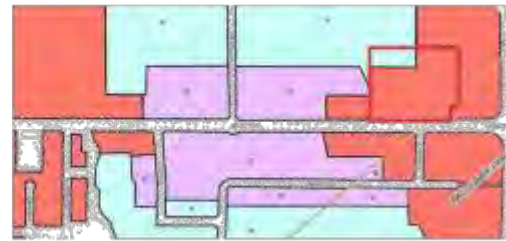


Figure 8.2: City of Ryde Macquarie Park Parking Restrictions map
(Source: Ryde LEP 2014)

Legend

- Site Boundary
- Public open space
- New 20m Roads
- New 14.5m Roads
- Future 2.5m pedestrian link to Lane Cove Road Bus Stop (Flexible location)
- Macquarie Park Corridor
- Existing public streets
- M2 Motorway
- Train Stations
- Green Link

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ATTACHMENT 2

Site Controls

DCP 2014 Part 4.5 Macquarie Park Corridor

Minimum setbacks and build-to lines:

- Zero setbacks / build-to lines to Primary Active Frontage
- 5m setback to all existing and new streets unless otherwise specified
- 10m setback to Waterloo Road and Telavera Road
- 5m built form setback to all parks
- Provide 2m setbacks to pedestrian pathways (unless within a building)

Building separation:

-20m separation between buildings facing each other and 10m separation (perpendicular to each other) is preferred to maintain the DCP objectives, however this is flexible provided building separation principles are considered (refer figure 9.2) - solar access, deep soil planting, visual breaks, an outlook from buildings and visual privacy

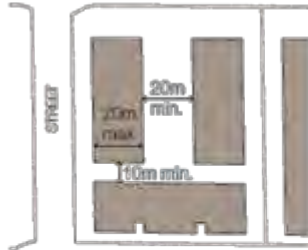


Figure 9.2: Commercial Building Separation Diagram
(Source: Ryde DCP 2014 Part 4.5 Macquarie Park Corridor)

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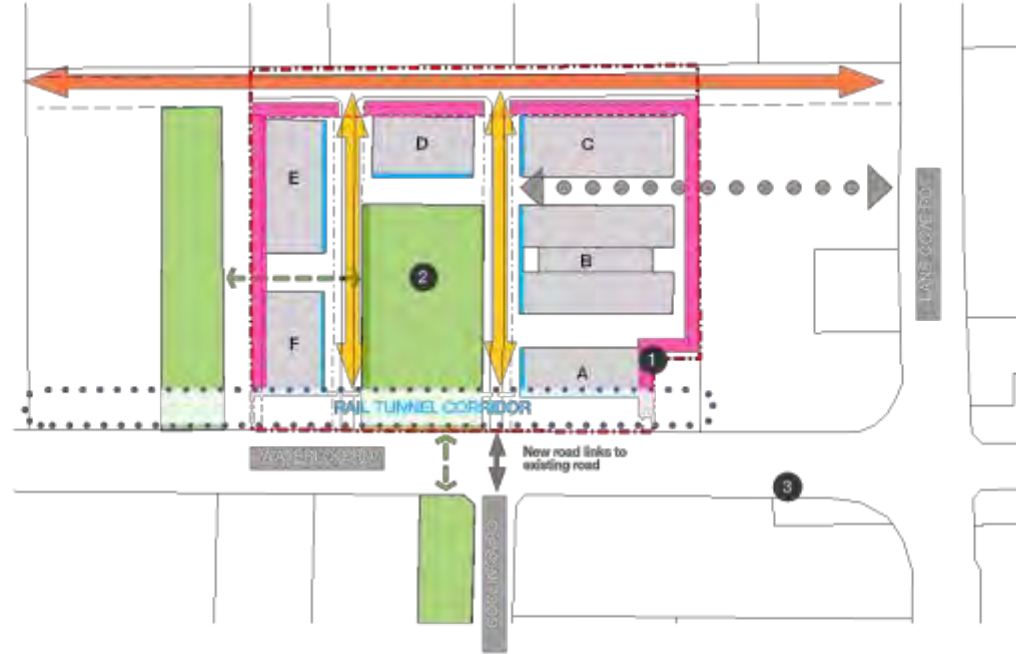


Figure 9.1: Site Controls Map

Legend

- - Site
- - 5m Setback to built form
- - 0m Setback to Primary active Frontage
- - Future 14.5m Road
- - Future 20m Road
- - Future Pedestrian link (flexible location)
- - Green link
- 1 Site (45-61 Waterloo Rd, Macquarie Park)
- 2 Central Park
- 3 Macquarie Park Station

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ITEM 3 (continued)

ATTACHMENT 2

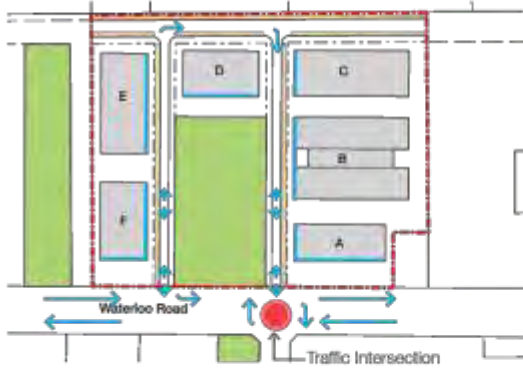
Urban Diagrams

Key Urban characteristics within the site:

- A traffic intersection at Waterloo Road would encourage the proposed road typologies to integrate with the existing road networks
- Building address to the park activates the street frontages for plazas and forecourts

Legend

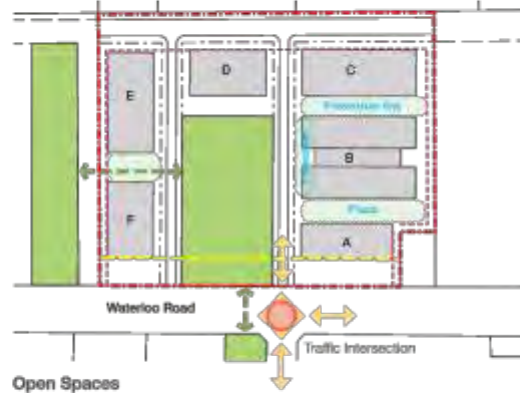
- Site
- 5m Setback to built form
- 10m Setback to Waterloo Road (Rail tunnel corridor)
- On grade street car parking
- 0m Setback to Primary active Frontage
- Green Link



Vehicular Movement

- A new traffic circle would promote usage of the new road network
- The sites future roads promote circulation and areas for drop off locations
- On grade car parking will be integrated with the proposed new roads

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Open Spaces

- Central Park set out is determined by the new intersection at Coolings Road
- The new 14.5m road is aligned to the centre of the new intersection
- Forecourts link to Central Park & Pedestrian link to Lane Cove road
- Plaza connectivity between buildings



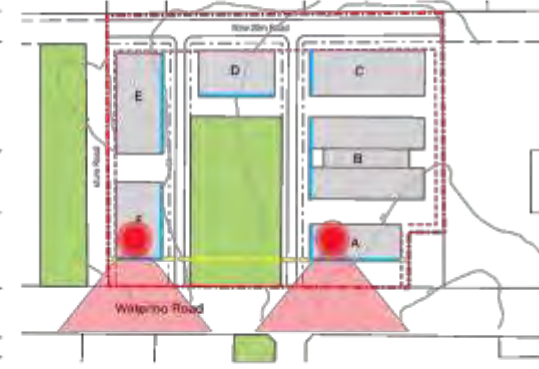
Access Diagram

- Address to the park encourages activate street frontage
- Connected access via the park address



Primary Active Street Frontage

- Zero setback to primary active street frontage
- 10m setback to Waterloo Road



Site Characteristics

- 7m fall across the site
- Buildings A and F have hierarchy to the primary frontage on Waterloo Road
- The rail tunnel corridor setback creates an opportunity to activate the street frontage to Waterloo Road

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ITEM 3 (continued)

ATTACHMENT 2

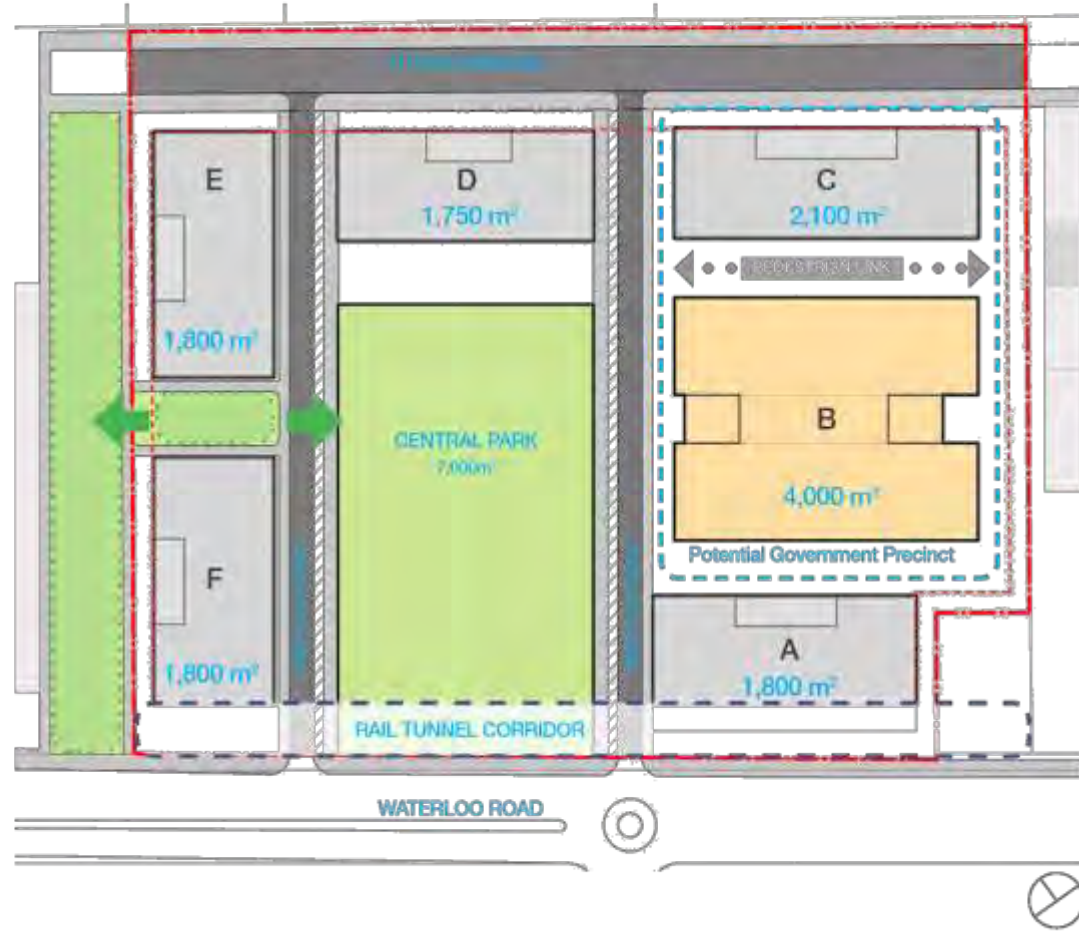
Proposed Masterplan

Masterplan key features:

- Building B provides 25,000 m² NLA building for one tenant without triggering the planning incentive scheme
- 2,000 m² optimum floor plate (1500 m² min)
- Side core building with the exemption of Building B
- Active frontage to the park
- Opportunity for staged development
- Building orientation provides good solar access
- No land locked buildings
- Access to park from all buildings
- All buildings have an address
- Park width of 63m and area of 7,000m²

Proposed Masterplan Planning Principles:

- The Railway corridor setback depicts the building set out from Waterloo Road (approximately 13m)
- The proposed roads in the Ryde Access Network Plan (refer figure 3.2) determines the set out of the proposed Central Park
- The intersection of the future road to Coolinga Road aligns to the existing road network



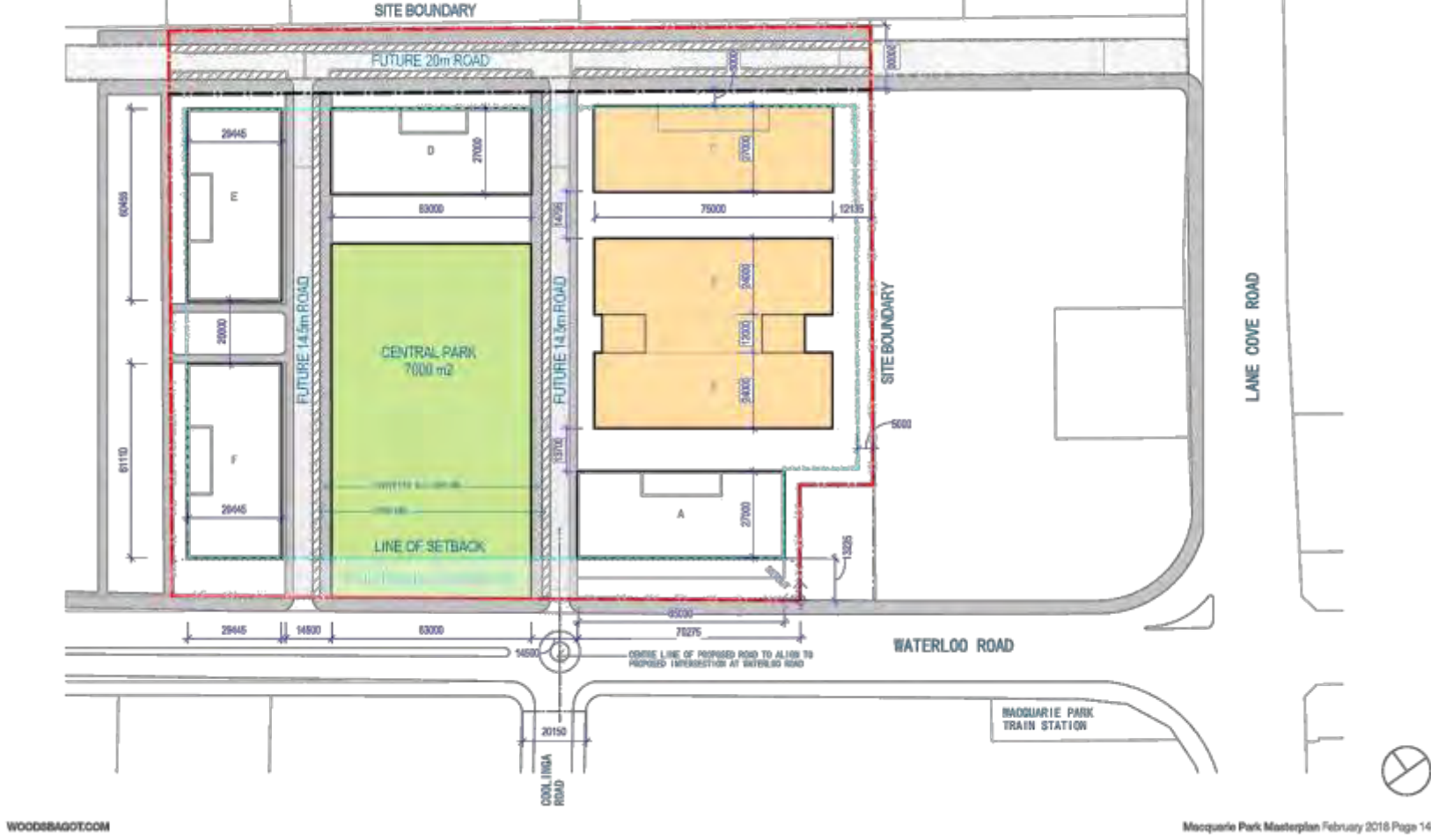
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ATTACHMENT 2

Masterplan Principles Diagram

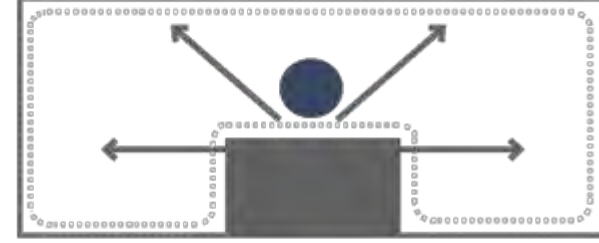


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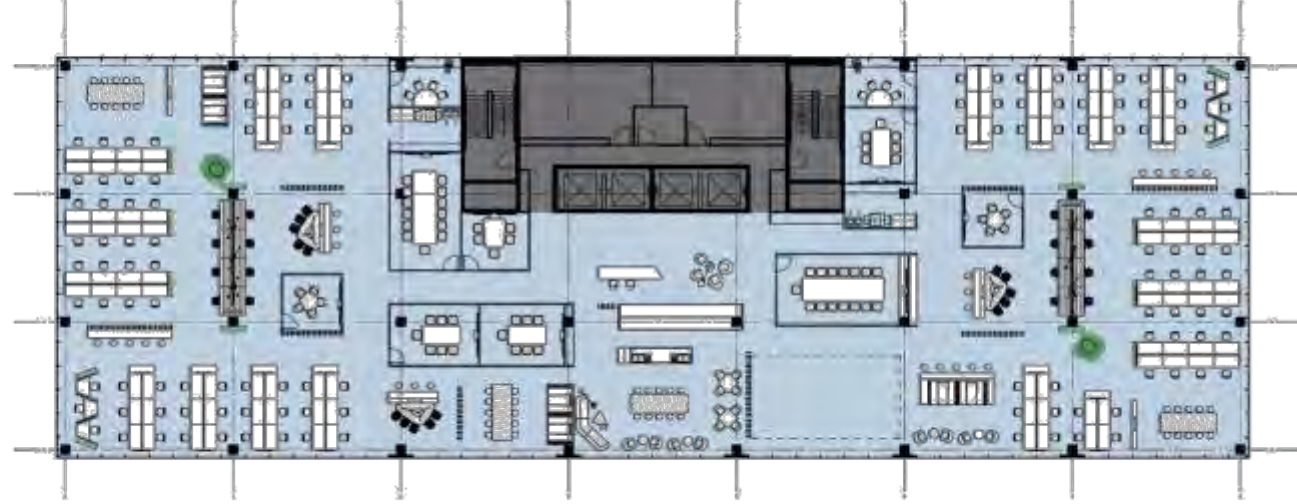
ATTACHMENT 2

Office Floor Plate Guide

An embedded core incorporates a centralised floor plate to encourage efficiency and flexibility. A connected workplace is achieved by means of integrated accessibility to the central circulation of the building.



- Appropriate floor plate size for Ryde: 1500 – 2000 sqm NLA
- Grid based on 1500mm module
- Structural grid 9 x 12 or 9 x 10.5,
- Columns on perimeter or around 3m cantilevers
- Minimal columns on floor plate
- Maximum building depth 27m,
- Rectangular, simple floor plate, should be sub-dividable
- Side core arrangement ideal, core not on rectangular plate
- If 2 rectangular plate arrangement with centre atrium core elements should be located within atrium zone, not on the floor plate



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ITEM 3 (continued)

ATTACHMENT 2

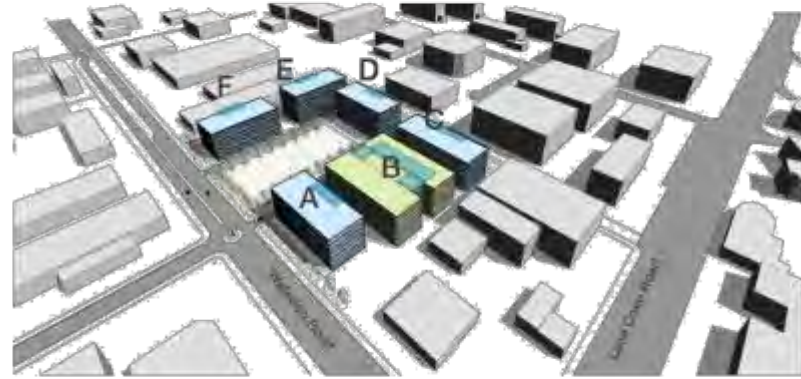
Base Planning Controls Yield

Table 2.1 - Masterplan - FSR 2.26 Maximum (base planning controls)

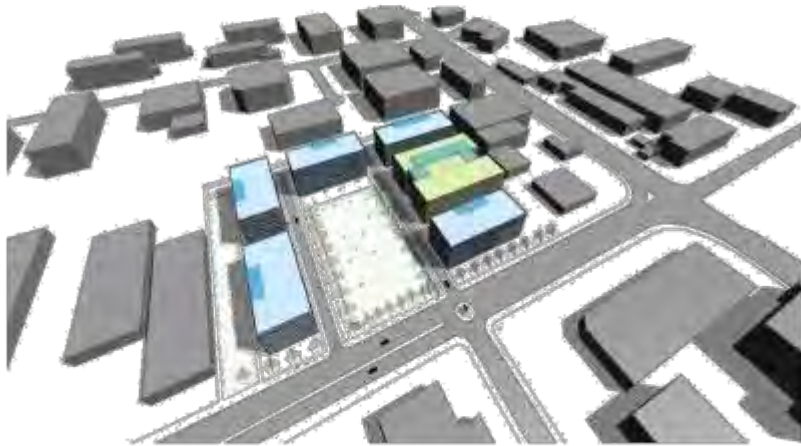
Building	GBA Floor plate	GFA/ floor (90% GBA)	Storeys	HCB (3.8m per floor)	GFA per building	NLA per building (90% GFA)	NLA / Floor**
A	1,800	1,620	5	19	8,100	7,290	1,458
B	4,000	3,600	8	30	28,800	25,920	3,240
C	2,100	1,890	6	23	11,340	10,206	1,701
D	1,750	1,575	5	19	7,785	7,088	1,418
E	1,800	1,620	5	19	8,100	7,290	1,458
F	1,800	1,620	5	19	8,100	7,290	1,458
Total					72,315	65,894	
Site Area					31,901		
FSR					2.25		

*Maximum site GFA at FSR 2.26 = 72,315m²

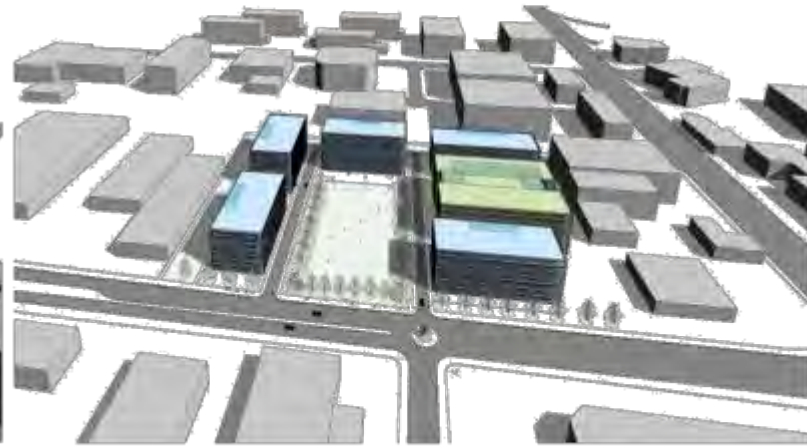
**Note: NLA / Floor calculation is an average across whole building - actual ground level will be less NLA to account for common areas (e.g., lobby), while other floors will be more efficient and so will have a higher NLA.



Proposed Masterplan



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ITEM 3 (continued)

ATTACHMENT 2

Amendment No. 1 Yield

Masterplan layout remains the same under the Base Planning Controls & Amendment No. 1
Additional GFA is achieved through increased building height

Table 3.1 - FSR 3.66 Maximum (Amendment No.1)

Building	GBA Floor plate	GFA/ floor (90% GBA)	Storeys	HOB (3.6m per floor)	GFA per building	NLA per building (90% GFA)	NLA / Floor**
A	1,800	1,620	10	36	16,200	14,580	1,458
B	4,000	3,600	10	36	36,000	32,400	3,240
C	2,100	1,890	10	36	18,900	17,010	1,701
D	1,700	1,530	9	34	13,770	12,393	1,377
E	1,800	1,620	10	36	16,200	14,580	1,458
F	1,800	1,620	10	36	16,200	14,580	1,458
Total					117,270	106,943	
Site Area					31,987		
FSR					3.666		

*Maximum site GFA = 117,072m²

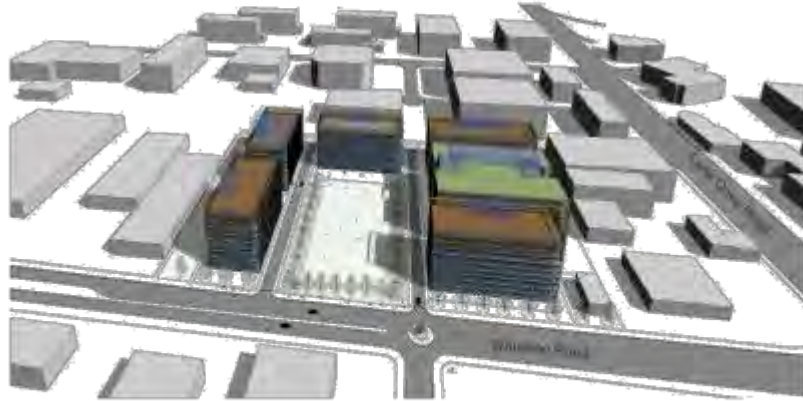
**Note: NLA / Floor calculation is an average across whole building - actual ground level will be less NLA to account for common areas (e.g., lobby), while other floors will be more efficient and so will have a higher NLA.



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Proposed Amendment 1 (10 storeys)



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- View 1 is taken from West looking from Waterloo Road (highlighted focus on the Government building shown in orange)
- View 2 is an similar view point but a higher level showing the higher yield achieved under Amendment No.1

Visualisation - Site map



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View 1 - Base Planning Controls

West View from Waterloo Road



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View 2 - Amendment No.1

Higher Level View from Waterloo Road



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ATTACHMENT 2



Planning Proposal



45-61 Waterloo Road, Macquarie Park

Amendments to Ryde Local Environmental Plan 2014

Submitted to City of Ryde Council

On Behalf of Government Property NSW

February 2016 ■ 15641

JBA Urban Planning Consultants Pty Ltd AEN 84 060 735 104 North Sydney ☎ +61 2 9556 6962 www.jbaurban.com.au

ITEM 3 (continued)

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JBA operates under a Quality Management System that has been certified as complying with ISO 9001:2008. This report has been prepared and reviewed in accordance with that system. If the report is not signed below, it is a preliminary draft.

This report has been prepared by:



Timothy Smith

3/02/2016

This report has been reviewed by:



Michael Rowe

3/02/2016

ITEM 3 (continued)

ATTACHMENT 2

45-81 Waterloo Road, Macquarie Park • Amendment to Ryde LEP 2014 | February 2016

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45-01 Waterloo Road, Macquarie Park - Amendment to Ryde LEP 2014 | February 2016

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45-01 Waterloo Road, Macquarie Park - Amendment to Ryde LEP 2014 | February 2016

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- A Indicative Draft Plan of Subdivision
Mapstead and Associates
- B Draft Amended LEP Maps
JBA

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ATTACHMENT 2

45-61 Waterloo Road, Macquarie Park - Amendment to Ryde LEP 2014 | February 2016

1.0 Introduction

This Planning Proposal is submitted to the City of Ryde Council (Council) on behalf of Government Property NSW. The Planning Proposal is written to support the rezoning of part of 45-61 Waterloo Road, Macquarie Park (the site) from B3 Commercial Core to RE1 Public Recreation and associated amendments to *Ryde Local Environmental Plan 2014*.

The strategic need for high quality public open space in the form a 'central park' within the Macquarie Park Corridor is a well-established priority for both Council and the Department of Planning and Environment. The Department of Planning and Environment has provided \$6million to Council to fund the acquisition and embellishment of the park. The funding agreement requires embellishment of the park to be completed by Council by no later than 30 June 2017. The proposed amendments will facilitate the future delivery of this 7,000m² public park by Council, whilst providing for no net loss of development potential from the remaining portion of the site.

Specifically, the Planning Proposal seeks to:

- rezone a 7,000m² portion in centre of the site fronting Waterloo Road from B3 Commercial Core to RE1 Public Recreation;
- amend the maximum floor space ratio (FSR) development standard in order to:
 - remove the FSR limit applying to the new area zoned RE1 Public Recreation; and
 - evenly distribute the park site area and existing split FSRs of 1:1 and 2:1 at a unified rate of 2.26:1 across the land zoned B3 Commercial Core;
- amend the maximum height of building development standard to:
 - remove the height limit applying to the new area zoned RE1 Public Recreation; and
 - amend the height controls in the south-west corner of the site to reflect those adjacent and the proposed location of the park;
- include the 7,000m² public open space area on the relevant Land Acquisition Reservation Map as "Local Open Space";
- amend the Macquarie Park Corridor Precinct Incentive Floor Space Ratio Map in order to:
 - remove the FSR limit applying to the new area zoned RE1 Public Recreation; and
 - distribute the existing FSR at a rate of 3.66:1 across the land zoned B3 Commercial Core;
- amend the Macquarie Park Corridor Precinct Incentive Height of Buildings Map in order to remove the height limit applying to the new area zoned RE1 Public Recreation.

This Planning Proposal describes the site, the proposed amendments to the LEP, and provides an environmental assessment. The report has also been written in accordance with the Departments *Guide to Preparing Planning Proposals* and *Guide to Preparing Local Environmental Plans*.

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45-61 Waterloo Road, Macquarie Park « Amendment to Ryde LEP 2014 | February 2016

2.0 Background

2.1 Macquarie Park Corridor Planning Proposal

To support growth and development in Macquarie Park, Council identified that the area requires substantial new infrastructure (including new roads and open space) to meet the needs of existing and future residents and workers.

In 2012 Council engaged a multidisciplinary consultant team - comprising traffic planners, urban designers, land economists and planners to prepare a feasibility assessment in relation to the planning incentives (additional height and floor space) and to make recommendations to ensure that council could leverage proposed new open space and roads through the development process.

In addition to providing FSR and height incentives for the Macquarie Park Corridor, the Recommendation Paper specifically identified the provision of a new Central Park in the centre of the site along with three new roads.

The recommendations of the review were then incorporated into the Macquarie Park Corridor Planning Proposal, which was also known as 'Amendment 1'. Consistent with Recommendation Paper the purpose of Amendment 1 was to add height and FSR development standards for the Macquarie Park Corridor to enable the implementation of new roads and parks that will support employment growth and the evolution of the Macquarie Park Corridor from business park to specialised employment centre with a continued focus on research and technology. On 11 September 2015 Amendment 1 was gazetted and incorporated a new clause 6.9 into LEP 2014 (herein after referred to as the Macquarie Park Incentive Clause).

The amendments sought under this Planning Proposal to allow for the future provision of the Central Park forms part of the public open space infrastructure Amendment 1 and the Recommendations Paper identified should be delivered in Macquarie Park.

2.2 Site History

The site is owned by Government Property NSW, and is one of the largest single ownership land holdings within the Macquarie Park Corridor. The site currently comprises a single building, which has been unused for a number of years. Government Property NSW has been undertaking a range of studies to determine the highest and best use of the site.

In August 2015, Government Property NSW, the Department and Council met to discuss the proposed pathway to secure the delivery of the new park identified as part of Council's strategic planning for the Corridor. It was agreed at the meeting that Government Property would be responsible for preparation of a planning proposal to rezone the part of the site for RE1 Public Recreation and transfer the FSR from the park area to the remaining site and identify the park for acquisition by Council.

The Department of Planning and Environment has provided \$6million to Council to fund the acquisition and embellishment of the park. The funding agreement requires embellishment of the park to be completed by Council by no later than 30 June 2017.

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ATTACHMENT 2

45-61 Waterloo Road, Macquarie Park • Amendment to Ryde LEP 2014 | February 2016

3.0 Site Description

3.1 Site Location and Context

The site is located at 45-61 Waterloo Road, Macquarie Park, and is within the City of Ryde Local Government Area.

The Macquarie Park Corridor is a 75km² employment centre located equidistant from the Sydney Central Business District and Parramatta City Centre. Employment within the Corridor exceeds 39,000 and more than 30,000 students attend Macquarie University. The corridor is bounded by arterial roads – the M2 Motorway, Epping Road and Delhi Road. On the southern side of Epping Road the Corridor is adjoining by low density residential development.

The Macquarie Park Corridor forms a part of Sydney's Global Economic Corridor and a specialised commercial precinct, with more than 800,000m² of commercially zoned land, being a mix of B3 Commercial Core, B4 Mixed Use and B7 Business Park.

The site is located on the western side of Waterloo Road to the north of its intersection with Lane Cove Road.

The immediate context of the site is a mix of low to medium rise commercial, light industrial and warehouse development. Relatively recent commercial developments including 52-58 Waterloo Road, 394 Lane Cove Road and 7-23 Talavera Road are generally 6-8 stories in height. Older development sites are typically lower in height.



Figure 1 - Site Location Plan

ITEM 3 (continued)

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45-61 Waterloo Road, Macquarie Park • Amendment to Ryde LEP 2014 | February 2016

3.2 Site Description

The site is legally described as Lot 102 in DP1130630, and an aerial photograph has been provided at Figure 2. The land is owned by Government Property NSW, and the site has a total area of 3.897Ha. The site is rectangular in shape, with a site width of approximately 221m, and a site length of approximately 178m.

The site generally slopes from a high point at the east towards the west of the site. A gully runs along the western frontage of the site, which is bisected by the property boundary between the site and adjacent 63-71 Waterloo Road. The site contains vegetation around the property boundaries, and only contains scattered trees throughout the middle of the site.

For the purposes of this Planning Proposal, the site has been referred to under the following boundary directions:

- 7-11 Talavera Road: Northern boundary.
- 35-41 Waterloo Road: Eastern boundary.
- Waterloo Road: Southern boundary.
- 63-71 Waterloo Road: Western boundary.

Photographs of the site have been provided at Figures 3 to 6 below.



Figure 2 – Aerial photograph of site

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45-61 Waterloo Road, Macquarie Park » Amendment to Ryde LEP 2014 | February 2016



Figure 3 - Existing building at the site



Figure 4 - Primary site access

ITEM 3 (continued)

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45-61 Waterloo Road, Macquarie Park • Amendment to Ryde LEP 2014 | February 2016



Figure 5 – The site, as viewed from Waterloo Road at the main entrance



Figure 6 – South-western corner of the site, including secondary access from Waterloo Road

3.3 Surrounding Development

As the case is for many sites within Macquarie Park, the site interfaces with a variety of building typologies. Photographs of the various building types surrounding the site have been reproduced at Figures 7 to 11.

To the north of the site are a variety of medium density commercial buildings separated by private green spaces, with heights ranging between approximately 5-7 storeys.

To the east of the site is a three storey office building, as well as a warehousing building further to the north-east. The warehousing building currently has a zero lot boundary to the site, with no windows along the relevant wall.

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45-61 Waterloo Road, Macquarie Park » Amendment to Ryde LEP 2014 | February 2016

To the south-east of the site is also a small building used by Sydney Trains for servicing of the Epping-Chatswood Railway Line. This land is owned by Sydney Trains, and accordingly does not form part of this Planning Proposal.

Due to the length of the site's frontage to Waterloo Road, to the south of the site are a range of office and warehousing developments. These sites are on the opposite side of Waterloo Road, and include:

- the Macquarie Park Station portal at 42 Waterloo Road;
- the eight storey Hyundai Building at 394 Lane Cove Road;
- the two storey warehouse / office building at 36 Waterloo Road;
- the warehouse / office building at 50 Waterloo Road; and
- the seven storey 'Novartis' office building at 52 Waterloo Road.

To the west of the site is a two story office / warehouse building used by TPG.



Figure 7 – Office development to the east of the site

ITEM 3 (continued)

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45-61 Waterloo Road, Macquarie Park « Amendment to Ryde LEP 2014 | February 2016



Figure 8 – Sydney Trains building to the south-east of the site



Figure 9 – Macquarie Park station entrance, and buildings to the south of Waterloo Road

ITEM 3 (continued)

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45-61 Waterloo Road, Macquarie Park • Amendment to Ryde LEP 2014 | February 2016



Figure 10 – 'TPG' building to the west of the site



Figure 11 – 'Novartis' building to the south of the site

ITEM 3 (continued)

ATTACHMENT 2

45-61 Waterloo Road, Macquarie Park - Amendment to Ryde LEP 2014 | February 2016

4.0 The Proposal

This Planning Proposal seeks to facilitate the future delivery of a new park, whilst providing for no net loss of development potential from the remaining portion of the site. In order to achieve this, the following amendments to Ryde LEP 2014 are proposed:

- rezone a 7,000m² portion in centre of the site fronting Waterloo Road from B3 Commercial Core to RE1 Public Recreation;
- amend the maximum floor space ratio (FSR) development standard in order to:
 - remove the FSR limit applying to the new area zoned RE1 Public Recreation; and
 - evenly distribute the park site area and existing split FSRs of 1:1 and 2:1 at a unified rate of 2.26:1 across the land zoned B3 Commercial Core;
- amend the maximum height of building development standard to:
 - remove the height limit applying to the new area zoned RE1 Public Recreation; and
 - amend the height controls in the south-west corner of the site to reflect those adjacent and the proposed location of the park;
- include the 7,000m² public open space area on the relevant Land Acquisition Reservation Map as “Local Open Space”;
- amend the Macquarie Park Corridor Precinct Incentive Floor Space Ratio Map in order to:
 - remove the FSR limit applying to the new area zoned RE1 Public Recreation; and
 - distribute the existing FSR at a rate of 3.66:1 across the land zoned B3 Commercial Core;
- amend the Macquarie Park Corridor Precinct Incentive Height of Buildings Map in order to remove the height limit applying to the new area zoned RE1 Public Recreation.

The proposal does not result in any additional FSR potential on the site.

This section of the report describes the future amendments to the Ryde LEP 2014 to facilitate the Proposal.

4.1 Proposed Amended Maps

The following amendments to the maps under the Ryde LEP 2014 are proposed. Amended Draft LEP Maps are included at **Appendix B**.

Land Zoning Map

Sheet LZN_004 will be amended to rezone a 7,000m² area in centre of the site fronting Waterloo Road from B3 Commercial Core to RE1 Public Recreation (see **Figure 12**).

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45-61 Waterloo Road, Macquarie Park - Amendment to Ryde LEP 2014 | February 2016



Figure 12 – Amended Land Zoning Map

Floor Space Ratio Map

Sheets FSR_004 and FSR_005 will be amended to remove the FSR control as it applies to the area now zoned RE1 Public Recreation and apply an FSR of 2.26:1 to the area zoned B3 Commercial Core (see Figure 13).

The parts of the site mapped 1:1 and 2:1 have areas of 5,599m² and 33,388m² respectively. The proposed change evenly redistributes the existing development potential provided by the two FSRs evenly across the land zoned B3.



Figure 13 – Amended FSR Map

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45-61 Waterloo Road, Macquarie Park - Amendment to Ryde LEP 2014 | February 2016

Height of Buildings Map

Sheet HOB_004 (see Figure 14) will be amended to:

- remove the height control as it applies to the area now zoned RE1; and
- increase the 9m height limit in the south-west part of the site to reflect those adjacent (37m along Waterloo Road frontage, 30m away from frontage).



Figure 14 - Amended Height of Buildings Map

Land Reservation Acquisition Map

Sheet LRA_004 will be amended to the land zoned RE1 Public Recreation as land identified for acquisition "Local Open Space" (see Figure 15).



Figure 15 - Amended Land Reservation Acquisition Map

ITEM 3 (continued)

ATTACHMENT 2

45-01 Waterloo Road, Macquarie Park - Amendment to Ryde LEP 2014 | February 2016

Incentives Floor Space Ratio Map

Sheets MFS_004 and MFS_005 will be amended to remove the FSR control as it applies to the area now zoned RE1 Public Recreation and apply an FSR of 3.66:1 to the area zoned B3 Commercial Core (see Figure 16).

The site currently has an incentives floor space ratio of 3:1, which extends across the whole site. The proposed change evenly redistributes the existing development potential provided by the existing incentive FSR evenly across the land zoned B3 Commercial Core.



Figure 16 – Amended Incentives FSR Map

Incentives Height of Buildings Map

Sheet MHB_004 (see Figure 17) will be amended to remove the height control as it currently applies to the area now zoned RE1 Public Recreation.



Figure 17 – Amended Incentives Height of Buildings Map

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5.0 Need for the Planning Proposal

The existing planning controls in Ryde LEP 2014 do not reflect the desire of Council to deliver a large, high quality area of public open space capable of being used for both active and passive recreation purposes within close proximity to Macquarie Park railway station.

The need for additional public open space to attract corporations and businesses to Macquarie Park is noted within numerous studies undertaken for the Macquarie Park corridor, which have been further discussed at **Section 5.1** below.

Whilst noting the need for additional public open space, there is also a need to ensure that the provision of that open space does not result in any net loss of development potential and associated future employment provision on the site, under both the existing and incentive floor space controls.

In light of the above, a Planning Proposal is required to both provide for the open space whilst enabling an associated redistribution of development potential on the remainder of the site.

5.1 Is the Planning Proposal a result of any strategic study or report?

The planning of the Macquarie Park Corridor is informed by several studies including:

- Allen Jack and Cottier, (2008) Macquarie Park DCP (now known as Ryde DCP 2010 Part 4.5 Macquarie Park Corridor)
- Aspect Studios, (2008) Macquarie Park Public Domain Technical Manual
- Bitzios Consulting, (2008) Macquarie Park Growth Model: Transport Management Plan
- Space Syntax, (2010) Macquarie Park Baseline Movement Economy Report
- Drew Bewsher and Associates, (2010) Macquarie Park Flood Management Plan
- Coulston, (2012) Ryde Integrated Open Space Plan

In 2012 a multi-disciplinary team was engaged by Council to review the abovementioned (excepting the Flood Study) and to recommend:

- Height and Floor Space Ratios for inclusion in Amendment 1 to the Ryde LEP 2014;
- Practicable refinements to the Street, Pedestrian and Open Space Network Structure Plans in Ryde DCP 2010 based on financial feasibility.

Amendment 1 was then supported by the recommendations outlined in the resultant studies including:

- Architectus, (May 2013), Macquarie Park Plan Review Recommendations Paper
- Architectus, (May 2013), Macquarie Park Plan Review Options Paper
- Architectus, (November 2012) Macquarie Park Plan Review Issues Paper

All of the above studies are available on Council's website.

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Specifically, this Planning Proposal provides the planning mechanism to support the implementation of the extensive strategic work referenced above, in regards to a mechanism of delivering public open space on the site.

Of the above studies, the Ryde DCP 2014 Part 4.5 – Macquarie Park Corridor and the Ryde Integrated Open Space Plan make specific reference to the demand for additional public open space, and indicate the site as the preferred location for the delivery of that space.

5.2 Is the Planning Proposal the best means of achieving the objectives or intended outcomes, or is there a better way?

In the preparation of this Planning Proposal, three options were considered to enable the delivery of the public open space at the site. These options have been listed below:

- **Option 1: Do nothing**
The first option considered was to do nothing on the site, and to not rezone the 7,000m² for the purposes of public open space. However this would be contrary to an agreement between Government Property, the Department and Council and would inhibit the provision of the open space, which would be of significant detriment to current and future workers and visitors to the area. Not providing the park would also not make use of the funding grant provided by the Department to Council for the infrastructure. Accordingly this option has not been pursued and a Planning Proposal has been undertaken.
- **Option 2: Site specific clause and redistribution of current floor space ratio**
The second option considered was to redistribute the current FSR across the remainder of the site, but also include a site specific clause that allows for the site area of the park to be proportionately used for the purposes of calculating FSR. This option ensured that any uplift under Amendment 1 of the Ryde LEP 2014 was captured, whilst also ensuring that any future proposal that seeks to utilise that uplift also provides the necessary contribution towards the access network and recreation area upgrades. However, the gazettal of Amendment 1 made this option an overly complicated manner of achieving the same ultimate outcome as the preferred option below.
- **Option 3: Redistribution of the current and incentives floor space ratios under the Ryde LEP 2014**
The third option considered was to amend floor space ratio maps, under both the existing floor space ratio and the incentives floor space ratio. Both maps would be amended to capture the 'lost' floor space potential from the dedication of the RE1 Public Recreation zoned site, and redistribute that potential across the remaining B3 Commercial Core zoned portion of the site. This option avoids the need for a site specific clause, whilst maintaining the existing and incentive floor space potential at the site, and has accordingly been pursued under this Planning Proposal.

5.3 Is there a net community benefit?

There will be a tangible and immediate community benefit arising from this Planning Proposal in the form of the expedition of a much needed, strategically located area of public open space within Macquarie Park. This land has been previously identified as the optimal site for such open space (see Section 5.1), and this Planning Proposal will enable the acquisition and future creation of the park to occur within a timely manner. This open space will ultimately act as a

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catalyst for further development and jobs growth within Macquarie Park and assist with the identified open space shortage within the Macquarie Park Corridor.

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6.0 Strategic and Statutory Framework

This chapter outlines the strategic and statutory planning framework within which the development and conservation outcomes for the land have been considered.

6.1 State and Regional Strategic Framework

6.1.1 NSW 2021

NSW 2021 is a 10 year plan to rebuild the economy, provide quality services, renovate infrastructure, restore government accountability, and strengthen our local environment and communities.

The Planning Proposal will implement some of the core goals of the NSW 2021 Plan, including but not limited to enhancing sporting and recreation opportunities, improving the performance of the NSW economy, increasing the competitiveness of doing business in NSW.

6.1.2 Plan for Growing Sydney

A Plan for Growing Sydney is the current strategic plan for the Sydney metropolitan area. Within A Plan for Growing Sydney, the site is located within the Macquarie Park strategic centre, which itself forms a crucial part of the Global Economic Corridor.

The provision of open space in demanded areas is a high priority within A Plan for Growing Sydney (Directions 3.2 and 3.3). The proposed open space will improve the appeal of nearby office space, whilst also serving nearby short and long term needs of workers and residents (such as students at Macquarie University, residents within the Herring Road and North Ryde Priority Precincts, and residents of the wider Ryde LGA).

The emphasis of provision of high quality commercial floorspace within Macquarie Park is repeatedly emphasised throughout A Plan for Growing Sydney (Directions 1.6, 1.7, North Subregion), and wherever possible this floor space needs to be maintained. This Planning Proposal ensures that the current commercial floor space, and any potential Macquarie Park Incentive floor space is maintained.

6.1.3 NSW Long Term Transport Masterplan

The NSW Long Term Transport Masterplan (Transport Masterplan) has the aim of better integrating land use and transport within metropolitan Sydney. The Transport Masterplan has been prepared to integrate with the overall strategic plan for Sydney.

The proposed development will serve the objectives of the Transport Masterplan by delivering vital public open space which will increase the desirability of doing business within the Macquarie Park corridor; an area strategically located and well serviced by public transport. The facilitation of future development within this location will promote the use of public transport and reduce reliance on private motor vehicles, and any uplift from future Development Applications which seek to take advantage of the 'incentives' Clause 6.9 of the Ryde LEP 2014.

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6.2 State Legislation

6.2.1 Environmental Planning and Assessment Act, 1979

The *Environmental Planning and Assessment Act, 1979* (the EP&A Act) and the *Environmental Planning and Assessment Regulations, 2000* set out amongst other things the:

- requirements for rezoning land;
- requirements regarding the preparation of a local environmental study as part of the rezoning process;
- matters for consideration when determining a development application; and
- approval permits and/or licences required from other authorities under other legislation.

This Planning Proposal has been prepared in accordance with the requirements set out in Section 55 of the EP&A Act in that it explains the intended outcomes of the proposed instrument. It also provides justification and an environmental analysis of the proposal.

Ministerial Directions

Ministerial Directions under Section 117 of the EP&A Act set out a range of matters to be considered when preparing an amendment to a Local Environmental Plan. The relevant Section 117 Directions for this Planning Proposal have been outlined at Table 1 below.

Table 1 – Consistency with Section 117 Directions

Ministerial Directions	Consistent			Comment
	Yes	No	N/A	
Employment and Resources				
1.1 Business and Industrial Zones	✓			The Planning Proposal doesn't reduce the level of potential employment uses within the site, and safeguards the site to benefit from any future uplift associated with the Macquarie Park Incentive Clause.
1.2 Rural Zones			✓	N/A
1.3 Mining, Petroleum Production and Extractive			✓	N/A
1.4 Oyster Aquaculture			✓	N/A
1.5 Rural Lands			✓	N/A
Environment and Heritage				
2.1 Environment Protection Zones			✓	This Planning Proposal facilitates the provision of public open space in an otherwise commercially zoned site. Any assessment of the environmental constraints will be the subject of future Development Application(s).
2.2 Coastal Protection			✓	N/A
2.3 Heritage Conservation	✓			The Planning Proposal will not affect Clause 5.10 which contains provisions relating to heritage items.
2.4 Recreation Vehicle Areas			✓	N/A

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Ministerial Directions	Consistent			Comment
	Yes	No	N/A	
Housing, Infrastructure and Urban Development				
3.1 Residential Zones			✓	N/A
3.2 Caravan Parks and Manufactured Home Estates			✓	N/A
3.3 Home Occupations			✓	N/A
3.4 Integrating Land Use and Transport	✓			The proposal will facilitate the delivery of public open space and commercial floorspace within close proximity to Macquarie Park Station.
3.5 Development Near Licensed Aerodromes			✓	N/A
3.6 Shooting Ranges			✓	N/A
Hazard and Risk				
4.1 Acid Sulfate Soils			✓	The site is not listed as probably containing acid sulfate soils, and accordingly this direction doesn't apply.
4.2 Mine Subsidence and Unstable Land			✓	N/A
4.3 Flood Prone Land	✓			Further discussion has been provided at Section 7.4 .
4.4 Planning for Bushfire Protection			✓	The site is not bushfire prone land under Council's Bushfire Prone Land Map.
Regional Planning				
5.1 Implementation of Regional Strategies			✓	N/A
5.2 Sydney Drinking Water Catchments			✓	N/A
5.3 Farmland of State and Regional Significance on the NSW Far North Coast			✓	N/A
5.4 Commercial and Retail Development along the Pacific Highway, North Coast			✓	N/A
5.8 Second Sydney Airport Badgerys Creek			✓	N/A
5.9 North West Rail Link Corridor Strategy			✓	The site is not within any of the nominated Local Government Areas.
Local Plan Making				
6.1 Approval and Referral Requirements	✓			This Planning Proposal is consistent with this Direction in that it does not introduce any provisions that require any additional concurrence, consultation or referral.
6.2 Reserving Land for Public Purposes	✓			The proposal seeks the dedication of land for the purposes of public open space. Approval of Council and the Department of Planning and Environment is sought by way of this Planning Proposal.
6.3 Site Specific Requirements	✓			No site specific provisions proposed.
Metropolitan Planning				
7.1 Implementation of A Plan for Growing Sydney	✓			This has been discussed at Section 6.2.1 above.

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6.3 State Environmental Planning Policies

An assessment of the Planning Proposal against the relevant State Environmental Planning Policies (SEPPs) is set out at Table 2 below.

Table 2 – Consistency with State Environmental Planning Policies

SEPP	Consistency			Comment
	Yes	No	N/A	
SEPP No. 1 Development Standards			✓	SEPP 1 does not apply to Ryde Council.
SEPP (State and Regional Development) 2011			✓	Not relevant to proposed LEP amendment. Will form part of future DA assessment if required.
SEPP (Exempt and Complying Development Codes)			✓	Not relevant to proposed LEP amendment. Will form part of future DA assessment if required.
SEPP (Infrastructure) 2007			✓	Not relevant to proposed LEP amendment. Will form part of future DA assessment if required.
SEPP 19 – Bushland In Urban Areas			✓	Will form part of future DA assessment if required.
SEPP No. 64 Advertising and Signage			✓	Not relevant to proposed LEP amendment.
SEPP No. 55 Remediation of Land	✓			A Stage 1 Site Assessment will be prepared if the project proceeds through Gateway.
SREP (Sydney Harbour Catchment) 2005	✓			The site falls within the Sydney Harbour Catchment. This Planning Proposal is not inconsistent with the planning principles of the Sydney Harbour Catchment.

6.4 Local Statutory Framework

The following section provides a summary of the local strategic framework.

6.4.1 Ryde Local Environmental Plan 2014

Ryde LEP 2014 is the key environmental planning instrument that applies to the site.

Ryde LEP 2014 transferred the Macquarie Park Corridor land use zone, and floor space requirements from the previous Ryde LEP 2010 (with minor amendments). Ryde LEP 2014 zones the site B3 Commercial Core with a split maximum floor space ratio of 1:1 at the north-west of the site, and 2:1 for the remainder of the site.

Ryde LEP 2014 also assigns a variety of height limits to the site, which include:

- a 9m height limit at the south-western corner of the site;
- a 37m height limit at the south-eastern corner of the site; and
- a 30m height limit for the remainder of the site.

Ryde LEP 2014 also includes an 'incentive clause' which provides for a maximum building height of 65m and FSR of 3:1 across the whole site if the consent authority is satisfied that:

- (a) there will be adequate provision for recreation areas and an access network, and
- (b) the configuration and location of the recreation areas will be appropriate for the recreational purposes of the precinct, and

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(c) the configuration and location of the access network will allow a suitable level of connectivity within the precinct

6.4.2 Ryde Development Control Plan 2014

The Ryde Development Control Plan 2014 provides detailed design guidelines to give support to the Ryde LEP 2014. The objective of the DCP is to promote design excellence through redevelopment; to expand and improve the public domain and to improve vehicular, pedestrian and cycle permeability within the Macquarie Park Corridor. Ryde DCP Part 4.5 Macquarie Park Corridor includes a Structure Plan comprised of four elements:

- Built form Structure Plan;
- Street Network Structure Plan;
- Open Space Network Structure Plan; and
- Pedestrian Network Structure Plan.

Of particular relevance to this Planning Proposal is the Open Space Network Structure Plan. As demonstrated at Figure 19, the site is specifically nominated under the DCP as accommodating a future "Central Park".



Figure 18 – Proposed open space network – subject open space land nominated as "No. 5" in above plan.

Source: City of Ryde Council

A high level assessment against the detailed controls for the envisaged park at Table 5.2.1 of the DCP has been provided at Table 3 below.

Table 3 – Assessment against site specific controls at Table 5.2.1

Control	Comment
Minimum area 1Ha, minimum dimension 65m.	The proposed park is 63m wide, and provides for an overall area of 7,000m ² (0.7Ha). Although short of the requirements contained under the Ryde DCP, the proposed open space reflects the agreement between the Department, Council and NSW Government Property and continues to deliver a very large area for the purposes of public open space at the centre of Macquarie Park which meets the operational function intended for the park.
Park layout generally in accordance with Figure 5.3.1 (contained within Ryde DCP).	The size and shape of the RE1 Public Recreation use envisaged is general in accordance with the Ryde DCP. Park layout will be the subject of future detailed design work.
Central Park located abounding Waterloo Road.	The proposed park abuts Waterloo Road.
Implement new roads on two sides of Central Park (resulting in roads on three sides of Central Park).	The location of the proposed park does not inhibit the provision of roads along the eastern and western boundaries of the park.
Provide 10 park benches and 10 bicycle parking	This will be the subject of future detailed design work.

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Control	Comment
spaces.	
Where practicable provide turf detention basin to minimum 50% of park area as Central Park is on the overland flow alignment.	This will be the subject of future detailed design work.

Overall, the proposed park is capable of achieving the future indicative character of a multi-function park that provides for active recreation, passive recreation and community events. The detailed design of the future park will form part of future work, and is not a relevant concern at the Planning Proposal stage.

6.5 Local Strategic Framework

6.5.1 The City of Ryde 2025 Community Strategic Plan

The Community Strategic Plan sets the vision for the City of Ryde as *"the place to be for lifestyle and opportunity at your doorstep"* (Page 9). The plan has seven outcome areas – defined through community consultation – that guide city improvements, Council policy and city planning. The seven outcomes are the City of Prosperity, City of Liveable Neighbourhoods, City of Wellbeing, City of Environmental Sensitivity, City of Connections, City of Harmony and Culture and City of Progressive Leadership.

The proposal directly addresses the stated goal of creating active public places and spaces (City of Liveable Neighbourhoods) through good planning and design, in that the Planning Proposal will facilitate the delivery of a much needed public open space area which is centrally located and will ultimately form an integral part of the Macquarie Park commercial core area.

The Planning Proposal, by way of facilitating the delivery of public open space, will also improve the appeal of the Macquarie Park Corridor, and lead to additional commercial investment. Nearby high quality public open space is a desirable element for employees, and the proposed open space will facilitate the provision of such space.

6.5.2 City of Ryde Economic Development Plan

On 10 March 2015, Council adopted the *City of Ryde Economic Development Plan 2015-2019* (Economic Development Plan). The plan has been prepared in order to *"stimulate the local economy and support jobs and business growth in the community"*, and includes a number of strategic goals for economic development within the Ryde LGA. The goals which are considered relevant to the proposal are listed as follows:

- *Goal 1: Macquarie Park continues to attract new businesses and a talented workforce.*
- *Goal 2: Town and neighbourhood centres are vibrant and attractive for residents, employees and visitors.*
- *Goal 4: Job seekers find work locally via employment services, vocational training and work experience opportunities.*
- *Goal 6: Market investment opportunities and permit a variety of activities within the city's employment and industrial lands.*

The Planning Proposal supports the achievement of the goals in the Economic Development Plan in that it will facilitate the creation of jobs within Macquarie Park, maintaining commercial floorspace potential while providing attractive public open space, which is highly accessible and located close to major public transport nodes.

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7.0 Environmental Analysis

This chapter of the report describes the rezoning proposal and the urban design principles that set the foundation for its structure. Further detail is provided throughout the environmental assessment in the following chapters.

7.1 Built Form

The proposed changes to the building height controls reflect the current LEP building heights within the Macquarie Park Corridor and are considerably lower than the maximum heights achievable under the Macquarie Park Incentive Clause.

The proposed changes to the FSR controls which comprise the provision of a flat rate of 2.26:1 across the land zoned B3 Commercial Core, equates to the same GFA potential that is achievable under the current controls. Accordingly there will be no greater density achieved on the site than is currently available.

Similarly, an amendment to the incentives Clause, which comprises the provision of a rate of 3.66:1 across the land zoned B3 Commercial Core, equates to the same 'incentives' floor space potential as that which is achievable under the current incentives controls. Accordingly, there will be no greater density achieved on the site than is currently available.

It is noted that the provision of the park in the centre of the site will mean the GFA is located within a more concentrated area, however, this form reflects Council's desired future character for the Macquarie Park Corridor to be more urban closer to the Stations and will be viewed in the context of the open space provided in the centre of the site.

7.2 Solar Access

The proposed open space location will be well suited to receive sufficient solar access, and is of such a size that any overshadowing from surrounding future commercial buildings will not overshadow the parkland at a level which will exceed Council's requirements of *"50% of new public space to receive 3 hours of direct sunlight between 9am and 3pm on June 21"*.

Detailed assessment of the solar access to the open space will be the subject of future assessment for other development at the site and its surrounds.

7.3 Traffic Generation

This Planning Proposal will act only so far as to rezone part of the site from B3 Commercial Core to RE1 Public Recreation, and transfer the potential floorspace from the public recreation zoned land to the commercially zoned land at the site. As no additional commercial floorspace will be created, there will be no increase in traffic movements to and from the site when compared to the existing approved commercial density.

Detailed assessment of the traffic generation of future commercial development on the B3 Commercial Core zoned portion of the site will be the subject of future detailed applications.

The location of the public park does not preclude the potential future provision of the local access roads through the site in accordance with DCP 2014.

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7.4 Flooding

The site is identified as flood prone under the 'City of Ryde Macquarie Park Floodplain Risk Management Strategy and Plan', prepared by Bewsher Consulting Pty Ltd (2010). Additionally, under the Ryde Development Control Plan the Table 5.2.1 states that the site forms part of an overland flow path.

As per the current zoning, the impacts of any future proposed commercial development, particularly at western boundary of the site identified as flood prone under the 2010 Floodplain Risk Management Study, will be the subject of future assessment as the zoning of this portion of the site is not proposed to be changed.

Additionally, the proposed open space area will likely comprise largely permeable surfaces such as grass and soil, which have the potential to improve the water absorption characteristics of that portion of the site (including under the development incentives clause), when compared to the existing hard stand car parking area which covers most of the site.

As the proposal doesn't propose to rezone any existing flood sensitive zone (such as special use, recreation, etc) to a development zone (such as residential, business, etc), there will be no additional flooding impacts on the site.

7.5 Public Benefits of Proposal

Additional Public Open Space in Macquarie Park

As has been outlined at Sections 1.0 and 5.1 above, there is a strong and identified need for additional public open space within the Macquarie Park Corridor, with the site repeatedly noted throughout previous planning studies as the best possible location of delivering such additional open space.

This Planning Proposal provides a method for the required public open space to be provided, which will enable future use of the site by residents, workers and visitors to the area. The proposed open space will be central to the Macquarie Park Corridor, highly accessible from surrounding streets, and will create a focus point for active and passive recreation in Macquarie Park.

Increased Economic Activity

The Planning Proposal will facilitate an increase in economic output within Macquarie Park. The Planning Proposal will enable the delivery of the same level of commercial floor space as is currently achievable on the site, but with the additional public benefit of providing a significant area of public open space.

The increase in economic activity will also arise in the longer term from an increased appeal of doing business in Macquarie Park, due to the provision of high quality public open space in the centre of the corridor. Space for workers to eat and recreate is a vital factor in attracting high quality commercial tenants to Macquarie Park, and this Planning Proposal will facilitate that.

7.6 Social and Economic Impacts

The proposed development will have significant social and economic benefits which are detailed in Section 7.5 above. There are no negative social or economic impacts associated with the proposal.

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8.0 Timeline

As outlined under the (then) Department of Planning and Infrastructure's *A Guide to Preparing Planning Proposals*, an indicative timeline has been provided of the project timeframe at **Table 4** below.

Table 4 – Anticipated project timeline

Stage	Completion Date
Anticipated commencement date (date of Gateway determination)	April 2016
Timeframe for government agency consultation	N/A
Commencement and completion dates for public exhibition period	N/A
Consideration of submissions	N/A
Timeframe for the consideration of a proposal post exhibition	N/A
Date of submission to the Department to finalise the LEP	May 2016
Anticipated date RPA will make the plan (if delegated)	July 2016

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9.0 State and Commonwealth Interests

9.1 Public Infrastructure

Under 'A guide to preparing planning proposals', Section D questions if there is adequate public infrastructure for the planning proposal.

The proposal will facilitate the provision of additional public open space in order to address a present shortage of such space in the Macquarie Park Corridor. The Department of Planning and Environment has provided \$6million to Council to fund the acquisition and embellishment of the park.

The proposal will redistribute the current and 'incentives' clause floor space of the site amongst the portion of the site zoned B3 Commercial Core. Accordingly, there will be no additional demand on public infrastructure arising from the Planning Proposal, combined with additional supply of public infrastructure in the form of public open space.

9.2 Consultation with State and Commonwealth Authorities

Department of Planning and Environment

The Planning Proposal is the outcome of an agreement between the Department, Council and Government Property NSW. Consultation has been undertaken with the Department of Planning and Environment as to the proposed approach outlined under **Section 4.0**, and the different options considered as part of this process.

Commonwealth Authorities

No formal consultation has been undertaken with Commonwealth Authorities, regarding this Planning Proposal. Where necessary, consultation with relevant authorities will be undertaken as required in accordance with an initial Gateway determination.

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10.0 Community Consultation

It is proposed that given the minor nature of the Planning proposal a public exhibition period is not required. It is noted that confirmation of this will be given by the Minister as part of the LEP Gateway determination.

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11.0 Conclusion

This Planning Proposal seeks to facilitate the future delivery of a new park, whilst providing for no net loss of development potential from the remaining portion of the site.

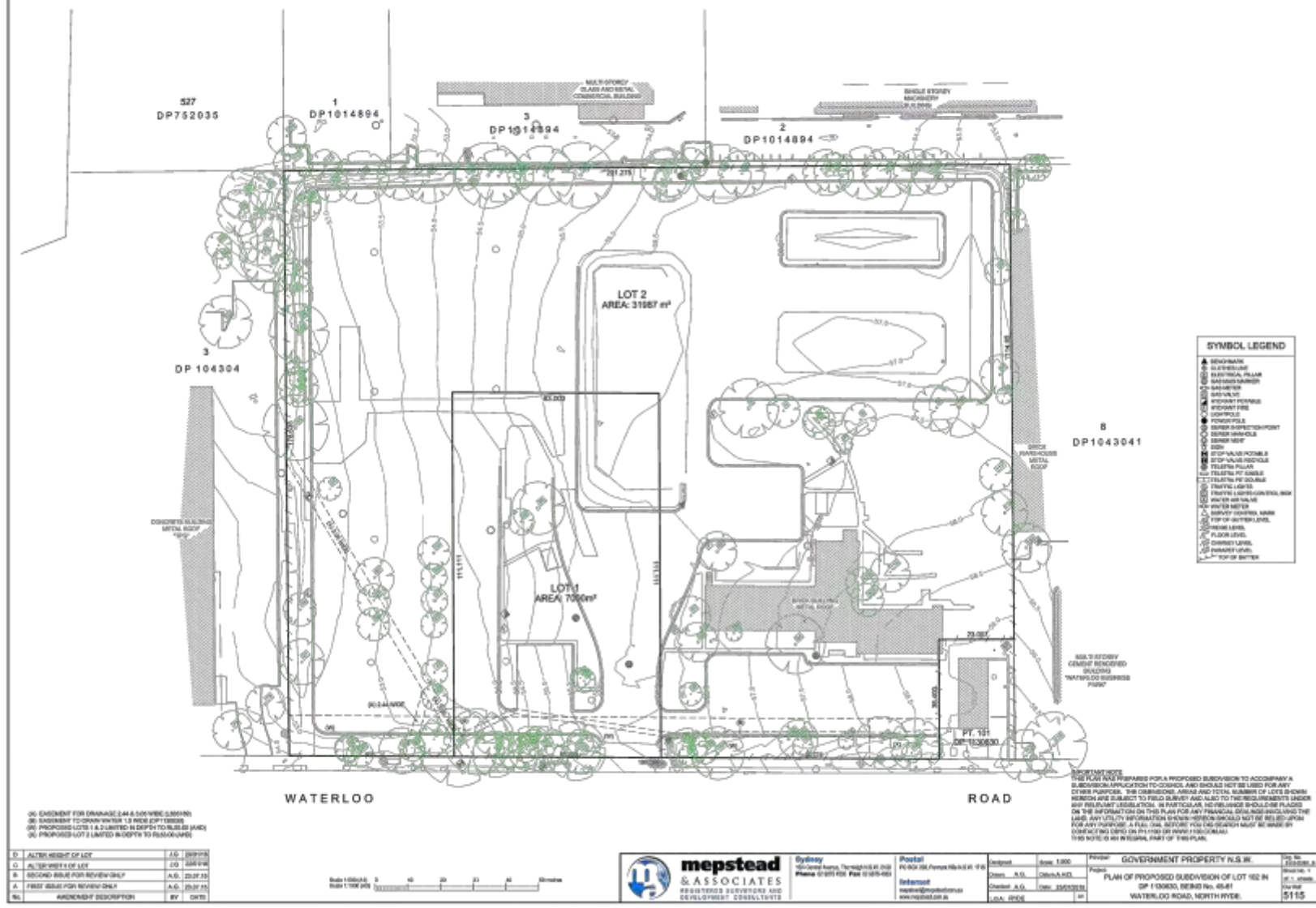
The Planning Proposal is considered justified for the following reasons:

- The proposal will enable the provision of a future park that will allow for active and passive recreation uses by workers, residents and visitors of the Ryde LGA and surrounding areas.
- The proposal is consistent with the objects of the EP&A Act, in that it facilitates the provision of land for public purposes.
- The proposal is consistent with the metropolitan, regional and sub-regional strategic planning framework, which all emphasise the need for high quality public open space in strategic locations such as Macquarie Park. The strategic framework also emphasises the jobs growth potential of the Macquarie Park Corridor, and the Planning Proposal ensures that this potential is not lost through the provision of the public open space.
- The proposal is consistent with the applicable SEPPs and Section 117 Directions.
- The proposal will have no adverse environmental impacts, in particular it will not affect the potential delivery of jobs within the Macquarie Park Corridor.

In light of the above, we would have no hesitation in recommending that the Planning Proposal proceed through the Gateway process.

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Ref: 5115

Dated: 08 February 2016

STATEMENT OF ENVIRONMENTAL EFFECTS

45-61 Waterloo Road, Macquarie Park

PROPOSAL:	To subdivide one Lot into two Lots including all associated works		
PROPERTY:	No. 45-61 Waterloo Road, Macquarie Park. Lot 102 in D.P. 1130630		
PREPARED FOR:	Government Property New South Wales (GPNSW)		
PREPARED BY:	Mepstead & Associates Pty. Ltd. Registered Surveyors and Development Consultants Suite 10, 4 Central Avenue Thornleigh NSW 2120 P.O.Box 208 Pennant Hills NSW 1715 Ph: 9875 4500 Fax: 9875 4833		
		Email: Mepstead@mepstead.com.au	
		www.mepstead.com.au	



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Revision	Date	Details	Prepared by
A	06/08/15	Draft Report	Jarrold Gillies
B	18/08/15	Amendments	Jarrold Gillies
C	22/01/16	Amendments	Jarrold Gillies
D	02/02/16	Amendments	Jarrold Gillies

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1.0 Introduction

This Statement of Environmental Effects is to accompany an application to Ryde City Council to subdivide one existing Lot into two.

The site is currently zoned as B3 Commercial Core zone under the Ryde Local Environmental Plan 2014, Land Zoning Map.

The existing site comprises a 3.9 hectare block of land with one local road access being Waterloo Road along a 198.8m front face. This application includes all associated works i.e. drainage, electricity, water supply and the construction of appropriate access ways for the subdivided property. With the current state of the property having one dwelling, it is our opinion that the proposed subdivision does not affect the change of use of land.



Figure 1: The proposed site for subdivision. (Source: SIX maps)

For the purposes of this report the following documents have been used:

- Environmental Planning and Assessment Act 1979
- Ryde Local Environmental Plan 2014
- Ryde Development Control Plan 2014

Accompanying this Statement of Environmental Effects are the following supporting plans and documents:

- Detail survey prepared by Mepstead & Associates (Ref: 5115-DET_1) dated 07 July 2014

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- Contamination Investigation prepared by Noel Arnold & Associates dated 17 March 2015
- Preliminary Environmental Site Investigation dated 17 October 2013
- Plan of Proposed Subdivision prepared by Mepstead & Associates (Ref: 5115-SUB_A) and dated 23 July 2015.

This report addresses the matters for consideration as set out in Section 79C (1) of the Environmental Planning and Assessment Act 1979 (Evaluation).

2.0 Site description

The address of the site is No. 45-61 Waterloo Road, Macquarie Park, known as Lot 102 in D.P 1130630. The property is generally rectangular with a frontage to Waterloo Road measuring 198.1m and a depth of 177.3m in which equates to an overall site area of 3.9 hectares. The property has one principle road frontage which is Waterloo Road. This road is serviced by public transport, namely the Macquarie Park train station, on the corner of Waterloo Road and Lane Cove Road and a local bus facility directly in front of the Lot.

The site currently contains;

- A single storey brick building roofed with metal
- Fencing as shown upon the detail survey (Ref: 5115-DET_1) dated 07 July 2014
- A combination of unmanaged grassed areas, carpark area and mature vegetation particularly in the front, side and rear boundaries. Other vegetation can be seen scattered around the single dwelling and the north-eastern mid-section of the property (Ref: 5115-SUB_A).

The following images show additional detail on the site in its current state:



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Figure 2: Looking South East along Waterloo Road



Figure 3: Looking South East along Waterloo Road, showing enclosed electrical plant



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Figure 4: Looking North West from Waterloo Road, showing the brick building with metal roof



Figure 5: Looking South West from the grassed area towards the brick building with metal roof



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Figure 6: Looking North West towards the brick building with metal roof and the brick shed



Figure 7: Looking north east showing the building located on lot 3 DP 1014894

The subject site has several existing drainage easements as shown on the Plan of Proposed Subdivision.

Furthermore the site is situated under the Macquarie Park Corridor and has three building height designations under Ryde Local Area Plan 2014. These include 9.5m, 37m and 30m with the majority (70%) being designated under the 30m height restriction. Further the site is not affected by flooding, heritage and acid sulphate issues according to the Ryde Local Area Plan 2014 map content.

3.0 Local neighbourhood

The site is within the land use zone of Commercial Core and falls under the Macquarie Park Corridor. The surrounding neighbourhood can be described as having an eclectic array of land zonings, with the north western area facilitating a Mixed Use zoning, south western location being predominately Medium Density Residential and north eastern section being designated as National Parks and Nature Reserves. The south eastern locality beyond the proposed land also has a diverse land zoning arrangement.

The site is in close proximity to many facilities and services. For example in a 10 kilometres radius there are shopping centres (including The Macquarie Shopping Centre - NSW second largest shopping mall), cafes, petrol stations and educational facilities particularly the Macquarie University which is approximately 1.5

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km to the west. There are also pleasant green spaces in the local area. Lane Cove National Park is less than 2km away and the Northern Suburbs Memorial Gardens is 3.2 km towards the east.

4.0 The proposal

It is proposed that the existing single Lot be subdivided into a two Lot Title Subdivision. This newly proposed Lot (Lot 1) will be purchased by City of Ryde Council to designate as public Open Space as described under the Macquarie Park Corridor 5.0 (Public Domain). The basic proposal and its surroundings are indicated below.

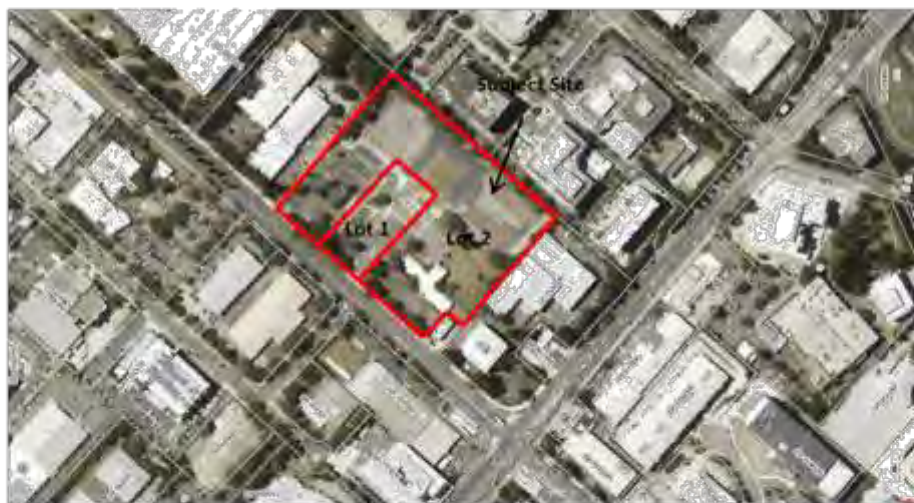


Figure 8 : Proposed subdivision and other details. (Image source: SIX maps)

More specifically the areas of the two proposed lots are as follows:

- Lot 1: Area 7000 m²
- Lot 2: Area 31,987 m² (3.198 Ha)

The Plan of Proposed Subdivision prepared by Mepstead & Associates (Ref: 5113-SUB_B) figured below shows the plan of subdivision in further detail.

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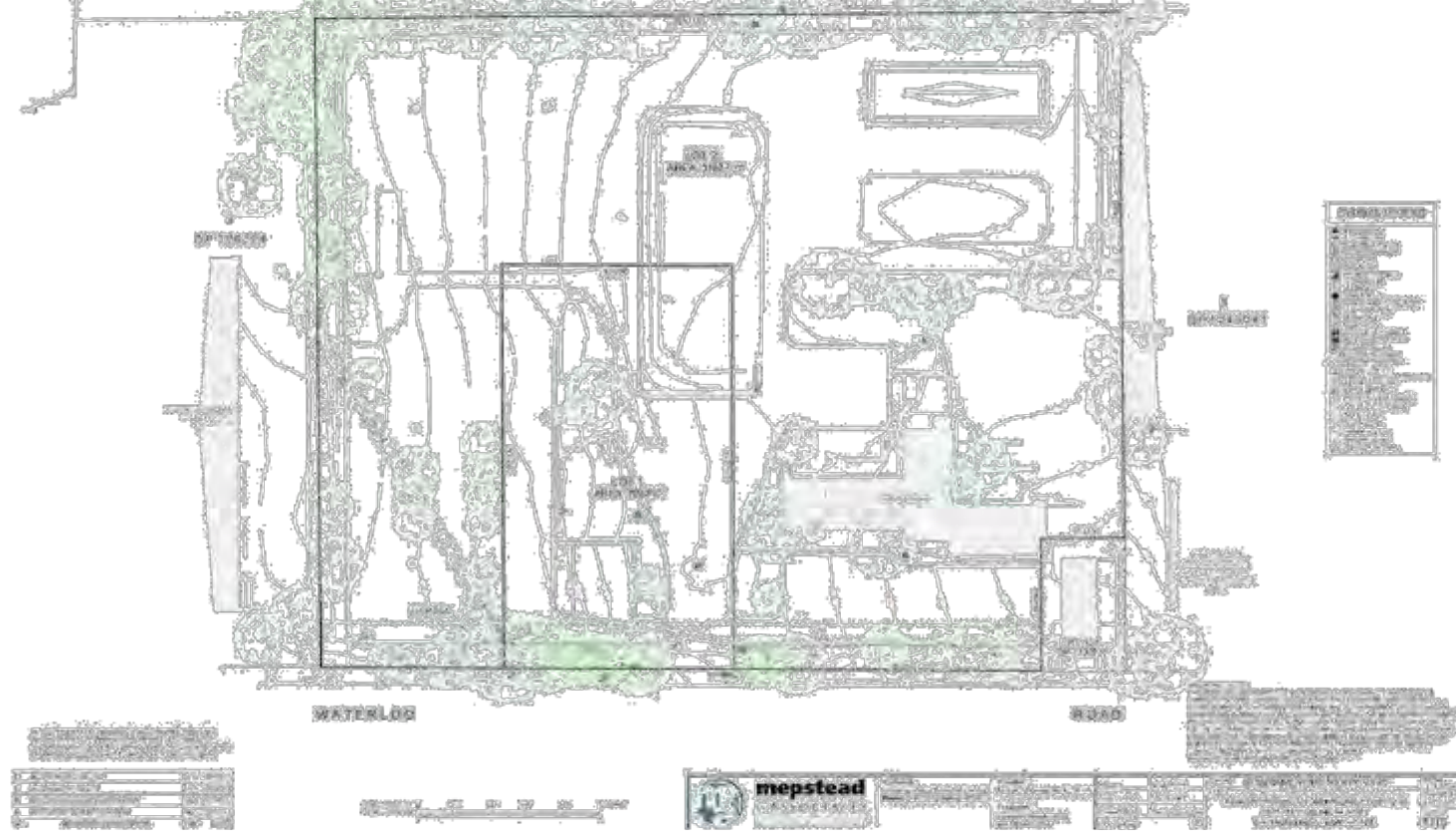


Figure 9 : The Plan of Proposed Subdivision prepared by Mepstead & Associates (Ref: S113-SUB_B)

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5.0 Development compliance

The Lot is zoned as B3 Commercial Core under the Ryde Local Environmental Plan 2014. The site has an area of 3.9 hectares. The adjoining lands have a diverse array of land zoning, although the immediate area has similar land use zoning of Commercial Core.



Figure 10: Land zoning map for the Macquarie Area. (Source: Ryde Local Environmental Plan 2014)

This subdivision is not classified as either exempt or complying development under State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. The proposal therefore is subject to the following controls:

- Environmental Planning and Assessment Act 1979
- Ryde Local Environmental Plan 2014
- Ryde Development Control Plan 2014
- Macquarie Park Corridor (Public Domain section 5.0)
- SEPP 55 (Remediation of Land)

5.1 Ryde Local Environment Plan 2014

The objectives of B3 Commercial Core zone under the Ryde Local Environment Plan 2013 are:

- *To provide a wide range of retail, business, office, entertainment, community and other suitable land uses that serve the needs of the local and wider community.*
- *To encourage appropriate employment opportunities in accessible locations.*
- *To maximise public transport patronage and encourage walking and cycling.*

The proposal satisfies the objectives of the zone because:

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- All services to the two proposed Lots already exist, including public transport and footpath that encourages walking and cycling.
- The subdivided lot sizes satisfy minimum requirements under Ryde Local Environmental Planning Act 2014, within the Commercial Core Zone.
- No extensive physical works will be undertaken for this proposal and all requirements in Ryde DCP and associated LEP are met. This ensures that the Commercial Core of the land is maintained.

Heritage, foreshore, acid sulphate, flooding and terrestrial biodiversity have been assessed according to the Ryde Local Environmental Plan 2014 map content and are not issues for this particular site.

5.2 Ryde Development Control Plan 2014

The development requires the adherence to the sections in the Ryde Development Control Plan 2014, namely the sections of Macquarie Park Corridor, therein the 5.0 Public Domain. The following section outlines important elements for the proposal in which satisfy the future vision of the Macquarie Park Corridor, being:

"Macquarie Park will mature into a premium location for globally competitive business with strong links to the university and research institutions and an enhanced sense of identity. The Corridor will be characterised by a high-quality, well designed, safe and liveable environment that reflects the natural settings, with three accessible and vibrant railways areas providing focal points. Residential and business areas will be better integrated and an improved lifestyle will be forged for all those who live, work and study in the area".

Urban Structure Plan; The DCP encourages the development centred on Waterloo Road with proposed transitions through the Business Park areas to the lower scaled residential areas adjoining the Macquarie Park Corridor. The DCP also encourages the Commercial Core zone to evolve from its business park roots to become an urban employment centre that is supported by key public transport infrastructure notably the Epping to Chatswood Rail Link which opened in 2009 and is due to be expanded to link to Sydney's north west.

Under the Macquarie Park Corridor the subject site is stated as a planned Open Space Network under the term; Central Park. Refer to Figure 11 below.

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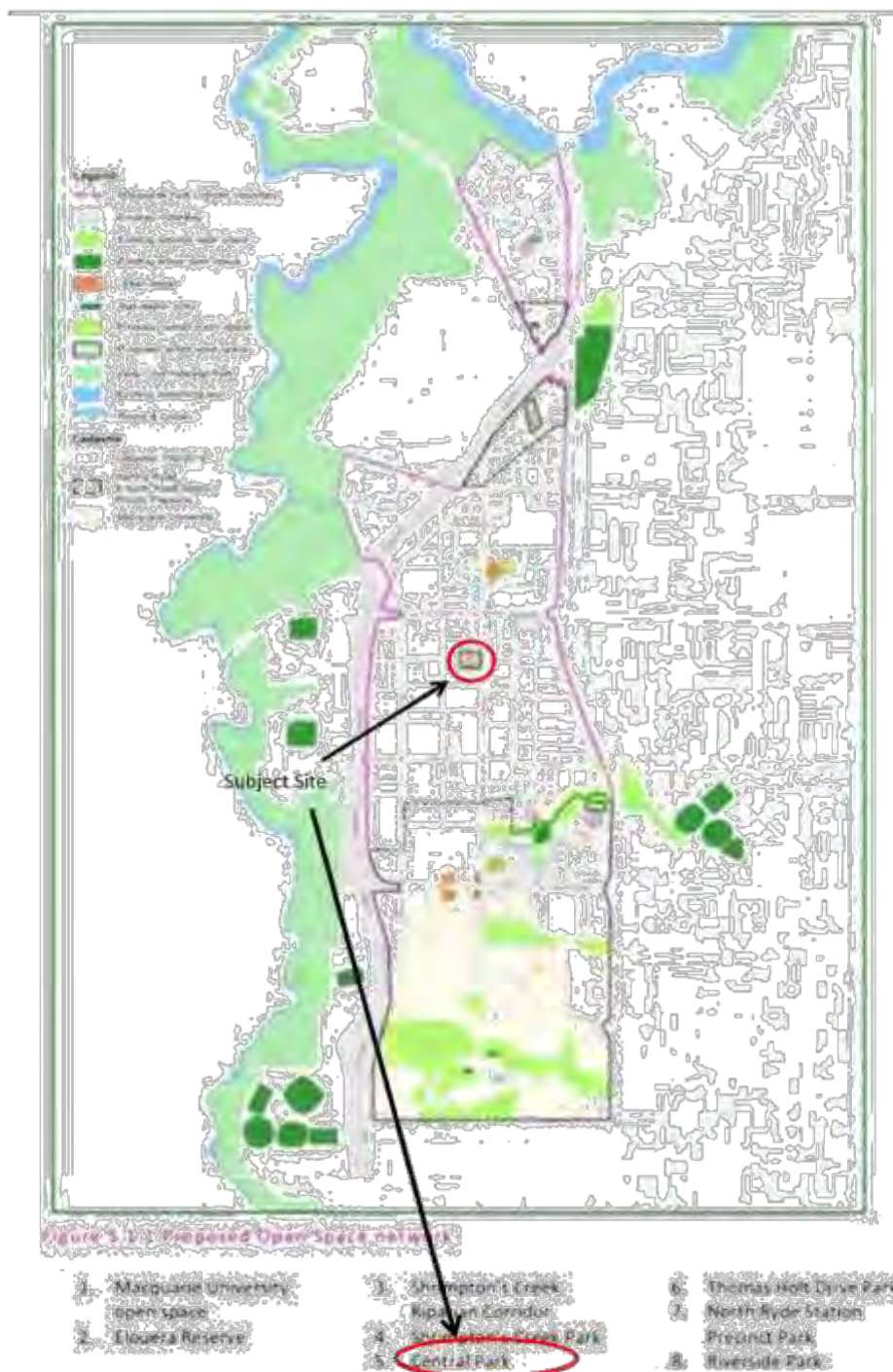


Figure 11: Showing planned Open Space Network and the newly subdivided Lot 1 as Central Park

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The controls for each of the 8 dedicated Open Space Networks are as follows:

- Provide public open space as shown in Figure 5.1.1 Open Space Structure Plan and in accordance with table 5.2.1 (refer to table 1 in this report) and sections 5.3 – 5.6 of this Part (which contain specific requirements for each park). To vary public open space requirements refer to master plan controls clause 8.1.a – Site Planning and Staging
- Buildings are not permitted to be located on any proposed new park identified in The Open Space Structure Plan identified in Figure 5.1.1
- Parks are to be dedicated to the Council, unless by agreement with Council where they may be provided as privately owned public space (POPS).
- New parks are to be maintained by the landowner until dedicated to Council.
- POPS are to be created as rights of way in favour of Council.
- POPS are to be maintained by the landowner in perpetuity. Public Liability Insurances up to \$20,000,000 are to be maintained by the landowner.
- At least 50% of new public space is to receive 3 hours direct sunlight between 9am and 3pm on June 21
- Active frontages are to be provided in accordance with Section 6 Active Frontage controls. 4.5 Macquarie Park Corridor 30 Development Control Plan 2014 Effective 1 July 2015
- Provide internet connection to all publicly accessible space in Macquarie Park, particularly new parks
- Provide Open Space in accordance with Table 5.2.1 Controls for Open Spaces (refer below)

Further the controls for Central Park more specifically include:

Park name and address	Area Dimensions	Specific controls	Function and Indicative character
Central Park 43-61 Waterloo Road	1 Ha 75 m x 100 m (if the dimensions are altered a min. 65m is required in any direction) The park layout is to be generally in accordance with Figure 5.3.1	<ul style="list-style-type: none"> • Central Park is to be located abounding Waterloo Road. Implement new roads in accordance with Figure 4.1.1 on two sides of the Central Park. (Note: Central Park will therefore have roads on three sides) • Provide 10 park benches and 10 bicycle parking spaces • Where practicable provide turf detention basin to minimum 50% of park area as the Central Park is on the overland flow alignment 	<p>A multi-function park that provides for:</p> <ul style="list-style-type: none"> Active recreation (informal sport) Passive recreation Community events (e.g. cinema, expos etc.) Children's play <p>Refer Figures 5.3.2 5.3.3 5.3.4</p>

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Table 1: Specific controls adopted from the Open Space Network section (5.2.1) under Macquarie Park Corridor

- Refer to the Macquarie Park Public Domain Technical Manual for detailed design requirements.
- Provide pedestrian pathways and cycleway connections to adjoining public domain spaces.
- Accommodate a range of seating areas with prospect and views across open space.
- Provide a mix of paved and open lawn/ turf areas, shaded and sunny areas.
- Provide infrastructure (such as power and water supply to support events and where appropriate gas for BBQ facilities)

Paving

- Provide high quality pavement that relates to public domain of adjoining streets in accordance with Macquarie Park Public Domain Technical Manual.

Park furniture

- Install park lighting along key pedestrian routes. Reduce visual clutter by incorporating light fittings on built elements where possible
- Provide a generous quantum of seating in sun/shade areas.
- Locate bins at park entries/exits.
- Provide directional/ information signage at key zones.

Vegetation

- Minimum 20% consolidated area of the open space area should be provided as deep soil zone to establish large trees.
- Provide exotic and endemic species (minimum 60%), large scale shade trees (over 8m height).
- Protect and retain existing trees over 5m in height

Stormwater

- Implement water sensitive urban design. Provide for onsite absorption, manage water quality and run off on site.
- Improve stormwater treatment through site and explore possibilities for incorporating stormwater drainage infrastructure as an evocative element within the urban design.

The proposed subdivision will be used to comply with the Open Space Network for Central Park and under council will be further developed into a public park, in which details are provided within Ryde City Council's Development Control Plan, Part 4.5- Macquarie Park Corridor, item 5.0 Public Domain.

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In our opinion, the proposal complies with the objectives and prescriptive measures listed in the Ryde Development Control Plan 2014, particularly future development from Ryde City under the Macquarie Park Corridor Public Domain section.

6.0 Existing infrastructure

6.1 Drainage

There are existing drainage easements 2.44 metre wide and 3.05 metres wide crossing the site at the south west corner. There is also an easement to drain water 1.5 wide generally along the Waterloo Road frontage.

6.2 Sewer

There is an existing sewer junction located centrally along the north western boundary of the site at the low point. A Sydney Water sewer main also crosses the western corner of the site.

6.3 Potable water

There is a 375mm potable watermain which exists in the road verge on the north eastern side of Waterloo Road. A section 73 from Sydney Water will be acquired before subdivision certificate is obtained.

6.4 Electricity

The site is within the AusGrid network.

6.5 Telstra

It has been determined that the site is connected to Telstra network with four other communications services located within the area, including APPT/ PowerTel, Amcom Pty Ltd and PIPE Networks, NSW.

6.6 Gas

Reticulated gas supply is available in this area.

7.0 Section 79C (1) Assessment

7.1 Planning instruments

This proposal is subject to the following Environmental Planning Instruments:

- Environmental Planning and Assessment Act 1979
- Ryde Local Environmental Plan 2014
- Ryde Development Control Plan 2014
- Macquarie Park Corridor

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7.2 Impact of the development

As mentioned the proposal is for the subdivision of 1 Lot into 2 Lots, with an existing building already existing on Lot 2. There are no proposals for construction, and thus the impact of the development is likely to be negligible. Once Lot 1 is acquired for Open Space that will contribute positively to the overall precinct. The proposed open space lot has direct access to public transport which will enhance use of the site.

A contamination assessment has been undertaken which reveals that some remediation work may be required before the site is used for open space purposes. The site has sources of contamination in certain sample locations on the site according to the Contamination Investigation prepared by Greencap NAA. A search of NSW Environmental Protection Agency (EPA) records revealed the site has not been declared as contaminated or listed on the NSW contaminated sites register. Further, the possible asbestos piping dumped near the entrance gates needs to be disposed.

No loss of either flora or fauna will occur as a result of the proposed subdivision of this vacant Lot.

There will be a net positive in regards to social elements by creating a designated Open Space lot that is supported by key public transport infrastructure.

7.3 Sustainability of the site

The sustainability of the site under this application is negligible, however after the land is obtained by the City of Ryde and used as Open Space the site will be enhanced.

The parent lot is already connected to infrastructure including potable water, communication facilities, electricity, and gas.

There is minimal effect on the flora and fauna of the site and will be enhanced in the future.

7.4 Public Interest

Although the current application will have negligible effect or interest on the public the future works from this application are very likely to be positive, as it will provide a public Open Space that is directly in line with Macquarie Park Corridor under section 5.0 Public Domain. Further the surrounding neighbourhoods will benefit in the future, having access to; recreation night uses (cinema), ground gatherings (bbq areas), large turfing area, seating wall steps, detention basin, passive recreation area, informal café/ seating and a main plaza.

8.0 Conclusion

The proposal set out in this report has been assessed against the requirements of Section 79C (1) of the Environmental Planning and Assessment Act 1979.

The report has indicated the intent of the development to subdivide 1 Lot into 2 Lots that have an area of 7000m² and 3.2 ha respectively. This report has demonstrated that the proposal satisfies the Ryde Local Environmental Plan 2014, the relevant section under Ryde Development Control Plan (Macquarie Park Corridor, therein section 5.0 Public Domain). Lot 1 is intended to be purchased by City of Ryde and utilised as Open Space and named Central Park. As such the proposal will dramatically change the built form in

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accordance with the vision of the Macquarie Park Corridor, providing high-quality, well designed, safe and liveable environments that reflect the natural settings.

It is considered that this Statement of Environmental Effects has satisfactorily shown that the proposal meets all necessary requirements for Council approval.

Therefore we seek Council's consideration and approval of the application.

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DETAILED SITE INVESTIGATION

Government Property NSW

Proposed Lot 1, 45-61 Waterloo Road,
Macquarie Park, NSW

February 2016
J142067

C107943 : NP





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Document Control

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Detailed Site Investigation

Government Property NSW

Proposed Lot 1, 45-61 Waterloo Road, Macquarie Park, NSW

Executive Summary

Grencap was engaged by Government Property NSW (GPNSW, the client) to undertake a detailed site investigation (DSI) at 45-61 Waterloo Road, Macquarie Park, NSW (the site). The site comprises the legally identified Lot 102 in Deposited Plan (DP) 1130630 as indicated on Figure 1. Following on from the original investigation (2015) the site is now to be subdivide therefore the investigation has been split into two areas, Proposed Lot 1 and Proposed Lot 2, as indicated in Figure 1a.

The objective of the investigation was to assess the site for sources of contamination which were flagged in the 2013 PESA report through undertaking a detailed phase 2 assessment as per the NSW EPA (1995) *Contaminated Sites: Sampling Design Guidelines* and the NSW OEH (2011) *Guidelines for Consultants Reporting on Contaminated Sites*. The locations of the samples taken are identified in Figure 3.



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GREENCAP



J142067 Proposed Lot 1 DP1130630

III

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General Observations

- Fill material is present across the majority of the site, generally in the upper 0.5 m and consists of roadbase and clay fill. Deeper fill horizons were noted locally across the site, namely:
 - Sands and crushed sandstone in the vicinity of the former tank farm in the centre of the site. Assumed to be backfill sands which were not removed, as well as backfilled material following the remediation.
- Hydrocarbon odours ranging from faint to moderate were found in the upper two metres of bores drilled in the former tank farm area as indicated on Figure 4.
- A faint sheen on perched water was observed in borehole BH25.

Conclusions based on permitted land use (B3 Commercial Core)

- Groundwater at the site did not appear to be impacted by hydrocarbons. Heavy metal exceedances are attributed naturally occurring background metals in waters sourced from the Wianamatta Shales.
- Some exceedances of the heavy metal Ecological Screening Levels were noted in the soil samples. It is likely that these concentrations are indicative of naturally occurring background concentrations within the residual clay soils. No remediation of this material is considered to be required.
- Concentrations of TRH in soil samples collected from samples BHA, BHB, BHG and BH25 exceed the ESLs (Ecological Screening Levels) and Management Limits. Soil material in this area does not comply with aesthetic requirements as per the NEPM 1999 (moderate odours noted).
- Concentrations of BaP exceed the ESL criteria in BHG and BH25.



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Recommendations

- Remediation to remove the impacted material in the area where BHA, BHB, BHG and BH25 were drilled is required. A remediation action plan including remedial volumes, areas and options should be prepared prior to the remediation taking place.
- Further groundwater investigation is warranted at the site due to the fact that only one bore is located within Proposed Lot 1 and soil conditions indicate that historical fuel contamination is present within the upper soil horizons.

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Statement of Limitations

This report has been prepared in accordance with the agreement between Government Property NSW and Greencap.

Within the limitations of the agreed upon scope of services, this work has been undertaken and performed in a professional manner, in accordance with generally accepted practices, using a degree of skill and care ordinarily exercised by members of its profession and consulting practice. No other warranty, expressed or implied, is made.

This report is solely for the use of Government Property NSW and any reliance on this report by third parties shall be at such party's sole risk and may not contain sufficient information for purposes of other parties or for other uses. This report shall only be presented in full and may not be used to support any other objective than those set out in the report, except where written approval with comments are provided by Greencap.

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Detailed Site Investigation

Government Property NSW

Proposed Lot 1, 45-61 Waterloo Road, Macquarie Park, NSW

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1 INTRODUCTION

GreenCap was engaged by Government Property NSW (GPNSW, the client) to undertake a detailed site investigation (DSI) at the property located at 45-61 Waterloo Road, Macquarie Park, NSW (the site). The site is indicated on Figure 1 at the rear of this report. The site as a whole is legally identified as comprising Lot 102 in Deposited Plan (DP) 1130630. Since the date of original report (GreenCap, March 2015) the decision has been made to split the site into two sections. The proposed Lots (Proposed Lots 1 and 2) are indicated in Figure 1a.

The investigation area which is the subject of this report comprises Proposed Lot 1 in DP1130630 which comprises approximately 7,000m² and is indicated on Figure 1b. The remainder of the site (Proposed Lot 2) is detailed in a second report (GreenCap 2015(2)).

The entire site (i.e. Lot 102) is planned for divestment and this report is to be included in the contract for sale.

We understand that Proposed Lot 2 is to be sold for commercial development and Proposed Lot 1 is to be granted to Council as part of the sale process.

The wider site (i.e. Lot 102) was previously owned by Sydney Water and was used as a construction depot. Following this in 2000, the Olympic Roads and Transport Authority used the site as a refuelling station. There was a tank farm at the site consisting of 12 underground storage tanks (see Figure 2 for approximate location). These tanks were removed in 2006 however no reports were made available to GreenCap relating to the tank decommissioning and removal.

The site has been vacant for the past 5 years. Government Property NSW (formerly the State Property Authority) took possession of the site in 2010. In 2013 GreenCap (then GreenCap) undertook a preliminary site investigation (PSI) at the site as part of the divestment process (ref. J121797). The PSI identified the need for further investigation based on the likelihood for contamination to exist at the site due to the historical landuse.

Professional judgement has been used to extrapolate between investigated areas. However, due to the inherent variability of soil and contaminants, actual conditions may vary from those inferred to exist. The actual interface between materials and the variation in soil quality may be more abrupt or gradual than this report indicates.

GreenCap notes that at the time the investigation was undertaken the site was considered as one Lot and the investigation was designed as such. At the Clients request the site (and as such the investigation) has been split into two separate sections, due to this, the investigation undertaken in Proposed Lot 1 may not comply with the minimum sampling density as per NSW EPA (1995) *Sampling Design Guidelines*.

GreenCap is not responsible for changes to the report findings arising from changes in site conditions and/or soil and groundwater chemistry that have occurred since the time of the investigation.

This work has been carried out as per GreenCap proposal J142067-Q dated December 2015 and emailed approval to proceed received from GPNSW.

2 PROJECT OBJECTIVES

The objective of the original investigation was to assess the site for sources of contamination which were flagged in the 2013 PESA report through undertaking a detailed phase 2 assessment as per the NSW EPA (1995) *Contaminated Sites: Sampling Design Guidelines* and the NSW OEH (2011) *Guidelines for Consultants Reporting on Contaminated Sites*.

The specific objective of this report is to detail the findings of the investigation locations within the boundaries of Proposed Lot 1.

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3 PROJECT SCOPE

The proposed scope to cover the site was outlined in the document J130282-Q (Greencap 2014). The scope undertaken within the boundaries of Proposed Lot 1 comprised:

- Conducting a data review of the existing report relating to the tank removal and destruction carried out by JFTA Petrochemical Services.
- Preparation of safety documentation, Dial Before you Dig search and underground service clearance by a Telstra registered Locator, and application to the NSW Office of Water for a Groundwater Bore Licence (see Appendix A);
- Drilling a total of 15 soil boreholes (using a push tube system) and conversion of one of the bores to groundwater monitoring well (using solid flight augers);
- Collection of soil and water samples for submission to NATA accredited laboratories for a selection of relevant analyses (refer to Section 6 for details); and
- Preparation of this report.

3.1 Variations to the Scope

Greencap notes that the tank decommissioning report prepared by JFTA was not made available for the data review due to difficulties in obtaining the report from JFTA. The data review was not undertaken however during the site walkover prior to the drilling being undertaken it was clear where the remedial area had been due to the new hardstand surface which had been constructed. A number of the soil locations were therefore targeted in the approximate and assumed location of the tank farm (see Figure 2 and Figure 3).

3.2 Variations to Recommended Sampling Density

Greencap note that at the time that the original investigation was undertaken the number of sampling locations (50) was sufficient for a site of approximately 4 hectares. As the site is now being split into two sections the requirement for Proposed Lot 1 is that 17 sampling locations are undertaken across the site in order to comply with the NSW EPA (1995) *Sampling Density Guidelines* (minimum sampling locations recommended for a size 7,000m² in area).

We note that only 15 sampling locations have been undertaken in Proposed Lot 1, therefore the sampling density does not comply with the guidelines. Furthermore, only one groundwater well exists for Proposed Lot 1.

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4 SITE CONDITION AND SURROUNDING ENVIRONMENT

The following sections are summarised from the Greencap 2013 PSI report (reference *Preliminary Environmental Site Assessment* Noel Arnold & Associates Pty Ltd November 2013 C107943:J131797). For full details please refer to this report.

4.1 Site Identification

The site is identified as a section of the Former Sydney Water Depot site, 45-61 Waterloo Road, Macquarie Park, NSW. Specific details are included in Table 1 and the site locality is indicated on Figure 1. We note that the investigation encompassed Proposed Lot 1 only (as indicated on Figure 1b).

Table 1: Site Identification

Item	Details
Site Address	45-61 Waterloo Road, Macquarie Park
Lot and Deposited Plan	Lot 102 DP1130630
Lot Size	~4 ha
Investigation Area	Proposed Lot 1
Size of investigation Area	7,000 m ²
Site Owner	Government Property NSW
Zoning	B3 – Commercial Core
Local Authority	City of Ryde
Parish and County	Parish of Hunters Hill, County of Cumberland
Locality and Site Map	Figure 1, Figure 1a, Figure 1b

4.2 Site Walkover

Prior to the drilling an initial site walkover was conducted to ensure that Greencap personnel were familiar with the site. The following observations were made:

- Proposed Lot 1 is situated within Lot 102 DP1130630 which is a large vacant site, rectangular in shape. A bus stop type shelter is present on Proposed Lot 1.
- Proposed Lot 1 is generally flat however slopes down gradually to the north-west (gradient of 0.03).
- Proposed Lot 1 is bound by Waterloo Road at the south-west and Proposed Lot 2 on all other sides. All fences surrounding Lot 102 appeared to be in good condition.
- Bitumen hardstand covered the majority of Proposed Lot 1. In the north-corner of the site was an area where the bitumen had been removed and the area was covered with roadbase gravel. No visible staining or other evidence of surface spills was observed across the site.

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4.3 Regional Meteorology

The Bureau of Meteorology provides the following statistics for weather at the Macquarie Park (Willandra Village) Weather station (situated 1.8 km to the north-west of the site). Note that temperature observations were collected between 1971 and 1995 and rainfall observations between 1970 and 2015.

- Mean maximum temperatures range from 27.7°C in January to 17.1°C in July;
- Mean minimum temperatures range from 16.9°C in January to 4.9°C in July; and
- Annual average rainfall at the site over the observation period was 1142 mm, with the highest mean rainfall occurring in January (144.8 mm). Median rainfall for the site was recorded as 106 mm over the observation period.

The site is covered with hardstand (as is the majority of the surrounding area) indicating that the majority of the rainfall falling at the site will enter the storm-water system and is unlikely to percolate through to the subsurface of the site.

4.4 Geology Soil and Topography

A review of the Soil Landscapes Series Sheet 9130 Sydney 1:100,000 published by the NSW DECCW in 2009 (4th Ed.) indicates the soil is composed of the Glenorie erosional soil landscape group. The Glenorie soil landscape comprises shallow to moderately deep Red Podzolic soils (i.e. acid soils with strong texture contrast between A and B horizons) on crests, moderately deep Red and Brown Podzolic soils on upper slopes, and deep Yellow Podzolic soils on lower slopes. The landscape group has the potential for high soil erosion hazard with localised impermeable highly plastic subsoil.

The Sydney 1:100,000 Geological Series Sheet published by the Geological Survey of NSW Department of Mineral Resources in 1983 (1st Ed.) indicates that the geology underlying the site is the Ashfield Shale, which is a subgroup of the Wianamatta Group shales. The Wianamatta Group Shales are a Middle Triassic aged deposit.

The Ashfield shale is described as black to dark grey laminite and was formed in marine conditions.

Underlying the Wianamatta Group Shales is the Hawkesbury Sandstone, an alluvial deposit described as a medium to coarse grained quartz sandstone with minor shale and laminite lenses. The map indicates that the top of the Hawkesbury Sandstone (and therefore the base of the Wianamatta Group) in the area of the site is approximately 60 m (relative to sea level).

Site observations during the field investigation indicate that the soil at the site encountered in the shallow soil bores is consistent with the description of the Glenorie soil landscape and weathered horizons of the Ashfield Shale and the rock encountered at depth in the groundwater bores was consistent with the Ashfield Shale.

4.5 Hydrogeology

A search of the NSW Natural Resources Atlas was undertaken for groundwater bores within 500 metres of the site as part of the PSI report in November 2013. One bore within 500 metres was identified. The bore was installed for industrial purposes and drilled to a depth of 180 m with a standing water level of 108m; no further information was available for this bore. However given the depth indicates that the bore is drilled into the Hawkesbury Sandstone at a depth considerably greater than the study depth of this investigation further information (should it have been available) is unlikely to have any bearing on the outcomes of this investigation.

The Geological Survey of NSW indicates that abstraction bores for potable use are infrequently constructed on Wianamatta Group shales due to slow production rates and high salinity therefore groundwater at the site, if affected by contamination, is unlikely to have an impact on human

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receptors. There are also no irrigation or recreational bores in the area. It should be noted that Shrimptons Creek is located approximately 650 metres to the north-west of the site and has the potential to be a receptor for contaminated groundwater from the greater catchment area.

Regionally in the Ashfield Shale groundwater is found between 5 to 10 metres below ground level (m BGL). This was confirmed during the groundwater sampling, with groundwater encountered during drilling at between 6 and 8 m BGL.

Regional groundwater is considered likely to flow north – north-west towards Shrimptons Creek, a tributary of the Lane Cove River.

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5 SUMMARY OF SITE HISTORY

The following summary is taken from the November 2013 PSI report; please refer to this report for further detail.

Please note that the historical summary relates to the site as it is currently gazetted, e.g. Lot 102 in DP 1130630 and not specifically to Proposed Lot 1.

The site has been owned by various people over the past 100 years. From 1918 to 1945 a number of lay-people owned the site including farmers and spinsters, in 1945 a builder and his wife owned the land until 1963 at which point the Metropolitan Water and Sewerage Drainage Board took ownership until 1988. Over the course of the next 25 years, Sydney Water Corporation, State Rail Authority of NSW and Transport Infrastructure owned the site. In 2010 GPNSW (then the State Property Authority) took possession of the site.

A search was undertaken by Greencap on the 25th of September 2013 for the City of Ryde Local Government Area in relation to sites notified to the NSW EPA for contamination, and sites which have been issued with a Record of Notice of Contamination. There were no sites on record or NSW EPA-notified sites within one kilometre of the site.

A search of registered dangerous goods on the site carried out through WorkCover revealed that in 1967, the Metropolitan Water and Sewerage Drainage Board applied for a Dangerous Goods Licence to manage 12 underground fuel storage tanks on the site as part its use as a Construction Depot. In 2000 the Olympic Road and Transport Authority (ORTA) obtained an extension of a Dangerous Goods License to continue the refuelling use of the site. At the time, the site was leased to State Rail Authority for the Sydney 2000 Olympic Games as a staging and refuelling area for fleet cars.

The WorkCover search revealed that the 12 tanks were decommissioned in 2006 by JFTA Petrochemical Services. At the time this report was produced, there was no available documentation which discussed validation sampling of the soils around the tanks.

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6 FIELD PROGRAM

Field work was carried out between the 29th January 2015 and the 3rd February 2015 by Naomi Price. Field logs from each bore location are included in Appendix B and contain a description of the material encountered, odours and staining encountered, and any other pertinent information. All laboratory analysis was undertaken at our preferred laboratories. Soil and groundwater organic and inorganic analysis was undertaken by Australian Laboratory Services (ALS) and asbestos analysis was undertaken by Australian Safer Environments and Technologies (ASET). All laboratories are NATA accredited for the analyses undertaken.

6.1 Soil Investigation

The soil investigation was undertaken between the 29th January and 2nd February 2015. The investigation consisted of:

- A service clearance by a Telstra Registered service locator (Action Locating);
- Excavation of 15 soil boreholes to a maximum depth of 9 m BGL (investigation locations are shown on Figure 3). Locations were undertaken on both a grid basis (GW1, BH16-17, BH24-25, BH30-31, BH38) and a targeted basis around the former tank farm (BHA-BHG);
- Collection of soil samples and analysis for the following:
 - Total recoverable hydrocarbons (TRH);
 - BTEX (benzene, toluene, ethylbenzene and xylenes);
 - Polycyclic aromatic hydrocarbons (PAH);
 - Organochlorine pesticides (OCP);
 - Polychlorinated biphenyls (PCB);
 - Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc); and
 - Asbestos.

Soil samples were collected from the lining of the push tube. A new liner was used each time the drill rod was advanced through the soil profile. Samples were collected by hand and clean nitrile gloves were used at the collection of each sample. Soil samples were placed into labelled glass jars before being placed on ice in a cooler. Samples were transported to the laboratory under chain of custody procedures within the required holding times.

6.2 Site Observations

Fill material or reworked natural soils were generally encountered in all boreholes across the investigation area. All bores were terminated in natural material. Fill material depths are indicated on the field logs and discussed below.

Fill material generally consisted of clayey gravelly roadbase material, which generally extended to depths of approximately 0.5 - 0.7 m BGL. The deepest fill material was encountered in boreholes BH17 (2.1 m BGL), BHB (1.7 m BGL) and BH25 (1.6 m BGL).

Borehole BH25 was located at the east of the assumed tank remedial area (see Figure 2 and Figure 3), the fill material encountered was coarse grey sand with moderate hydrocarbon odour. It is assumed that this is a remnant of the backfill sands surrounding the tanks which were not removed during the remediation.

Borehole BHB was located within the assumed tank removal area. The fill material consisted of crushed sandstone and sand and had a faint reducing (hydrogen sulfide) odour. It is assumed that this fill was the backfill used to fill in the excavations following remediation.

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Borehole BH17 was located in the centre of Proposed Lot 1 to the south of a large mounded garden bed. The material encountered was a reworked natural material consisting of soft clay with some roadbase present. This may be indicative of localised filling. There was no evidence of contamination (visual or olfactory) in the fill material.

In a number of locations (boreholes BHD, BHF) fill material consisting of loose roadbase gravel and clay was encountered overlying a layer of reworked natural clay. Beneath this was natural topsoil, overlying the weathered clay and shale observed in the other bores. This is indicative of localised landscaping having been undertaken at the site with site won material being placed over the natural material to form landscaped areas or to compensate for natural topographical differences.

Natural material was encountered in all boreholes and consisted of heavy red, orange and brown clays, ironstone, soft grey and red weathered shales and, in the groundwater bore, competent dark grey shale from 5 m BGL.

Visual evidence of contamination was observed in the following bores:

- Borehole BHG in the tank removal area which had a thin layer of brown and red clay with black stained ironstone. This was associated with a moderate hydrocarbon odour; and
- A faint sheen was observed on perched groundwater observed in borehole BH25.

The following olfactory observations were made during the investigation:

- BHA
 - Faint aged hydrocarbon odour 0.5-0.6 m BGL
 - Moderate to faint hydrocarbon odour 0.6 – 1.2 m BGL
- BHB
 - Very faint reducing odour 1.2-1.6 m BGL
- BHG
 - Moderate hydrocarbon odour 0.4-1.2 m BGL
 - Faint hydrocarbon odour 1.2-1.5 m BGL
 - Very faint hydrocarbon odour 1.5-2.1 m BGL
- BH22
 - Very faint reducing odour 0.8-1.2 m BGL
- BH25
 - Moderate hydrocarbon odour 0.6-1.7 m BGL

6.3 Groundwater Investigation

The groundwater investigation was undertaken in two stages. The drilling and well development was undertaken on the 29th January, sampling was undertaken on the 3rd February.

One groundwater monitoring well was drilled on Proposed Lot 1 under Monitoring Bore Licence 10BL605704 by Pat Tapper of Terratest Pty Ltd who holds a NSW Office of Water Class 1 Drilling Licence. The location of the groundwater bore can be found on Figure 3.

A copy of the Monitoring Bore licence can be found in Appendix A. The borelog can be found in Appendix B along with construction details.

Soil samples were collected from the groundwater bores during drilling; please refer to Section 4.1 for details. A groundwater sample was collected from each monitoring well and submitted to ALS for the following analysis:

- TRH and BTEX; and

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- Heavy metals (as per Section 6.1 plus aluminium, manganese and iron).

Bore development was undertaken by removing in excess of four well volumes of standing water from each monitoring well using dedicated well tubing and a foot valve. Samples were collected using low flow sampling equipment. Dedicated consumable equipment was used at each well; any equipment reused between wells (such as the dipper and pumps) was decontaminated between each well using a triple rinse system (Decon90, followed by tap water, followed by deionised water). Samples were placed in appropriately preserved sample containers in a chilled cooler box before being transported to the laboratory under chain of custody procedures within the required holding times.

6.4 Site Observations

During drilling, the following observations regarding groundwater were noted:

- Slightly moist arisings at 5.0 m BGL.
- No other signs of groundwater encountered.

The standing water level in GW1 was recorded as being 48.095 m AHD. During purging it was noted that the recharge was very slow. The well was purged dry three times during development.

Sampling was undertaken using a low flow sampling system. Low flow purging was undertaken until the groundwater parameters had stabilised to the following criteria (adapted from EPA Victoria Publication 669):

- $\pm 10\%$ dissolved oxygen (DO)
- $\pm 3\%$ electrical conductivity (EC)
- ± 0.1 pH unit; and
- ± 10 mV Oxygen redox potential

The monitoring well stabilised after approximately 40 minutes of purging. The monitoring well was mainly slow to recharge therefore the pump controller was set to 1 -2 cycles per minute to prevent the water level in the well drawing down. The water level was monitored closely to prevent more than a 10% water column draw down. Field sheets from the sampling round are included in Appendix C.

No odour, sheen, or other visual sign of contamination was noted during sampling. The water was a turbid brown or grey colour which generally became slightly less so with continued purging. Samples were collected directly from the well tubing at the same rate as the sampling.

6.5 Groundwater Physical Characteristics

One water bearing zone was identified during drilling from approximately 5 m BGL. Standing water levels rose to shallower depths, indicating that the aquifer is confined within the shale layer at depths of greater than 5 m BGL. Perched water in the overlying clays was not noted during drilling.

Aquifer testing to determine the groundwater flow velocity was not undertaken as part of this investigation however typical hydraulic conductivity in tight shale formations such as the Wianamatta Shales is slow and generally ranges from 10⁻³ to 10⁻⁹ m/s (Freeze and Cherry 1979).

Field and laboratory measurements of physical characteristics indicate that the groundwater is slightly saline in GW1. Note that TDS has been calculated from the laboratory results using a conversion factor of 0.55. The pH of the groundwater was slightly acidic with laboratory pH results reporting a pH value of 6.02 pH units. The redox value was positive and dissolved oxygen levels were all elevated. Groundwater contours were not calculated as only one bore was located within Proposed Lot 1.

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7 APPLICATION OF RELEVANT GUIDELINES

7.1 Soil Guidelines

The soil results were assessed according to criteria set out in the *National Environment Protection (Assessment of Site Contamination) Measure 1999* (2013 Amendment) (NEPM 1999).

The site is currently zoned as "B3- Commercial Core" under the City of Ryde Draft LEP 2010; therefore the results of the DSI have been assessed against criteria suitable for Commercial/Industrial land use.

The criteria are taken from:

- Health investigation levels for soil contaminants (Table 1A(1));
- Soil Health Screening Levels for vapour intrusion (Table 1A(3));
- Tables 1B(1, 2, 3, 4 and 5) Soil-specific added contaminant limits for:
 - aged zinc;
 - copper;
 - chromium III;
 - nickel;
 - lead; and
 - naphthalene, DDT and arsenic.
- Ecological screening levels for TRH fractions F1-F4, BTEX and Benzo(a)Pyrene in soil (Table 1B(6)); and
- Management Limits for TRH Fractions F1-F4 in soil.

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Table 2: Soil Assessment Criteria – NEPM 1999 (2013 Amendment)

ANALYTE	CRITERIA (all units in mg/kg with the exception of asbestos)					
	Asbestos	Health investigation levels	Soil HSL for vapour intrusion ^a	Ecological investigation levels	Ecological screening levels	Management limits
Asbestos						
Asbestos	0.001%	-	-	-	-	-
Total recoverable hydrocarbons (mg/kg)						
C ₆ -C ₁₀ Fraction F1	-	-	310	-	215	800
>C ₁₀ -C ₁₅ Fraction F2	-	-	NL	-	170	1,000
>C ₁₅ -C ₃₄ Fraction F3	-	-	-	-	2,500	5,000
>C ₃₄ -C ₄₀ Fraction F4	-	-	-	-	6,600	10,000
Polycyclic aromatic hydrocarbons						
BaP TEQ	-	40	-	-	-	-
BaP	-	-	-	-	0.7	-
Naphthalene	-	-	NL	370	-	-
Total PAH	-	4,000	-	-	-	-
BTEX compounds						
Benzene	-	-	4	-	95	-
Toluene	-	-	NL	-	135	-
Ethylbenzene	-	-	NL	-	185	-
Xylene (total)	-	-	NL	-	95	-
Metals and metalloids						
Arsenic	-	3,000	-	160	-	-
Cadmium	-	900	-	-	-	-
Chromium	-	3,600	-	660	-	-
Copper	-	240,000	-	400 ^b	-	-
Lead	-	1,500	-	1,800	-	-
Mercury	-	730	-	-	-	-
Nickel	-	6,000	-	55 ^c	-	-
Zinc	-	400,000	-	360 ^d	-	-
Organochlorine pesticides and Polychlorinated biphenyls						
DDT+DDE+DD D	-	3,600	-	640	-	-
Aldrin and	-	45	-	-	-	-

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ANALYTE	CRITERIA (all units in mg/kg with the exception of asbestos)					
	Asbestos	Health investigation levels	Soil HSL for vapour intrusion ^a	Ecological investigation levels	Ecological screening levels	Management limits
dieldrin						
Chlordane	-	530	-	-	-	-
Endosulfan	-	2,000	-	-	-	-
Endrin	-	100	-	-	-	-
Heptachlor	-	50	-	-	-	-
HCB	-	80	-	-	-	-
Methoxychlor	-	2,500	-	-	-	-
PCBs	-	7	-	-	-	-
Notes: a. Soil HSLs for clay soils at shallow depths (most conservative) b. Aged copper criteria chosen for a slightly acidic soil with pH of 6.5, based on limited field screening c. Aged nickel criteria chosen as most conservative displayed in NEPM 1999 d. Aged zinc criteria chosen for slightly acidic soil with pH of 6.5, based on limited field screening and most conservative CEC value						

7.2 Groundwater Guidelines

The groundwater results were assessed according to groundwater investigation levels (GILs) and groundwater health screening levels for vapour intrusion (HSLs) presented in *National Environment Protection (Assessment of Site Contamination) Measure 1999* (2013 Amendment) (NEPM 1999).

Excluding the fill horizons in the bores (less than 0.5 m in the majority of the bores) material encountered during drilling consisted of heavy clays and shales. The well was installed with a screen section from 5 m BGL. The HSL considered most appropriate for assessment of potential vapour intrusion at the site is "HSL D Commercial/Industrial for Clay from 2m to 4m" in Table 1A(4) of the NEPM 1999.

The site is situated in an area which has an established commercial history and it is unlikely that there are any potable or recreational uses in the immediate area of the site. Therefore the GIL considered most relevant to this site are those protective of fresh water ecosystems presented in the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC 2000) and reproduced in the NEPM 1999.

The guidelines take into account trigger values for fresh and marine waters and provide level of percentage protection for specific analytes. The guidelines are given in Table 3 along with the groundwater results. In principle, groundwater is required to be of sufficient quality that it does not affect receiving waters, or that an aquifer is not degraded. Given this, waters encountered are of concern only in their potential to impact an off-site discharge zone. For protection of aquatic ecosystems the guidelines for 95% should be used. It is noted that these criteria relate to discharging waters and are conservative when applied to groundwater as dilution and attenuation effects could reduce contaminant levels substantially by the time the waters migrate and are discharged to the surface.

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Table 3: Groundwater Assessment Criteria – NEPM 1999 (2013 Amendment)

Analyte	Assessment criteria (all values in µg/L)	
	Groundwater HSLs for vapour intrusion	Groundwater Investigation Levels – Fresh Waters
Toluene	NL	-
Ethylbenzene	NL	-
Xylenes	NL	-
Naphthalene	NL	-
Benzene	NL	-
C ₆ -C ₁₀ Fraction F1	NL	-
>C ₁₀ -C ₁₆ Fraction F2	NL	-
Aluminium	-	55
Arsenic	-	24
Cadmium	-	0.2
Chromium	-	1
Copper	-	1.4
Iron	-	-
Lead	-	3.4
Mercury	-	0.06
Nickel	-	11
Zinc	-	8

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8 RESULTS AND DISCUSSION

8.1 Analytical Schedule

The number of samples for each analysis (soil and groundwater) is indicated in Table 4, along with the number of duplicate samples analysed. Laboratory transcripts are included in Appendix D. All discussion relating to quality assurance and quality control is included in Appendix E.

Table 4: Analytical Schedule

Analysis	Number Primary samples		Number duplicate samples	
	Soil	Water	Soil	Water
TRH	31	1	2	-
BTEX	31	1	2	-
PAH	31	-	2	-
OCP	31	-	2	-
PCB	31	-	2	-
Heavy metals	31	1	2	-
pH and EC	-	1	-	-
Asbestos	15	-	-	-

8.2 Soil Results

8.2.1 Inorganic Results

Results from all samples were below the adopted site criteria for inorganic analysis with respect to the Health Investigation Levels (HIL Commercial/Industrial D). Asbestos was not detected in any of the samples analysed.

However, nickel and aged zinc concentrations in a number of bores exceeded the EILs. The samples are indicated in Table 5.

It is noted that the selected EIL for nickel and zinc is based on soils with a CEC (Cation Exchange Capacity) of 5 cmhc/kg. A CEC test was outside the scope of this investigation therefore we have adopted the most conservative criteria presented in the NEPM 1999. The aged zinc criteria selected was also based on a soil pH of 6.5 (limited soil screening in the field indicated that pH ranged from 6.5 to 7 in the top 2m of soil).

It is unlikely that the site will have significant ecological receptors (shallow rooted plants and small biota) retained on-site as a result of the proposed redevelopment works. Therefore, the exceedances of the copper and zinc EILs are not considered to pose an undue risk to the site.

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Table 5: Exceedances of EILs

Analyte	Nickel (mg/kg)	Zinc (mg/kg)
Criteria (EIL mg/kg)	55	360
Bore ID		
BHE 0-0.15	99	-
GW1 0.2-0.3	96	-
BH24 0-0.1	98	-
BH31 0-0.2	114	-
BH38 0.3-0.4	106	-
Note "-."denotes result did not exceed criteria despite having a detectable concentration. Refer to Appendix D for laboratory results.		

8.2.2 Organic Results

Concentrations of polychlorinated biphenyls and BTEX were below the laboratory reporting limits in all samples. Concentrations of organochlorine pesticides were below the laboratory reporting limits in all samples.

The concentrations of polycyclic aromatic hydrocarbons (PAH) were below the laboratory reporting limits in the majority of samples. Detectable concentrations of a number of PAHs were found in a small number of samples (refer to Table 6) in fill material however they either did not exceed the adopted criteria or there are currently no criteria for the compounds, with the exception of:

- Benzo(a)pyrene concentrations in three samples collected from the former tank farm area which exceeded the ESL for TRH fractions in soil:
 - BHG 0-0.2 (4.3 mg/kg); and
 - BHB 0.2-0.4 (3.1 mg/kg)).

The occurrence of B(a)P in BHG and BHB samples is likely attributed to the bitumen and roadbase layer encountered (see borelogs in Appendix B).

In order to ascertain whether the source was bitumen, Greencap undertook a source analysis investigation (Mulvey and McKay 2006) whereby the samples were compared to a set of reference samples to assess the likely source of the PAH concentrations. The source analyser indicated that the types of PAH present in the soil are indicative of ash from coal tar and creosote. This indicates that the bitumen/road seal in the sample is affecting the results. This indicates that the B(a)P is likely to be bound strongly within a matrix of bitumen and is likely to be relatively immobile and not readily bioavailable.

Concentrations of total recoverable hydrocarbons in bands C₆-C₁₀ and C₆-C₁₀ minus BTEX (F1) and C₂₄-C₄₀ (F4), were below the laboratory reporting limits in all samples with the exception of detectable concentrations in a number of samples (see Table 7) which were below the adopted criteria.

Concentrations of C₁₀-C₁₆ (F2) exceeded the criteria in seven samples, and one sample contained a concentration C₁₆-C₃₄ (F3) exceeding the criteria in the former tank farm area. Samples are indicated in Table 7. The samples which exceeded the criteria were all associated with faint to moderate hydrocarbon odours, and in the case of BH25 perched groundwater with a faint sheen noted. This indicates that there may be some residual material in this area which continues to be impacted from the historical tank farm.

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Table 6: Polyaromatic hydrocarbon results

Bore ID	Criteria	BHA	BHB	BHC	BHG	BHG	BHG	BHG
Analyte		1-1.2	0.2-0.4	0-0.2	0-0.2	0.4-0.6	0.8-0.9	1.2-1.3
Naphthalene	5 ¹	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	-	ND	0.8	ND	0.7	ND	ND	ND
Acenaphthene	-	ND	1.2	0.8	1.3	ND	ND	ND
Fluorene	-	ND	0.8	1	0.8	1.9	1.4	1.3
Phenanthrene	-	1.4	12.2	6.1	15.4	2.4	1.9	1.7
Anthracene	-	ND	2.4	1.3	3	ND	ND	ND
Fluoranthene	-	ND	11.4	5.8	15.8	ND	ND	ND
Pyrene	-	ND	11.1	5.6	14.7	ND	ND	ND
Benzo(a)anthracene	-	ND	3.4	1.7	4.7	ND	ND	ND
Chrysene	-	ND	3.3	1.7	4.7	ND	ND	ND
Benzo(b,k,l)fluoranthene	-	ND	4.8	1.9	5.6	ND	ND	ND
Benzo(a)pyrene	0.7 ⁴	ND	<u>3.1</u>	0.5	<u>4.3</u>	ND	ND	ND
Indeno(123cd)pyrene	-	ND	1.4	1.5	1.2	ND	ND	ND
Dibenz(ah)anthracene	-	ND	ND	0.7	ND	ND	ND	ND
Benzo(ghi)perylene	-	ND	2	ND	1.5	ND	ND	ND
BaP TEQ	40	ND	4.1	2	5.5	ND	ND	ND
Total PAH	4,000	1.4	57.9	29.5	73.7	4.3	3.3	3
Notes:								
1. <u>Bold underlined italicised</u> text indicates criteria exceeded								
2. ND – non detect								
3. All values expressed in mg/kg								
4. HSL soil vapour for samples 0-2m								
5. ESL for TRH fractions in soil								

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Table 7: TRH sample results

Analyte	C ₆ - C ₁₉ (F1)	>C ₁₀ - C ₁₉ (F2)	>C ₁₆ - C ₃₄ (F3)	>C ₃₄ - C ₆₀ (F4)
Criteria	215 ^a / 210 ^b / 800 ^d	170 ^a / NL ^b / 1,000 ^d	2,500 ^a / 5,000 ^d	6,600 ^a / 10,000 ^d
Bore ID				
BHA 0.5-0.6	ND	380	790	ND
BHA 1-1.2	14	570	550	ND
BHA 1.8-2	ND	<50	ND	ND
BHB 0.2-0.4	ND	<50	1,350	1,270
BHG 0-0.2	ND	60	1,300	1,520
BHG 0.4-0.6	ND	<u>1,640</u>	2,100	ND
BHG 0.8-0.9	19	<u>1,100</u>	890	ND
BHG 1.2-1.3	ND	820	880	ND
BHG 2.1-2.2	ND	150	240	ND
BH25 0.6-0.8	18	2,080	2,430	ND
BH25 1-1.2	17	18,600	<u>18,200</u>	100
Notes:				
<ol style="list-style-type: none"> ESLs for TRH fractions HSLs for soil vapour in samples less than 1m deep Management limits Criteria for this depth is NL (not limiting) Bold text indicates exceedance of (a) <u>Bold italicised underlined text</u> indicates exceedance of (c) All values expressed in mg/kg ND indicates non detect 				

8.3 Groundwater Results

8.3.1 Inorganic Analysis

Groundwater heavy metal results are presented in Table 8. Concentrations of copper, nickel and zinc exceeded the adopted criteria. The exceedance of the criteria is likely attributed to elevated background concentrations of heavy metals in the groundwater. The Wianamatta Shales aquifer is a connate water source and is known for having naturally high background concentrations of heavy metals.

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8.3.2 Organic Analysis

Concentrations of all organic analytes (TRH and BTEX) were below the laboratory reporting limits in all samples analysed.

Table 8: Inorganic groundwater results

Bore ID Analyte	Criteria	GW1
pH		6.2
Aluminium	0.055	0.04
Arsenic	0.024	<0.001
Cadmium	0.0002	0.0001
Chromium	0.001	<0.001
Copper	0.0014	<u>0.029</u>
Nickel	0.011	<u>0.242</u>
Lead	0.0034	<0.001
Mercury	—	<0.01
Selenium	0.00006	<0.0001
Zinc	0.008	<u>0.289</u>
Iron	—	2.66
Notes:		
a. All data expressed in mg/L		
b. <u>Bold underlined</u> text indicates criteria exceeded		

9 CONCLUSIONS

Greencap were engaged to undertake a detailed site investigation (DSI) at the site located at 45-61 Waterloo Road. The site was originally investigated as one whole site, however the site owner wishes to subdivide the site into two proposed Lots (see Figures 1, 1a and 1b). This report details the investigation locations undertaken in Proposed Lot 1, DP1130630. The site has been used for a variety of commercial purposes for the past few decades and at one stage had a tank farm containing 12 underground fuel tanks located in the centre of the site (located on Proposed Lot 1). This tank farm was decommissioned in 2006 and approximate locations are indicated on Figure 2.

Greencap undertook an investigation consisting of drilling 15 soil bores, conversion of one of these to a groundwater monitoring bore and submission of a range of samples to a NATA accredited laboratory for a selection of analytes.

Based on the results of this investigation we make the following conclusions:

- Fill material is present across the majority of the site, generally in the upper 0.5 m and consists of roadbase and clay fill. Deeper fill horizons were noted locally across the site, namely:
 - Sands and crushed sandstone in the vicinity of the former tank farm in the centre of the site. Assumed to be backfill sands which were not removed, as well as backfilled material following the remediation.

ITEM 3 (continued)

ATTACHMENT 2

February 2016



- Hydrocarbon odours ranging from faint to moderate were found in the upper two metres of bores BHA, BHB, BHG and BH25.
- A faint sheen on perched water was observed in borehole BH25.
- Some exceedances of the heavy metal Ecological Screening Levels were noted in the soil samples. It is likely that these concentrations are indicative of naturally occurring background concentrations within the residual clay soils. No remediation of this material is considered to be required.
- Concentrations of TRH in soil samples collected from boreholes BHA, BHB, BHG and BH25 exceed the ESLs (Ecological Screening Levels) and Management Limits. Soil material in this area does not comply with aesthetic requirements as per the NEPM 1999 (2013 amendment) as moderate hydrocarbon odours were noted. This material requires remediation and has been identified at a maximum depth of 2.1 m BGL in the locations investigated. The impacted sample locations are shown on Figure 4. We note that depths may exceed this in locations not investigated.
- Concentrations of BaP exceed the ESL criteria in samples BHB (0.2-0.4) and BHG (0-0.2).
- The groundwater sample collected from GW1 did not appear to be impacted by TRH or BTEX at the time of sampling, however it is noted that only one well exists on Proposed Lot 1. Heavy metal exceedances are attributed to naturally occurring background metals in waters sourced from the Wianamatta Shales.

10 RECOMMENDATIONS

Based on the results of this investigation Greencap make the following recommendations:

- Remediation is required at the site in order to remove the hydrocarbon impacted material in boreholes BHA, BHB, BHG and BH25. The impacted sample locations are provided on Figure 4.
 - This figure does not indicate a remedial area and is based on site observations during fieldwork and subsequent laboratory analysis. A remediation action plan including remedial volumes, areas and options should be prepared prior to the remediation taking place.
- Further groundwater investigation is warranted at the site due to the fact that only one bore is located within Proposed Lot 1 and soil conditions indicate that historical fuel contamination is present within the upper soil horizons.

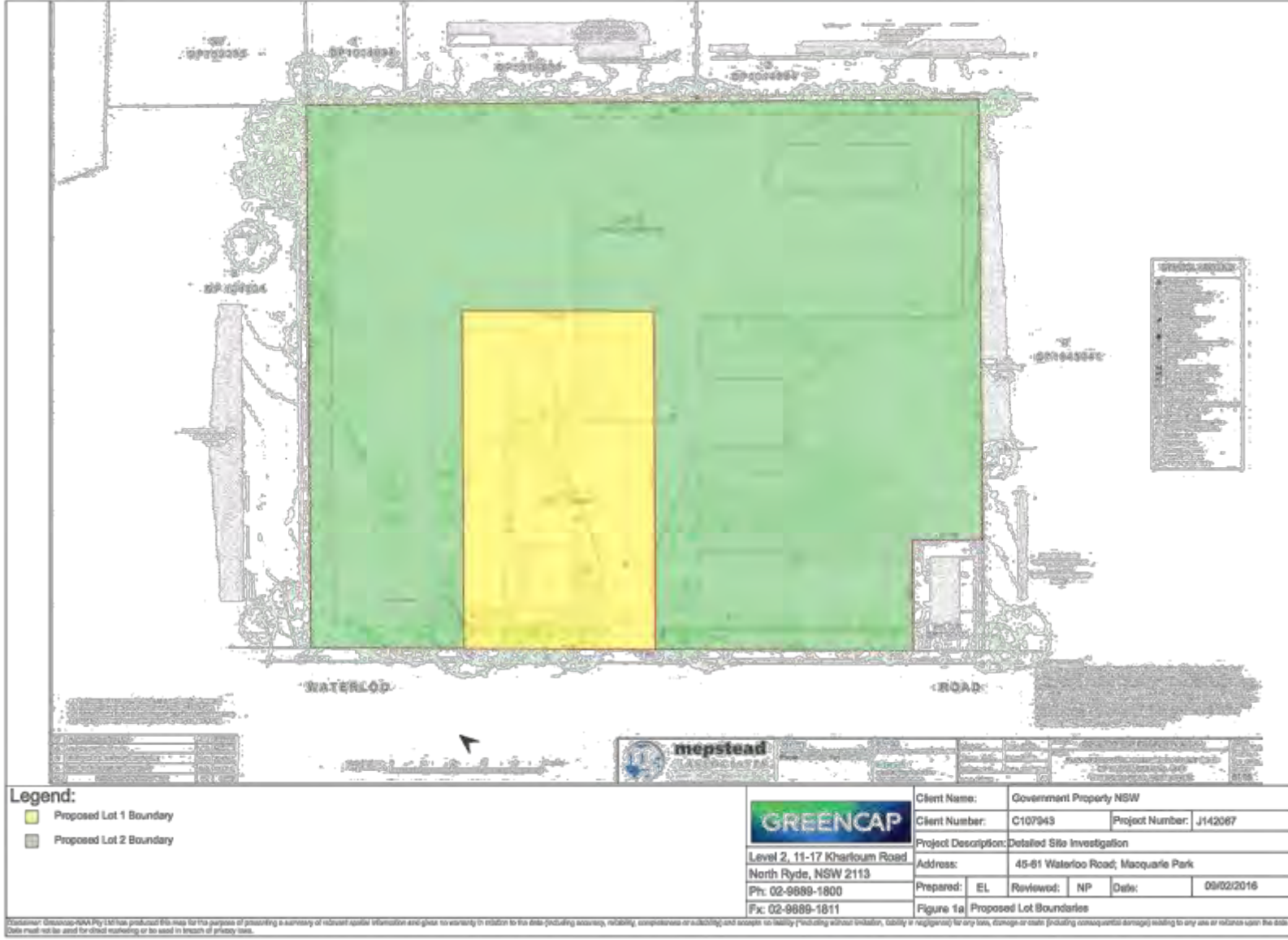
ITEM 3 (continued)

ATTACHMENT 2



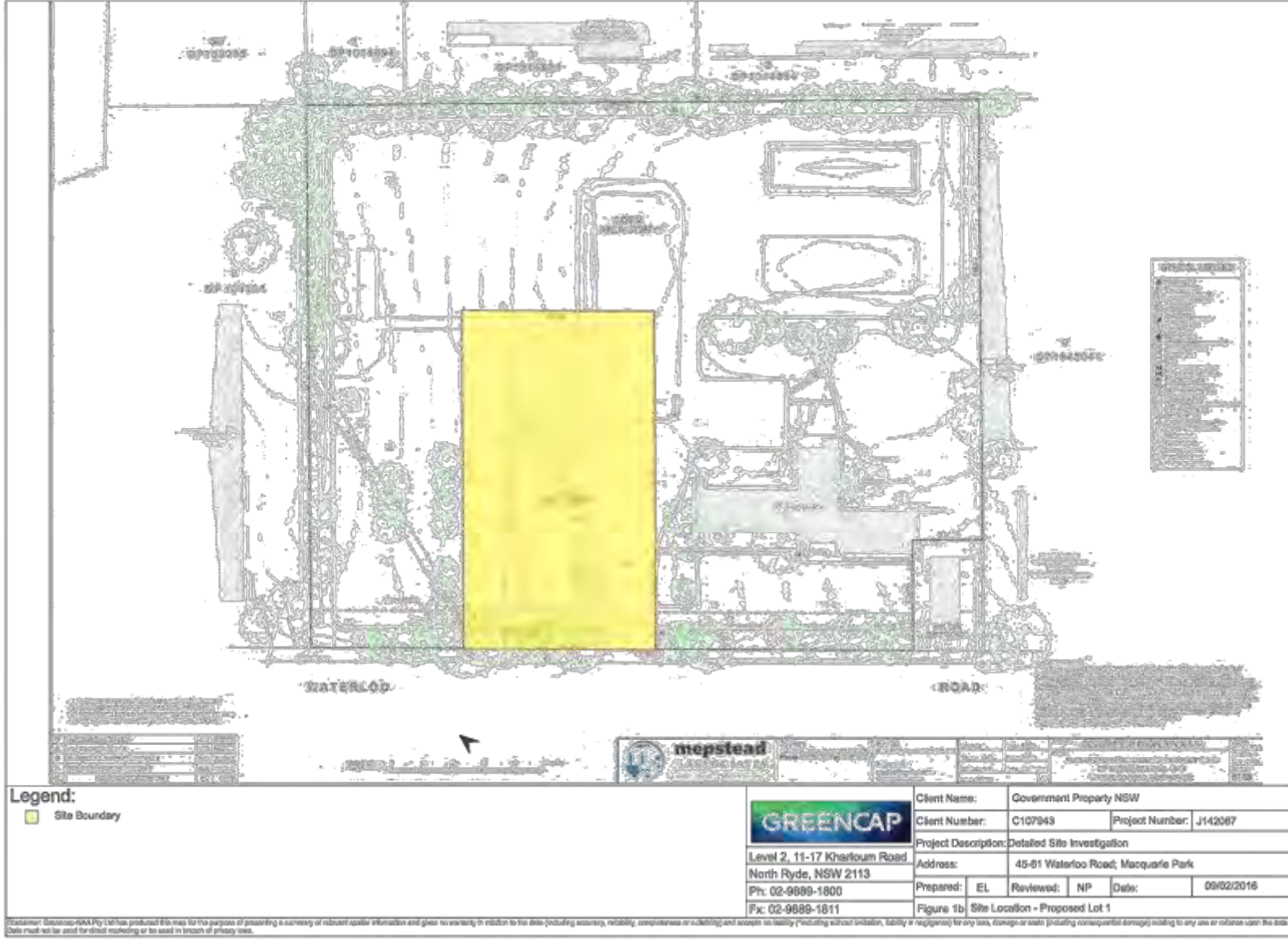
ITEM 3 (continued)

ATTACHMENT 2



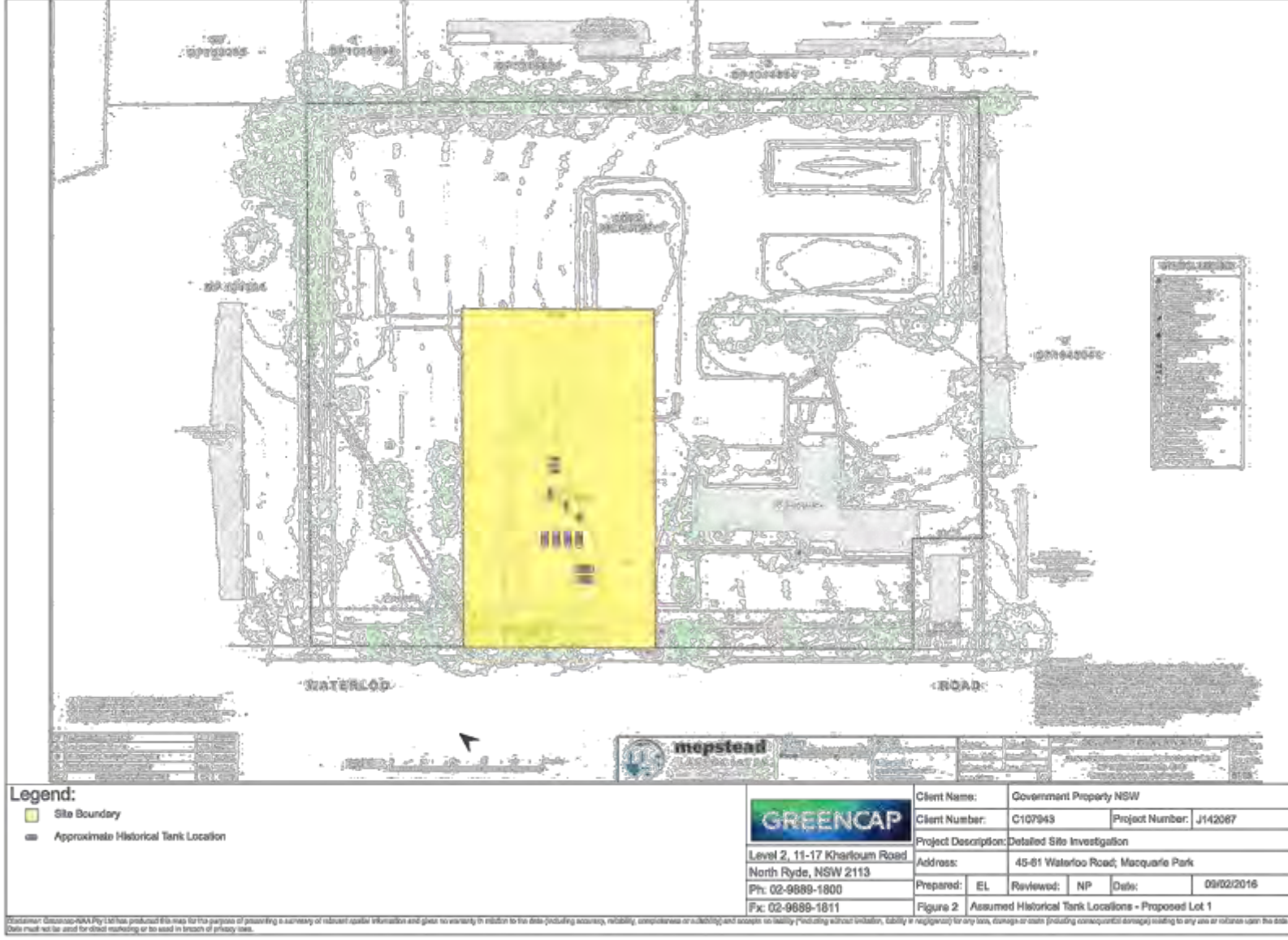
ITEM 3 (continued)

ATTACHMENT 2



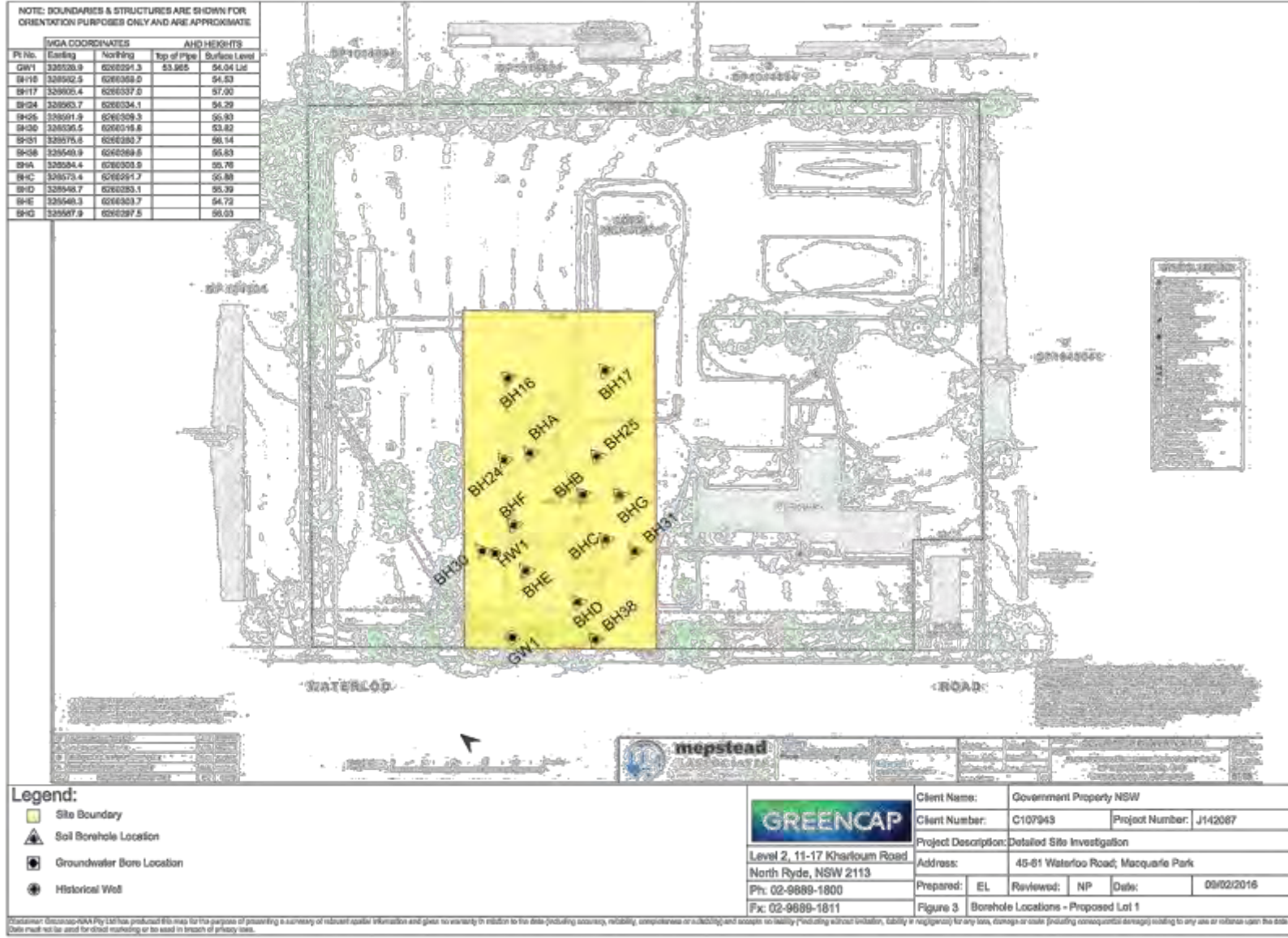
ITEM 3 (continued)

ATTACHMENT 2



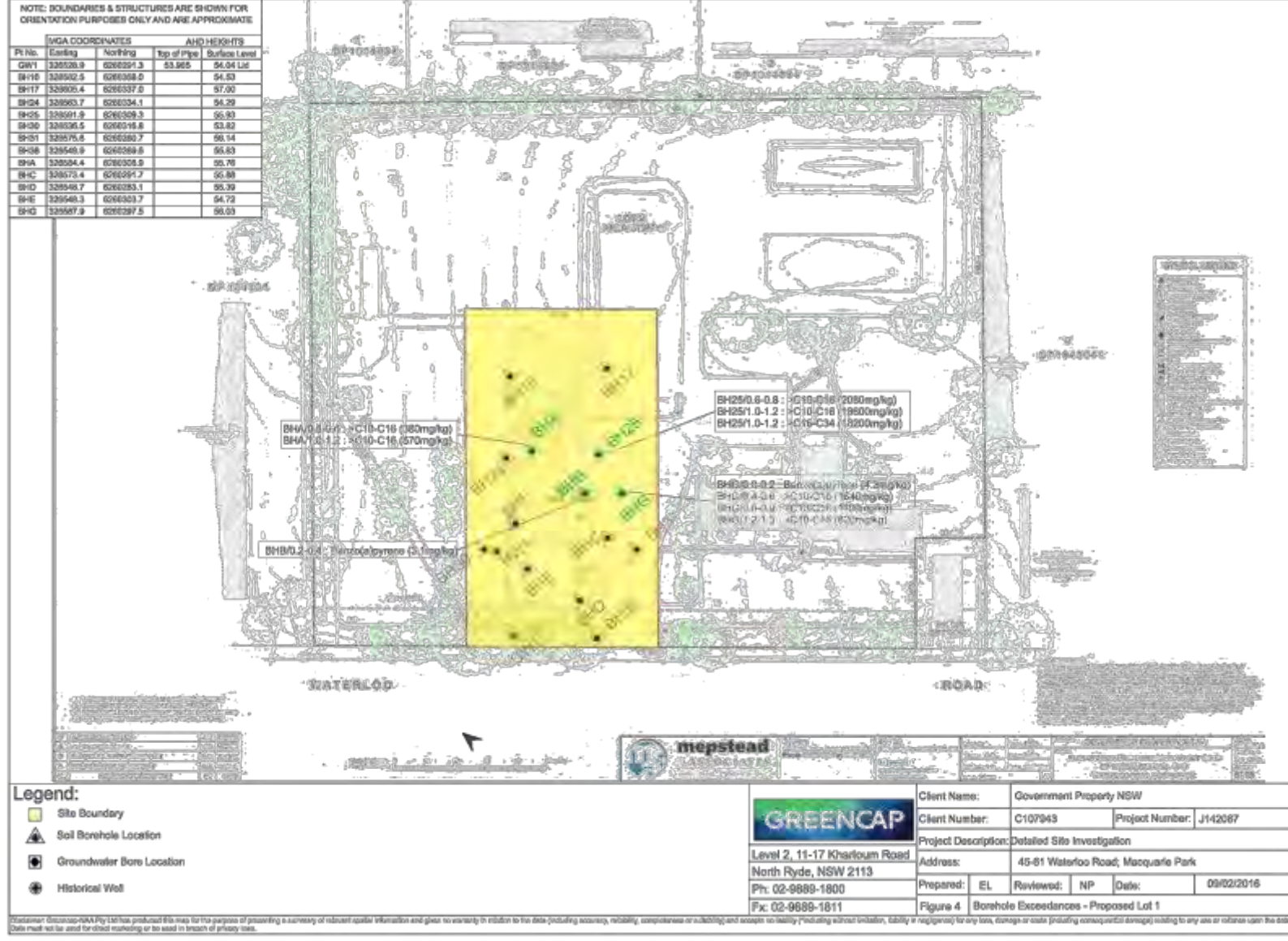
ITEM 3 (continued)

ATTACHMENT 2



ITEM 3 (continued)

ATTACHMENT 2



ITEM 3 (continued)

ATTACHMENT 2

February 2016



Detailed Site Investigation

Government Property NSW

Proposed Lot 1, 45-61 Waterloo Road, Macquarie Park, NSW

Appendix A: Borehole Licence

ITEM 3 (continued)

ATTACHMENT 2



Department of
Primary Industries
Office of Water

Government Property NSW
c/- Greencap NAA
Level 2, 11-17 Kharitoun Road
NORTH RYDE NSW 2113
Attn: Naomi Price

Contact: Monique Brookings
Phone: 02 4224 0746
Fax: 02 4224 0740
Email: Monique.Brookings@dpnr.nsw.gov.au
Our ref: 108L205704

Dear Ms Price

Monitoring Bore Licence
Lot 102 DP 1130630, 45-61 Waterloo Road, Macquarie Park 2113

Please find enclosed your licence. Your attention is drawn to the nature and description of the work, terms, limitations and conditions under which the licence is issued.

When engaging a bore driller, your responsibility is to:

- ensure that the works are drilled by a person who holds a current driller's licence issued by the NSW Office of Water. Drillers are required to carry their licence with them. It is illegal for a driller to construct a bore without a driller's licence; and
- provide the driller with a copy of the groundwater licence and conditions sheets so that they are aware of any special construction requirements. The NSW Office of Water strongly advises that you obtain a written agreement (contract) from the driller for the work to be undertaken.

Condition (2) of the licence applies whether the bore is successful or not and it is the Driller's responsibility to supply the information. A copy of *Form A - particulars of completed works* is enclosed. As part of their licence requirements, drillers must complete this form.

You must send the completed *Form A* together with any further information required in the licence conditions to the NSW Office of Water within two months of completion of the bore.

Your attention is drawn to conditions 11 and 12.

Drilling the bore and providing information

The NSW Office of Water recommends that the driller constructs the bore to the minimum requirements set out in guidelines developed by the National Groundwater Committee: *Minimum Construction Requirements for Water Bores in Australia*. (You can find a link to these guidelines under information on drillers' licences on our website at www.water.nsw.gov.au.)

ITEM 3 (continued)

ATTACHMENT 2

More information

You can find more information on constructing a bore and water licensing on our website under 'Water Licensing'. If you would like more information on your licence or on current water restrictions, contact a water licensing officer (details for water licensing enquiries are listed under 'Contact Us' on the website) or phone 1800 353 104 or e-mail information@water.nsw.gov.au.


Yours sincerely



Monique Brooking
Water Regulation Cadet
21 January 2015

ITEM 3 (continued)

ATTACHMENT 2

NSW Office of Water											
Sydney South Coast Region Po Box 3720 10 Valentine Avenue Parramatta NSW 2124 Phone: (02) 82817777	BORE LICENSE CERTIFICATE UNDER SECTION 115 OF THE WATER ACT, 1912	10BL605704  Department of Primary Industries NSW Office of Water									
<div style="display: flex; justify-content: space-between;"> <div style="border: 1px solid black; padding: 5px; width: 60%;"> Government Property N S W C/- Greencap N A A Level 2, 11 Khartoum Road North Ryde NSW 2113 </div> <div style="border: 1px solid black; padding: 5px; width: 35%;"> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: center;">LICENSE NUMBER</td></tr> <tr><td style="text-align: center;">10BL605704</td></tr> <tr><td style="text-align: center;">DATE LICENSE VALID FROM</td></tr> <tr><td style="text-align: center;">21-Jan-2015</td></tr> <tr><td style="text-align: center;">DATE LICENSE VALID TO</td></tr> <tr><td style="text-align: center;">PERPETUITY</td></tr> <tr><td style="text-align: center;">FEE</td></tr> <tr><td style="text-align: center;">\$0.00</td></tr> <tr><td style="text-align: center;">ABN 47661556763 GST NIL</td></tr> </table> </div> </div>			LICENSE NUMBER	10BL605704	DATE LICENSE VALID FROM	21-Jan-2015	DATE LICENSE VALID TO	PERPETUITY	FEE	\$0.00	ABN 47661556763 GST NIL
LICENSE NUMBER											
10BL605704											
DATE LICENSE VALID FROM											
21-Jan-2015											
DATE LICENSE VALID TO											
PERPETUITY											
FEE											
\$0.00											
ABN 47661556763 GST NIL											
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: center; border-bottom: 1px solid black;">LOCATION OF WORKS</th> </tr> </thead> <tbody> <tr> <td style="width: 40%; border-bottom: 1px solid black;"> Catchment or Loc/Section ID 102/1130630 </td> <td style="width: 30%; border-bottom: 1px solid black;"> PARISH Hunters Hill </td> <td style="width: 30%; border-bottom: 1px solid black;"> COUNTY Cumberland </td> </tr> </tbody> </table>			LOCATION OF WORKS			Catchment or Loc/Section ID 102/1130630	PARISH Hunters Hill	COUNTY Cumberland			
LOCATION OF WORKS											
Catchment or Loc/Section ID 102/1130630	PARISH Hunters Hill	COUNTY Cumberland									
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%; border-bottom: 1px solid black;">TYPE OF WORKS</th> <th style="width: 70%; border-bottom: 1px solid black;">PURPOSE(S) FOR WHICH WATER MAY BE USED</th> </tr> </thead> <tbody> <tr> <td style="border-bottom: 1px solid black;">Bore</td> <td style="border-bottom: 1px solid black;">Monitoring Bore</td> </tr> </tbody> </table>			TYPE OF WORKS	PURPOSE(S) FOR WHICH WATER MAY BE USED	Bore	Monitoring Bore					
TYPE OF WORKS	PURPOSE(S) FOR WHICH WATER MAY BE USED										
Bore	Monitoring Bore										
<div style="border-bottom: 1px solid black; margin-bottom: 5px;">CONDITIONS APPLYING TO THIS LICENSE ARE:</div> <div style="text-align: center; margin-top: 20px;">As shown on the attached Condition Statement</div>											
<div style="border: 1px solid black; padding: 5px; display: inline-block;">ORIGINAL</div>											

ITEM 3 (continued)

ATTACHMENT 2

10BL605704

NSW Office of Water

CONDITIONS STATEMENT REFERRED TO ON
10BL605704
ISSUED UNDER PART V OF THE WATER ACT, 1912
ON 21-Jan-2015

(1) THE LICENCE SHALL LAPSE IF THE WORK IS NOT COMMENCED AND COMPLETED WITHIN THREE YEARS OF THE DATE OF THE ISSUE OF THE LICENCE.

(2) THE LICENSEE SHALL WITHIN TWO MONTHS OF COMPLETION OR AFTER THE ISSUE OF THE LICENSE IF THE WORK IS EXISTING, FURNISH TO NSW OFFICE OF WATER:-

(A) DETAILS OF THE WORK SET OUT IN THE ATTACHED FORM "A" (MUST BE COMPLETED BY A DRILLER).

(B) A PLAN SHOWING ACCURATELY THE LOCATION OF THE WORK, IN RELATION TO PORTION AND PROPERTY BOUNDARIES.

(C) A ONE LITRE WATER SAMPLE FOR ALL LICENCES OTHER THAN THOSE FOR STOCK, DOMESTIC, TEST BORES AND FARMING PURPOSES.

(D) DETAILS OF ANY WATER ANALYSIS AND/OR PUMPING TESTS.

(3) THE LICENSEE SHALL ALLOW NSW OFFICE OF WATER OR ANY PERSON AUTHORISED BY IT, FULL AND FREE ACCESS TO THE WORKS, EITHER DURING OR AFTER CONSTRUCTION, FOR THE PURPOSE OF CARRYING OUT INSPECTION OR TEST OF THE WORKS AND ITS FITTINGS AND SHALL CARRY OUT ANY WORK OR ALTERATIONS DEEMED NECESSARY BY THE DEPARTMENT FOR THE PROTECTION AND PROPER MAINTENANCE OF THE WORKS, OR THE CONTROL OF THE WATER EXTRACTED AND FOR THE PROTECTION OF THE QUALITY AND THE PREVENTION FROM POLLUTION OR CONTAMINATION OF SUB-SURFACE WATER.

(4) IF DURING THE CONSTRUCTION OF THE WORK, SALINE OR POLLUTED WATER IS ENCOUNTERED ABOVE THE PRODUCING AQUIFER, SUCH WATER SHALL BE SEALED OFF BY:-

(A) INSERTING THE APPROPRIATE LENGTH(S) OF CASING TO A DEPTH SUFFICIENT TO EXCLUDE THE SALINE OR POLLUTED WATER FROM THE WORK.

(B) CEMENTING BETWEEN THE CASING(S) AND THE WALLS OF THE BORE HOLE FROM THE BOTTOM OF THE CASING TO GROUND LEVEL.

ANY DEPARTURE FROM THESE PROCEDURES MUST BE APPROVED BY THE DEPARTMENT BEFORE UNDERTAKING THE WORK.

(5) (A) THE LICENSEE SHALL NOTIFY NSW OFFICE OF WATER IF A FLOWING SUPPLY OF WATER IS OBTAINED. THE BORE SHALL THEN BE LINED WITH CASING AND CEMENTED AND A SUITABLE CLOSING GEAR SHALL BE ATTACHED TO THE BOREHEAD AS SPECIFIED BY NSW OFFICE OF WATER.

(B) IF A FLOWING SUPPLY OF WATER IS OBTAINED FROM THE WORK, THE LICENSEE SHALL ONLY DISTRIBUTE WATER FROM THE BORE HEAD BY A SYSTEM OF PIPE LINES AND SHALL NOT DISTRIBUTE IT IN DRAINS, NATURAL OR ARTIFICIAL CHANNELS OR DEPRESSIONS.

(6) IF A WORK IS ABANDONED AT ANY TIME THE LICENSEE SHALL NOTIFY NSW OFFICE OF WATER THAT THE WORK HAS BEEN ABANDONED AND SEAL OFF THE AQUIFER BY:-

(A) BACKFILLING THE WORK TO GROUND LEVEL WITH CLAY OR CEMENT AFTER WITHDRAWING THE CASING (LINING); OR

(B) SUCH METHODS AS AGREED TO OR DIRECTED BY NSW OFFICE OF WATER.

ITEM 3 (continued)

ATTACHMENT 2

10BL605704

(7) THE LICENSEE SHALL NOT ALLOW ANY TAILWATER/DRAINAGE TO DISCHARGE INTO OR ONTO:-

- ANY ADJOINING PUBLIC OR CROWN ROAD;
- ANY OTHER PERSONS LAND;
- ANY CROWN LAND;
- ANY RIVER, CREEK OR WATERCOURSE;
- ANY NATIVE VEGETATION AS DESCRIBED UNDER THE NATIVE VEGETATION CONSERVATION ACT 1997;
- ANY WETLANDS OF ENVIRONMENTAL SIGNIFICANCE.

(8) WORKS USED FOR THE PURPOSE OF CONVEYING, DISTRIBUTING OR STORING WATER TAKEN BY MEANS OF THE LICENSED WORK SHALL NOT BE CONSTRUCTED OR INSTALLED SO AS TO OBSTRUCT THE REASONABLE PASSAGE OF FLOOD WATERS FLOWING INTO OR FROM A RIVER.

(9) IF THE BORE AUTHORISED BY THIS LICENSE IS LINED WITH STEEL OR PLASTIC CASING THE INSIDE DIAMETER OF THAT CASING SHALL NOT EXCEED 220 MM.

(10) WATER SHALL NOT BE PUMPED FROM THE BORE AUTHORISED BY THIS LICENSE FOR ANY PURPOSE OTHER THAN GROUNDWATER INVESTIGATION.

(11) SUBJECT TO CONDITION (12) THE LICENSEE SHALL WITHIN TWO MONTHS OF THE DATE OF COMPLETION OF THE BORE AUTHORISED BY THE LICENSE,

- (1) BACKFILL IT WITH CLAY OR CEMENT TO GROUND LEVEL, AFTER WITHDRAWING ANY CASING(LINING), OR:-
- (2) RENDER IT INEFFECTIVE BY ANY OTHER MEANS ACCEPTABLE TO THE DEPARTMENT.

(12) CONDITION (11) SHALL HAVE NO FORCE OR EFFECT IF:-

- (1) AT THE RELEVANT TIME THERE IS WITH NSW OFFICE OF WATER, AN APPLICATION IN RESPECT OF WHICH THE DEPARTMENT HAS NOT MADE A DECISION TO CONVERT THE GROUNDWATER INVESTIGATION BORE INTO A PRODUCTION BORE; OR
- (2) THE LICENSEE HAS COMPLETED THE BORE FOR THE PURPOSE OF MEASURING WATER LEVELS OR WATER QUALITY BY THE ADDITION OF CASING WITH A DIAMETER NOT EXCEEDING 220MM.

End Of Conditions

ITEM 3 (continued)

ATTACHMENT 2

February 2016



Detailed Site Investigation

Government Property NSW

Proposed Lot 1, 45-61 Waterloo Road, Macquarie Park, NSW

Appendix B: Borehole Logs

ITEM 3 (continued)

ATTACHMENT 2

<div>Greencap NAA</div> <div>GreencapNAA 2/11 Khartoum Road North Ryde NSW 2113 T: 02 9889 1800 F: 02 9889 1811</div>			<div>Log of Borehole: J130282:BHA</div> <div>Project No: J130282 Project Name: Waterloo Road Location: 43-61 Waterloo Road, Macquarie Park Client: Government Property NSW Project Manager: Naomi Price Type: Borehole</div> <div>Date: 2/02/2015 Total Depth: 2.2 Groundwater: None encountered Logged by: Naomi Price Approved by: Jonathon Hilliard</div>						
SUBSURFACE PROFILE			SAMPLE					Comments	
Depth (m)	Symbol	Description	Sample name	Duplicate	PID	Field pH	Moisture		
		Bitumen					DM	No odour	
		Fill: Loose black/brown sandy gravel sized fragments of bitumen, roadbase and mixed lithologies							
0.5		Natural: Firm orange and brown CLAY	BHA 0.5-0.6		1	-	DM	Faint aged hydrocarbon odour	
									Moderate to faint hydrocarbon odour
1.0		IRONSTONE							
		Firm orange and brown CLAY	BHA 1-1.2	FD3	65.6	-	DM		
		Firm grey and red CLAY and soft grey SHALE						No odour	
1.5									
			BHA 1.8-1.9		0	-	DM		
2.0									
		End of borehole at target depth in natural soil							
2.5									
3.0									
3.5									
4.0									

Note: This log is for environmental purposes only and is not intended for geotechnical use

Drill Method: Push tube
Drilled by: Terratest
Sheet: 1 of 1


ITEM 3 (continued)

ATTACHMENT 2

<div>GREENCAP NAA</div> <div>GreencapNAA 2/11 Khartoum Road North Ryde NSW 2113 T: 02 9889 1800 F: 02 9889 1811</div>		<div>Log of Borehole: J130282:BHB</div> <div>Project No: J130282 Project Name: Waterloo Road Location: 43-61 Waterloo Road, Macquarie Park Client: Government Property NSW Project Manager: Naomi Price Type: Borehole</div> <div>Date: 2/02/2015 Total Depth: 3.2 Groundwater: None encountered Logged by: Naomi Price Approved by: Jonathon Hilliard</div>						
SUBSURFACE PROFILE			SAMPLE					
Depth (m)	Symbol	Description	Sample name	Duplicate	PID	Field pH	Moisture	Comments
0.5		Bitumen					DM	No odour
		Fill: Loose black sandy gravel sized fragments of roadbase and bitumen, pockets of soft clay throughout	BHB 0.2-0.4		0.1	-		
1.0		White crushed sandstone and roadbase, coarse grey sand, yellow coarse and crushed yellow sandstone, black plastic sheeting and small wire fragments					DM	Very faint reducing odour
1.5			BHB 1.2-1.4		2.8	-		
2.0		Natural: Firm grey and red CLAY					DM	No odour
2.5			BHB 2-2.2		0	-		
2.5		IRONSTONE						
		Soft grey and red CLAY						
3.0		Soft brown WEATHERED SHALE						
3.5		End of borehole at target depth in natural soil						
4.0								
<div>Note: This log is for environmental purposes only and is not intended for geotechnical use</div> <div>Drill Method: Push tube Drilled by: Terratest Sheet: 1 of 1</div>								



ITEM 3 (continued)

ATTACHMENT 2

<div>Greencap NAA</div> <div>GreencapNAA 2/11 Khartoum Road North Ryde NSW 2113 T: 02 9889 1800 F: 02 9889 1811</div>			<div>Log of Borehole: J130282:BHC</div> <div>Project No: J130282 Project Name: Waterloo Road Location: 43-61 Waterloo Road, Macquarie Park Client: Government Property NSW Project Manager: Naomi Price Type: Borehole</div> <div>Date: 2/02/2015 Total Depth: 2.2 Groundwater: None encountered Logged by: Naomi Price Approved by: Jonathon Hilliard</div>					
SUBSURFACE PROFILE			SAMPLE					Comments
Depth (m)	Symbol	Description	Sample name	Duplicate	PID	Field pH	Moisture	
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9 3.0 3.1 3.2 3.3 3.4 3.5 3.6 3.7 3.8 3.9 4.0		Bitumen	BHC 0-0.2		0.1	-	DM	No visual or olfactory evidence of contamination throughout profile
		Fill: Loose black gravel sized fragments of roadbase and bitumen						
		Natural: Stiff orange and grey CLAY	BHC 0.4-0.5		0	-	DM	
		Becoming red			0	-	DM	
		Soft red and grey WEATHERED SHALE						
		End of borehole at target depth in natural soil						


ITEM 3 (continued)

ATTACHMENT 2

		Log of Borehole: J130282:BHD						
GreencapNAA 2/11 Khartoum Road North Ryde NSW 2113 T: 02 9889 1800 F: 02 9889 1811		Project No: J130282		Date: 2/02/2015				
		Project Name: Waterloo Road		Total Depth: 2.2				
		Location: 43-61 Waterloo Road, Macquarie Park			Groundwater: None encountered			
		Client: Government Property NSW			Logged by: Naomi Price			
		Project Manager: Naomi Price			Approved by: Jonathon Hilliard			
		Type: Borehole						
SUBSURFACE PROFILE			SAMPLE					Comments
Depth (m)	Symbol	Description	Sample name	Duplicate	PID	Field pH	Moisture	
0.5		Bitumen			0	-	DM	No visual or olfactory evidence of contamination throughout profile
		Fill: Loose grey sandy gravel sized fragments of bitumen and roadbase	BHD 0.3-0.4		0	-	DM	
		Reworked Natural: Firm orange and brown CLAY						
		Natural: Soft brown LOAMY CLAY (topsoil)	BHD 0.7-0.8		0	-	DM	
1.0		Stiff red and brown CLAY with ironstone nodules						
1.5		Soft grey and red WEATHERED SHALE and soft grey CLAY						
2.0								
2.5		End of borehole at target depth in natural soil						
3.0								
3.5								
4.0								
Note: This log is for environmental purposes only and is not intended for geotechnical use								
Drill Method: Push tube								
Drilled by: Terratest								
Sheet: 1 of 1								


ITEM 3 (continued)

ATTACHMENT 2

 <p>GreencapNAA 2/11 Khartoum Road North Ryde NSW 2113 T: 02 9889 1800 F: 02 9889 1811</p>		<p>Log of Borehole: J130282:BHE</p> <p>Project No: J130282 Project Name: Waterloo Road Location: 43-61 Waterloo Road, Macquarie Park Client: Government Property NSW Project Manager: Naomi Price Type: Borehole</p> <p>Date: 2/02/2015 Total Depth: 2.2 Groundwater: None encountered Logged by: Naomi Price Approved by: Jonathon Hilliard</p>						
SUBSURFACE PROFILE			SAMPLE					Comments
Depth (m)	Symbol	Description	Sample name	Duplicate	PID	Field pH	Moisture	
		Bitumen	BHE 0-0.15		0	-	DM	No visual or olfactory evidence of contamination throughout profile
		Fill: Loose grey gravel sized fragments of roadbase and bitumen	BHE 0.2-0.3		0	-	DM	
0.5		Reworked natural: Soft brown CLAY, roots throughout						
1.0		Natural: Firm orange and brown CLAY						
1.5		Firm grey and red CLAY with ironstone nodules			0	-	DM	
2.0					0	-	DM	
2.5		End of borehole at target depth in natural soil						
3.0								
3.5								
4.0								
<p>Note: This log is for environmental purposes only and is not intended for geotechnical use</p>							<p>Drill Method: Push tube Drilled by: Terratest Sheet: 1 of 1</p>	

ITEM 3 (continued)

ATTACHMENT 2

 <p>GreencapNAA 2/11 Khartoum Road North Ryde NSW 2113 T: 02 9889 1800 F: 02 9889 1811</p>		<p>Log of Borehole: J130282:BHF</p> <p>Project No: J130282 Date: 2/02/2015 Project Name: Waterloo Road Total Depth: 2.2 Location: 43-61 Waterloo Road, Macquarie Park Groundwater: None encountered Client: Government Property NSW Logged by: Naomi Price Project Manager: Naomi Price Approved by: Jonathon Hilliard Type: Borehole</p>						
SUBSURFACE PROFILE			SAMPLE					
Depth (m)	Symbol	Description	Sample name	Duplicate	PID	Field pH	Moisture	Comments
0.0		Reworked natural: Grass over soft brown CLAY LOAM (topsoil)			0	-	DM	No visual or olfactory evidence of contamination noted throughout profile
0.1		Reworked natural: Firm red and brown CLAY						
0.2		Natural: Soft brown CLAY (topsoil)			0	-	DM	
0.5		Firm red and brown CLAY with ironstone nodules	BHF 0.5-0.6		0	-	DM	
1.0					0	-	DM	
1.5		Becoming grey and red			0	-	DM	
2.0					0	-		
2.5		End of borehole at target depth in natural soil						
3.0								
3.5								
4.0								
<p>Note: This log is for environmental purposes only and is not intended for geotechnical use</p> <p>Drill Method: Push tube Drilled by: Terratest Sheet: 1 of 1</p>								

ITEM 3 (continued)

ATTACHMENT 2

GREENCAP NAA		Log of Borehole: J130282:BHG					Date: 2/02/2015	
GreencapNAA		Project No: J130282					Total Depth: 2.2	
2/11 Khartoum Road		Project Name: Waterloo Road					Groundwater: None encountered	
North Ryde NSW 2113		Location: 43-61 Waterloo Road					Logged by: Naomi Price	
T: 02 9889 1800		Client: Government Property NSW					Approved by: Jonathon Hilliard	
F: 02 9889 1811		Project Manager: Naomi Price						
		Type: Borehole						
SUBSURFACE PROFILE			SAMPLE					Comments
Depth (m)	Symbol	Description	Sample name	Duplicate	PID	Field pH	Moisture	
		Fill: Bitumen	BHG 0-0.2		0.6	-	DM	No odour
		Fill: Loose grey and black gravel sized fragments of roadbase and bitumen						
0.5		Natural: Firm brown and red CLAY and ironstone (ironstone stained black)	BHG 0.4-0.6	FD4	5	-	DM	Moderate hydrocarbon odour
		Firm brown, grey and red CLAY						
1.0			BHG 0.8-0.9		10.5	-	DM	Faint hydrocarbon odour
					0	-	DM	Very faint hydrocarbon odour
1.5		Soft grey and red WEATHERED SHALE			0	-	DM	No odour
2.0								
		End of borehole at target depth in natural soil						
2.5								
3.0								
3.5								
4.0								
Note: This log is for environmental purposes only and is not intended for geotechnical use								Drill Method: Pushtube
								Drilled by: Terratest
								Sheet: 1 of 1

ITEM 3 (continued)

ATTACHMENT 2

Greencap NAA		Log of Borehole: J130282:BH1/GW1					Project No: J130282		Elevation: 0	
GreencapNAA		Project Name: Waterloo Road					Total Depth: 9		Groundwater: 5 m	
2/11 Khartoum Road		Location: 43-61 Waterloo Road					Logged by: Naomi Price		Approved by: Jonathon Hilliard	
North Ryde		Client: Government Property NSW					Project Manager: Naomi Price		Type: Borehole	
NSW 2113		Date: 29/01/2015								
P: 02 9889 1800										
F: 02 9889 1811										

SUBSURFACE PROFILE			SAMPLE					Well details	Comments
Depth (m)	Symbol	Description	Sample name	Duplicate	PID	Field pH	Moisture		
0.00		Fill: Bitumen					DM	Roadbox	No visual or olfactory evidence of contamination noted throughout profile.
		Fill: Loose black sandy gravel sized fragments of roadbase	GW1 0.2-0.3		n	-	DM		
0.50			GW1 0.4-0.5		n	-	DM		Groundwater was not encountered during drilling, however arisings slightly moist at 5 metres
		Firm brown slightly gravelly clay			n	-	DM		
1.00		Natural: Soft to firm brown and red mottled CLAY and soft grey SHALE							
		Firm red, brown and grey mottled CLAY and soft grey SHALE			n	-	DM		
1.50		Becoming red and grey							
		Soft red and grey SHALE							
2.00			GW1 2.6-2.7		n	-	DM		
		Soft grey SHALE			n	-	DM		
2.50		Soft pink SHALE with bands of ironstone							
					n	-	DM		
3.00		Soft brown SHALE							
		Firm to hard grey SHALE			n	-	M		
3.50		Hard grey SHALE							Pushube refusal change to augers
					n	-	DM		
4.00									
4.50									
5.00									
5.50									
6.00									

Note: This log is for environmental purposes only and is not intended for geotechnical use


Drill Method: Pushube/SFA

Drilled by: Terratest

Sheet: 1 of 2

ITEM 3 (continued)

ATTACHMENT 2

SUBSURFACE PROFILE		SAMPLE					Well details	Comments
Depth (m)	Description	Sample name	Duplicate	PID	Field pH	Moisture		
7.00	Hard grey SHALE							
8.00								
9.00	End of borehole at target depth							
10.00								
11.00								
12.00								

Note: This log is for environmental purposes only and is not intended for geotechnical use

Drill Method: Pushtube/SFA
Drilled by: Terratest
Sheet: 2 of 2

ITEM 3 (continued)

ATTACHMENT 2

<div>Greencap NAA</div> <div>GreencapNAA 2/11 Khartoum Road North Ryde NSW 2113 T: 02 9889 1800 F: 02 9889 1811</div>		<div>Log of Borehole: J130282:BH16</div> <div>Project No: J130282 Project Name: Waterloo Road Location: 43-61 Waterloo Road Client: Government Property NSW Project Manager: Naomi Price Type: Borehole</div>		<div>Date: 30/01/2015 Total Depth: 2.2 Groundwater: None encountered Logged by: Naomi Price Approved by: Jonathon Hilliard</div>					
SUBSURFACE PROFILE			SAMPLE					Comments	
Depth (m)	Symbol	Description	Sample name	Duplicate	PID	Field pH	Moisture		
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2		Fill: Bitumen			0	-	DM	No visual or olfactory evidence of contamination observed throughout profile	
		Fill: Loose grey subangular medium gravel sized fragments of roadbase and sandstone							
		Firm brown clay							
		Reworked natural: Soft dark brown CLAY	BH16 0.6-0.8		0	-	DM		
					0	-	DM		
		Natural: Firm brown and red CLAY with ironstone banding throughout	BH16 1.4-1.6		0	-	DM		
		Becoming white and red							
2.5 3.0 3.5 4.0 4.5		End of borehole at target depth in natural soil							
<div>Note: This log is for environmental purposes only and is not intended for geotechnical use</div> <div>Drill Method: Pushtube Drilled by: Terratest Sheet: 1 of 1</div>									

ITEM 3 (continued)

ATTACHMENT 2

<div>GREENCAP NAA</div> <div>GreencapNAA 2/11 Khartoum Road North Ryde NSW 2113 T: 02 9889 1800 F: 02 9889 1811</div>			<div>Log of Borehole: J130282:BH17</div> <div>Project No: J130282 Project Name: Waterloo Road Location: 43-61 Waterloo Road Client: Government Property NSW Project Manager: Naomi Price Type: Borehole</div>					<div>Date: 30/01/2015 Total Depth: 4.2 Groundwater: Perched 2.4 m Logged by: Naomi Price Approved by: Jonathon Hilliard</div>		
SUBSURFACE PROFILE				SAMPLE					Comments	
Depth (m)	Symbol	Description	Sample name	Duplicate	PID	Field pH	Moisture			
0.5		Fill: Bitumen			0	-	DM	No visual or olfactory evidence of contamination observed throughout profile		
		Fill: Dark grey and brown sandy subangular medium gravel sized fragments of roadbase			0	-	DM			
1.0		Firm red and yellow mottled clay			0	-	DM			
1.5		Soft brown clay with occasional (<10%) medium gravel sized fragments of roadbase			0	-	DM			
			BH17 1.5-1.6		0	-	M			
2.0										
2.5		Natural: Firm red and orange CLAY with bands of ironstone throughout			0	-	DM			
			BH17 2.2-2.4		0	-	M			
3.0					0	-	S			
3.5		Stiff grey WEATHERED SHALE			0	-	DM			
4.0										
4.5		End of borehole at target depth in natural soil								
<div>Note: This log is for environmental purposes only and is not intended for geotechnical use</div> <div>Drill Method: Pushtube Drilled by: Terratest Sheet: 1 of 1</div>										

ITEM 3 (continued)

ATTACHMENT 2

Greencap NAA 2/11 Khartoum Road North Ryde NSW 2113 T: 02 9889 1800 F: 02 9889 1811		Log of Borehole: J130282:BH24 Project No: J130282 Project Name: Waterloo Road Location: 43-61 Waterloo Road Client: Government Property NSW Project Manager: Naomi Price Type: Borehole		Date: 30/01/2015 Total Depth: 2.2 Groundwater: None encountered Logged by: Naomi Price Approved by: Jonathon Hilliard					
SUBSURFACE PROFILE			SAMPLE				Comments		
Depth (m)	Symbol	Description	Sample name	Duplicate	PID	Field pH		Moisture	
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2		Fill: Bitumen	BH24 0.0-0.1		0	-	DM	No visual or olfactory evidence of contamination observed throughout profile	
		Fill: Loose grey subangular medium gravell sized fragments of roadbase							
		Reworked Natural: Soft brown sandy CLAY	BH24 0.4-0.6		0	-	M		
		Natural: Firm red and brown CLAY and ironstone bands				0	-		DM
		Becoming white and red							DM
2.5 3.0 3.5 4.0 4.5		End of borehole at target depth in natural soil							
Note: This log is for environmental purposes only and is not intended for geotechnical use									
Drill Method: Pushtube Drilled by: Terratest Sheet: 1 of 1									

ITEM 3 (continued)

ATTACHMENT 2

<div>Greencap NAA</div> <div>GreencapNAA 2/11 Khartoum Road North Ryde NSW 2113 T: 02 9889 1800 F: 02 9889 1811</div>		<div>Log of Borehole: J130282:BH25</div> <div>Project No: J130282 Project Name: Waterloo Road Location: 43-61 Waterloo Road Client: Government Property NSW Project Manager: Naomi Price Type: Borehole</div>					<div>Date: 30/01/2015 Total Depth: 2.2 Groundwater: 0.9-1.5m Logged by: Naomi Price Approved by: Jonathon Hilliard</div>	
SUBSURFACE PROFILE			SAMPLE					Comments
Depth (m)	Symbol	Description	Sample name	Duplicate	PID	Field pH	Moisture	
0.5		Fill: Bitumen					DM	No visual or olfactory evidence of contamination
		Fill: Loose Brown gravelly clay. Gravel is subangular, medium of roadbase						
		Coarse grey sand	BH25 0.6-0.8		28.2	-	M	Moderate hydrocarbon odour and sheen on perched groundwater
			BH25 1-1.2		44.1	-	M	
1.5						S		
2.0		Natural: Hard white CLAY and soft red SHALE	BH25 1.6-1.8		0.3	-	S	No visual or olfactory evidence of contamination
							DM	
2.5		End of borehole at target depth in natural soil						
3.0								
3.5								
4.0								
4.5								

Note: This log is for environmental purposes only and is not intended for geotechnical use

Drill Method: Pushtube
Drilled by: Terratest
Sheet: 1 of 1

ITEM 3 (continued)

ATTACHMENT 2

<div>Greencap NAA</div> <div>GreencapNAA 2/11 Khartoum Road North Ryde NSW 2113 T: 02 9889 1800 F: 02 9889 1811</div>		<div>Log of Borehole: J130282:BH30</div> <div>Project No: J130282 Project Name: Waterloo Road Location: 43-61 Waterloo Road Client: Government Property NSW Project Manager: Naomi Price Type: Borehole</div>		<div>Date: 30/01/2015 Total Depth: 2.2 Groundwater: None encountered Logged by: Naomi Price Approved by: Jonathon Hilliard</div>				
SUBSURFACE PROFILE			SAMPLE					Comments
Depth (m)	Symbol	Description	Sample name	Duplicate	PID	Field pH	Moisture	
		Fill: Bitumen			0	-	DM	No visual or olfactory evidence of contamination observed throughout profile
		Fill: Loose black subangular medium gravel sized fragments of roadbase			0	-	DM	
0.5		Fine black sand						
		Reworked natural: Firm red and brown CLAY	BH30 0.8-0.09		0	-	DM	
1.0		Soft brown CLAY						
		Natural: Firm red CLAY and ironstone bands						
1.5								
2.0		Becoming white and red						
		End of borehole at target depth in natural soil	BH30 2.1-2.2		0	-	DM	
2.5								
3.0								
3.5								
4.0								
4.5								
<div>Note: This log is for environmental purposes only and is not intended for geotechnical use</div>								<div>Drill Method: Pushtube Drilled by: Terratest Sheet: 1 of 1</div>





ITEM 3 (continued)

ATTACHMENT 2

Greencap NAA GreencapNAA 2/11 Khartoum Road North Ryde NSW 2113 T: 02 9889 1800 F: 02 9889 1811		Log of Borehole: J130282:BH31 Project No: J130282 Project Name: Waterloo Road Location: 43-61 Waterloo Road Client: Government Property NSW Project Manager: Naomi Price Type: Borehole		Date: 30/01/2015 Total Depth: 2.2 Groundwater: None encountered Logged by: Naomi Price Approved by: Jonathon Hilliard				
SUBSURFACE PROFILE			SAMPLE				Comments	
Depth (m)	Symbol	Description	Sample name	Duplicate	PID	Field pH		Moisture
		Fill: Bitumen	BH31 0-0.2		0	-	DM	No visual or olfactory evidence of contamination observed throughout profile
		Fill: Loose black subangular medium gravel sized fragments of roadbase						
0.5		Natural: Firm red and orange CLAY			0	-	DM	
1.0		IRONSTONE						
		Firm grey and red CLAY						
1.5		IRONSTONE			0	-	DM	
		Firm grey and red CLAY						
2.0			BH31 2-2.2		0	-	DM	
2.5		End of borehole at target depth in natural soil						
3.0								
3.5								
4.0								
4.5								
Note: This log is for environmental purposes only and is not intended for geotechnical use								Drill Method: Pushtube Drilled by: Terratest Sheet: 1 of 1

ITEM 3 (continued)

ATTACHMENT 2

GreencapNAA 2/11 Khartoum Road North Ryde NSW 2113 T: 02 9889 1800 F: 02 9889 1811		Log of Borehole: J130282:BH38 Project No: J130282 Project Name: Waterloo Road Location: 43-61 Waterloo Road Client: Government Property NSW Project Manager: Naomi Price Type: Borehole		Date: 30/01/2015 Total Depth: 1.2 Groundwater: None encountered Logged by: Naomi Price Approved by: Jonathon Hilliard				
SUBSURFACE PROFILE			SAMPLE				Comments	
Depth (m)	Symbol	Description	Sample name	Duplicate	PID	Field pH		Moisture
0.5	   	Fill: Bitumen			0	-	DM	No visual or olfactory evidence of contamination observed throughout profile
		Fill: Loose black subangular medium gravel sized fragments of roadbase and black sand	BH38 0.3-0.4		0	-	DM	
		Natural: Loose brown CLAY LOAM (topsoil)	BH38 0.4-0.5		0	-		
		Natural: Firm red and brown CLAY with ironstone banding					DM	
1.0		End of borehole at target depth in natural soil						
1.5								
2.0								
2.5								
3.0								
3.5								
4.0								
4.5								

Note: This log is for environmental purposes only and is not intended for geotechnical use

Drill Method: Pushtube
Drilled by: Terratest
Sheet: 1 of 1

ITEM 3 (continued)

ATTACHMENT 2

February 2016



Detailed Site Investigation

Government Property NSW

Proposed Lot 1, 45-61 Waterloo Road, Macquarie Park, NSW

Appendix C: Field Sheets

J142067 Proposed Lot 1 DP1130630

III

ITEM 3 (continued)

ATTACHMENT 2

Noel Arnold & Associates
DEVELOPMENT & SAMPLING LOG

[illegible]

ITEM 3 (continued)

ATTACHMENT 2

February 2016



Detailed Site Investigation


Government Property NSW

Proposed Lot 1, 45-61 Waterloo Road, Macquarie Park, NSW

Appendix D: Laboratory Transcripts

ITEM 3 (continued)

ATTACHMENT 2


Environmental

CERTIFICATE OF ANALYSIS

Work Order : ES1502429 Client : GREENCAP NAA Contact : MS NAOMI PRICE Address : LEVEL 2, 11 KHARTOUM ROAD NORTH RYDE NSW, AUSTRALIA 2190 E-mail : naomi.price@ncel-arnold.com.au Telephone : +61 02 98891800 Facsimile : +61 02 98891811 Project : J130282 Order number : J130282 Q-Q-C number : — Sampler : NP Site : — Quote number : EN074/14	Page : 1 of 69 Laboratory : Environmental Division Sydney Contact : Client Services Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 E-mail : sydney@alsglobal.com Telephone : +61-2-8784 8555 Facsimile : +61-2-8784 8500 QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement Date Samples Received : 03-FEB-2015 Issue Date : 12-FEB-2015 No. of samples received : 105 No. of samples analysed : 80
--	--

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Address 277-289 Woodpark Road Smithfield NSW Australia 2164 | Phone +61-2-8784 8555 | Facsimile +61-2-8784 8500
 Environmental Division Sydney AUST 84 000 935 029 Part of the ALS Group An ALS Limited Company

www.alsglobal.com

ITEM 3 (continued)

ATTACHMENT 2

Page : 2 of 69
Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benzo(a)anthracene (0.1), Chrysene (0.01), Benzo(b)fluoranthene (0.1), Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1,2,3-cd)pyrene (0.1), Dibenzo(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP068: Particular samples required dilution due to sample matrix interferences. LOR values have been adjusted accordingly.
- EP068: Positive results on samples confirmed by re-extraction and re-analysis.

	NATA Accredited Laboratory 825	Signatories		
	Accredited for compliance with ISO/IEC 17025.	This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.		
		Signatories	Position	Accreditation Category
		Ankit Joshi	Inorganic Chemist	Sydney Inorganics
		Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
		Pabi Subba	Senior Organic Chemist	Sydney Inorganics
				Sydney Organics
		Phalak Inthakesone	Laboratory Manager - Organics	Sydney Inorganics
		Shobhina Chandra	Metals Coordinator	Sydney Inorganics

ITEM 3 (continued)

ATTACHMENT 2

Page : 3 of 69
Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	GW1 2.6-2.7	GW2 0.1-0.2	GW2 1.7-1.75	GW3 0.2-0.3	GW3 0.5-0.6
				29-JAN-2015 15:00	29-JAN-2015 15:00	29-JAN-2015 15:00	29-JAN-2015 15:00	29-JAN-2015 15:00
				ES1502429-005	ES1502429-006	ES1502429-007	ES1502429-008	ES1502429-009
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	—	1.0	%	11.8	8.3	18.3	8.9	18.2
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	12	<5	10	<5	8
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	9	7	25	85	16
Copper	7440-50-8	5	mg/kg	35	<5	10	32	7
Lead	7439-92-1	5	mg/kg	10	10	26	<5	16
Nickel	7440-02-0	2	mg/kg	<2	6	3	111	<2
Zinc	7440-06-6	5	mg/kg	10	21	14	65	7
EG005T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	—	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Total Chlordane (sum)	—	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	80-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

ITEM 3 (continued)

ATTACHMENT 2

Page : 4 of 69
Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	GW1 2.6-2.7	GW2 0.1-0.2	GW2 1.7-1.75	GW3 0.2-0.3	GW3 0.5-0.6
				29-JAN-2015 15:00	29-JAN-2015 15:00	29-JAN-2015 15:00	29-JAN-2015 15:00	29-JAN-2015 15:00
				ES1502429-005	ES1502429-006	ES1502429-007	ES1502429-008	ES1502429-009
EP068A: Organochlorine Pesticides (OC) - Continued								
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of Aldrin + Dieldrin	309-00-2/60-67-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Sum of DDD + DDE + DDT	—	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP0754SUMB: Polynuclear Aromatic Hydrocarbons								
Naphthalene	81-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	89-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	208-44-0	0.5	mg/kg	<0.5	<0.5	0.7	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.8	<0.5	<0.5
Benzo(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.7	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.6	<0.5	<0.5
Benzo(b+g)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.8	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.7	<0.5	<0.5
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.6	<0.5	<0.5
Sum of polycyclic aromatic hydrocarbons	—	0.5	mg/kg	<0.5	<0.5	4.9	<0.5	<0.5
Benzo(a)pyrene TEQ (zero)	—	0.5	mg/kg	<0.5	<0.5	0.9	<0.5	<0.5
Benzo(a)pyrene TEQ (half LOR)	—	0.5	mg/kg	0.6	0.6	1.2	0.6	0.6
Benzo(a)pyrene TEQ (LOR)	—	0.5	mg/kg	1.2	1.2	1.5	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	—	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	—	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	—	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	—	100	mg/kg	<100	<100	<100	<100	<100
C10 - C36 Fraction (sum)	—	50	mg/kg	<50	<50	<50	<50	<50

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

				Client sample ID	GW1 2.6-2.7	GW2 0.1-0.2	GW2 1.7-1.75	GW3 0.2-0.3	GW3 0.5-0.6
Client sampling date / time					29-JAN-2015 15:00	29-JAN-2015 15:00	29-JAN-2015 15:00	29-JAN-2015 15:00	29-JAN-2015 15:00
Compound	CAS Number	LOR	Unit		ES1502429-005	ES1502429-006	ES1502429-007	ES1502429-008	ES1502429-009
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	---	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	---	100	mg/kg		<100	<100	<100	<100	<100
>C10 - C40 Fraction (sum)	---	50	mg/kg		<50	<50	<50	<50	<50
>C10 - C16 Fraction minus Naphthalene (F2)	---	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	106-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	86-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Sum of BTEX	---	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		118	107	129	104	119
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.1	%		104	97.4	119	103	93.0
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.1	%		112	91.4	100	113	84.2
EP075(SM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.1	%		90.0	105	83.3	89.2	87.0
2-Chlorophenol-D4	93951-73-6	0.1	%		96.6	110	85.2	90.9	93.4
2,4,6-Tribromophenol	118-79-6	0.1	%		95.4	107	83.8	85.4	82.5
EP075(SM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.1	%		108	116	86.2	93.7	87.3
Anthracene-d10	1719-08-8	0.1	%		86.2	103	82.8	82.4	81.3
4-Terphenyl-d14	1718-51-0	0.1	%		86.2	117	83.0	93.2	87.2
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.1	%		80.0	88.4	81.4	79.3	84.6

ITEM 3 (continued)

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 Work Order : ES1502429
 Client : GREENCAP NAA
 Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

				Client sample ID	GW1 2.6-2.7	GW2 0.1-0.2	GW2 1.7-1.75	GW3 0.2-0.3	GW3 0.5-0.6
				Client sampling date / time	29-JAN-2015 15:00	29-JAN-2015 15:00	29-JAN-2015 15:00	29-JAN-2015 15:00	29-JAN-2015 15:00
Compound	CAS Number	LOR	Unit		ES1502429-005	ES1502429-006	ES1502429-007	ES1502429-008	ES1502429-009
EP080\$: TPH(V)/BTEX Surrogates - Continued									
Toluene-D8	2037-26-5	0.1	%		86.2	90.9	86.0	83.4	83.4
4-Bromofluorobenzene	480-00-4	0.1	%		87.7	92.8	88.1	82.5	85.8

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	BH2 0.1-0.2	BH2 0.7-0.8	BH3 0.3-0.4	BH3 1.0-1.2	BH4 0.8-1
				30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00
				ES1502429-010	ES1502429-011	ES1502429-012	ES1502429-013	ES1502429-014
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	—	1.0	%	9.5	18.3	4.8	47.0	18.6
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	9	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	2	<1
Chromium	7440-47-3	2	mg/kg	11	10	9	38	27
Copper	7440-50-8	5	mg/kg	12	<5	<5	106	8
Lead	7439-92-1	5	mg/kg	16	21	12	88	10
Nickel	7440-02-0	2	mg/kg	8	<2	5	33	<2
Zinc	7440-06-6	5	mg/kg	56	<5	24	727	7
EG005T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	0.4	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	—	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.25	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.25	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.25	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.25	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.25	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.25	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.25	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.25	<0.05
Total Chlordane (sum)	—	0.05	mg/kg	<0.05	<0.05	<0.05	<0.25	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.25	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.25	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.25	<0.05
Dieldrin	80-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.25	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.25	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.25	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.25	<0.05
Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.25	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.25	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.25	<0.05

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH2 0.1-0.2	BH2 0.7-0.8	BH3 0.3-0.4	BH3 1.0-1.2	BH4 0.8-1
Client sampling date / time					30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00
Compound	CAS Number	LOR	Unit		ES1502429-010	ES1502429-011	ES1502429-012	ES1502429-013	ES1502429-014
EP068A: Organochlorine Pesticides (OC) - Continued									
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.25	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.25	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Sum of Aldrin + Dieldrin	309-00-2/60-67-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.25	<0.05
Sum of DDD + DDE + DDT	—	0.05	mg/kg		<0.05	<0.05	<0.05	<0.25	<0.05
EP07545UMJB: Polynuclear Aromatic Hydrocarbons									
Naphthalene	81-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	89-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	208-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+g)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Sum of polycyclic aromatic hydrocarbons	—	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (zero)	—	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (half LOR)	—	0.5	mg/kg		0.6	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (LOR)	—	0.5	mg/kg		1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	—	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	—	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	—	100	mg/kg		<100	<100	<100	320	<100
C29 - C36 Fraction	—	100	mg/kg		<100	<100	<100	380	<100
C10 - C36 Fraction (sum)	—	50	mg/kg		<50	<50	<50	700	<50

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BH2 0.1-0.2	BH2 0.7-0.8	BH3 0.3-0.4	BH3 1.0-1.2	BH4 0.8-1
				30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00
Compound	CAS Number	LOR	Unit	ES1502429-010	ES1502429-011	ES1502429-012	ES1502429-013	ES1502429-014
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	---	100	mg/kg	<100	<100	<100	570	<100
>C34 - C40 Fraction	---	100	mg/kg	<100	<100	<100	290	<100
>C10 - C40 Fraction (sum)	---	50	mg/kg	<50	<50	<50	860	<50
>C10 - C16 Fraction minus Naphthalene (F2)	---	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	106-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	86-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of BTEX	---	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	106	123	96.0	133	131
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	103	104	98.9	124	90.5
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	99.3	114	107	117	84.9
EP075(SM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	86.8	99.6	107	89.3	87.2
2-Chlorophenol-D4	93951-73-6	0.1	%	92.2	102	107	85.6	93.9
2,4,6-Tribromophenol	118-79-6	0.1	%	88.4	93.7	87.0	31.8	84.5
EP075(SM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	95.5	99.7	90.0	95.3	84.4
Anthracene-d10	1719-08-8	0.1	%	85.5	85.6	89.1	84.0	84.2
4-Terphenyl-d14	1718-51-0	0.1	%	93.5	96.8	88.4	94.7	96.4
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	82.4	88.5	92.3	74.9	87.4

ITEM 3 (continued)

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 Work Order : ES1502429
 Client : GREENCAP NAA
 Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

				Client sample ID	BH2 0.1-0.2	BH2 0.7-0.8	BH3 0.3-0.4	BH3 1.0-1.2	BH4 0.8-1
				Client sampling date / time	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00
Compound	CAS Number	LOR	Unit		ES1502429-010	ES1502429-011	ES1502429-012	ES1502429-013	ES1502429-014
EP0805: TPH(V)/BTEX Surrogates - Continued									
Toluene-D8	2037-26-5	0.1	%		80.3	83.6	87.6	75.6	86.1
4-Bromofluorobenzene	480-00-4	0.1	%		86.4	87.6	98.3	74.7	89.4

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BHD 0.3-0.4	BHD 0.7-0.8	BHE 0-0.15	BHE 0.2-0.3	BHF 0.5-0.6
Client sampling date / time				02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00
Compound	CAS Number	LOR	Unit	ES1502429-015	ES1502429-016	ES1502429-017	ES1502429-018	ES1502429-019	
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	—	1.0	%	19.5	20.5	11.4	25.5	21.2	
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	12	9	<5	7	8	
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1	
Chromium	7440-47-3	2	mg/kg	24	24	11	18	21	
Copper	7440-50-8	5	mg/kg	<5	7	32	6	<5	
Lead	7439-92-1	5	mg/kg	28	47	<5	36	30	
Nickel	7440-02-0	2	mg/kg	<2	3	99	<2	2	
Zinc	7440-06-6	5	mg/kg	25	330	34	33	15	
EG005T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	—	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	
Total Chlordane (sum)	—	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	
Dieldrin	80-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	
Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	BHD 0.3-0.4	BHD 0.7-0.8	BHE 0-0.15	BHE 0.2-0.3	BHF 0.5-0.6
				02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00
				ES1502429-015	ES1502429-016	ES1502429-017	ES1502429-018	ES1502429-019
EP068A: Organochlorine Pesticides (OC) - Continued								
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of Aldrin + Dieldrin	309-00-2/60-67-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Sum of DDD + DDE + DDT	—	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP0754SUMB: Polynuclear Aromatic Hydrocarbons								
Naphthalene	81-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	89-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	208-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+g)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of polycyclic aromatic hydrocarbons	—	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (zero)	—	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (half LOR)	—	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (LOR)	—	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	—	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	—	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	—	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	—	100	mg/kg	<100	<100	<100	<100	<100
C10 - C36 Fraction (sum)	—	50	mg/kg	<50	<50	<50	<50	<50

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	BHD 0.3-0.4	BHD 0.7-0.8	BHE 0-0.15	BHE 0.2-0.3	BHF 0.5-0.6
				02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00
				ES1502429-015	ES1502429-016	ES1502429-017	ES1502429-018	ES1502429-019
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	---	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	---	100	mg/kg	<100	<100	<100	<100	<100
>C10 - C40 Fraction (sum)	---	50	mg/kg	<50	<50	<50	<50	<50
>C10 - C16 Fraction minus Naphthalene (F2)	---	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	106-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	86-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of BTEX	---	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	127	134	105	91.1	115
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	91.6	119	90.0	116	102
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	80.4	116	72.2	92.2	92.4
EP075(SM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	88.9	98.4	84.2	80.1	86.1
2-Chlorophenol-D4	93951-73-6	0.1	%	93.9	89.7	71.1	88.2	92.9
2,4,6-Tribromophenol	118-79-6	0.1	%	82.6	95.9	15.9	67.7	64.6
EP075(SM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	93.2	109	106	90.6	98.1
Anthracene-d10	1719-08-8	0.1	%	84.7	93.9	86.2	79.4	84.2
4-Terphenyl-d14	1718-51-0	0.1	%	97.1	107	95.6	92.0	95.3
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	83.9	85.0	85.4	93.2	84.7

ITEM 3 (continued)

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 Work Order : ES1502429
 Client : GREENCAP NAA
 Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

				Client sample ID	BHD 0.3-0.4	BHD 0.7-0.8	BHE 0-0.15	BHE 0.2-0.3	BHF 0.5-0.6
				Client sampling date / time	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00
Compound	CAS Number	LOR	Unit		ES1502429-015	ES1502429-016	ES1502429-017	ES1502429-018	ES1502429-019
EP0805: TPH(V)/BTEX Surrogates - Continued									
Toluene-D8	2037-26-5	0.1	%		78.8	82.1	90.7	87.7	83.2
4-Bromofluorobenzene	480-00-4	0.1	%		85.2	86.5	90.2	90.1	88.0

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	BHG 0-0.2	BHG 0.4-0.6	BHG 0.8-0.9	BHG 1.2-1.3	BHG 2.1-2.2
				02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00
				ES1502429-020	ES1502429-021	ES1502429-022	ES1502429-023	ES1502429-024
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	—	1.0	%	5.4	21.4	19.8	15.1	11.0
EG035T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	6	7	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	36	23	11	3	14
Copper	7440-50-8	5	mg/kg	47	<5	<5	6	<5
Lead	7439-92-1	5	mg/kg	18	24	20	17	16
Nickel	7440-02-0	2	mg/kg	20	<2	<2	<2	<2
Zinc	7440-06-6	5	mg/kg	75	<5	<5	<5	<5
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	—	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.25	<0.25	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.25	<0.25	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.25	<0.25	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.25	<0.25	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.25	<0.25	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.25	<0.25	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.25	<0.25	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.25	<0.25	<0.05	<0.05	<0.05
Total Chlordane (sum)	—	0.05	mg/kg	<0.25	<0.25	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.25	<0.25	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.25	<0.25	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.25	<0.25	<0.05	<0.05	<0.05
Dieldrin	80-57-1	0.05	mg/kg	<0.25	<0.25	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg	<0.25	<0.25	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.25	<0.25	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.25	<0.25	<0.05	<0.05	<0.05
Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.25	<0.25	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg	<0.25	<0.25	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.25	<0.25	<0.05	<0.05	<0.05

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	BHG 0-0.2	BHG 0.4-0.6	BHG 0.8-0.9	BHG 1.2-1.3	BHG 2.1-2.2
				02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00
				ES1502429-020	ES1502429-021	ES1502429-022	ES1502429-023	ES1502429-024
EP068A: Organochlorine Pesticides (OC) - Continued								
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.25	<0.25	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.25	<0.25	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of Aldrin + Dieldrin	309-00-2/60-67-1	0.05	mg/kg	<0.25	<0.25	<0.05	<0.05	<0.05
Sum of DDD + DDE + DDT	—	0.05	mg/kg	<0.25	<0.25	<0.05	<0.05	<0.05
EP0754SUMB: Polynuclear Aromatic Hydrocarbons								
Naphthalene	81-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	0.7	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	1.3	<0.5	<0.5	<0.5	<0.5
Fluorene	89-73-7	0.5	mg/kg	0.8	1.9	1.4	1.3	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	15.4	2.4	1.9	1.7	<0.5
Anthracene	120-12-7	0.5	mg/kg	3.0	<0.5	<0.5	<0.5	<0.5
Fluoranthene	208-44-0	0.5	mg/kg	15.8	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	14.7	<0.5	<0.5	<0.5	<0.5
Benzo(a)anthracene	56-55-3	0.5	mg/kg	4.7	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	4.7	<0.5	<0.5	<0.5	<0.5
Benzo(b+g)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	4.0	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	1.6	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	4.3	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	1.2	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	1.5	<0.5	<0.5	<0.5	<0.5
Sum of polycyclic aromatic hydrocarbons	—	0.5	mg/kg	73.7	4.3	3.3	3.0	<0.5
Benzo(a)pyrene TEQ (zero)	—	0.5	mg/kg	5.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (half LOR)	—	0.5	mg/kg	5.8	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (LOR)	—	0.5	mg/kg	6.0	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	—	10	mg/kg	<10	<10	11	<10	<10
C10 - C14 Fraction	—	50	mg/kg	<50	600	520	360	70
C15 - C28 Fraction	—	100	mg/kg	700	3460	1700	1490	320
C29 - C36 Fraction	—	100	mg/kg	1100	<100	<100	<100	<100
C10 - C36 Fraction (sum)	—	50	mg/kg	1800	4120	2220	1840	390

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	BHG 0-0.2	BHG 0.4-0.6	BHG 0.8-0.9	BHG 1.2-1.3	BHG 2.1-2.2
				02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00
				ES1502429-020	ES1502429-021	ES1502429-022	ES1502429-023	ES1502429-024
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	19	<10	<10
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	19	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	60	1640	1100	820	150
>C16 - C34 Fraction	---	100	mg/kg	1300	2100	890	880	240
>C34 - C40 Fraction	---	100	mg/kg	1520	<100	<100	<100	<100
>C10 - C40 Fraction (sum)	---	50	mg/kg	2880	3740	1990	1700	390
>C10 - C16 Fraction minus Naphthalene (F2)	---	50	mg/kg	60	1640	1100	820	150
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	106-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	86-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of BTEX	---	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	114	100	88.2	93.8	64.7
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	130	128	67.3	96.7	63.9
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	78.8	110	67.2	100	63.1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	90.1	124	110	113	112
2-Chlorophenol-D4	93951-73-6	0.1	%	95.8	109	98.5	96.9	93.8
2,4,6-Tribromophenol	118-79-6	0.1	%	84.5	104	91.7	87.1	86.0
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	95.5	102	97.6	92.5	91.0
Anthracene-d10	1719-08-8	0.1	%	85.7	91.8	84.2	82.2	80.0
4-Terphenyl-d14	1718-51-0	0.1	%	95.3	105	97.3	92.3	90.1
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	87.5	81.6	75.9	73.7	75.8

ITEM 3 (continued)

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 Work Order : ES1502429
 Client : GREENCAP NAA
 Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

				Client sample ID	BHG 0-0.2	BHG 0.4-0.6	BHG 0.8-0.9	BHG 1.2-1.3	BHG 2.1-2.2
				Client sampling date / time	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00
Compound	CAS Number	LOR	Unit		ES1502429-020	ES1502429-021	ES1502429-022	ES1502429-023	ES1502429-024
EP0805: TPH(V)/BTEX Surrogates - Continued									
Toluene-D8	2037-26-5	0.1	%		87.3	88.7	91.2	91.0	91.8
4-Bromofluorobenzene	480-00-4	0.1	%		87.3	85.9	89.7	89.8	91.1

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Compound	CAS Number	LOR	Unit	Client sample ID				
				Client sampling date / time				
				GW1 0.2-0.3	GW1 0.4-0.45	FD1	FD2	FD3
				29-JAN-2015 15:00	29-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	02-FEB-2015 15:00
				ES1502429-025	ES1502429-026	ES1502429-027	ES1502429-028	ES1502429-029
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	—	1.0	%	7.8	13.1	24.5	10.0	14.0
EG035T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	5	7	12	6	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	1	<1
Chromium	7440-47-3	2	mg/kg	81	19	26	67	2
Copper	7440-50-8	5	mg/kg	29	<5	<5	28	<5
Lead	7439-92-1	5	mg/kg	<5	34	23	9	16
Nickel	7440-02-0	2	mg/kg	96	<2	2	79	<2
Zinc	7440-06-6	5	mg/kg	43	19	<5	112	<5
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	—	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Total Chlordane (sum)	—	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	80-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-85-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	GW1 0.2-0.3	GW1 0.4-0.45	FD1	FD2	FD3
				29-JAN-2015 15:00	29-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	02-FEB-2015 15:00
				ES1502429-025	ES1502429-026	ES1502429-027	ES1502429-028	ES1502429-029
EP068A: Organochlorine Pesticides (OC) - Continued								
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of Aldrin + Dieldrin	309-00-2/60-67-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Sum of DDD + DDE + DDT	—	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP0754SUMB: Polynuclear Aromatic Hydrocarbons								
Naphthalene	81-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	89-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	1.4
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	208-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+g)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of polycyclic aromatic hydrocarbons	—	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	1.4
Benzo(a)pyrene TEQ (zero)	—	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (half LOR)	—	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (LOR)	—	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	—	10	mg/kg	<10	<10	<10	<10	21
C10 - C14 Fraction	—	50	mg/kg	<50	<50	<50	<50	320
C15 - C28 Fraction	—	100	mg/kg	130	<100	<100	<100	1000
C29 - C36 Fraction	—	100	mg/kg	230	<100	<100	<100	<100
C10 - C36 Fraction (sum)	—	50	mg/kg	360	<50	<50	<50	1410

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

				Client sample ID	GW1 0.2-0.3	GW1 0.4-0.45	FD1	FD2	FD3
Client sampling date / time					29-JAN-2015 15:00	29-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	02-FEB-2015 15:00
Compound	CAS Number	LOR	Unit		ES1502429-025	ES1502429-026	ES1502429-027	ES1502429-028	ES1502429-029
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	29
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	29
>C10 - C16 Fraction	>C10_C16	50	mg/kg		<50	<50	<50	<50	660
>C16 - C34 Fraction	---	100	mg/kg		300	<100	<100	<100	780
>C34 - C40 Fraction	---	100	mg/kg		310	<100	<100	<100	<100
>C10 - C40 Fraction (sum)	---	50	mg/kg		610	<50	<50	<50	1420
>C10 - C16 Fraction minus Naphthalene (F2)	---	50	mg/kg		<50	<50	<50	<50	660
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	106-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	86-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Sum of BTEX	---	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		85.0	83.4	96.3	64.0	86.6
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.1	%		86.9	119	117	105	124
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.1	%		82.7	119	117	105	99.5
EP075(SM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.1	%		110	114	107	103	99.1
2-Chlorophenol-D4	93951-73-6	0.1	%		110	115	109	105	105
2,4,6-Tribromophenol	118-79-6	0.1	%		89.7	88.1	77.8	78.9	87.0
EP075(SM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.1	%		107	106	107	104	98.4
Anthracene-d10	1719-08-8	0.1	%		102	102	101	98.4	93.3
4-Terphenyl-d14	1718-51-0	0.1	%		109	111	116	110	104
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.1	%		108	80.5	99.0	109	107

ITEM 3 (continued)

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 Work Order : ES1502429
 Client : GREENCAP NAA
 Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

				Client sample ID	GW1 0.2-0.3	GW1 0.4-0.45	FD1	FD2	FD3
				Client sampling date / time	29-JAN-2015 15:00	29-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	02-FEB-2015 15:00
Compound	CAS Number	LOR	Unit		ES1502429-025	ES1502429-026	ES1502429-027	ES1502429-028	ES1502429-029
EP080\$: TPH(V)/BTEX Surrogates - Continued									
Toluene-D8	2037-26-5	0.1	%		118	108	103	112	110
4-Bromofluorobenzene	480-00-4	0.1	%		108	98.9	92.7	102	103

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	FD4	BHA 0.5-0.6	BHA 1-1.2	BHA 1.8-2	BHB 0.2-0.4
				02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00
				ES1502429-030	ES1502429-031	ES1502429-032	ES1502429-033	ES1502429-034
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	—	1.0	%	19.5	19.4	13.1	13.3	3.5
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	5	6	<5	21	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	15	22	8	3	41
Copper	7440-50-8	5	mg/kg	<5	<5	<5	11	48
Lead	7439-92-1	5	mg/kg	24	24	23	12	21
Nickel	7440-02-0	2	mg/kg	<2	6	<2	<2	31
Zinc	7440-06-6	5	mg/kg	6	8	<5	<5	69
EG005T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	—	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Total Chlordane (sum)	—	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	80-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	FD4	BHA 0.5-0.6	BHA 1-1.2	BHA 1.8-2	BHB 0.2-0.4
				02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00
				ES1502429-030	ES1502429-031	ES1502429-032	ES1502429-033	ES1502429-034
EP068A: Organochlorine Pesticides (OC) - Continued								
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of Aldrin + Dieldrin	309-00-2/60-67-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Sum of DDD + DDE + DDT	—	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP0754SUMB: Polynuclear Aromatic Hydrocarbons								
Naphthalene	81-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	0.8
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	1.2
Fluorene	89-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	0.8
Phenanthrene	85-01-8	0.5	mg/kg	6.7	<0.5	1.0	<0.5	12.2
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	2.4
Fluoranthene	208-44-0	0.5	mg/kg	0.7	<0.5	<0.5	<0.5	11.4
Pyrene	129-00-0	0.5	mg/kg	0.7	<0.5	<0.5	<0.5	11.1
Benzo(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	3.4
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	3.3
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	3.4
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	1.4
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	3.1
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	1.4
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	2.0
Sum of polycyclic aromatic hydrocarbons	—	0.5	mg/kg	8.1	<0.5	1.0	<0.5	57.9
Benzo(a)pyrene TEQ (zero)	—	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	4.1
Benzo(a)pyrene TEQ (half LOR)	—	0.5	mg/kg	0.6	0.6	0.6	0.6	4.4
Benzo(a)pyrene TEQ (LOR)	—	0.5	mg/kg	1.2	1.2	1.2	1.2	4.6
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	—	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	—	50	mg/kg	1730	190	250	<50	<50
C15 - C28 Fraction	—	100	mg/kg	6480	880	900	<100	740
C29 - C36 Fraction	—	100	mg/kg	<100	<100	<100	<100	920
C10 - C36 Fraction (sum)	—	50	mg/kg	8210	1070	1240	<50	1660

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	FD4	BHA 0.5-0.6	BHA 1-1.2	BHA 1.8-2	BHB 0.2-0.4
				02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00
				ES1502429-030	ES1502429-031	ES1502429-032	ES1502429-033	ES1502429-034
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	14	<10	14	<10	<10
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	14	<10	14	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	3750	380	570	<50	<50
>C16 - C34 Fraction	---	100	mg/kg	3800	790	550	<100	1350
>C34 - C40 Fraction	---	100	mg/kg	<100	<100	<100	<100	1270
>C10 - C40 Fraction (sum)	---	50	mg/kg	7550	1170	1120	<50	2620
>C10 - C16 Fraction minus Naphthalene (F2)	---	50	mg/kg	3750	380	570	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	106-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	86-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of BTEX	---	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	85.2	87.4	99.9	98.6	83.0
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	80.8	127	127	130	102
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	70.8	104	107	129	73.4
EP075(SM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	98.8	107	110	110	103
2-Chlorophenol-D4	93951-73-6	0.1	%	102	110	114	109	105
2,4,6-Tribromophenol	118-79-6	0.1	%	83.5	88.2	91.5	84.3	54.6
EP075(SM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	89.0	101	106	108	97.9
Anthracene-d10	1719-08-8	0.1	%	88.2	96.6	102	105	93.2
4-Terphenyl-d14	1718-51-0	0.1	%	101	110	113	114	101
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	79.5	76.1	79.4	93.7	97.8

ITEM 3 (continued)

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 Work Order : ES1502429
 Client : GREENCAP NAA
 Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

				Client sample ID	FD4	BHA 0.5-0.6	BHA 1-1.2	BHA 1.6-2	BHB 0.2-0.4
				Client sampling date / time	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00
Compound	CAS Number	LOR	Unit		ES1502429-030	ES1502429-031	ES1502429-032	ES1502429-033	ES1502429-034
EP0805: TPH(V)/BTEX Surrogates - Continued									
Toluene-D8	2037-26-5	0.1	%		79.7	76.7	76.6	106	112
4-Bromofluorobenzene	480-00-4	0.1	%		81.1	76.3	78.7	105	106

ITEM 3 (continued)

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Work Order : ES1502428
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	BHB 1.2-1.4	BHB 2-2.2	BHC 0-0.2	BHC 0.4-0.6	BH38 0.3-0.4
				02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	30-JAN-2015 15:00
				ES1502429-035	ES1502429-036	ES1502429-037	ES1502429-038	ES1502429-039
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	—	1.0	%	9.8	14.3	4.2	20.9	6.2
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	6	<5	5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	28	<2	55	22	98
Copper	7440-50-8	5	mg/kg	21	8	44	<5	29
Lead	7439-92-1	5	mg/kg	<5	9	16	18	<5
Nickel	7440-02-0	2	mg/kg	36	<2	19	<2	106
Zinc	7440-06-6	5	mg/kg	28	<5	55	6	51
EG005T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	—	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Total Chlordane (sum)	—	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	80-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-05-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	BHB 1.2-1.4	BHB 2-2.2	BHC 0-0.2	BHC 0.4-0.6	BH3B 0.3-0.4
				02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	30-JAN-2015 15:00
				ES1502429-035	ES1502429-036	ES1502429-037	ES1502429-038	ES1502429-039
EP068A: Organochlorine Pesticides (OC) - Continued								
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of Aldrin + Dieldrin	309-00-2/60-67-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Sum of DDD + DDE + DDT	—	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP0754SUMB: Polynuclear Aromatic Hydrocarbons								
Naphthalene	81-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.8	<0.5	<0.5
Fluorene	89-73-7	0.5	mg/kg	<0.5	<0.5	1.0	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	6.1	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	1.3	<0.5	<0.5
Fluoranthene	208-44-0	0.5	mg/kg	<0.5	<0.5	5.8	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	5.6	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	1.7	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	1.7	<0.5	<0.5
Benzo(b+g)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	1.9	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	6.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	1.5	<0.5	<0.5
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.7	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.9	<0.5	<0.5
Sum of polycyclic aromatic hydrocarbons	—	0.5	mg/kg	<0.5	<0.5	29.5	<0.5	<0.5
Benzo(a)pyrene TEQ (zero)	—	0.5	mg/kg	<0.5	<0.5	2.0	<0.5	<0.5
Benzo(a)pyrene TEQ (half LOR)	—	0.5	mg/kg	0.6	0.6	2.2	0.6	0.6
Benzo(a)pyrene TEQ (LOR)	—	0.5	mg/kg	1.2	1.2	2.5	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	—	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	—	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	—	100	mg/kg	<100	<100	520	<100	<100
C29 - C36 Fraction	—	100	mg/kg	<100	<100	660	<100	<100
C10 - C36 Fraction (sum)	—	50	mg/kg	<50	<50	1180	<50	<50

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	BHB 1.2-1.4	BHB 2-2.2	BHC 0-0.2	BHC 0.4-0.6	BH38 0.3-0.4
				02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	30-JAN-2015 15:00
				ES1502429-035	ES1502429-036	ES1502429-037	ES1502429-038	ES1502429-039
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	---	100	mg/kg	<100	<100	920	<100	<100
>C34 - C40 Fraction	---	100	mg/kg	<100	<100	1010	<100	<100
>C10 - C40 Fraction (sum)	---	50	mg/kg	<50	<50	1930	<50	<50
>C10 - C16 Fraction minus Naphthalene (F2)	---	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	106-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	86-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of BTEX	---	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	81.4	103	105	91.2	72.5
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	116	129	85.0	119	127
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	65.8	116	71.4	114	112
EP075(SM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	107	105	98.2	104	106
2-Chlorophenol-D4	93951-73-6	0.1	%	87.6	108	102	108	109
2,4,6-Tribromophenol	118-79-6	0.1	%	59.0	79.4	64.1	89.5	88.3
EP075(SM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	163	101	93.6	102	103
Anthracene-d10	1719-08-8	0.1	%	99.7	98.7	89.9	98.7	101
4-Terphenyl-d14	1718-51-0	0.1	%	105	107	97.5	106	111
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	100	73.3	98.9	88.8	104

ITEM 3 (continued)

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 Work Order : ES1502428
 Client : GREENCAP NAA
 Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

				Client sample ID	BHB 1.2-1.4	BHB 2-2.2	BHC 0-0.2	BHC 0.4-0.6	BH3B 0.3-0.4
				Client sampling date / time	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	30-JAN-2015 15:00
Compound	CAS Number	LOR	Unit		ES1502429-035	ES1502429-036	ES1502429-037	ES1502429-038	ES1502429-039
EP080\$: TPH(V)/BTEX Surrogates - Continued									
Toluene-D8	2037-26-5	0.1	%		113	94.7	112	104	116
4-Bromofluorobenzene	480-00-4	0.1	%		103	76.0	102	96.0	104

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID		BH38 0.4-0.5	BH39 0-0.2	BH41 0.25-0.35	BH27 0.4-0.6	BH22 1-1.25				
Client sampling date / time						30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00				
Compound	CAS Number	LOR	Unit	ES1502429-040		ES1502429-041		ES1502429-042		ES1502429-043		ES1502429-044		
EA055: Moisture Content														
Moisture Content (dried @ 103°C)		—	1.0	%	19.0		4.6		14.2		11.8		24.0	
EG005T: Total Metals by ICP-AES														
Arsenic	7440-38-2	5	mg/kg	7		<5		6		<5		9		
Cadmium	7440-43-9	1	mg/kg	<1		<1		<1		<1		<1		
Chromium	7440-47-3	2	mg/kg	18		100		4		4		26		
Copper	7440-50-8	5	mg/kg	6		33		6		5		10		
Lead	7439-92-1	5	mg/kg	38		5		12		16		29		
Nickel	7440-02-0	2	mg/kg	2		117		<2		<2		8		
Zinc	7440-06-6	5	mg/kg	14		56		<5		<5		27		
EG005T: Total Recoverable Mercury by FIMS														
Mercury	7439-97-6	0.1	mg/kg	<0.1		<0.1		<0.1		<0.1		<0.1		
EP066: Polychlorinated Biphenyls (PCB)														
Total Polychlorinated biphenyls		—	0.1	mg/kg	<0.1		<0.1		<0.1		<0.1		<0.1	
EP068A: Organochlorine Pesticides (OC)														
alpha-BHC	319-84-6	0.05	mg/kg	<0.05		<0.05		<0.05		<0.05		<0.05		
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05		<0.05		<0.05		<0.05		<0.05		
beta-BHC	319-85-7	0.05	mg/kg	<0.05		<0.05		<0.05		<0.05		<0.05		
gamma-BHC	58-89-9	0.05	mg/kg	<0.05		<0.05		<0.05		<0.05		<0.05		
delta-BHC	319-86-8	0.05	mg/kg	<0.05		<0.05		<0.05		<0.05		<0.05		
Heptachlor	76-44-8	0.05	mg/kg	<0.05		<0.05		<0.05		<0.05		<0.05		
Aldrin	309-00-2	0.05	mg/kg	<0.05		<0.05		<0.05		<0.05		<0.05		
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05		<0.05		<0.05		<0.05		<0.05		
Total Chlordane (sum)	—	0.05	mg/kg	<0.05		<0.05		<0.05		<0.05		<0.05		
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05		<0.05		<0.05		<0.05		<0.05		
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05		<0.05		<0.05		<0.05		<0.05		
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05		<0.05		<0.05		<0.05		<0.05		
Dieldrin	80-57-1	0.05	mg/kg	<0.05		<0.05		<0.05		<0.05		<0.05		
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05		<0.05		<0.05		<0.05		<0.05		
Endrin	72-20-8	0.05	mg/kg	<0.05		<0.05		<0.05		<0.05		<0.05		
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05		<0.05		<0.05		<0.05		<0.05		
Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05		<0.05		<0.05		<0.05		<0.05		
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05		<0.05		<0.05		<0.05		<0.05		
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05		<0.05		<0.05		<0.05		<0.05		

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Sub-Matrix: SOIL (Matrix: SOIL)				Client sampling date / time		BH38 0.4-0.5	BH39 0-0.2	BH41 0.25-0.35	BH27 0.4-0.6	BH22 1-1.25
				30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	
Compound	CAS Number	LOR	Unit	ES1502429-040	ES1502429-041	ES1502429-042	ES1502429-043	ES1502429-044		
EP068A: Organochlorine Pesticides (OC) - Continued										
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05		
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2		
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05		
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2		
Sum of Aldrin + Dieldrin	309-00-2/60-67-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05		
Sum of DDD + DDE + DDT	—	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05		
EP0754SUMB: Polynuclear Aromatic Hydrocarbons										
Naphthalene	81-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5		
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5		
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5		
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5		
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5		
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5		
Fluoranthene	208-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5		
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5		
Benzo(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5		
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5		
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5		
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5		
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5		
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5		
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5		
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5		
Sum of polycyclic aromatic hydrocarbons	—	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5		
Benzo(a)pyrene TEQ (zero)	—	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5		
Benzo(a)pyrene TEQ (half LOR)	—	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6		
Benzo(a)pyrene TEQ (LOR)	—	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2		
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	—	10	mg/kg	<10	<10	<10	<10	<10		
C10 - C14 Fraction	—	50	mg/kg	<50	<50	<50	<50	<50		
C15 - C28 Fraction	—	100	mg/kg	<100	<100	<100	<100	<100		
C29 - C36 Fraction	—	100	mg/kg	<100	<100	<100	<100	<100		
C10 - C36 Fraction (sum)	—	50	mg/kg	<50	<50	<50	<50	<50		

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BH38 0.4-0.5	BH38 0-0.2	BH41 0.25-0.35	BH27 0.4-0.6	BH22 1-1.25
				30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00
Compound	CAS Number	LOR	Unit	ES1502429-040	ES1502429-041	ES1502429-042	ES1502429-043	ES1502429-044
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	---	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	---	100	mg/kg	<100	<100	<100	<100	<100
>C10 - C40 Fraction (sum)	---	50	mg/kg	<50	<50	<50	<50	<50
>C10 - C16 Fraction minus Naphthalene (F2)	---	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	106-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	86-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of BTEX	---	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	90.8	84.7	73.2	81.7	104
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	125	127	117	126	124
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	111	111	104	116	108
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	107	105	103	106	107
2-Chlorophenol-D4	93951-73-6	0.1	%	110	107	106	110	111
2,4,6-Tribromophenol	118-79-6	0.1	%	91.1	84.3	87.4	83.6	91.6
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	104	101	101	104	105
Anthracene-d10	1719-08-8	0.1	%	101	98.6	96.7	101	100
4-Terphenyl-d14	1718-51-0	0.1	%	111	106	105	110	111
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	82.6	88.5	80.0	74.5	80.0

ITEM 3 (continued)

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 Work Order : ES1502429
 Client : GREENCAP NAA
 Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

				Client sample ID	BH38 0.4-0.5	BH38 0-0.2	BH41 0.25-0.35	BH27 0.4-0.6	BH22 1-1.25
				Client sampling date / time	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00
Compound	CAS Number	LOR	Unit		ES1502429-040	ES1502429-041	ES1502429-042	ES1502429-043	ES1502429-044
EP080\$: TPH(V)/BTEX Surrogates - Continued									
Toluene-D8	2037-26-5	0.1	%		95.8	104	98.9	98.4	96.4
4-Bromofluorobenzene	480-00-4	0.1	%		87.3	92.8	89.6	92.0	86.0

ITEM 3 (continued)

ATTACHMENT 2

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	BH24 0-0.1	BH25 0.6-0.8	BH25 1-1.2	BH25 1.8-1.8	BH25 0.2-0.4
				30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00
				ES1502429-045	ES1502429-046	ES1502429-047	ES1502429-048	ES1502429-049
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	—	1.0	%	3.8	6.0	19.6	12.0	8.8
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	13	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	108	<2	3	4	3
Copper	7440-50-8	5	mg/kg	34	<5	<5	8	<5
Lead	7439-92-1	5	mg/kg	14	<5	<5	13	11
Nickel	7440-02-0	2	mg/kg	98	<2	<2	<2	<2
Zinc	7440-06-6	5	mg/kg	50	<5	<5	<5	<5
EG005T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	—	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.25	<0.25	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.25	<0.25	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.25	<0.25	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.25	<0.25	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.25	<0.25	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.25	<0.25	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.25	<0.25	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.25	<0.25	<0.05	<0.05
Total Chlordane (sum)	—	0.05	mg/kg	<0.05	<0.25	<0.25	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.25	<0.25	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.25	<0.25	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.25	<0.25	<0.05	<0.05
Dieldrin	80-57-1	0.05	mg/kg	<0.05	<0.25	<0.25	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.25	<0.25	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.25	<0.25	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.25	<0.25	<0.05	<0.05
Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.25	<0.25	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.25	<0.25	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.25	<0.25	<0.05	<0.05

ITEM 3 (continued)

ATTACHMENT 2

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	BH24 0-0.1	BH25 0.6-0.8	BH25 1-1.2	BH25 1.6-1.8	BH25 0.2-0.4
				30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00
				ES1502429-045	ES1502429-046	ES1502429-047	ES1502429-048	ES1502429-049
EP068A: Organochlorine Pesticides (OC) - Continued								
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.25	<0.25	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.25	<0.25	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of Aldrin + Dieldrin	309-00-2/60-67-1	0.05	mg/kg	<0.05	<0.25	<0.25	<0.05	<0.05
Sum of DDD + DDE + DDT	—	0.05	mg/kg	<0.05	<0.25	<0.25	<0.05	<0.05
EP0754SUMB: Polynuclear Aromatic Hydrocarbons								
Naphthalene	81-20-3	0.5	mg/kg	<0.5	<0.5	2.3	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	89-73-7	0.5	mg/kg	<0.5	2.8	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3.7	6.3	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	208-44-0	0.5	mg/kg	<0.5	<0.5	1.1	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.7	<0.5	<0.5
Benzo(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+g)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of polycyclic aromatic hydrocarbons	—	0.5	mg/kg	<0.5	6.5	10.4	<0.5	<0.5
Benzo(a)pyrene TEQ (zero)	—	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (half LOR)	—	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (LOR)	—	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	—	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	—	50	mg/kg	<50	920	8900	<50	<50
C15 - C28 Fraction	—	100	mg/kg	<100	3480	28000	<100	190
C29 - C36 Fraction	—	100	mg/kg	<100	<100	210	<100	<100
C10 - C36 Fraction (sum)	—	50	mg/kg	<50	4400	37100	<50	190

ITEM 3 (continued)

ATTACHMENT 2

Page : 37 of 89
Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BH24 0-0.1	BH25 0.6-0.8	BH25 1-1.2	BH25 1.6-1.8	BH26 0.2-0.4
				30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00
Compound	CAS Number	LOR	Unit	ES1502429-045	ES1502429-046	ES1502429-047	ES1502429-048	ES1502429-049
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	18	17	<10	<10
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	18	17	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	2080	18500	<50	<50
>C16 - C34 Fraction	---	100	mg/kg	<100	2430	18200	<100	230
>C34 - C40 Fraction	---	100	mg/kg	<100	<100	100	<100	<100
>C10 - C40 Fraction (sum)	---	50	mg/kg	<50	4510	36900	<50	230
>C10 - C16 Fraction minus Naphthalene (F2)	---	50	mg/kg	<50	2080	18500	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	106-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	86-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of BTEX	---	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	1	<1	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	123	80.4	115	116	120
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	82.7	64.3	74.5	107	110
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	69.2	63.2	108	79.2	73.0
EP075(SM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	123	97.4	93.4	93.9	89.8
2-Chlorophenol-D4	93951-73-6	0.1	%	98.8	102	96.3	96.0	94.8
2,4,6-Tribromophenol	118-79-6	0.1	%	99.5	100	100	94.0	92.1
EP075(SM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	101	102	87.9	100	99.3
Anthracene-d10	1719-08-8	0.1	%	90.1	92.7	88.7	90.9	88.0
4-Terphenyl-d14	1718-51-0	0.1	%	99.3	103	100	100	97.7
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	95.5	104	75.0	96.9	99.7

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

				Client sample ID	BH24 0-0.1	BH25 0.6-0.8	BH25 1-1.2	BH25 1.6-1.8	BH25 0.2-0.4
				Client sampling date / time	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00
Compound	CAS Number	LOR	Unit		ES1502429-045	ES1502429-046	ES1502429-047	ES1502429-048	ES1502429-049
EP080\$: TPH(V)/BTEX Surrogates - Continued									
Toluene-D8	2037-26-5	0.1	%		102	106	103	102	104
4-Bromofluorobenzene	480-00-4	0.1	%		93.2	97.4	92.9	106	108

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH30 0.8-0.9	BH31 0-0.2	BH32 0-0.2	BH34 0.4-0.5	BH36 0.1-0.2
Client sampling date / time					30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00
Compound	CAS Number	LOR	Unit		ES1502429-050	ES1502429-051	ES1502429-052	ES1502429-053	ES1502429-054
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	—	1.0	%		21.8	3.7	6.3	12.6	15.4
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		10	<5	<5	<5	6
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		17	117	112	4	15
Copper	7440-50-8	5	mg/kg		<5	31	33	<5	28
Lead	7439-92-1	5	mg/kg		23	<5	<5	36	41
Nickel	7440-02-0	2	mg/kg		<2	114	132	<2	12
Zinc	7440-06-6	5	mg/kg		6	50	56	<5	101
EG005T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	—	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Total Chlordane (sum)	—	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	80-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-05-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	BH30 0.8-0.9	BH31 0-0.2	BH32 0-0.2	BH34 0.4-0.5	BH36 0.1-0.2
				30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00
				ES1502429-050	ES1502429-051	ES1502429-052	ES1502429-053	ES1502429-054
EP068A: Organochlorine Pesticides (OC) - Continued								
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of Aldrin + Dieldrin	309-00-2/60-67-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Sum of DDD + DDE + DDT	—	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP0754SUMB: Polynuclear Aromatic Hydrocarbons								
Naphthalene	81-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	89-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	208-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	0.6
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	0.6
Benzo(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+g)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of polycyclic aromatic hydrocarbons	—	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	1.2
Benzo(a)pyrene TEQ (zero)	—	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (half LOR)	—	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (LOR)	—	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	—	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	—	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	—	100	mg/kg	<100	150	<100	110	<100
C29 - C36 Fraction	—	100	mg/kg	<100	<100	<100	<100	100
C10 - C36 Fraction (sum)	—	50	mg/kg	<50	150	<50	110	100

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

				Client sample ID	BH30 0.8-0.9	BH31 0-0.2	BH32 0-0.2	BH34 0.4-0.5	BH36 0.1-0.2
Client sampling date / time					30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00
Compound	CAS Number	LOR	Unit		ES1502429-050	ES1502429-051	ES1502429-052	ES1502429-053	ES1502429-054
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	---	100	mg/kg		<100	200	<100	140	120
>C34 - C40 Fraction	---	100	mg/kg		<100	<100	<100	<100	100
>C10 - C40 Fraction (sum)	---	50	mg/kg		<50	200	<50	140	220
>C10 - C16 Fraction minus Naphthalene (F2)	---	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	106-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	86-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Sum of BTEX	---	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		126	119	116	114	123
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.1	%		115	82.7	77.1	88.2	95.1
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.1	%		89.6	91.9	85.6	94.1	97.8
EP075(SM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.1	%		86.3	86.3	89.7	83.8	83.7
2-Chlorophenol-D4	93951-73-6	0.1	%		95.6	93.0	95.6	95.4	94.6
2,4,6-Tribromophenol	118-79-6	0.1	%		94.2	88.0	90.0	89.1	93.6
EP075(SM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.1	%		99.3	98.6	100	97.9	99.9
Anthracene-d10	1719-08-8	0.1	%		88.4	87.6	89.4	87.7	87.3
4-Terphenyl-d14	1718-51-0	0.1	%		101	97.3	99.0	96.9	99.0
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.1	%		105	98.8	91.0	100	92.0

ITEM 3 (continued)

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 Work Order : ES1502429
 Client : GREENCAP NAA
 Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

				Client sample ID	BH30 0.8-0.9	BH31 0-0.2	BH32 0-0.2	BH34 0.4-0.5	BH36 0.1-0.2
				Client sampling date / time	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00
Compound	CAS Number	LOR	Unit		ES1502429-050	ES1502429-051	ES1502429-052	ES1502429-053	ES1502429-054
EP080\$: TPH(V)/BTEX Surrogates - Continued									
Toluene-D8	2037-26-5	0.1	%		115	118	110	106	104
4-Bromofluorobenzene	480-00-4	0.1	%		118	119	110	108	106

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	BH37 0.3-0.4	BH17 1.5-1.6	BH18 0-0.2	BH18 0.6-0.8	BH19 0.05-0.2
				30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00
				ES1502429-055	ES1502429-056	ES1502429-057	ES1502429-058	ES1502429-059
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	—	1.0	%	19.1	20.5	6.6	12.4	11.0
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	8	6	<5	7	<6
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	23	14	136	7	11
Copper	7440-50-8	5	mg/kg	<5	<5	34	<5	61
Lead	7439-92-1	5	mg/kg	21	21	<5	14	9
Nickel	7440-02-0	2	mg/kg	<2	<2	128	<2	38
Zinc	7440-06-6	5	mg/kg	<5	9	56	<5	36
EG005T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	—	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Total Chlordane (sum)	—	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	80-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH37 0.3-0.4	BH17 1.5-1.6	BH18 0-0.2	BH18 0.6-0.8	BH19 0.05-0.2
Client sampling date / time				30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00
Compound	CAS Number	LOR	Unit	ES1502429-055	ES1502429-056	ES1502429-057	ES1502429-058	ES1502429-059	ES1502429-059
EP068A: Organochlorine Pesticides (OC) - Continued									
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of Aldrin + Dieldrin	309-00-2/60-67-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sum of DDD + DDE + DDT	—	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
EP07548MJB: Polynuclear Aromatic Hydrocarbons									
Naphthalene	81-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	208-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo[a]anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo[b+g]fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo[k]fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo[a]pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno[1,2,3-cd]pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz[a,h]anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo[g,h,i]perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of polycyclic aromatic hydrocarbons	—	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo[a]pyrene TEQ (zero)	—	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo[a]pyrene TEQ (half LOR)	—	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6	0.6
Benzo[a]pyrene TEQ (LOR)	—	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	—	10	mg/kg	<10	<10	<10	<10	<10	<10
C10 - C14 Fraction	—	50	mg/kg	<50	<50	<50	<50	<50	<50
C15 - C28 Fraction	—	100	mg/kg	100	<100	<100	<100	<100	<100
C29 - C36 Fraction	—	100	mg/kg	<100	<100	<100	<100	<100	<100
C10 - C36 Fraction (sum)	—	50	mg/kg	100	<50	<50	<50	<50	<50

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BH37 0.3-0.4	BH17 1.5-1.6	BH18 0-0.2	BH18 0.6-0.8	BH19 0.05-0.2
				30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00
Compound	CAS Number	LOR	Unit	ES1502429-055	ES1502429-056	ES1502429-057	ES1502429-058	ES1502429-059
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	---	100	mg/kg	130	110	<100	<100	<100
>C34 - C40 Fraction	---	100	mg/kg	<100	<100	<100	<100	<100
>C10 - C40 Fraction (sum)	---	50	mg/kg	130	110	<50	<50	<50
>C10 - C16 Fraction minus Naphthalene (F2)	---	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	106-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	86-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of BTEX	---	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	112	105	101	86.6	90.1
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	95.3	85.7	84.4	78.5	76.2
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	96.2	89.4	80.8	67.9	81.2
EP075(SM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	121	102	89.5	91.2	90.2
2-Chlorophenol-D4	93951-73-6	0.1	%	93.2	95.3	96.1	98.3	93.1
2,4,6-Tribromophenol	118-79-6	0.1	%	89.5	92.5	91.4	92.1	93.3
EP075(SM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	98.1	102	100	103	98.5
Anthracene-d10	1719-08-8	0.1	%	87.6	89.4	89.3	91.5	88.0
4-Terphenyl-d14	1718-51-0	0.1	%	97.5	99.9	99.2	104	100
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	98.1	96.0	101	98.2	100

ITEM 3 (continued)

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 Work Order : ES1502429
 Client : GREENCAP NAA
 Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

				Client sample ID	BH37 0.3-0.4	BH17 1.5-1.6	BH18 0-0.2	BH18 0.6-0.8	BH19 0.05-0.2
				Client sampling date / time	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00
Compound	CAS Number	LOR	Unit		ES1502429-055	ES1502429-056	ES1502429-057	ES1502429-058	ES1502429-059
EP0805: TPH(V)/BTEX Surrogates - Continued									
Toluene-D8	2037-26-5	0.1	%		104	103	113	108	107
4-Bromofluorobenzene	480-00-4	0.1	%		107	101	110	108	105

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	BH19 0.2-0.3	BH20 0.25-0.4	BH20 0.45-0.55	BH21 0-0.2	BH22 0.25-0.35
				30-JAN-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	30-JAN-2015 15:00
				ES1502429-060	ES1502429-061	ES1502429-062	ES1502429-063	ES1502429-064
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	—	1.0	%	12.8	15.6	10.4	13.8	6.1
EG035T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	13	13	5	42	85
Copper	7440-50-8	5	mg/kg	<5	44	6	116	26
Lead	7439-92-1	5	mg/kg	21	14	24	76	<5
Nickel	7440-02-0	2	mg/kg	<2	38	<2	7	95
Zinc	7440-06-6	5	mg/kg	25	36	<5	406	44
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	—	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Total Chlordane (sum)	—	0.05	mg/kg	<0.05	<0.05	<0.05	0.34	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	0.18	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	0.16	<0.05
Dieldrin	80-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH19 0.2-0.3	BH20 0.25-0.4	BH20 0.45-0.55	BH21 0-0.2	BH22 0.23-0.35
Client sampling date / time				30-JAN-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	30-JAN-2015 15:00	
Compound	CAS Number	LOR	Unit	ES1502429-060	ES1502429-061	ES1502429-062	ES1502429-063	ES1502429-064	
EP068A: Organochlorine Pesticides (OC) - Continued									
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2	
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2	
Sum of Aldrin + Dieldrin	309-00-2/60-67-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	
Sum of DDD + DDE + DDT	—	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	
EP07548MJB: Polynuclear Aromatic Hydrocarbons									
Naphthalene	81-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Fluoranthene	208-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Benzo[a]anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Benzo[b+g]fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Benzo[k]fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Benzo[a]pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Indeno[1,2,3-cd]pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Dibenz[a,h]anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Benzo[g,h,i]perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Sum of polycyclic aromatic hydrocarbons	—	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Benzo[a]pyrene TEQ (zero)	—	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Benzo[a]pyrene TEQ (half LOR)	—	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6	
Benzo[a]pyrene TEQ (LOR)	—	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2	
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	—	10	mg/kg	<10	<10	<10	<10	<10	
C10 - C14 Fraction	—	50	mg/kg	<50	<50	<50	<50	<50	
C15 - C28 Fraction	—	100	mg/kg	<100	<100	<100	<100	<100	
C29 - C36 Fraction	—	100	mg/kg	<100	<100	<100	<100	<100	
C10 - C36 Fraction (sum)	—	50	mg/kg	<50	<50	<50	<50	<50	

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

				Client sample ID	BH19 0.2-0.3	BH20 0.25-0.4	BH20 0.45-0.55	BH21 0-0.2	BH22 0.23-0.35
				Client sampling date / time	30-JAN-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	30-JAN-2015 15:00
Compound	CAS Number	LOR	Unit		ES1502429-060	ES1502429-061	ES1502429-062	ES1502429-063	ES1502429-064
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	---	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	---	100	mg/kg		<100	<100	<100	<100	<100
>C10 - C40 Fraction (sum)	---	50	mg/kg		<50	<50	<50	<50	<50
>C10 - C16 Fraction minus Naphthalene (F2)	---	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	106-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	86-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Sum of BTEX	---	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		90.5	87.5	89.9	88.1	81.6
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.1	%		94.4	87.2	83.2	87.7	68.4
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.1	%		83.7	84.5	78.1	64.8	68.4
EP075(SM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.1	%		87.3	91.1	90.6	83.6	88.3
2-Chlorophenol-D4	93951-73-6	0.1	%		94.6	93.3	94.0	89.9	95.2
2,4,6-Tribromophenol	118-79-6	0.1	%		90.8	89.4	86.9	94.9	90.4
EP075(SM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.1	%		99.8	99.3	99.2	97.9	100
Anthracene-d10	1719-08-8	0.1	%		89.6	89.5	89.2	86.6	89.6
4-Terphenyl-d14	1718-51-0	0.1	%		99.4	99.6	99.9	99.4	100
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.1	%		90.4	83.9	86.2	91.4	91.0

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 Work Order : ES1502429
 Client : GREENCAP NAA
 Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

				Client sample ID	BH19 0.2-0.3	BH20 0.25-0.4	BH20 0.45-0.55	BH21 0-0.2	BH22 0.23-0.35
				Client sampling date / time	30-JAN-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	02-FEB-2015 15:00	30-JAN-2015 15:00
Compound	CAS Number	LOR	Unit		ES1502429-060	ES1502429-061	ES1502429-062	ES1502429-063	ES1502429-064
EP080\$: TPH(V)/BTEX Surrogates - Continued									
Toluene-D8	2037-26-5	0.1	%		96.5	89.8	92.6	92.4	106
4-Bromofluorobenzene	480-00-4	0.1	%		94.5	89.5	88.8	85.4	101

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	BH10 0-0.2	BH10 0.8-1	BH11 0.2-0.4	BH11 1.6-1.8	BH11 2.4-2.6
				30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00
				ES1502429-065	ES1502429-066	ES1502429-067	ES1502429-068	ES1502429-069
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	—	1.0	%	6.4	17.9	7.0	24.2	19.2
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	12	<5	18	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	7	34	54	29	8
Copper	7440-50-8	5	mg/kg	<5	10	35	<5	<5
Lead	7439-92-1	5	mg/kg	11	38	12	24	12
Nickel	7440-02-0	2	mg/kg	6	3	85	<2	<2
Zinc	7440-06-6	5	mg/kg	28	55	68	<5	<5
EG005T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	—	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Total Chlordane (sum)	—	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	80-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	BH10 0-0.2	BH10 0.8-1	BH11 0.2-0.4	BH11 1.6-1.8	BH11 2.4-2.6
				30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00
				ES1502429-065	ES1502429-066	ES1502429-067	ES1502429-068	ES1502429-069
EP068A: Organochlorine Pesticides (OC) - Continued								
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of Aldrin + Dieldrin	309-00-2/60-67-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Sum of DDD + DDE + DDT	—	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP0754SUMB: Polynuclear Aromatic Hydrocarbons								
Naphthalene	81-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	89-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.6	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	208-44-0	0.5	mg/kg	<0.5	0.6	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	0.7	<0.5	<0.5	<0.5
Benzo(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+g)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	0.6	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of polycyclic aromatic hydrocarbons	—	0.5	mg/kg	<0.5	1.9	0.8	<0.5	<0.5
Benzo(a)pyrene TEQ (zero)	—	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (half LOR)	—	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (LOR)	—	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	—	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	—	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	—	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	—	100	mg/kg	<100	<100	<100	<100	<100
C10 - C36 Fraction (sum)	—	50	mg/kg	<50	<50	<50	<50	<50

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BH10 0-0.2	BH10 0.8-1	BH11 0.2-0.4	BH11 1.6-1.8	BH11 2.4-2.6
				30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00
Compound	CAS Number	LOR	Unit	ES1502429-065	ES1502429-066	ES1502429-067	ES1502429-068	ES1502429-069
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	---	100	mg/kg	<100	100	<100	<100	<100
>C34 - C40 Fraction	---	100	mg/kg	<100	<100	<100	<100	<100
>C10 - C40 Fraction (sum)	---	50	mg/kg	<50	100	<50	<50	<50
>C10 - C16 Fraction minus Naphthalene (F2)	---	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	106-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	86-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of BTEX	---	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	95.0	84.7	91.0	98.4	79.4
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	78.9	105	129	127	125
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	78.2	93.5	110	105	95.6
EP075(SM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	108	90.6	99.7	117	104
2-Chlorophenol-D4	93951-73-6	0.1	%	109	96.4	91.4	118	103
2,4,6-Tribromophenol	118-79-6	0.1	%	78.6	75.2	85.8	104	81.7
EP075(SM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	105	85.7	114	108	110
Anthracene-d10	1719-08-8	0.1	%	101	73.5	105	85.7	91.3
4-Terphenyl-d14	1718-51-0	0.1	%	110	87.3	116	110	99.1
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	88.2	82.8	83.7	80.5	81.0

ITEM 3 (continued)

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 Work Order : ES1502429
 Client : GREENCAP NAA
 Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH10 0-0.2	BH10 0.8-1	BH11 0.2-0.4	BH11 1.6-1.8	BH11 2.4-2.6
Client sampling date / time					30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00
Compound	CAS Number	LOR	Unit		ES1502429-065	ES1502429-066	ES1502429-067	ES1502429-068	ES1502429-069
EP080\$: TPH(V)/BTEX Surrogates - Continued									
Toluene-D8	2037-26-5	0.1	%		91.2	82.4	85.9	83.2	83.0
4-Bromofluorobenzene	480-00-4	0.1	%		93.5	86.1	89.1	87.0	87.8

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	BH13 0-0.15	BH15 0.6-0.7	BH16 0.6-0.8	BH16 1.4-1.6	BH5 0.3-0.4
				30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00
				ES1502429-070	ES1502429-071	ES1502429-072	ES1502429-073	ES1502429-074
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	—	1.0	%	7.8	19.7	23.8	17.0	8.6
EG035T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	7	7	5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	10	16	24	4	6
Copper	7440-50-8	5	mg/kg	5	<5	6	<5	<5
Lead	7439-92-1	5	mg/kg	19	63	24	16	<5
Nickel	7440-02-0	2	mg/kg	9	<2	<2	<2	<2
Zinc	7440-06-6	5	mg/kg	19	18	6	<5	<5
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	—	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Total Chlordane (sum)	—	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	80-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-85-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH13 0-0.15	BH15 0.6-0.7	BH16 0.6-0.8	BH16 1.4-1.6	BH5 0.3-0.4
Client sampling date / time				30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00
Compound	CAS Number	LOR	Unit	ES1502429-070	ES1502429-071	ES1502429-072	ES1502429-073	ES1502429-074	ES1502429-074
EP068A: Organochlorine Pesticides (OC) - Continued									
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of Aldrin + Dieldrin	309-00-2/60-67-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sum of DDD + DDE + DDT	—	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
EP0754(BM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	81-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	208-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of polycyclic aromatic hydrocarbons	—	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (zero)	—	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (half LOR)	—	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (LOR)	—	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	—	10	mg/kg	<10	<10	<10	<10	<10	<10
C10 - C14 Fraction	—	50	mg/kg	<50	<50	<50	<50	<50	<50
C15 - C28 Fraction	—	100	mg/kg	<100	<100	<100	<100	<100	<100
C29 - C36 Fraction	—	100	mg/kg	<100	<100	<100	<100	<100	<100
C10 - C36 Fraction (sum)	—	50	mg/kg	<50	<50	<50	<50	<50	<50

ITEM 3 (continued)

ATTACHMENT 2

Page : 57 of 89
Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BH13 0-0.15	BH15 0.6-0.7	BH16 0.6-0.8	BH16 1.4-1.6	BH5 0.3-0.4
				30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00
Compound	CAS Number	LOR	Unit	ES1502429-070	ES1502429-071	ES1502429-072	ES1502429-073	ES1502429-074
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	---	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	---	100	mg/kg	<100	<100	<100	<100	<100
>C10 - C40 Fraction (sum)	---	50	mg/kg	<50	<50	<50	<50	<50
>C10 - C16 Fraction minus Naphthalene (F2)	---	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	106-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	86-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of BTEX	---	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	88.0	71.6	85.1	78.0	92.6
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	100	107	117	123	75.1
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	82.2	77.4	83.0	84.4	81.7
EP075(SM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	99.8	94.0	81.7	112	98.4
2-Chlorophenol-D4	93951-73-6	0.1	%	103	100	86.5	99.2	98.5
2,4,6-Tribromophenol	118-79-6	0.1	%	61.2	76.8	73.5	72.0	79.4
EP075(SM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	102	95.6	97.8	99.8	95.7
Anthracene-d10	1719-08-8	0.1	%	89.6	82.5	88.4	88.2	91.9
4-Terphenyl-d14	1718-51-0	0.1	%	97.6	89.6	91.8	86.9	99.8
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	86.6	88.0	77.7	84.7	92.5

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 Client : GREENCAP NAA
 Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

				Client sample ID	BH13 0-0.15	BH15 0.6-0.7	BH16 0.6-0.8	BH16 1.4-1.6	BH5 0.3-0.4
				Client sampling date / time	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00
Compound	CAS Number	LOR	Unit		ES1502429-070	ES1502429-071	ES1502429-072	ES1502429-073	ES1502429-074
EP080\$: TPH(V)/BTEX Surrogates - Continued									
Toluene-D8	2037-26-5	0.1	%		89.4	87.9	76.5	83.4	91.6
4-Bromofluorobenzene	480-00-4	0.1	%		90.2	87.2	79.5	84.4	96.2

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	BH5 0.4-0.5	BH5 0-0.1	BH6 0.4-0.5	BH6 0.5-0.6	BH6 2.2-2.4
				30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00
				ES1502429-075	ES1502429-076	ES1502429-077	ES1502429-078	ES1502429-079
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	—	1.0	%	7.2	8.0	11.5	7.0	17.2
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	6	11	10
Cadmium	7440-43-9	1	mg/kg	<1	1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	7	72	9	14	22
Copper	7440-50-8	5	mg/kg	<5	31	8	20	40
Lead	7439-92-1	5	mg/kg	11	10	19	18	17
Nickel	7440-02-0	2	mg/kg	5	82	<2	22	6
Zinc	7440-06-6	5	mg/kg	24	102	<5	69	25
EG005T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	—	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Total Chlordane (sum)	—	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	80-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-05-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

ITEM 3 (continued)

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Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	BH5 0.4-0.5	BH5 0-0.1	BH6 0.4-0.5	BH6 0.5-0.6	BH8 2.2-2.4
				30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00
				ES1502429-075	ES1502429-076	ES1502429-077	ES1502429-078	ES1502429-079
EP068A: Organochlorine Pesticides (OC) - Continued								
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of Aldrin + Dieldrin	309-00-2/60-67-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Sum of DDD + DDE + DDT	—	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP0754SUMB: Polynuclear Aromatic Hydrocarbons								
Naphthalene	81-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	89-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	208-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+g)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of polycyclic aromatic hydrocarbons	—	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (zero)	—	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (half LOR)	—	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (LOR)	—	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	—	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	—	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	—	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	—	100	mg/kg	<100	<100	<100	<100	<100
C10 - C36 Fraction (sum)	—	50	mg/kg	<50	<50	<50	<50	<50

ITEM 3 (continued)

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Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				BH5 0.4-0.5	BH5 0-0.1	BH6 0.4-0.5	BH6 0.5-0.6	BH6 2.2-2.4
				30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00
Compound	CAS Number	LOR	Unit	ES1502429-075	ES1502429-076	ES1502429-077	ES1502429-078	ES1502429-079
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	---	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	---	100	mg/kg	<100	<100	<100	<100	<100
>C10 - C40 Fraction (sum)	---	50	mg/kg	<50	<50	<50	<50	<50
>C10 - C16 Fraction minus Naphthalene (F2)	---	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	106-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	86-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of BTEX	---	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	85.8	103	103	80.0	75.0
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	117	124	130	99.9	113
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	94.7	90.0	112	72.8	84.4
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	106	87.5	87.5	86.2	74.3
2-Chlorophenol-D4	93951-73-6	0.1	%	103	94.8	93.4	90.9	70.3
2,4,6-Tribromophenol	118-79-6	0.1	%	75.0	69.7	63.8	57.6	49.4
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	102	94.4	88.1	85.2	73.3
Anthracene-d10	1719-08-8	0.1	%	92.5	87.7	79.3	77.3	77.3
4-Terphenyl-d14	1718-51-0	0.1	%	94.7	88.1	75.2	73.4	68.8
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	88.6	82.7	83.3	86.3	87.2

ITEM 3 (continued)

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 Client : GREENCAP NAA
 Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

				Client sample ID	BH5 0.4-0.5	BH6 0-0.1	BH6 0.4-0.5	BH6 0.5-0.6	BH6 2.2-2.4
				Client sampling date / time	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00	30-JAN-2015 15:00
Compound	CAS Number	LOR	Unit		ES1502429-075	ES1502429-076	ES1502429-077	ES1502429-078	ES1502429-079
EP0805: TPH(V)/BTEX Surrogates - Continued									
Toluene-D8	2037-26-5	0.1	%		87.8	84.8	81.9	85.6	88.7
4-Bromofluorobenzene	480-00-4	0.1	%		84.9	83.9	84.6	87.6	89.0

ITEM 3 (continued)

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 Client : GREENCAP NAA
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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH9 1.9-2.1	—	—	—	—
				Client sampling date / time	30-JAN-2015 15:00	—	—	—	—
				ES1502429.080	—	—	—	—	—
Compound	CAS Number	LOR	Unit						
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	—	1.0	%		17.6	—	—	—	—
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		17	—	—	—	—
Cadmium	7440-43-9	1	mg/kg		<1	—	—	—	—
Chromium	7440-47-3	2	mg/kg		22	—	—	—	—
Copper	7440-50-8	5	mg/kg		27	—	—	—	—
Lead	7439-92-1	5	mg/kg		13	—	—	—	—
Nickel	7440-02-0	2	mg/kg		<2	—	—	—	—
Zinc	7440-66-6	5	mg/kg		<5	—	—	—	—
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	—	—	—	—
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	—	0.1	mg/kg		<0.1	—	—	—	—
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	—	—	—	—
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	—	—	—	—
beta-BHC	319-85-7	0.05	mg/kg		<0.05	—	—	—	—
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	—	—	—	—
delta-BHC	319-86-8	0.05	mg/kg		<0.05	—	—	—	—
Heptachlor	76-44-8	0.05	mg/kg		<0.05	—	—	—	—
Aldrin	309-00-2	0.05	mg/kg		<0.05	—	—	—	—
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	—	—	—	—
Total Chlordane (sum)	—	0.05	mg/kg		<0.05	—	—	—	—
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	—	—	—	—
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	—	—	—	—
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	—	—	—	—
Dieldrin	80-57-1	0.05	mg/kg		<0.05	—	—	—	—
4,4'-DDE	72-55-9	0.05	mg/kg		<0.05	—	—	—	—
Endrin	72-20-8	0.05	mg/kg		<0.05	—	—	—	—
beta-Endosulfan	33213-85-9	0.05	mg/kg		<0.05	—	—	—	—
Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	—	—	—	—
4,4'-DDD	72-54-8	0.05	mg/kg		<0.05	—	—	—	—
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	—	—	—	—

ITEM 3 (continued)

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Client : GREENCAP NAA
Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH9 1.9-2.1	—	—	—	—
				Client sampling date / time	30-JAN-2015 15:00	—	—	—	—
				ES1502429-080	—	—	—	—	—
Compound	CAS Number	LOR	Unit						
EP068A: Organochlorine Pesticides (OC) - Continued									
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	—	—	—	—	—
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	—	—	—	—	—
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	—	—	—	—	—
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	—	—	—	—	—
Sum of Aldrin + Dieldrin	309-00-2/60-67-1	0.05	mg/kg	<0.05	—	—	—	—	—
Sum of DDD + DDE + DDT	—	0.05	mg/kg	<0.05	—	—	—	—	—
EP0754SUMB: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg	<0.5	—	—	—	—	—
Acenaphthylene	209-96-8	0.5	mg/kg	<0.5	—	—	—	—	—
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	—	—	—	—	—
Fluorene	89-73-7	0.5	mg/kg	<0.5	—	—	—	—	—
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	—	—	—	—	—
Anthracene	120-12-7	0.5	mg/kg	<0.5	—	—	—	—	—
Fluoranthene	208-44-0	0.5	mg/kg	<0.5	—	—	—	—	—
Pyrene	129-00-0	0.5	mg/kg	<0.5	—	—	—	—	—
Benzo(a)anthracene	56-55-3	0.5	mg/kg	<0.5	—	—	—	—	—
Chrysene	218-01-9	0.5	mg/kg	<0.5	—	—	—	—	—
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	—	—	—	—	—
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	—	—	—	—	—
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	—	—	—	—	—
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	—	—	—	—	—
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	—	—	—	—	—
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	—	—	—	—	—
Sum of polycyclic aromatic hydrocarbons	—	0.5	mg/kg	<0.5	—	—	—	—	—
Benzo(a)pyrene TEQ (zero)	—	0.5	mg/kg	<0.5	—	—	—	—	—
Benzo(a)pyrene TEQ (half LOR)	—	0.5	mg/kg	0.6	—	—	—	—	—
Benzo(a)pyrene TEQ (LOR)	—	0.5	mg/kg	1.2	—	—	—	—	—
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	—	10	mg/kg	<10	—	—	—	—	—
C10 - C14 Fraction	—	50	mg/kg	<50	—	—	—	—	—
C15 - C28 Fraction	—	100	mg/kg	<100	—	—	—	—	—
C29 - C36 Fraction	—	100	mg/kg	<100	—	—	—	—	—
C10 - C36 Fraction (sum)	—	50	mg/kg	<50	—	—	—	—	—

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 Client : GREENCAP NAA
 Project : J130282



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH9 1.9-2.1	—	—	—	—
				Client sampling date / time	30-JAN-2015 15:00	—	—	—	—
				Compound	CAS Number	LOR	Unit	ES1502429-080	—
EP080/071: Total Recoverable Hydrocarbons - NERM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	—	—	—	—	—
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	—	—	—	—	—
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	—	—	—	—	—
>C16 - C34 Fraction	—	100	mg/kg	<100	—	—	—	—	—
>C34 - C40 Fraction	—	100	mg/kg	<100	—	—	—	—	—
>C10 - C40 Fraction (sum)	—	50	mg/kg	<50	—	—	—	—	—
>C10 - C16 Fraction minus Naphthalene (F2)	—	50	mg/kg	<50	—	—	—	—	—
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg	<0.2	—	—	—	—	—
Toluene	108-88-3	0.5	mg/kg	<0.5	—	—	—	—	—
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	—	—	—	—	—
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	—	—	—	—	—
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	—	—	—	—	—
Sum of BTEX	—	0.2	mg/kg	<0.2	—	—	—	—	—
Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	—	—	—	—	—
Naphthalene	91-20-3	1	mg/kg	<1	—	—	—	—	—
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%	81.9	—	—	—	—	—
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.1	%	116	—	—	—	—	—
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.1	%	91.7	—	—	—	—	—
EP075(SM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.1	%	78.8	—	—	—	—	—
2-Chlorophenol-D4	93951-73-6	0.1	%	78.8	—	—	—	—	—
2,4,6-Tribromophenol	118-79-6	0.1	%	64.3	—	—	—	—	—
EP075(SM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.1	%	77.3	—	—	—	—	—
Anthracene-d10	1719-08-8	0.1	%	83.3	—	—	—	—	—
4-Terphenyl-d14	1718-51-0	0.1	%	67.8	—	—	—	—	—
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.1	%	80.4	—	—	—	—	—

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 Client : GREENCAP NAA
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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH9 1.9-2.1	—	—	—	—
				Client sampling date / time	30-JAN-2015 15:00	—	—	—	—
Compound	CAS Number	LOR	Unit	ES1502429.000	—	—	—	—	—
EP080\$: TPH(V)/BTEX Surrogates - Continued									
Toluene-D8	2037-26-5	0.1	%	88.5	—	—	—	—	—
4-Bromofluorobenzene	480-00-4	0.1	%	83.7	—	—	—	—	—

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Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

				Client sample ID	GW1	GW2	GW3	DUP1	—
Client sampling date / time					[03-FEB-2015]	[03-FEB-2015]	[03-FEB-2015]	[03-FEB-2015]	—
Compound	CAS Number	LOR	Unit		ES1502429-001	ES1502429-002	ES1502429-003	ES1502429-004	—
EA005P: pH by PC Titrator									
pH Value	—	0.01	pH Unit		6.62	6.37	6.50	6.41	—
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	—	1	µS/cm		5010	3480	949	3470	—
EQ020F: Dissolved Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		0.04	0.08	0.06	0.06	—
Arsenic	7440-38-2	0.001	mg/L		<0.001	0.002	0.001	0.002	—
Cadmium	7440-43-9	0.0001	mg/L		0.0001	0.0012	<0.0001	0.0011	—
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	—
Copper	7440-50-8	0.001	mg/L		0.029	0.003	0.004	0.003	—
Nickel	7440-02-0	0.001	mg/L		0.242	0.066	0.165	0.067	—
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	—
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	—
Zinc	7440-66-6	0.005	mg/L		0.289	0.212	0.119	0.214	—
Iron	7439-89-6	0.05	mg/L		2.86	18.1	1.87	18.0	—
EQ035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	—
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	—	20	µg/L		<20	<20	<20	<20	—
C10 - C14 Fraction	—	50	µg/L		<50	<50	<50	<50	—
C15 - C28 Fraction	—	100	µg/L		<100	<100	<100	<100	—
C29 - C36 Fraction	—	50	µg/L		<50	<50	<50	<50	—
C10 - C36 Fraction (sum)	—	50	µg/L		<50	<50	<50	<50	—
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	<20	<20	—
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	<20	<20	<20	—
>C10 - C16 Fraction	>C10_C16	100	µg/L		<100	<100	<100	<100	—
>C16 - C34 Fraction	—	100	µg/L		<100	<100	<100	<100	—
>C34 - C40 Fraction	—	100	µg/L		<100	<100	<100	<100	—
>C10 - C40 Fraction (sum)	—	100	µg/L		<100	<100	<100	<100	—
>C10 - C16 Fraction minus Naphthalene (F2)	—	100	µg/L		<100	<100	<100	<100	—
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	<1	—

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Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

				Client sample ID	GW1	GW2	GW3	DUP1	—
Client sampling date / time					[03-FEB-2015]	[03-FEB-2015]	[03-FEB-2015]	[03-FEB-2015]	—
Compound	CAS Number	LOR	Unit		ES1502429-001	ES1502429-002	ES1502429-003	ES1502429-004	—
EP080: BTEXN - Continued									
Toluene	108-88-3	2	µg/L		<2	<2	<2	<2	—
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	<2	—
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	—
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	<2	—
Total Xylenes	1330-20-7	2	µg/L		<2	<2	<2	<2	—
Sum of BTEX	—	1	µg/L		<1	<1	<1	<1	—
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	—
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17080-07-0	0.1	%		97.8	100	95.3	96.0	—
Toluene-D8	2037-26-5	0.1	%		111	85.3	110	108	—
4-Bromofluorobenzene	480-00-4	0.1	%		98.5	100	102	104	—

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Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-6	35	143
EP075(SIM)S: Phenolic Compound Surrogate			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-6	70	122
Anthracene-d10	1719-06-6	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0
Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

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Environmental

INTERPRETIVE QUALITY CONTROL REPORT

Work Order : ES1502429 Client : GREENCAP NAA Contact : MS NAOMI PRICE Address : LEVEL 2, 11 KHARTOUM ROAD NORTH RYDE NSW, AUSTRALIA 2190 E-mail : naomi.price@noel-arnold.com.au Telephone : +61 02 98891800 Facsimile : +61 02 98891811 Project : J130282 Site : --- C-O-C number : --- Sampler : NP Order number : J130282 Quote number : ENI074/14	Page : 1 of 25 Laboratory : Environmental Division Sydney Contact : Client Services Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 E-mail : sydney@alsglobal.com Telephone : +61-2-8784 8555 Facsimile : +61-2-8784 8500 QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement Date Samples Received : 03-FEB-2015 Issue Date : 12-FEB-2015 No. of samples received : 105 No. of samples analysed : 80
--	--

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analyte Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers

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Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analyte			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA055: Moisture Content								
Soil Glass Jar - Unpreserved (EA055-103) BHD 0.3-0.4, BHE 0-0.15, BHF 0.5-0.6, BHG 0.4-0.6, BHG 1.2-1.3,	BHD 0.7-0.8, BHE 0.2-0.3, BHG 0-0.2, BHG 0.8-0.9, BHG 2.1-2.2	02-FEB-2015	—	—	—	04-FEB-2015	16-FEB-2015	✓
Soil Glass Jar - Unpreserved (EA055-103) FD3, BHA 0.5-0.6, BHA 1.8-2, BHB 1.2-1.4, BHC 0-0.2, BH20 0.25-0.4, BH21 0-0.2	FD4, BHA 1-1.2, BHB 0.2-0.4, BHB 2-2.2, BHC 0.4-0.6, BH20 0.45-0.55, BH21 0-0.2	02-FEB-2015	—	—	—	05-FEB-2015	16-FEB-2015	✓
Soil Glass Jar - Unpreserved (EA055-103) GW1 2.6-2.7, GW2 1.7-1.75, GW3 0.5-0.6	GW2 0.1-0.2, GW3 0.2-0.3,	29-JAN-2015	—	—	—	04-FEB-2015	12-FEB-2015	✓
Soil Glass Jar - Unpreserved (EA055-103) GW1 0.2-0.3,	GW1 0.4-0.45	29-JAN-2015	—	—	—	05-FEB-2015	12-FEB-2015	✓
Soil Glass Jar - Unpreserved (EA055-103) BH2 0.1-0.2, BH3 0.3-0.4, BH4 0.8-1	BH2 0.7-0.8, BH3 1.0-1.2,	30-JAN-2015	—	—	—	04-FEB-2015	13-FEB-2015	✓
Soil Glass Jar - Unpreserved (EA055-103)								

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Matrix: SOIL		Evaluation: * = Holding time breach ; ✓ = Within holding time						
Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EAD55: Moisture Content - Continued								
FD1, BH38 0.3-0.4, BH39 0-0.2, BH27 0.4-0.6, BH24 0-0.1, BH25 1-1.2, BH26 0.2-0.4, BH31 0-0.2, BH34 0.4-0.5, BH37 0.3-0.4, BH18 0-0.2, BH19 0.05-0.2, BH22 0.23-0.35, BH10 0.5-1, BH11 1.6-1.8, BH13 0-0.15, BH16 0.6-0.8, BH5 0.3-0.4, BH6 0-0.1, BH8 0.5-0.6, BH9 1.9-2.1	FD2, BH38 0.4-0.5, BH41 0.25-0.35, BH22 1-1.25, BH25 0.6-0.8, BH25 1.6-1.8, BH30 0.8-0.9, BH32 0-0.2, BH36 0.1-0.2, BH17 1.5-1.6, BH18 0.6-0.6, BH19 0.2-0.3, BH10 0-0.2, BH11 0.2-0.4, BH11 2.4-2.6, BH15 0.6-0.7, BH16 1.4-1.6, BH5 0.4-0.5, BH6 0.4-0.5, BH8 2.2-2.4,	30-JAN-2015	---	---	---	05-FEB-2015	13-FEB-2015	✓

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Matrix: SOIL		Evaluation: * = Holding time breach ; ✓ = Within holding time.							
Method		Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EG005T: Total Metals by ICP-AES									
Soil Glass Jar - Unpreserved (EG005T)	BHD 0.3-0.4, BHE 0-0.15, BHF 0.5-0.8, BHG 0.4-0.6, BHG 1.2-1.3, FD3, BHA 0.5-0.6, BHA 1.8-2, BHB 1.2-1.4, BHC 0-0.2,	BHD 0.7-0.8, BHE 0.2-0.3, BHG 0-0.2, BHG 0.8-0.9, BHG 2.1-2.2, FD4, BHA 1-1.2, BHB 0.2-0.4, BHB 2-2.2, BHC 0.4-0.6	02-FEB-2015	09-FEB-2015	01-AUG-2015	✓	10-FEB-2015	01-AUG-2015	✓
Soil Glass Jar - Unpreserved (EG005T)	BH20 0.25-0.4, BH21 0-0.2	BH20 0.45-0.55,	02-FEB-2015	10-FEB-2015	01-AUG-2015	✓	10-FEB-2015	01-AUG-2015	✓
Soil Glass Jar - Unpreserved (EG005T)	GW1 2.6-2.7, GW2 1.7-1.75, GW3 0.5-0.6, GW1 0.4-0.45	GW2 0.1-0.2, GW3 0.2-0.3, GW1 0.2-0.3,	29-JAN-2015	09-FEB-2015	28-JUL-2015	✓	10-FEB-2015	28-JUL-2015	✓
Soil Glass Jar - Unpreserved (EG005T)	BH2 0.1-0.2, BH3 0.3-0.4, BH4 0.8-1, FD2, BH38 0.4-0.5, BH41 0.25-0.35, BH22 1-1.25	BH2 0.7-0.8, BH3 1.0-1.2, FD1, BH38 0.3-0.4, BH39 0-0.2, BH27 0.4-0.6,	30-JAN-2015	09-FEB-2015	29-JUL-2015	✓	10-FEB-2015	29-JUL-2015	✓
Soil Glass Jar - Unpreserved (EG005T)									

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Matrix: SOIL		Evaluation: * = Holding time breach ; ✓ = Within holding time						
Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005T: Total Metals by ICP-AES - Continued								
BH24 0-0.1, BH25 1-1.2, BH26 0.2-0.4, BH31 0-0.2, BH34 0.4-0.5, BH37 0.3-0.4, BH18 0-0.2, BH19 0.05-0.2, BH22 0.23-0.35, BH10 0.8-1, BH11 1.6-1.8, BH13 0-0.15, BH16 0.6-0.8, BH5 0.3-0.4, BH6 0-0.1, BH8 0.5-0.6, BH9 1.9-2.1	BH25 0.6-0.8, BH25 1.6-1.8, BH30 0.8-0.9, BH32 0-0.2, BH36 0.1-0.2, BH17 1.5-1.6, BH18 0.6-0.8, BH19 0.2-0.3, BH10 0-0.2, BH11 0.2-0.4, BH11 2.4-2.6, BH15 0.6-0.7, BH16 1.4-1.6, BH5 0.4-0.5, BH6 0.4-0.5, BH8 2.2-2.4,	30-JAN-2015	10-FEB-2015	29-JUL-2015	✓	10-FEB-2015	29-JUL-2015	✓

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Matrix: SOIL		Evaluation: * = Holding time breach ; ✓ = Within holding time.						
Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
BHD 0.3-0.4, BHE 0-0.15, BHF 0.5-0.8, BHG 0.4-0.6, BHG 1.2-1.3, FD3, BHA 0.5-0.6, BHA 1.8-2, BHB 1.2-1.4, BHC 0-0.2,	BHD 0.7-0.8, BHE 0.2-0.3, BHG 0-0.2, BHG 0.8-0.9, BHG 2.1-2.2, FD4, BHA 1-1.2, BHB 0.2-0.4, BHB 2-2.2, BHC 0.4-0.6	02-FEB-2015	09-FEB-2015	02-MAR-2015	✓	10-FEB-2015	02-MAR-2015	✓
Soil Glass Jar - Unpreserved (EG035T)								
BH20 0.25-0.4, BH21 0-0.2	BH20 0.45-0.55,	02-FEB-2015	10-FEB-2015	02-MAR-2015	✓	11-FEB-2015	02-MAR-2015	✓
Soil Glass Jar - Unpreserved (EG035T)								
GW1 2.6-2.7, GW2 1.7-1.75, GW3 0.5-0.6, GW1 0.4-0.45	GW2 0.1-0.2, GW3 0.2-0.3, GW1 0.2-0.3,	29-JAN-2015	09-FEB-2015	26-FEB-2015	✓	10-FEB-2015	26-FEB-2015	✓
Soil Glass Jar - Unpreserved (EG035T)								
BH2 0.1-0.2, BH3 0.3-0.4, BH4 0.8-1, FD2, BH38 0.4-0.5, BH41 0.25-0.35, BH22 1-1.25	BH2 0.7-0.8, BH3 1.0-1.2, FD1, BH38 0.3-0.4, BH39 0-0.2, BH27 0.4-0.6,	30-JAN-2015	09-FEB-2015	27-FEB-2015	✓	10-FEB-2015	27-FEB-2015	✓
Soil Glass Jar - Unpreserved (EG035T)								

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 Work Order : ES1502429
 Client : GREENCAP NAA
 Project : J130282



Matrix: SOIL		Evaluation: * = Holding time breach ; ✓ = Within holding time						
Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EG035T: Total Recoverable Mercury by PIMS - Continued								
BH24 0-0.1, BH25 1-1.2, BH26 0.2-0.4, BH31 0-0.2, BH34 0.4-0.5, BH37 0.3-0.4, BH18 0-0.2, BH19 0.05-0.2, BH22 0.23-0.35, BH10 0.8-1, BH11 1.6-1.8, BH13 0-0.15, BH16 0.6-0.8, BH5 0.3-0.4, BH6 0-0.1, BH8 0.5-0.6, BH9 1.9-2.1	BH25 0.6-0.8, BH25 1.6-1.8, BH30 0.8-0.9, BH32 0-0.2, BH36 0.1-0.2, BH17 1.5-1.6, BH18 0.6-0.8, BH19 0.2-0.3, BH10 0-0.2, BH11 0.2-0.4, BH11 2.4-2.6, BH15 0.6-0.7, BH16 1.4-1.6, BH5 0.4-0.5, BH6 0.4-0.5, BH8 2.2-2.4,	30-JAN-2015	10-FEB-2015	27-FEB-2015	✓	11-FEB-2015	27-FEB-2015	✓

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 Work Order : ES1502429
 Client : GREENCAP NAA
 Project : J130282



Matrix: SOIL		Evaluation: * = Holding time breach ; ✓ = Within holding time.						
Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066)	BHD 0.7-0.8, BHE 0.2-0.3, BHF 0.5-0.6, BHG 0.4-0.6, BHG 0.8-0.9, BHG 2.1-2.2, FD3, FD4, BHA 1-1.2, BHA 0.5-0.6, BHA 1.8-2, BHB 0.2-0.4, BHB 2-2.2, BHC 0.4-0.6, BH20 0.45-0.55, BH21 0-0.2	02-FEB-2015	05-FEB-2015	16-FEB-2015	✓	06-FEB-2015	17-MAR-2015	✓
Soil Glass Jar - Unpreserved (EP066)	BHD 0.3-0.4, BHE 0-0.15, BHF 0.5-0.6, BHG 0.4-0.6, BHG 1.2-1.3, FD3, BHA 0.5-0.6, BHA 1.8-2, BHB 1.2-1.4, BHC 0-0.2, BH20 0.25-0.4, BH21 0-0.2	29-JAN-2015	05-FEB-2015	12-FEB-2015	✓	06-FEB-2015	17-MAR-2015	✓
Soil Glass Jar - Unpreserved (EP066)	BHD 0.7-0.8, BHE 0.2-0.3, BHF 0.5-0.6, BHG 0.4-0.6, BHG 0.8-0.9, BHG 2.1-2.2, FD1, FD2, BHA 0.5-0.6, BHA 1.8-2, BHB 0.2-0.4, BHB 2-2.2, BHC 0.4-0.6, BH20 0.45-0.55, BH21 0-0.2	30-JAN-2015	05-FEB-2015	13-FEB-2015	✓	06-FEB-2015	17-MAR-2015	✓
Soil Glass Jar - Unpreserved (EP066)								

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 Work Order : ES1502429
 Client : GREENCAP NAA
 Project : J130282



Matrix: SOIL		Evaluation: * = Holding time breach ; ✓ = Within holding time.						
Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP066: Polychlorinated Biphenyls (PCBs) - Continued								
BH10 0-0.2, BH11 0.2-0.4, BH11 2.4-2.8, BH15 0.0-0.7, BH16 1.4-1.6, BH5 0.4-0.5, BH6 0.4-0.5, BH8 2.2-2.4,	BH10 0.0-1, BH11 1.6-1.8, BH13 0-0.15, BH16 0.0-0.6, BH5 0.3-0.4, BH6 0-0.1, BH8 0.5-0.6, BH9 1.0-2.1	30-JAN-2015	05-FEB-2015	13-FEB-2015	✓	10-FEB-2015	17-MAR-2015	✓

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 Work Order : ES1502429
 Client : GREENCAP NAA
 Project : J130282



Matrix: SOIL		Evaluation: * = Holding time breach ; ✓ = Within holding time.						
Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP066A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP066)								
BHD 0.3-0.4, BHE 0-0.15, BHF 0.5-0.6, BHG 0.4-0.6, BHG 1.2-1.3, FD3, BHA 0.5-0.6, BHA 1.8-2, BHB 1.2-1.4, BHC 0-0.2, BH20 0.25-0.4, BH21 0-0.2	BHD 0.7-0.8, BHE 0.2-0.3, BHG 0-0.2, BHG 0.8-0.9, BHG 2.1-2.2, FD4, BHA 1-1.2, BHB 0.2-0.4, BHB 2-2.2, BHC 0.4-0.6, BH20 0.45-0.55,	02-FEB-2015	05-FEB-2015	16-FEB-2015	✓	06-FEB-2015	17-MAR-2015	✓
Soil Glass Jar - Unpreserved (EP066)								
GW1 2.6-2.7, GW2 1.7-1.75, GW3 0.5-0.6, GW1 0.4-0.45	GW2 0.1-0.2, GW3 0.2-0.3, GW1 0.2-0.3,	29-JAN-2015	05-FEB-2015	12-FEB-2015	✓	06-FEB-2015	17-MAR-2015	✓
Soil Glass Jar - Unpreserved (EP066)								
BH2 0.1-0.2, BH3 0.3-0.4, BH4 0.0-1, FD2, BH38 0.4-0.5, BH41 0.25-0.35, BH22 1-1.25, BH25 0.6-0.8, BH25 1.6-1.8, BH30 0.6-0.9, BH32 0-0.2, BH36 0.1-0.2, BH17 1.5-1.6, BH18 0.6-0.8, BH19 0.2-0.3,	BH2 0.7-0.8, BH3 1.0-1.2, FD1, BH38 0.3-0.4, BH39 0-0.2, BH27 0.4-0.6, BH24 0-0.1, BH25 1-1.2, BH26 0.2-0.4, BH31 0-0.2, BH34 0.4-0.5, BH37 0.3-0.4, BH18 0-0.2, BH19 0.05-0.2, BH22 0.23-0.35	30-JAN-2015	05-FEB-2015	13-FEB-2015	✓	06-FEB-2015	17-MAR-2015	✓
Soil Glass Jar - Unpreserved (EP066)								

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 Work Order : ES1502429
 Client : GREENCAP NAA
 Project : J130282



Matrix: SOIL		Evaluation: * = Holding time breach ; ✓ = Within holding time.						
Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP056A: Organochlorine Pesticides (OC) - Continued								
BH10 0-0.2, BH11 0.2-0.4, BH11 2.4-2.8, BH15 0.0-0.7, BH16 1.4-1.6, BH5 0.4-0.5, BH6 0.4-0.5, BH8 2.2-2.4,	BH10 0.0-1, BH11 1.6-1.8, BH13 0-0.15, BH16 0.0-0.6, BH5 0.3-0.4, BH6 0-0.1, BH8 0.5-0.6, BH9 1.0-2.1	30-JAN-2015	05-FEB-2015	13-FEB-2015	✓	10-FEB-2015	17-MAR-2015	✓

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Matrix: SOIL		Evaluation: * = Holding time breach ; ✓ = Within holding time.						
Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP090071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP071)								
BHD 0.3-0.4, BHE 0.0-0.15, BHF 0.5-0.6, BHG 0.4-0.6, BHG 1.2-1.3, FD3, BHA 0.5-0.6, BHA 1.8-2, BHB 1.2-1.4, BHC 0-0.2, BH20 0.25-0.4, BH21 0-0.2	BHD 0.7-0.8, BHE 0.2-0.3, BHG 0-0.2, BHG 0.8-0.9, BHG 2.1-2.2, FD4, BHA 1-1.2, BHB 0.2-0.4, BHB 2-2.2, BHC 0.4-0.6, BH20 0.45-0.55,	02-FEB-2015	05-FEB-2015	16-FEB-2015	✓	06-FEB-2015	17-MAR-2015	✓
Soil Glass Jar - Unpreserved (EP071)								
GW1 2.6-2.7, GW2 1.7-1.75, GW3 0.5-0.6, GW1 0.4-0.45	GW2 0.1-0.2, GW3 0.2-0.3, GW1 0.2-0.3,	29-JAN-2015	05-FEB-2015	12-FEB-2015	✓	06-FEB-2015	17-MAR-2015	✓
Soil Glass Jar - Unpreserved (EP071)								
BH2 0.1-0.2, BH3 0.3-0.4, BH4 0.0-1, FD2, BH38 0.4-0.5, BH41 0.25-0.35, BH22 1-1.25, BH25 0.6-0.8, BH25 1.6-1.8, BH30 0.6-0.9, BH32 0-0.2, BH36 0.1-0.2, BH17 1.5-1.6, BH18 0.6-0.8, BH19 0.2-0.3,	BH2 0.7-0.8, BH3 1.0-1.2, FD1, BH38 0.3-0.4, BH39 0-0.2, BH27 0.4-0.6, BH24 0-0.1, BH25 1-1.2, BH26 0.2-0.4, BH31 0-0.2, BH34 0.4-0.5, BH37 0.3-0.4, BH18 0-0.2, BH19 0.05-0.2, BH22 0.23-0.35	30-JAN-2015	05-FEB-2015	13-FEB-2015	✓	06-FEB-2015	17-MAR-2015	✓
Soil Glass Jar - Unpreserved (EP071)								

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 Work Order : ES1502429
 Client : GREENCAP NAA
 Project : J130282



Matrix: SOIL		Evaluation: * = Holding time breach ; ✓ = Within holding time.						
Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP09071: Total Petroleum Hydrocarbons - Continued								
BH10 0-0.2, BH11 0.2-0.4, BH11 2.4-2.8, BH15 0.0-0.7, BH16 1.4-1.6, BH5 0.4-0.5, BH6 0.4-0.5, BH8 2.2-2.4,	BH10 0.0-1, BH11 1.6-1.8, BH13 0-0.15, BH16 0.6-0.8, BH5 0.3-0.4, BH6 0-0.1, BH8 0.5-0.8, BH9 1.0-2.1	30-JAN-2015	05-FEB-2015	13-FEB-2015	✓	10-FEB-2015	17-MAR-2015	✓

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Matrix: SOIL		Evaluation: * = Holding time breach ; ✓ = Within holding time.						
Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM))								
BHD 0.3-0.4, BHE 0-0.15, BHF 0.5-0.6, BHG 0.4-0.6, BHG 1.2-1.3, FD3, BHA 0.5-0.6, BHA 1.8-2, BHB 1.2-1.4, BHC 0-0.2, BH20 0.25-0.4, BH21 0-0.2	BHD 0.7-0.8, BHE 0.2-0.3, BHG 0-0.2, BHG 0.8-0.9, BHG 2.1-2.2, FD4, BHA 1-1.2, BHB 0.2-0.4, BHB 2-2.2, BHC 0.4-0.6, BH20 0.45-0.55,	02-FEB-2015	05-FEB-2015	16-FEB-2015	✓	06-FEB-2015	17-MAR-2015	✓
Soil Glass Jar - Unpreserved (EP075(SIM))								
GW1 2.6-2.7, GW2 1.7-1.75, GW3 0.5-0.6, GW1 0.4-0.45	GW2 0.1-0.2, GW3 0.2-0.3, GW1 0.2-0.3,	29-JAN-2015	05-FEB-2015	12-FEB-2015	✓	06-FEB-2015	17-MAR-2015	✓
Soil Glass Jar - Unpreserved (EP075(SIM))								
BH2 0.1-0.2, BH3 0.3-0.4, BH4 0.0-1, FD2, BH38 0.4-0.5, BH41 0.25-0.35, BH22 1-1.25, BH25 0.6-0.8, BH25 1.6-1.8, BH30 0.6-0.9, BH32 0-0.2, BH36 0.1-0.2, BH17 1.5-1.6, BH18 0.6-0.8, BH19 0.2-0.3,	BH2 0.7-0.8, BH3 1.0-1.2, FD1, BH38 0.3-0.4, BH39 0-0.2, BH27 0.4-0.6, BH24 0-0.1, BH25 1-1.2, BH26 0.2-0.4, BH31 0-0.2, BH34 0.4-0.5, BH37 0.3-0.4, BH18 0-0.2, BH19 0.05-0.2, BH22 0.23-0.35	30-JAN-2015	05-FEB-2015	13-FEB-2015	✓	06-FEB-2015	17-MAR-2015	✓
Soil Glass Jar - Unpreserved (EP075(SIM))								

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 Work Order : ES1502429
 Client : GREENCAP NAA
 Project : J130282



Matrix: SOIL		Evaluation: * = Holding time breach ; ✓ = Within holding time.						
Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
BH10 0-0.2, BH11 0.2-0.4, BH11 2.4-2.8, BH15 0.0-0.7, BH16 1.4-1.6, BH5 0.4-0.5, BH6 0.4-0.5, BH8 2.2-2.4,	BH10 0.0-1, BH11 1.6-1.8, BH13 0-0.15, BH16 0.0-0.8, BH5 0.3-0.4, BH6 0-0.1, BH8 0.5-0.6, BH9 1.0-2.1	30-JAN-2015	05-FEB-2015	13-FEB-2015	✓	10-FEB-2015	17-MAR-2015	✓

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 Work Order : ES1502429
 Client : GREENCAP NAA
 Project : J130282



Matrix: SOIL		Evaluation: * = Holding time breach ; ✓ = Within holding time.						
Method	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
Container / Client Sample ID(s)								
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080)								
BHD 0.3-0.4, BHE 0-0.15, BHF 0.5-0.8, BHG 0.4-0.6, BHG 1.2-1.3, FD3, BHA 0.5-0.6, BHA 1.8-2, BHB 1.2-1.4, BHC 0-0.2, BH20 0.25-0.4, BH21 0-0.2	BHD 0.7-0.8, BHE 0.2-0.3, BHG 0-0.2, BHG 0.8-0.9, BHG 2.1-2.2, FD4, BHA 1-1.2, BHB 0.2-0.4, BHB 2-2.2, BHC 0.4-0.6, BH20 0.45-0.55, BH21 0-0.2	02-FEB-2015	04-FEB-2015	16-FEB-2015	✓	10-FEB-2015	16-FEB-2015	✓
Soil Glass Jar - Unpreserved (EP080)								
GW1 2.6-2.7, GW2 1.7-1.75, GW3 0.5-0.6, GW1 0.4-0.45	GW2 0.1-0.2, GW3 0.2-0.3, GW1 0.2-0.3,	29-JAN-2015	04-FEB-2015	12-FEB-2015	✓	10-FEB-2015	12-FEB-2015	✓
Soil Glass Jar - Unpreserved (EP080)								
BH10 0-0.2, BH11 0.2-0.4, BH11 2.4-2.6, BH15 0.6-0.7, BH16 1.4-1.8, BH5 0.4-0.5, BH6 0.4-0.5, BH8 2.2-2.4,	BH10 0.8-1, BH11 1.6-1.8, BH13 0-0.15, BH16 0.6-0.8, BH5 0.3-0.4, BH6 0-0.1, BH8 0.5-0.6, BH9 1.9-2.1	30-JAN-2015	04-FEB-2015	13-FEB-2015	✓	07-FEB-2015	13-FEB-2015	✓
Soil Glass Jar - Unpreserved (EP080)								

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 Work Order : ES1502429
 Client : GREENCAP NAA
 Project : J130282



Matrix: SOIL		Evaluation: * = Holding time breach ; ✓ = Within holding time.						
Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP080: BTEXN - Continued								
BH2 0.1-0.2, BH3 0.3-0.4, BH4 0.8-1, FD2, BH38 0.4-0.5, BH41 0.25-0.35, BH22 1-1.25, BH25 0.8-0.8, BH25 1.6-1.8, BH30 0.8-0.9, BH32 0-0.2, BH36 0.1-0.2, BH17 1.5-1.6, BH18 0.6-0.8, BH19 0.2-0.3,	BH2 0.7-0.8, BH3 1.0-1.2, FD1, BH38 0.3-0.4, BH39 0-0.2, BH27 0.4-0.6, BH24 0-0.1, BH25 1-1.2, BH26 0.2-0.4, BH31 0-0.2, BH34 0.4-0.5, BH37 0.3-0.4, BH18 0-0.2, BH19 0.05-0.2, BH22 0.23-0.35	30-JAN-2015	04-FEB-2015	13-FEB-2015	✓	10-FEB-2015	13-FEB-2015	✓

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 Work Order : ES1502429
 Client : GREENCAP NAA
 Project : J130282



Matrix: SOIL		Evaluation: * = Holding time breach ; ✓ = Within holding time.						
Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP0904071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP080)								
BHD 0.3-0.4, BHE 0-0.15, BHF 0.5-0.8, BHG 0.4-0.6, BHG 1.2-1.3, FD3, BHA 0.5-0.6, BHA 1.8-2, BHB 1.2-1.4, BHC 0-0.2, BH20 0.25-0.4, BH21 0-0.2	BHD 0.7-0.8, BHE 0.2-0.3, BHG 0-0.2, BHG 0.8-0.9, BHG 2.1-2.2, FD4, BHA 1-1.2, BHB 0.2-0.4, BHB 2-2.2, BHC 0.4-0.6, BH20 0.45-0.55,	02-FEB-2015	04-FEB-2015	16-FEB-2015	✓	10-FEB-2015	16-FEB-2015	✓
Soil Glass Jar - Unpreserved (EP080)								
GW1 2.6-2.7, GW2 1.7-1.75, GW3 0.5-0.6, GW1 0.4-0.45	GW2 0.1-0.2, GW3 0.2-0.3, GW1 0.2-0.3,	29-JAN-2015	04-FEB-2015	12-FEB-2015	✓	10-FEB-2015	12-FEB-2015	✓
Soil Glass Jar - Unpreserved (EP080)								
BH10 0-0.2, BH11 0.2-0.4, BH11 2.4-2.6, BH15 0.6-0.7, BH16 1.4-1.8, BH5 0.4-0.5, BH6 0.4-0.5, BH8 2.2-2.4,	BH10 0.8-1, BH11 1.6-1.8, BH13 0-0.15, BH16 0.6-0.8, BH5 0.3-0.4, BH6 0-0.1, BH8 0.5-0.6, BH9 1.9-2.1	30-JAN-2015	04-FEB-2015	13-FEB-2015	✓	07-FEB-2015	13-FEB-2015	✓
Soil Glass Jar - Unpreserved (EP080)								

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 Work Order : ES1502429
 Client : GREENCAP NAA
 Project : J130282



Matrix: SOIL		Evaluation: * = Holding time breach ; ✓ = Within holding time.						
Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP09071: Total Petroleum Hydrocarbons - Continued								
BH2 0.1-0.2, BH3 0.3-0.4, BH4 0.8-1, FD2, BH38 0.4-0.5, BH41 0.25-0.35, BH22 1-1.25, BH25 0.8-0.9, BH25 1.6-1.8, BH30 0.8-0.9, BH32 0-0.2, BH36 0.1-0.2, BH17 1.5-1.6, BH18 0.6-0.8, BH19 0.2-0.3,	BH2 0.7-0.8, BH3 1.0-1.2, FD1, BH38 0.3-0.4, BH39 0-0.2, BH27 0.4-0.6, BH24 0-0.1, BH25 1-1.2, BH26 0.2-0.4, BH31 0-0.2, BH34 0.4-0.5, BH37 0.3-0.4, BH18 0-0.2, BH19 0.05-0.2, BH22 0.23-0.35	30-JAN-2015	04-FEB-2015	13-FEB-2015	✓	10-FEB-2015	13-FEB-2015	✓
Matrix: WATER								
Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA005P: pH by PC Titrator								
Clear Plastic Bottle - Natural (EA005-P) GW1, GW3,	GW2, DUP1	03-FEB-2015	—	03-FEB-2015	—	04-FEB-2015	03-FEB-2015	*
EA010P: Conductivity by PC Titrator								
Clear Plastic Bottle - Natural (EA010-P) GW1, GW3,	GW2, DUP1	03-FEB-2015	—	03-MAR-2015	—	04-FEB-2015	03-MAR-2015	✓
EG020F: Dissolved Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) GW1, GW3,	GW2, DUP1	03-FEB-2015	—	02-AUG-2015	—	07-FEB-2015	02-AUG-2015	✓
EG035F: Dissolved Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) GW1, GW3,	GW2, DUP1	03-FEB-2015	—	03-MAR-2015	—	10-FEB-2015	03-MAR-2015	✓
EP09071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071) GW1, GW3,	GW2, DUP1	03-FEB-2015	04-FEB-2015	10-FEB-2015	✓	08-FEB-2015	16-MAR-2015	✓

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Matrix: WATER		Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.						
Method	Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
GW1, GW3,	GW2, DUP1	03-FEB-2015	09-FEB-2015	17-FEB-2015	✔	09-FEB-2015	17-FEB-2015	✔
EP080/071: Total Petroleum Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP080)								
GW1, GW3,	GW2, DUP1	03-FEB-2015	09-FEB-2015	17-FEB-2015	✔	09-FEB-2015	17-FEB-2015	✔

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Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)		Evaluation	Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected		
Laboratory Duplicates (DUP)							
Moisture Content	EA055-103	11	103	10.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	8	79	10.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	8	79	10.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	8	79	10.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	8	79	10.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	8	80	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	8	79	10.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	8	80	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	4	79	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	4	79	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	4	79	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	4	79	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	4	80	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	4	79	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	4	80	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	4	79	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	4	79	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	4	79	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	4	79	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	4	80	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	4	79	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	4	80	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	4	79	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	4	79	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	4	79	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	4	79	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	4	80	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	4	79	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	4	80	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER**

Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)		Evaluation	Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected		

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Matrix: WATER			Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.				
Quality Control Sample Type		Count		Rate (%)		Quality Control Specification	
Analytical Methods	Method	QC	Regular	Actual	Expected		
Laboratory Calibration (QUP)							
Conductivity by PC Titrator	EA010-P	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH by PC Titrator	EA005-P	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Conductivity by PC Titrator	EA010-P	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Conductivity by PC Titrator	EA010-P	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

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Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Method	Method	Matrix	Method Description
Moisture Content	EA055-103	SOIL	In-house. A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 21st ed., 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
Pesticides by GCMS	EP068	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve.
pH by PC Titrator	EA005-P	WATER	In house: Referenced to APHA 21st ed., 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM (2013) Schedule B(3)
Conductivity by PC Titrator	EA010-P	WATER	In house: Referenced to APHA 21st ed., 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM (2013) Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.

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Analytical Methods	Method	Matrix	Method Description
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to AS 3550, APHA 21st ed. 3112 Hg - B (Flow-Injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
Preparation Methods	Method	Matrix	Method Description
Methanolic Extraction of Soils for Purge and Trap	*ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na ₂ SO ₄ and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.

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Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QW/EN38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

Regular Sample Surrogates

Sub-Matrix: SOIL

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP075(SIM)S: Phenolic Compound Surrogates	ES1502429-021	BHG 0.4-0.6	Phenol-d6	13127-88-3	124 %	63-123 %	Recovery greater than upper data quality objective
EP075(SIM)S: Phenolic Compound Surrogates	ES1502429-045	BH24 0-0.1	Phenol-d6	13127-88-3	123 %	63-123 %	Recovery greater than upper data quality objective
EP075(SIM)S: Phenolic Compound Surrogates	ES1502429-013	BH3 1.0-1.2	2,4,6-Tribromophenol	118-79-6	31.8 %	40-138 %	Recovery less than lower data quality objective
EP075(SIM)S: Phenolic Compound Surrogates	ES1502429-017	BHE 0-0.15	2,4,6-Tribromophenol	118-79-6	15.9 %	40-138 %	Recovery less than lower data quality objective

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

Matrix: WATER

Method		Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural							
GW1, GW3,	GW2, DUP1	—	—	—	04-FEB-2015	03-FEB-2015	1

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

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Environmental

QUALITY CONTROL REPORT

Work Order : ES1502429 Client : GREENCAP NAA Contact : MS NAOMI PRICE Address : LEVEL 2, 11 KHARTOUM ROAD NORTH RYDE NSW, AUSTRALIA 2190 E-mail : naomi.price@noel-arnold.com.au Telephone : +61 02 98891800 Facsimile : +61 02 98891811 Project : J130282 Site : — C-O-C number : — Sampler : NP Order number : J130282 Quote number : EN074/H4	Page : 1 of 39 Laboratory : Environmental Division Sydney Contact : Client Services Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 E-mail : sydney@alsglobal.com Telephone : +61-2-8784 8555 Facsimile : +61-2-8784 8500 QC Level : NEPM 2013 Schedule B(3) and ALS QCSS requirement Date Samples Received : 03-FEB-2015 Issue Date : 12-FEB-2015 No. of samples received : 105 No. of samples analysed : 80
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This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

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General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC



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 compliance with
 ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Celine Concelcao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
		Sydney Organics
Phalak Inthakesone	Laboratory Manager - Organics	Sydney Inorganics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics

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Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/98 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method/Component	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA055: Moisture Content (QC Lot: 3808934)									
ES1502422-030	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	---	1.0	%	18.0	17.5	2.5	0% - 50%
ES1502429-014	BH4 0.8-1	EA055-103: Moisture Content (dried @ 103°C)	---	1.0	%	18.6	16.9	9.2	0% - 50%
EA055: Moisture Content (QC Lot: 3809935)									
ES1502429-023	BHG 1.2-1.3	EA055-103: Moisture Content (dried @ 103°C)	---	1.0	%	15.1	14.7	3.0	0% - 50%
ES1502439-011	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	---	1.0	%	11.8	12.4	5.2	0% - 50%
EA055: Moisture Content (QC Lot: 3811405)									
ES1502408-003	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	---	1.0	%	18.8	17.0	10.0	0% - 50%
ES1502429-033	BHA 1.8-2	EA055-103: Moisture Content (dried @ 103°C)	---	1.0	%	13.3	16.3	20.1	0% - 50%
EA055: Moisture Content (QC Lot: 3811406)									
ES1502429-042	BH41 0.25-0.35	EA055-103: Moisture Content (dried @ 103°C)	---	1.0	%	14.2	13.4	6.1	0% - 50%
ES1502429-063	BH34 0.4-0.5	EA055-103: Moisture Content (dried @ 103°C)	---	1.0	%	12.6	12.0	4.7	0% - 50%
EA055: Moisture Content (QC Lot: 3811407)									
ES1502429-062	BH20 0.45-0.55	EA055-103: Moisture Content (dried @ 103°C)	---	1.0	%	10.4	11.6	10.9	0% - 50%
ES1502429-073	BH16 1.4-1.6	EA055-103: Moisture Content (dried @ 103°C)	---	1.0	%	17.0	18.1	6.3	0% - 50%
EA055: Moisture Content (QC Lot: 3811408)									
ES1502483-002	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	---	1.0	%	9.6	10.3	6.9	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 3816083)									
ES1502429-005	GW1 2.8-2.7	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	9	9	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	12	7	50.9	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	35	44	23.2	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	10	9	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	10	11	12.9	No Limit
ES1502429-015	BHD 0.3-0.4	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	24	17	29.9	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	12	8	38.6	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	28	23	21.9	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	25	9	89.1	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 3816091)									
ES1502429-025	GW1 0.2-0.3	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	81	96	16.4	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	96	99	2.4	0% - 20%

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Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005T: Total Metals by ICP-AES (QC Lot: 3816091) - continued									
ES1502429-025	GW1 0.2-0.3	EG005T: Arsenic	7440-38-2	5	mg/kg	5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	29	30	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	43	49	12.1	No Limit
ES1502429-035	BHB 1.2-1.4	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	28	26	6.7	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	36	36	0.0	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	21	22	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	29	29	0.0	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 3817019)									
ES1502233-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	8	8	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	7	8	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	11	13	11.7	No Limit
ES1502429-051	BH31 0-0.2	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	117	118	1.4	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	114	116	1.8	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	31	31	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	50	55	9.8	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 3817021)									
ES1502429-061	BH20 0.25-0.4	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	13	17	24.8	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	39	29	28.6	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	6	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	44	34	23.9	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	14	17	22.6	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	36	32	12.9	No Limit
ES1502429-071	BH15 0.6-0.7	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	16	21	31.7	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	7	9	21.7	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	63	67	31.6	0% - 50%

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Sub-Matrix: SOIL			Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG005T: Total Metals by ICP-AES (QC Lot: 3817021) - continued								
ES1502429-071	BH15 0.6-0.7	EG005T: Zinc	7440-66-6	5	mg/kg	18	21	17.4
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3816090)								
ES1502429-005	GW1 2.6-2.7	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0
ES1502429-015	BHD 0.3-0.4	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3816092)								
ES1502429-025	GW1 0.2-0.3	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0
ES1502429-035	BHB 1.2-1.4	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3817020)								
ES1502233-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0
ES1502429-051	BH31 0-0.2	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3817022)								
ES1502429-061	BH20 0.25-0.4	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0
ES1502429-071	BH15 0.6-0.7	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3809435)								
ES1502429-005	GW1 2.6-2.7	EP066: Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.0
ES1502429-015	BHD 0.3-0.4	EP066: Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.0
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3809441)								
ES1502429-025	GW1 0.2-0.3	EP066: Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.0
ES1502429-035	BHB 1.2-1.4	EP066: Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.0
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3809445)								
ES1502429-045	BH24 0-0.1	EP066: Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.0
ES1502429-055	BH37 0.3-0.4	EP066: Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.0
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3809451)								
ES1502429-065	BH10 0-0.2	EP066: Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.0
ES1502429-074	BH5 0.3-0.4	EP066: Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.0
EP068A: Organochlorine Pesticides (OC) (QC Lot: 3809434)								
ES1502429-005	GW1 2.6-2.7	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0
		EP068: alpha-Endosulfan	959-88-8	0.05	mg/kg	<0.05	<0.05	0.0
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0
		EP068: 4,4'-DDT	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0

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Sub-Matrix: SOIL			Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 3609434) - continued									
ES1502429-005	GW1 2.6-2.7	EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
ES1502429-015	BHD 0.3-0.4	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 3609440)									
ES1502429-025	GW1 0.2-0.3	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

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Sub-Matrix: SOIL			Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 380944b) - continued									
ES1502429-025	GW1 0.2-0.3	EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
ES1502429-035	BHB 1.2-1.4	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 380944c)									
ES1502429-045	BH24 0-0.1	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

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Sub-Matrix: SOIL			Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method/Compound	GAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 3809444) - continued									
ES1502429-045	BH24 0-0.1	EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-85-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
ES1502429-065	BH37 0.3-0.4	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-85-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 3809450)									
ES1502429-065	BH10 0-0.2	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

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Sub-Matrix: SOIL			Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 3809450) - continued									
ES1502429-065	BH10 0-0.2	EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
ES1502429-074	BH5 0.3-0.4	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP075(SIM): Polynuclear Aromatic Hydrocarbons (QC Lot: 3809437)									
ES1502429-005	GW1 2.5-2.7	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

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Sub-Matrix: SOIL			Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3808437) - continued									
ES1502429-005	GW1 2.6-2.7	EP075(SIM): Acenaphthylene	206-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			205-82-3						
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenzo(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	---	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		ES1502429-015	BHD 0.3-0.4	EP075(SIM): Benzo(a)pyrene TEQ (zero)	---	0.5	mg/kg	<0.5	<0.5
EP075(SIM): Naphthalene	91-20-3			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Acenaphthylene	206-96-8			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Acenaphthene	83-32-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Fluorene	86-73-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Phenanthrene	85-01-8			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Anthracene	120-12-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Fluoranthene	206-44-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Pyrene	129-00-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benz(a)anthracene	56-55-3			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Chrysene	218-01-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
	205-82-3								
EP075(SIM): Benzo(k)fluoranthene	207-08-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene	50-32-6			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Dibenzo(a,h)anthracene	53-70-3			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(g,h,i)perylene	191-24-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	---	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(a)pyrene TEQ (zero)	---	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3808443)									
ES1502429-025	GW1 0.3-0.3	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

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Sub-Matrix: SOIL			Laboratory Duplicate (DUP) Report								
Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3889443) - continued											
ES1502429-025	GW1 0.2-0.3	EP075(SIM): Acenaphthylene	206-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
			205-82-3								
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Benzo(a)pyrene	50-32-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Dibenzo(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	---	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	---	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		ES1502429-035	BHB 1.2-1.4	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
				EP075(SIM): Acenaphthylene	206-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Acenaphthene	83-32-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Fluorene	86-73-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Phenanthrene	85-01-8			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Anthracene	120-12-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Fluoranthene	206-44-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Pyrene	129-00-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benz(a)anthracene	56-55-3			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Chrysene	218-01-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
	205-82-3										
EP075(SIM): Benzo(k)fluoranthene	207-08-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(a)pyrene	50-32-6			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Dibenzo(a,h)anthracene	53-70-3			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(g,h,i)perylene	191-24-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	---			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(a)pyrene TEQ (zero)	---			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3806447)											
ES1502429-045	BH24 0-0.1	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		

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Sub-Matrix: SOIL			Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3888447) - continued									
ES1502429-045	BH24 0-0.1	EP075(SIM): Acenaphthylene	206-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			205-82-3						
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenzo(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	---	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			EP075(SIM): Benzo(a)pyrene TEQ (zero)	---	0.5	mg/kg	<0.5	<0.5	0.0
ES1502429-055	BH37 0.3-0.4	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	206-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			205-82-3						
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenzo(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	---	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
	EP075(SIM): Benzo(a)pyrene TEQ (zero)	---	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3808455)									
ES1502429-065	BH10 0-0.2	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Sub-Matrix: SOIL			Laboratory Duplicate (DUP) Report								
Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
EP075(SIM): Polynuclear Aromatic Hydrocarbons (QC Lot: 3888433) - continued											
ES1502429-065	BH10 0-0.2	EP075(SIM): Acenaphthylene	206-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
			205-82-3								
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Benzo(a)pyrene	50-32-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Dibenzo(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	---	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	---	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		ES1502429-074	BH5 0.3-0.4	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
				EP075(SIM): Acenaphthylene	206-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Acenaphthene	83-32-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Fluorene	86-73-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Phenanthrene	85-01-8			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Anthracene	120-12-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Fluoranthene	206-44-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Pyrene	129-00-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benz(a)anthracene	56-55-3			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Chrysene	218-01-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
	205-82-3										
EP075(SIM): Benzo(k)fluoranthene	207-08-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(a)pyrene	50-32-6			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Dibenzo(a,h)anthracene	53-70-3			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(g,h,i)perylene	191-24-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	---			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Benzo(a)pyrene TEQ (zero)	---			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3809416)											
ES1502429-005	GW1 2.8-2.7	EP080: C6 - C9 Fraction	---	10	mg/kg	<10	<10	0.0	No Limit		

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Sub-Matrix: SOIL			Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3809416) - continued									
ES1502429-015	BHD 0.3-0.4	EP080: C6 - C9 Fraction	---	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3809418)									
ES1502429-025	GW1 0.2-0.3	EP080: C6 - C9 Fraction	---	10	mg/kg	<10	<10	0.0	No Limit
ES1502429-035	BHB 1.2-1.4	EP080: C6 - C9 Fraction	---	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3809420)									
ES1502429-045	BH24 0-0.1	EP080: C6 - C9 Fraction	---	10	mg/kg	<10	<10	0.0	No Limit
ES1502429-055	BH37 0.3-0.4	EP080: C6 - C9 Fraction	---	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3809436)									
ES1502429-005	GW1 2.6-2.7	EP071: C15 - C28 Fraction	---	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	---	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	---	50	mg/kg	<50	<50	0.0	No Limit
ES1502429-016	BHD 0.3-0.4	EP071: C15 - C28 Fraction	---	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	---	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	---	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3809442)									
ES1502429-025	GW1 0.2-0.3	EP071: C15 - C28 Fraction	---	100	mg/kg	130	110	12.6	No Limit
		EP071: C29 - C36 Fraction	---	100	mg/kg	230	280	18.5	No Limit
		EP071: C10 - C14 Fraction	---	50	mg/kg	<50	<50	0.0	No Limit
ES1502429-035	BHB 1.2-1.4	EP071: C15 - C28 Fraction	---	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	---	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	---	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3809446)									
ES1502429-045	BH24 0-0.1	EP071: C15 - C28 Fraction	---	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	---	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	---	50	mg/kg	<50	<50	0.0	No Limit
ES1502429-055	BH37 0.3-0.4	EP071: C15 - C28 Fraction	---	100	mg/kg	100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	---	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	---	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3809452)									
ES1502429-065	BH10 0-0.2	EP071: C15 - C28 Fraction	---	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	---	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	---	50	mg/kg	<50	<50	0.0	No Limit
ES1502429-074	BH5 0.3-0.4	EP071: C15 - C28 Fraction	---	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	---	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	---	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3809454)									
ES1502429-065	BH10 0-0.2	EP080: C6 - C9 Fraction	---	10	mg/kg	<10	<10	0.0	No Limit
ES1502429-074	BH5 0.3-0.4	EP080: C6 - C9 Fraction	---	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2813 Fractions (QC Lot: 3809416)									

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method/Compound	Gas Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3809418) - continued									
ES1502429-005	GW1 2.6-2.7	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1502429-015	BHD 0.3-0.4	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3809419)									
ES1502429-025	GW1 0.2-0.3	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1502429-035	BHB 1.2-1.4	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3809429)									
ES1502429-045	BH24 0-0.1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1502429-055	BH37 0.3-0.4	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3809436)									
ES1502429-005	GW1 2.6-2.7	EP071: >C16 - C34 Fraction	---	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	---	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1502429-015	BHD 0.3-0.4	EP071: >C16 - C34 Fraction	---	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	---	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3809442)									
ES1502429-025	GW1 0.2-0.3	EP071: >C16 - C34 Fraction	---	100	mg/kg	300	280	9.2	No Limit
		EP071: >C34 - C40 Fraction	---	100	mg/kg	310	370	17.9	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1502429-035	BHB 1.2-1.4	EP071: >C16 - C34 Fraction	---	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	---	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3809446)									
ES1502429-045	BH24 0-0.1	EP071: >C16 - C34 Fraction	---	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	---	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1502429-055	BH37 0.3-0.4	EP071: >C16 - C34 Fraction	---	100	mg/kg	130	<100	24.9	No Limit
		EP071: >C34 - C40 Fraction	---	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3809452)									
ES1502429-065	BH10 0-0.2	EP071: >C16 - C34 Fraction	---	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	---	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1502429-074	BH5 0.3-0.4	EP071: >C16 - C34 Fraction	---	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	---	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3809454)									
ES1502429-065	BH10 0-0.2	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1502429-074	BH5 0.3-0.4	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
EP080: BTEXN (QC Lot: 3809416)											
ES1502429-006	GW1 2.6-2.7	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit		
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
			108-42-3								
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP080: BTEXN (QC Lot: 3809419)											
ES1502429-015	BHD 0.3-0.4	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit		
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
			108-42-3								
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP080: BTEXN (QC Lot: 3809419)											
ES1502429-015	BHD 0.3-0.4	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit		
		EP080: BTEXN (QC Lot: 3809419)									
		ES1502429-025	GW1 0.2-0.3	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
				EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
				EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
				EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
	108-42-3										
EP080: ortho-Xylene	95-47-6			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP080: BTEXN (QC Lot: 3809420)											
ES1502429-025	GW1 0.2-0.3	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit		
		EP080: BTEXN (QC Lot: 3809420)									
		ES1502429-036	BHB 1.2-1.4	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
				EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
				EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
				EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
	108-42-3										
EP080: ortho-Xylene	95-47-6			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP080: BTEXN (QC Lot: 3809420)											
ES1502429-036	BHB 1.2-1.4	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit		
		EP080: BTEXN (QC Lot: 3809420)									
		ES1502429-045	BH24 0-0.1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
				EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
				EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
				EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
	108-42-3										
EP080: ortho-Xylene	95-47-6			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP080: BTEXN (QC Lot: 3809420)											
ES1502429-045	BH24 0-0.1	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit		
		EP080: BTEXN (QC Lot: 3809420)									
		ES1502429-055	BH37 0.3-0.4	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
				EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
				EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method/Compound	GAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 3809420) - continued									
ES1502429-055	BH37 0.3-0.4	EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP080: BTEXN (QC Lot: 3809454)									
ES1502429-065	BH10 0-0.2	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1502429-074	BH5 0.3-0.4	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method/Compound	GAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA005P: pH by PC Titrator (QC Lot: 3810124)									
ES1502387-001	Anonymous	EA005-P: pH Value	---	0.01	pH Unit	7.25	7.24	0.1	0% - 20%
ES1502485-001	Anonymous	EA005-P: pH Value	---	0.01	pH Unit	7.57	7.98	5.3	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 3810123)									
ES1502231-020	Anonymous	EA010-P: Electrical Conductivity @ 25°C	---	1	µS/cm	1270	1270	0.0	0% - 20%
ES1502485-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	---	1	µS/cm	10500	10500	0.09	0% - 20%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 3814559)									
ES1502416-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-9	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	0.06	0.05	0.0	No Limit
ES1502416-011	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit

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Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Comments	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EQ020F: Dissolved Metals by ICP-MS (QC Lot: 3814559) - continued									
ES1502416-011	Anonymous	EQ020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EQ020A-F: Copper	7440-50-9	0.001	mg/L	0.008	0.007	0.0	No Limit
		EQ020A-F: Lead	7439-92-1	0.001	mg/L	0.001	<0.001	0.0	No Limit
		EQ020A-F: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EQ020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EQ020A-F: Aluminium	7429-90-5	0.01	mg/L	0.20	0.20	0.0	0% - 20%
		EQ020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EQ020A-F: Iron	7439-89-6	0.05	mg/L	0.10	0.10	0.0	No Limit
EQ035F: Dissolved Mercury by FIMS (QC Lot: 3814558)									
ES1502416-003	Anonymous	EQ035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1502416-010	Anonymous	EQ035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3813882)									
ES1502372-013	Anonymous	EP080: C6 - C9 Fraction	---	20	µg/L	<20	<20	0.0	No Limit
ES1502429-002	GW2	EP080: C6 - C9 Fraction	---	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3813882)									
ES1502372-013	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1502429-002	GW2	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 3813882)									
ES1502372-013	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1502429-002	GW2	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

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Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
Method: Compound	CAS Number	LOR	Unit		Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High		
EQ005T: Total Metals by ICP-AES (QCLot: 3816089)									
EQ005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	104	92	130	
EQ005T: Cadmium	7440-43-9	1	mg/kg	<1	4.84 mg/kg	97.0	87	121	
EQ005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	90.6	80	136	
EQ005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	100	93	127	
EQ005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	97.6	86	124	
EQ005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	101	93	131	
EQ005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	97.4	81	133	
EQ005T: Total Metals by ICP-AES (QCLot: 3816091)									
EQ005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	106	92	130	
EQ005T: Cadmium	7440-43-9	1	mg/kg	<1	4.84 mg/kg	101	87	121	
EQ005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	93.1	80	136	
EQ005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	104	93	127	
EQ005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	100	86	124	
EQ005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	106	93	131	
EQ005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	103	81	133	
EQ005T: Total Metals by ICP-AES (QCLot: 3817019)									
EQ005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	112	92	130	
EQ005T: Cadmium	7440-43-9	1	mg/kg	<1	4.84 mg/kg	102	87	121	
EQ005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	97.1	80	136	
EQ005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	112	93	127	
EQ005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	99.7	86	124	
EQ005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	109	93	131	
EQ005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	109	81	133	
EQ005T: Total Metals by ICP-AES (QCLot: 3817021)									
EQ005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	109	92	130	
EQ005T: Cadmium	7440-43-9	1	mg/kg	<1	4.84 mg/kg	104	87	121	
EQ005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	99.5	80	136	
EQ005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	107	93	127	
EQ005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	106	86	124	
EQ005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	110	93	131	
EQ005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	107	81	133	
EQ035T: Total Recoverable Mercury by FIMS (QCLot: 3816090)									

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Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method/Compound	CAS Number	LOR	Unit		Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High
EQ035T: Total Recoverable Mercury by FIMS (QCLot: 3816090) - continued								
EQ035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	92.7	70	105
EQ035T: Total Recoverable Mercury by FIMS (QCLot: 3816092)								
EQ035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	98.9	70	105
EQ035T: Total Recoverable Mercury by FIMS (QCLot: 3817020)								
EQ035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	90.1	70	105
EQ035T: Total Recoverable Mercury by FIMS (QCLot: 3817022)								
EQ035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	88.6	70	105
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3809435)								
EP066: Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	1 mg/kg	105	57.4	117
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3809441)								
EP066: Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	1 mg/kg	100	57.4	117
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3809445)								
EP066: Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	1 mg/kg	104	57.4	117
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3809451)								
EP066: Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	1 mg/kg	104	57.4	117
EP068A: Organochlorine Pesticides (OC) (QCLot: 3809434)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	88.8	71	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	86.9	66	122
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	101	69	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	87.4	71	115
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.9	65	113
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.5	68	116
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	85.4	68	118
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	74.4	68	116
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	77.8	68	120
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	84.1	69	119
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	87.6	67	121
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	84.1	66	118
EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	82.3	69	117
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.2	67	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	82.4	76	120
EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.4	78	120
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	94.1	57.3	115
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	113	60	124
EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	106	67	127
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	95.0	65	123

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Sub-Matrix: **SOIL**

Method Component	CAS Number	LOR	Unit	Method Blank (dB)	Laboratory Control Spike (LCS) Report			
				Report	Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
				Result		LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 3809434) - continued								
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	106	65	129
EP068A: Organochlorine Pesticides (OC) (QCLot: 3809440)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	89.5	71	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	93.1	66	122
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	90.1	69	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	102	71	115
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	84.6	65	113
EP068: Heptachlor	76-44-6	0.05	mg/kg	<0.05	0.5 mg/kg	96.4	68	116
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	101	68	118
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	93.0	68	116
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	90.9	68	120
EP068: alpha-Endosulfan	859-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.8	69	119
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	88.9	67	121
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	89.2	66	118
EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	82.4	69	117
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	97.5	67	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	81.2	76	120
EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	84.2	76	120
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	105	57.3	115
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	105	60	124
EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	85.5	67	127
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	87.8	65	123
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	92.2	65	129
EP068A: Organochlorine Pesticides (OC) (QCLot: 3809444)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	86.1	71	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	89.5	66	122
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	102	69	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	86.2	71	115
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.3	65	113
EP068: Heptachlor	76-44-6	0.05	mg/kg	<0.05	0.5 mg/kg	94.6	68	116
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	101	68	118
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	108	68	116
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	108	68	120
EP068: alpha-Endosulfan	859-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	85.8	68	119
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	107	67	121
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	104	68	118

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Sub-Matrix: SOIL				Method Blank (dB)	Laboratory Control Spike (LCS) Report			
Method Component	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 3809444) - continued								
EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	98.2	69	117
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.4	67	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	98.3	76	120
EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	106	76	120
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	108	57.3	115
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.9	60	124
EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	97.6	67	127
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	99.8	65	123
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	94.0	65	129
EP068A: Organochlorine Pesticides (OC) (QCLot: 3809450)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	96.1	71	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	103	68	122
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	84.2	69	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	98.9	71	115
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	102	65	113
EP068: Heptachlor	78-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	110	68	116
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	105	68	118
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	93.4	68	116
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	94.3	68	120
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.2	69	119
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	101	67	121
EP068: Dieldrin	66-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	109	66	118
EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	102	69	117
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	108	67	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	101	76	120
EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	110	76	120
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	90.3	57.3	115
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	104	60	124
EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	100	67	127
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	105	65	123
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	74.0	65	129
EP075(SIM): Polynuclear Aromatic Hydrocarbons (QCLot: 3809437)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	86.8	80	124
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	86.6	77	123
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	82.8	79	123
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	85.5	77	123

ITEM 3 (continued)

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Sub-Matrix: SOIL

Substrate: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method Component	CAS Number	LOR	Unit		Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3809427) - continued								
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	83.8	79	123
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	83.9	79	123
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	84.1	79	123
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	84.1	79	125
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	81.8	73	121
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	84.0	81	123
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	4 mg/kg	76.5	70	118
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	84.1	77	123
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	82.7	76	122
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	78.4	71	113
EP075(SIM): Dibenzo(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	78.0	71.7	113
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	80.8	72.4	114
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3809443)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	88.4	80	124
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	92.2	77	123
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	93.5	79	123
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	91.2	77	123
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	88.2	79	123
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	89.6	79	123
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	87.2	79	123
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	88.3	79	125
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	82.4	73	121
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	83.2	81	123
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	4 mg/kg	82.0	70	118
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	81.6	77	123
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	83.8	76	122
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	80.2	71	113
EP075(SIM): Dibenzo(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	82.9	71.7	113
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	81.5	72.4	114
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3809447)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	88.4	80	124
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	88.0	77	123
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	85.3	79	123
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	86.0	77	123
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	84.9	79	123

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Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method Component	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3809447) - continued								
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	84.8	79	123
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	82.9	79	123
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	83.6	79	125
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	85.0	73	121
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	86.3	81	123
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	90.7	70	118
	205-82-3							
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	97.3	77	123
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	96.5	76	122
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	94.0	71	119
EP075(SIM): Dibenzo(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	93.2	71.7	113
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	95.4	72.4	114
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3809453)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	85.3	80	124
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	83.7	77	123
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	90.2	79	123
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	94.2	77	123
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	95.6	79	123
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	86.3	79	123
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	83.2	79	123
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	83.8	79	125
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	83.6	73	121
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	85.3	81	123
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	82.4	70	118
	205-82-3							
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	84.6	77	123
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	89.4	76	122
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	74.5	71	113
EP075(SIM): Dibenzo(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	73.0	71.7	113
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	75.4	72.4	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3809416)								
EP080: C6 - C9 Fraction	—	10	mg/kg	<10	26 mg/kg	89.4	68.4	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3809419)								
EP080: C6 - C9 Fraction	—	10	mg/kg	<10	26 mg/kg	98.3	68.4	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3809420)								
EP080: C6 - C9 Fraction	—	10	mg/kg	<10	26 mg/kg	98.5	68.4	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3809436)								

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Sub-Matrix: SOIL

Method Component	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3809436) -continued								
EP071: C10 - C14 Fraction	---	50	mg/kg	<50	200 mg/kg	107	71	131
EP071: C15 - C28 Fraction	---	100	mg/kg	<100	300 mg/kg	95.9	74	138
EP071: C29 - C36 Fraction	---	100	mg/kg	<100	200 mg/kg	105	64	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3809442)								
EP071: C10 - C14 Fraction	---	50	mg/kg	<50	200 mg/kg	104	71	131
EP071: C15 - C28 Fraction	---	100	mg/kg	<100	300 mg/kg	104	74	138
EP071: C29 - C36 Fraction	---	100	mg/kg	<100	200 mg/kg	103	64	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3809446)								
EP071: C10 - C14 Fraction	---	50	mg/kg	<50	200 mg/kg	85.9	71	131
EP071: C15 - C28 Fraction	---	100	mg/kg	<100	300 mg/kg	103	74	138
EP071: C29 - C36 Fraction	---	100	mg/kg	<100	200 mg/kg	118	64	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3809452)								
EP071: C10 - C14 Fraction	---	50	mg/kg	<50	200 mg/kg	98.9	71	131
EP071: C15 - C28 Fraction	---	100	mg/kg	<100	300 mg/kg	95.2	74	138
EP071: C29 - C36 Fraction	---	100	mg/kg	<100	200 mg/kg	93.9	64	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3809454)								
EP080: C6 - C9 Fraction	---	10	mg/kg	<10	26 mg/kg	90.6	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3809496)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	88.4	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3809498)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	97.6	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3809420)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	96.1	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3809430)								
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	99.1	70	130
EP071: >C16 - C34 Fraction	---	100	mg/kg	<100	350 mg/kg	104	74	138
EP071: >C34 - C40 Fraction	---	50	mg/kg	<100	150 mg/kg	97.2	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3809442)								
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	98.7	70	130
EP071: >C16 - C34 Fraction	---	100	mg/kg	<100	350 mg/kg	103	74	138
EP071: >C34 - C40 Fraction	---	50	mg/kg	<100	150 mg/kg	102	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3809448)								
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	98.8	70	130
EP071: >C16 - C34 Fraction	---	100	mg/kg	<100	350 mg/kg	114	74	138
EP071: >C34 - C40 Fraction	---	50	mg/kg	<100	150 mg/kg	105	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3809452)								

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Sub-Matrix: SOIL				Method Blank (dB) Report	Laboratory Control Spike (LCS) Report			
Method Component	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3809482) - continued								
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	101	70	130
EP071: >C16 - C34 Fraction	---	100	mg/kg	<100	350 mg/kg	99.3	74	138
EP071: >C34 - C40 Fraction	---	50	mg/kg	<100	150 mg/kg	95.9	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3809484)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	92.3	66.4	129
EP080: BTEXN (QCLot: 3809416)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	88.0	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	86.9	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	80.7	58	118
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	80.7	60	120
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	86.0	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	82.1	62	138
EP080: BTEXN (QCLot: 3809419)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	93.3	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	94.1	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	89.0	58	118
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	90.8	60	120
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	92.8	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	95.1	62	138
EP080: BTEXN (QCLot: 3809420)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	95.2	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	93.1	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	89.7	58	118
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	92.1	60	120
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	92.5	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	85.0	62	138
EP080: BTEXN (QCLot: 3809454)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	84.0	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	86.7	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	90.8	58	118
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	81.3	60	120
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	85.7	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	82.1	62	138

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Project : J130282



Sub-Matrix: **WATER**

Method Component	CAS Number	LOR	Unit	Method Blank (MS) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%)	
							Low	High
EA010P: Conductivity by PC Titrator (QCLot: 3810123)								
EA010-P: Electrical Conductivity @ 25°C	---	1	µS/cm	<1	2000 µS/cm	105	95	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 3814559)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	93.5	85	115
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	98.2	85	115
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	98.0	85	115
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	94.4	85	115
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	97.0	85	115
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	97.0	85	115
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.8	85	115
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	98.8	85	115
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	98.8	85	115
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	90.3	85	115
EG035F: Dissolved Mercury by FIMS (QCLot: 3814558)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	98.2	78	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3809349)								
EP071: C10 - C14 Fraction	---	50	µg/L	<50	2000 µg/L	98.0	58	129
EP071: C15 - C28 Fraction	---	100	µg/L	<100	3000 µg/L	98.0	71	131
EP071: C29 - C36 Fraction	---	50	µg/L	<50	2000 µg/L	99.0	62	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3813852)								
EP080: C6 - C9 Fraction	---	20	µg/L	<20	260 µg/L	111	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3808349)								
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	97.2	58.9	131
EP071: >C16 - C34 Fraction	---	100	µg/L	<100	3500 µg/L	92.6	73.9	138
EP071: >C34 - C40 Fraction	---	50	µg/L	<100	1500 µg/L	98.7	67	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3813882)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	112	75	127
EP080: BTEXN (QCLot: 3813882)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	116	70	124
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	117	65	129
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	108	70	120
EP080: meta- & para-Xylene	106-39-3	2	µg/L	<2	10 µg/L	108	69	121
	106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	111	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	111	70	124

Matrix Spike (MS) Report

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The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	Spike	Spike Recovery (%)	Recovery Limits (%)	
				Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 3816089)							
ES1502429-005	GW1 2.8-2.7	EG005T: Arsenic	7440-38-2	50 mg/kg	95.3	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	99.7	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	107	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	106	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	97.3	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	101	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	98.8	70	130
EG005T: Total Metals by ICP-AES (QCLot: 3816091)							
ES1502429-025	GW1 0.2-0.3	EG005T: Arsenic	7440-38-2	50 mg/kg	91.5	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	95.5	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	113	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	106	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	93.0	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	94.0	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	91.5	70	130
EG005T: Total Metals by ICP-AES (QCLot: 3817019)							
ES1502233-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	107	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	102	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	106	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	107	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	100	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	107	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	101	70	130
EG005T: Total Metals by ICP-AES (QCLot: 3817021)							
ES1502429-061	BH20 0.25-0.4	EG005T: Arsenic	7440-38-2	50 mg/kg	105	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	99.4	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	110	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	113	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	97.4	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	105	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	99.5	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3816090)							
ES1502429-005	GW1 2.8-2.7	EG035T: Mercury	7439-97-6	5 mg/kg	99.6	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3816092)							

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Sub-Matrix: SOIL				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	Spike	Spike/Recovery(%)	Recovery Limits (%)	
				Concentration	MS	Low	High
EQ035T: Total Recoverable Mercury by FIMS (QCLot: 3816092) - continued							
ES1502429-025	GW1 0.2-0.3	EQ035T: Mercury	7439-97-6	5 mg/kg	103	70	130
EQ035T: Total Recoverable Mercury by FIMS (QCLot: 3817020)							
ES1502233-001	Anonymous	EQ035T: Mercury	7439-97-6	5 mg/kg	97.1	70	130
EQ038T: Total Recoverable Mercury by FIMS (QCLot: 3817022)							
ES1502429-061	BH20 0.25-0.4	EQ035T: Mercury	7439-97-6	5 mg/kg	94.5	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3808438)							
ES1502429-005	GW1 2.6-2.7	EP066: Total Polychlorinated biphenyls	—	1 mg/kg	96.2	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3809441)							
ES1502429-025	GW1 0.2-0.3	EP066: Total Polychlorinated biphenyls	—	1 mg/kg	104	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3808445)							
ES1502429-045	BH24 0-0.1	EP066: Total Polychlorinated biphenyls	—	1 mg/kg	90.3	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3809451)							
ES1502429-065	BH10 0-0.2	EP066: Total Polychlorinated biphenyls	—	1 mg/kg	99.4	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 3808434)							
ES1502429-005	GW1 2.6-2.7	EP066: gamma-BHC	58-69-9	0.5 mg/kg	107	70	130
		EP066: Heptachlor	76-44-8	0.5 mg/kg	98.5	70	130
		EP066: Aldrin	309-00-2	0.5 mg/kg	103	70	130
		EP066: Dieldrin	60-57-1	0.5 mg/kg	106	70	130
		EP066: Endrin	72-20-8	2 mg/kg	97.5	70	130
		EP066: 4,4'-DDT	50-29-3	2 mg/kg	83.1	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 3808440)							
ES1502429-025	GW1 0.2-0.3	EP066: gamma-BHC	58-69-9	0.5 mg/kg	95.3	70	130
		EP066: Heptachlor	76-44-8	0.5 mg/kg	96.8	70	130
		EP066: Aldrin	309-00-2	0.5 mg/kg	101	70	130
		EP066: Dieldrin	60-57-1	0.5 mg/kg	102	70	130
		EP066: Endrin	72-20-8	2 mg/kg	92.0	70	130
		EP066: 4,4'-DDT	50-29-3	2 mg/kg	80.5	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 3808444)							
ES1502429-045	BH24 0-0.1	EP066: gamma-BHC	58-69-9	0.5 mg/kg	103	70	130
		EP066: Heptachlor	76-44-8	0.5 mg/kg	94.3	70	130
		EP066: Aldrin	309-00-2	0.5 mg/kg	102	70	130
		EP066: Dieldrin	60-57-1	0.5 mg/kg	97.0	70	130
		EP066: Endrin	72-20-8	2 mg/kg	87.2	70	130
		EP066: 4,4'-DDT	50-29-3	2 mg/kg	90.3	70	130

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Sub-Matrix: SOIL				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	Spike	Spike/Recovery(%)	Recovery Limits (%)	
				Concentration	MS	Low	High
EP068A: Organochlorine Pesticides (QC) (QCLot: 3809450)							
ES1502429-005	BH10 0-0.2	EP068: gamma-BHC	58-59-9	0.5 mg/kg	105	70	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	101	70	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	106	70	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	102	70	130
		EP068: Endrin	72-20-8	2 mg/kg	98.9	70	130
		EP068: 4,4'-DDT	50-29-3	2 mg/kg	81.2	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3809437)							
ES1502429-005	GW1 2.6-2.7	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	93.5	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	111	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3809443)							
ES1502429-025	GW1 0.2-0.3	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	83.6	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	100	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3809447)							
ES1502429-045	BH24 0-0.1	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	97.5	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	114	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3809453)							
ES1502429-005	BH10 0-0.2	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	81.4	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	95.8	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3809418)							
ES1502429-005	GW1 2.6-2.7	EP080: C6 - C9 Fraction	---	32.5 mg/kg	96.1	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3809419)							
ES1502429-025	GW1 0.2-0.3	EP080: C6 - C9 Fraction	---	32.5 mg/kg	112	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3809420)							
ES1502429-045	BH24 0-0.1	EP080: C6 - C9 Fraction	---	32.5 mg/kg	122	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3809436)							
ES1502429-005	GW1 2.6-2.7	EP071: C10 - C14 Fraction	---	560 mg/kg	97.0	73	137
		EP071: C15 - C28 Fraction	---	2370 mg/kg	115	53	131
		EP071: C29 - C36 Fraction	---	1695 mg/kg	114	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3809442)							
ES1502429-025	GW1 0.2-0.3	EP071: C10 - C14 Fraction	---	640 mg/kg	103	73	137
		EP071: C15 - C28 Fraction	---	3140 mg/kg	122	53	131
		EP071: C29 - C36 Fraction	---	2860 mg/kg	117	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3809446)							
ES1502429-045	BH24 0-0.1	EP071: C10 - C14 Fraction	---	560 mg/kg	96.6	73	137

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Sub-Matrix: SOIL				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike/Recovery (%)	Recovery Limits (%)	
					MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3809446) - continued							
ES1502429-045	BH24 0-0.1	EP071: C15 - C28 Fraction	—	2370 mg/kg	117	53	131
		EP071: C29 - C36 Fraction	—	1695 mg/kg	102	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3809452)							
ES1502429-065	BH10 0-0.2	EP071: C10 - C14 Fraction	—	560 mg/kg	96.0	73	137
		EP071: C15 - C28 Fraction	—	2370 mg/kg	108	53	131
		EP071: C29 - C36 Fraction	—	1695 mg/kg	110	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3809454)							
ES1502429-065	BH10 0-0.2	EP080: C8 - C9 Fraction	—	32.5 mg/kg	89.4	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3809418)							
ES1502429-005	GW1 2.6-2.7	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	94.2	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3809419)							
ES1502429-025	GW1 0.2-0.3	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	106	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3809430)							
ES1502429-045	BH24 0-0.1	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	120	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3809438)							
ES1502429-005	GW1 2.6-2.7	EP071: >C10 - C16 Fraction	>C10_C16	902 mg/kg	99.4	73	137
		EP071: >C16 - C34 Fraction	—	3190 mg/kg	116	53	131
		EP071: >C34 - C40 Fraction	—	1087 mg/kg	125	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3809442)							
ES1502429-025	GW1 0.2-0.3	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	127	73	137
		EP071: >C16 - C34 Fraction	—	4800 mg/kg	119	53	131
		EP071: >C34 - C40 Fraction	—	2400 mg/kg	106	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3809446)							
ES1502429-045	BH24 0-0.1	EP071: >C10 - C16 Fraction	>C10_C16	902 mg/kg	104	73	137
		EP071: >C16 - C34 Fraction	—	3190 mg/kg	112	53	131
		EP071: >C34 - C40 Fraction	—	1087 mg/kg	105	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3809452)							
ES1502429-065	BH10 0-0.2	EP071: >C10 - C16 Fraction	>C10_C16	902 mg/kg	100	73	137
		EP071: >C16 - C34 Fraction	—	3190 mg/kg	126	53	131
		EP071: >C34 - C40 Fraction	—	1087 mg/kg	97.0	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3809454)							
ES1502429-065	BH10 0-0.2	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	88.2	70	130
EP080: BTEXN (QCLot: 3809416)							
ES1502429-005	GW1 2.6-2.7	EP080: Benzene	71-43-2	2.5 mg/kg	81.2	70	130

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Sub-Matrix: SOIL				Matrix Spike (MS) Report				
Laboratory sample ID		Client sample ID	Method/Compound	CAS Number	Spike Concentration	Spike/Recovery(%)	Recovery Limits (%)	
						MS	Low	High
EP080: BTEXN (QCLot: 3809416) - continued								
ES1502429-005	GW1 2.6-2.7	EP080: Toluene	108-88-3	2.5 mg/kg	81.5	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	79.2	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	78.6	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	79.9	70	130	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	79.5	70	130	
EP080: BTEXN (QCLot: 3809419)								
ES1502429-025	GW1 0.2-0.3	EP080: Benzene	71-43-2	2.5 mg/kg	79.8	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	86.5	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	93.8	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	87.1	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	85.0	70	130	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	83.8	70	130	
EP080: BTEXN (QCLot: 3809420)								
ES1502429-045	BH24 0-0.1	EP080: Benzene	71-43-2	2.5 mg/kg	106	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	109	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	110	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	111	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	110	70	130	
			EP080: Naphthalene	91-20-3	2.5 mg/kg	98.2	70	130
EP080: BTEXN (QCLot: 3809464)								
ES1502429-065	BH10 0-0.2	EP080: Benzene	71-43-2	2.5 mg/kg	74.3	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	76.7	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	75.5	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	75.3	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	76.1	70	130	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	74.9	70	130	
Sub-Matrix: WATER				Matrix Spike (MS) Report				
Laboratory sample ID		Client sample ID	Method/Compound	CAS Number	Spike Concentration	Spike/Recovery(%)	Recovery Limits (%)	
						MS	Low	High
EQ020F: Dissolved Metals by ICP-MS (QCLot: 3814559)								
ES1502416-004	Anonymous	EQ020A-F: Arsenic	7440-38-2	0.2 mg/L	116	70	130	
		EQ020A-F: Cadmium	7440-43-9	0.05 mg/L	100	70	130	

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Sub-Matrix: WATER				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	Spike	Spike Recovery (%)	Recovery Limits (%)	
				Concentration	MS	Low	High
EQ020F: Dissolved Metals by ICP-MS (QCLot: 3814559) - continued							
ES1502416-004	Anonymous	EQ020A-F: Chromium	7440-47-3	0.2 mg/L	91.5	70	130
		EQ020A-F: Copper	7440-50-8	0.2 mg/L	105	70	130
		EQ020A-F: Lead	7439-92-1	0.2 mg/L	99.0	70	130
		EQ020A-F: Nickel	7440-02-0	0.2 mg/L	103	70	130
		EQ020A-F: Zinc	7440-66-6	0.2 mg/L	99.0	70	130
EQ035F: Dissolved Mercury by FIMS (QCLot: 3814558)							
ES1502416-001	Anonymous	EQ035F: Mercury	7439-97-6	0.0100 mg/L	93.5	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3813882)							
ES1502372-013	Anonymous	EP080: C6 - C9 Fraction	—	325 µg/L	119	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3813882)							
ES1502372-013	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	119	70	130
EP080: BTEXN (QCLot: 3813882)							
ES1502372-013	Anonymous	EP080: Benzene	71-43-2	25 µg/L	87.0	70	130
		EP080: Toluene	108-88-3	25 µg/L	99.7	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	102	70	130
		EP080: meta- & para-Xylene	106-38-3	25 µg/L	101	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	99.0	70	130
		EP080: Naphthalene	81-20-3	25 µg/L	105	70	130

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	RPDs (%)		
					MS	MSD	Low	High	Value
									Control Limit
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3809416)									
ES1502429-005	GW1 2.6-2.7	EP080: C6 - C9 Fraction	—	32.5 mg/kg	96.1	—	70	130	—
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3809416)									
ES1502429-005	GW1 2.6-2.7	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	94.2	—	70	130	—
EP080: BTEXN (QCLot: 3809416)									
ES1502429-005	GW1 2.6-2.7	EP080: Benzene	71-43-2	2.5 mg/kg	81.2	—	70	130	—
		EP080: Toluene	108-88-3	2.5 mg/kg	81.5	—	70	130	—
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	79.2	—	70	130	—

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Sub-Matrix: SOIL

Sub-Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		MPDs (%)	
				Concentration	MS	MSD	Low	High	Value	Control Limit
EP080: BTEXN (QCLot: 3809416) - continued										
ES1502429-005	GW1 2.6-2.7	EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	78.6	—	70	130	—	—
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	79.9	—	70	130	—	—
		EP080: Naphthalene	91-20-3	2.5 mg/kg	79.5	—	70	130	—	—
EP080: Total Petroleum Hydrocarbons (QCLot: 3809419)										
ES1502429-025	GW1 0.2-0.3	EP080: C6 - C9 Fraction	—	32.5 mg/kg	112	—	70	130	—	—
EP080: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3809419)										
ES1502429-025	GW1 0.2-0.3	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	108	—	70	130	—	—
EP080: BTEXN (QCLot: 3809419)										
ES1502429-025	GW1 0.2-0.3	EP080: Benzene	71-43-2	2.5 mg/kg	79.8	—	70	130	—	—
		EP080: Toluene	108-88-3	2.5 mg/kg	86.5	—	70	130	—	—
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	83.8	—	70	130	—	—
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	87.1	—	70	130	—	—
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	85.0	—	70	130	—	—
		EP080: Naphthalene	91-20-3	2.5 mg/kg	83.8	—	70	130	—	—
EP080: Total Petroleum Hydrocarbons (QCLot: 3809420)										
ES1502429-045	BH24 0-0.1	EP080: C6 - C9 Fraction	—	32.5 mg/kg	122	—	70	130	—	—
EP080: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3809420)										
ES1502429-045	BH24 0-0.1	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	120	—	70	130	—	—
EP080: BTEXN (QCLot: 3809420)										
ES1502429-045	BH24 0-0.1	EP080: Benzene	71-43-2	2.5 mg/kg	106	—	70	130	—	—
		EP080: Toluene	108-88-3	2.5 mg/kg	109	—	70	130	—	—
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	110	—	70	130	—	—
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	111	—	70	130	—	—
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	110	—	70	130	—	—
		EP080: Naphthalene	91-20-3	2.5 mg/kg	98.2	—	70	130	—	—
EP068A: Organochlorine Pesticides (OC) (QCLot: 3809434)										
ES1502429-005	GW1 2.6-2.7	EP068: gamma-BHC	50-89-9	0.5 mg/kg	107	—	70	130	—	—
		EP068: Heptachlor	76-44-8	0.5 mg/kg	98.5	—	70	130	—	—
		EP068: Aldrin	309-00-2	0.5 mg/kg	103	—	70	130	—	—
		EP068: Dieldrin	60-57-1	0.5 mg/kg	106	—	70	130	—	—
		EP068: Endrin	72-20-8	2 mg/kg	97.5	—	70	130	—	—
		EP068: 4,4'-DDT	50-29-3	2 mg/kg	83.1	—	70	130	—	—

ITEM 3 (continued)

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Work Order : ES1502428
Client : GREENCAP NAA
Project : J130282



Sub-Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
				Concentration	MS	MSD	Low	High	Value	Control Limit
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3809435)										
ES1502429-005	GW1 2.6-2.7	EP066: Total Polychlorinated biphenyls	—	1 mg/kg	96.2	—	70	130	—	—
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3809436)										
ES1502429-005	GW1 2.6-2.7	EP071: C10 - C14 Fraction	—	580 mg/kg	97.0	—	73	137	—	—
		EP071: C15 - C28 Fraction	—	2370 mg/kg	115	—	53	131	—	—
		EP071: C29 - C36 Fraction	—	1695 mg/kg	114	—	52	132	—	—
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3809436)										
ES1502429-005	GW1 2.6-2.7	EP071: >C10 - C16 Fraction	>C10_C16	902 mg/kg	99.4	—	73	137	—	—
		EP071: >C16 - C34 Fraction	—	3190 mg/kg	116	—	53	131	—	—
		EP071: >C34 - C40 Fraction	—	1087 mg/kg	125	—	52	132	—	—
EP075(SIM): Polynuclear Aromatic Hydrocarbons (QCLot: 3809437)										
ES1502429-005	GW1 2.6-2.7	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	93.5	—	70	130	—	—
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	111	—	70	130	—	—
EP068A: Organochlorine Pesticides (OC) (QCLot: 3809440)										
ES1502429-025	GW1 0.2-0.3	EP068: gamma-BHC	58-89-9	0.5 mg/kg	95.3	—	70	130	—	—
		EP068: Heptachlor	78-44-8	0.5 mg/kg	86.8	—	70	130	—	—
		EP068: Aldrin	309-00-2	0.5 mg/kg	101	—	70	130	—	—
		EP068: Dieldrin	60-57-1	0.5 mg/kg	102	—	70	130	—	—
		EP068: Endrin	72-20-8	2 mg/kg	92.0	—	70	130	—	—
		EP068: 4,4'-DDT	50-29-3	2 mg/kg	80.5	—	70	130	—	—
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3809441)										
ES1502429-025	GW1 0.2-0.3	EP066: Total Polychlorinated biphenyls	—	1 mg/kg	104	—	70	130	—	—
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3809442)										
ES1502429-025	GW1 0.2-0.3	EP071: C10 - C14 Fraction	—	640 mg/kg	103	—	73	137	—	—
		EP071: C15 - C28 Fraction	—	3140 mg/kg	122	—	53	131	—	—
		EP071: C29 - C36 Fraction	—	2860 mg/kg	117	—	52	132	—	—
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3809442)										
ES1502429-025	GW1 0.2-0.3	EP071: >C10 - C16 Fraction	>C10_C16	850 mg/kg	127	—	73	137	—	—
		EP071: >C16 - C34 Fraction	—	4800 mg/kg	119	—	53	131	—	—
		EP071: >C34 - C40 Fraction	—	2400 mg/kg	106	—	52	132	—	—
EP075(SIM): Polynuclear Aromatic Hydrocarbons (QCLot: 3809443)										
ES1502429-025	GW1 0.2-0.3	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	83.6	—	70	130	—	—
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	100	—	70	130	—	—
EP068A: Organochlorine Pesticides (OC) (QCLot: 3809444)										
ES1502429-045	BH24 0-0.1	EP068: gamma-BHC	58-89-9	0.5 mg/kg	103	—	70	130	—	—

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Sub-Matrix: SOIL

Sub-Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		APDs (%)	
				Concentration	MS	MSD	Low	High	Value	Control Limit
EP068A: Organochlorine Pesticides (OC) (QCLot: 3809444) - continued										
ES1502429-045	BH24 0-0.1	EP068: Heptachlor	76-44-8	0.5 mg/kg	94.3	—	70	130	—	—
		EP068: Aldrin	309-00-2	0.5 mg/kg	102	—	70	130	—	—
		EP068: Dieldrin	60-57-1	0.5 mg/kg	97.0	—	70	130	—	—
		EP068: Endrin	72-20-8	2 mg/kg	87.2	—	70	130	—	—
		EP068: 4,4'-DDT	50-29-3	2 mg/kg	90.3	—	70	130	—	—
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3809446)										
ES1502429-045	BH24 0-0.1	EP066: Total Polychlorinated biphenyls	—	1 mg/kg	90.3	—	70	130	—	—
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3809446)										
ES1502429-045	BH24 0-0.1	EP071: C10 - C14 Fraction	—	560 mg/kg	96.6	—	73	137	—	—
		EP071: C15 - C28 Fraction	—	2370 mg/kg	117	—	53	131	—	—
		EP071: C29 - C36 Fraction	—	1695 mg/kg	102	—	52	132	—	—
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3809446)										
ES1502429-045	BH24 0-0.1	EP071: >C10 - C16 Fraction	>C10_C16	902 mg/kg	104	—	73	137	—	—
		EP071: >C16 - C34 Fraction	—	3190 mg/kg	112	—	53	131	—	—
		EP071: >C34 - C40 Fraction	—	1087 mg/kg	105	—	52	132	—	—
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3809447)										
ES1502429-045	BH24 0-0.1	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	97.5	—	70	130	—	—
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	114	—	70	130	—	—
EP068A: Organochlorine Pesticides (OC) (QCLot: 3809450)										
ES1502429-065	BH10 0-0.2	EP068: gamma-BHC	58-89-9	0.5 mg/kg	105	—	70	130	—	—
		EP068: Heptachlor	76-44-8	0.5 mg/kg	101	—	70	130	—	—
		EP068: Aldrin	309-00-2	0.5 mg/kg	106	—	70	130	—	—
		EP068: Dieldrin	60-57-1	0.5 mg/kg	102	—	70	130	—	—
		EP068: Endrin	72-20-8	2 mg/kg	98.9	—	70	130	—	—
		EP068: 4,4'-DDT	50-29-3	2 mg/kg	81.2	—	70	130	—	—
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3809451)										
ES1502429-065	BH10 0-0.2	EP066: Total Polychlorinated biphenyls	—	1 mg/kg	99.4	—	70	130	—	—
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3809452)										
ES1502429-065	BH10 0-0.2	EP071: C10 - C14 Fraction	—	560 mg/kg	96.0	—	73	137	—	—
		EP071: C15 - C28 Fraction	—	2370 mg/kg	108	—	53	131	—	—
		EP071: C29 - C36 Fraction	—	1695 mg/kg	110	—	52	132	—	—
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3809452)										
ES1502429-065	BH10 0-0.2	EP071: >C10 - C16 Fraction	>C10_C16	902 mg/kg	100	—	73	137	—	—
		EP071: >C16 - C34 Fraction	—	3190 mg/kg	126	—	53	131	—	—

ITEM 3 (continued)

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Work Order : ES1502429
Client : GREENCAP NAA
Project : J130282



Sub-Matrix: SOIL

Sub-Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
				Concentration	MS	MSD	Low	High	Value	Control Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Fractions (QCLot: 3809452) - continued										
ES1502429-065	BH10 0-0.2	EP071: >C34 - C40 Fraction	—	1087 mg/kg	97.0	—	52	132	—	—
EP075(SIM): Polynuclear Aromatic Hydrocarbons (QCLot: 3809453)										
ES1502429-065	BH10 0-0.2	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	81.4	—	70	130	—	—
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	95.8	—	70	130	—	—
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3809454)										
ES1502429-065	BH10 0-0.2	EP080: C6 - C9 Fraction	—	32.5 mg/kg	89.4	—	70	130	—	—
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Fractions (QCLot: 3809454)										
ES1502429-065	BH10 0-0.2	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	88.2	—	70	130	—	—
EP080: BTEXN (QCLot: 3809454)										
ES1502429-065	BH10 0-0.2	EP080: Benzene	71-43-2	2.5 mg/kg	74.3	—	70	130	—	—
		EP080: Toluene	108-88-3	2.5 mg/kg	76.7	—	70	130	—	—
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	75.5	—	70	130	—	—
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	75.3	—	70	130	—	—
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	76.1	—	70	130	—	—
		EP080: Naphthalene	91-20-3	2.5 mg/kg	74.9	—	70	130	—	—
EG005T: Total Metals by ICP-AES (QCLot: 3816089)										
ES1502429-005	GW1 2.6-2.7	EG005T: Arsenic	7440-38-2	50 mg/kg	95.3	—	70	130	—	—
		EG005T: Cadmium	7440-43-9	50 mg/kg	99.7	—	70	130	—	—
		EG005T: Chromium	7440-47-3	50 mg/kg	107	—	70	130	—	—
		EG005T: Copper	7440-50-8	250 mg/kg	106	—	70	130	—	—
		EG005T: Lead	7439-92-1	250 mg/kg	97.3	—	70	130	—	—
		EG005T: Nickel	7440-02-0	50 mg/kg	101	—	70	130	—	—
		EG005T: Zinc	7440-66-8	250 mg/kg	98.8	—	70	130	—	—
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3816090)										
ES1502429-005	GW1 2.6-2.7	EG035T: Mercury	7439-97-6	5 mg/kg	99.6	—	70	130	—	—
EG005T: Total Metals by ICP-AES (QCLot: 3816081)										
ES1502429-025	GW1 0.2-0.3	EG005T: Arsenic	7440-38-2	50 mg/kg	91.5	—	70	130	—	—
		EG005T: Cadmium	7440-43-9	50 mg/kg	95.5	—	70	130	—	—
		EG005T: Chromium	7440-47-3	50 mg/kg	113	—	70	130	—	—
		EG005T: Copper	7440-50-8	250 mg/kg	106	—	70	130	—	—
		EG005T: Lead	7439-92-1	250 mg/kg	93.0	—	70	130	—	—
		EG005T: Nickel	7440-02-0	50 mg/kg	94.0	—	70	130	—	—
		EG005T: Zinc	7440-66-8	250 mg/kg	91.5	—	70	130	—	—

ITEM 3 (continued)

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Work Order : ES1502428
Client : GREENCAP NAA
Project : J130282



Sub-Matrix: SOIL

Sub-Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		APDs (%)	
				Concentration	MS	MSD	Low	High	Value	Control Limit
EQ035T: Total Recoverable Mercury by FIMS (QCLot: 3816092)										
ES1502429-025	GW1 0.2-0.3	EQ035T: Mercury	7439-97-6	5 mg/kg	103	—	70	130	—	—
EQ005T: Total Metals by ICP-AES (QCLot: 3817019)										
ES1502233-001	Anonymous	EQ005T: Arsenic	7440-38-2	50 mg/kg	107	—	70	130	—	—
		EQ005T: Cadmium	7440-43-9	50 mg/kg	102	—	70	130	—	—
		EQ005T: Chromium	7440-47-3	50 mg/kg	106	—	70	130	—	—
		EQ005T: Copper	7440-50-8	250 mg/kg	107	—	70	130	—	—
		EQ005T: Lead	7439-92-1	250 mg/kg	100	—	70	130	—	—
		EQ005T: Nickel	7440-02-0	50 mg/kg	107	—	70	130	—	—
		EQ005T: Zinc	7440-66-6	250 mg/kg	101	—	70	130	—	—
EQ035T: Total Recoverable Mercury by FIMS (QCLot: 3817020)										
ES1502233-001	Anonymous	EQ035T: Mercury	7439-97-6	5 mg/kg	97.1	—	70	130	—	—
EQ005T: Total Metals by ICP-AES (QCLot: 3817021)										
ES1502429-061	BH20 0.25-0.4	EQ005T: Arsenic	7440-38-2	50 mg/kg	105	—	70	130	—	—
		EQ005T: Cadmium	7440-43-9	50 mg/kg	99.4	—	70	130	—	—
		EQ005T: Chromium	7440-47-3	50 mg/kg	110	—	70	130	—	—
		EQ005T: Copper	7440-50-8	250 mg/kg	113	—	70	130	—	—
		EQ005T: Lead	7439-92-1	250 mg/kg	97.4	—	70	130	—	—
		EQ005T: Nickel	7440-02-0	50 mg/kg	105	—	70	130	—	—
		EQ005T: Zinc	7440-66-6	250 mg/kg	99.5	—	70	130	—	—
EQ035T: Total Recoverable Mercury by FIMS (QCLot: 3817022)										
ES1502429-061	BH20 0.25-0.4	EQ035T: Mercury	7439-97-6	5 mg/kg	94.5	—	70	130	—	—

Sub-Matrix: WATER

Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		APDs (%)
					MS	MSD	Low	High	Value Control Limit
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3813882)									
ES1502372-013	Anonymous	EP080: C6 - C9 Fraction	—	325 µg/L	119	—	70	130	—
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3813882)									
ES1502372-013	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	119	—	70	130	—
EP080: BTEXN (QCLot: 3813882)									
ES1502372-013	Anonymous	EP080: Benzene	71-43-2	25 µg/L	97.0	—	70	130	—
		EP080: Toluene	108-88-3	25 µg/L	99.7	—	70	130	—
		EP080: Ethylbenzene	100-41-4	25 µg/L	102	—	70	130	—
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	101	—	70	130	—

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 Work Order : ES1502429
 Client : GREENCAP NAA
 Project : J130282



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		APDs (%)	
				Concentration	MS	MSD	Low	High	Value	Control Limit
EP080: BTEXN (QCLot: 3813582) - continued										
ES1502372-013	Anonymous	EP080: ortho-Xylene	95-47-6	25 µg/L	99.0	—	70	130	—	—
		EP080: Naphthalene	91-20-3	25 µg/L	105	—	70	130	—	—
EG035F: Dissolved Mercury by FIMS (QCLot: 3814559)										
ES1502416-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	83.5	—	70	130	—	—
EG020F: Dissolved Metals by ICP-MS (QCLot: 3814559)										
ES1502416-004	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	116	—	70	130	—	—
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	100	—	70	130	—	—
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	91.5	—	70	130	—	—
		EG020A-F: Copper	7440-50-8	0.2 mg/L	105	—	70	130	—	—
		EG020A-F: Lead	7439-92-1	0.2 mg/L	99.0	—	70	130	—	—
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	103	—	70	130	—	—
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	99.0	—	70	130	—	—

ITEM 3 (continued)

ATTACHMENT 2



AUSTRALIAN SAFER ENVIRONMENT & TECHNOLOGY PTY LTD

ABN 36 088 095 112

Our ref : ASET42851/ 46031 / 1 - 21
Your ref : J130282
NATA Accreditation No: 14484

9 February 2015

Greencap | NAA
Level 2, 11 Khartoum Road
North Ryde NSW 2113



Accredited for compliance with ISO/IEC 17025.

Attn: Ms Naomi Price

Dear Naomi

Asbestos Identification

This report presents the results of twenty-one from fifty samples, forwarded by Greencap| NAA on 5 February 2015, for analysis for asbestos.

1.Introduction: Twenty-one samples forwarded were examined and analysed for the presence of asbestos.

2. Methods : The samples were examined under a Stereo Microscope and selected fibres were analysed by Polarized Light Microscopy in conjunction with Dispersion Staining method (Safer Environment Method 1 and Australian Standard AS 4964 - 2004).

The report also provides approximate weights and percentages, categories of asbestos forms appearing in the sample, such as AF(Asbestos Fines), FA(Friable Asbestos and ACM (Asbestos Containing Material), also satisfying the requirements⁶ of the WA/ NEPM Guidelines)

3. Results : Sample No. 1. ASET42851/ 46031 / 1. BHA 0.3 - 0.6.

Approx dimensions 5.5 cm x 4.5 cm x 3.5 cm

Approx total weight of sample = 97.0g

The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of plaster and glass.

No asbestos detected.

Sample No. 2. ASET42851/ 46031 / 2. BHB 0.2 - 0.4.

Approx dimensions 6.0 cm x 4.8 cm x 3.5 cm

Approx total weight of sample = 108.0g

The sample consisted of a mixture of sandy soil, stones, plant matter, fragments of bitumen, glass, paint flakes and brick.

No asbestos detected.

Sample No. 3. ASET42851/ 46031 / 3. BHC 0.0 - 0.2.

Approx dimensions 6.5 cm x 5.0 cm x 3.8 cm

Approx total weight of sample = 141.0g

The sample consisted of a mixture of sandy soil, stones, plant matter, fragments of plaster, glass, cement, bitumen and brick.

No asbestos detected.

SUITE 710 / 90 GEORGE STREET, HORNSBY NSW 2077 - P.O. BOX 1644 HORNSBY WESTFIELD NSW 1635
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ITEM 3 (continued)

ATTACHMENT 2



Sample No. 4. ASET42851 / 46031 / 4. BHC 0.4 - 0.6.

Approx dimensions 5.5 cm x 4.7 cm x 2.8 cm

Approx total weight of sample = 85.0g

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of plaster.

No asbestos detected.

Sample No. 5. ASET42851 / 46031 / 5. BHD 0.3 - 0.4.

Approx dimensions 4.5 cm x 3.8 cm x 2.2 cm

Approx total weight of sample = 51.0g

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of plaster.

No asbestos detected.

Sample No. 6. ASET42851 / 46031 / 6. BHE 0.0 - 0.15.

Approx dimensions 6.0 cm x 5.5 cm x 3.5 cm

Approx total weight of sample = 126.0g

The sample consisted of a mixture of sandy soil, stones and plant matter, fragments of plaster and cement.

No asbestos detected.

Sample No. 7. ASET42851 / 46031 / 7. BHF 0.5 - 0.6.

Approx dimensions 5.0 cm x 4.5 cm x 3.2 cm

Approx total weight of sample = 83.0g

The sample consisted of a mixture of clayish soil, stones and plant matter.

No asbestos detected.

Sample No. 8. ASET42851 / 46031 / 8. BHG 0.0 - 0.2.

Approx dimensions 6.5 cm x 5.5 cm x 3.4 cm

Approx total weight of sample = 148.0g

The sample consisted of a mixture of clayish sandy soil, stones, fragments of plaster, bitumen, glass and brick.

No asbestos detected.

Sample No. 9. ASET42851 / 46031 / 9. BH2 0.1 - 0.2.

Approx dimensions 6.5 cm x 5.7 cm x 4.2 cm

Approx total weight of sample = 173.0g

The sample consisted of a mixture of sandy clayish soil, stones, sandstone, plant matter and fragments of brick like material.

No asbestos detected.

Sample No. 10. ASET42851 / 46031 / 10. BH3 0.3 - 0.4.

Approx dimensions 5.5 cm x 5.2 cm x 3.0 cm

Approx total weight of sample = 93.0g

The sample consisted of a mixture of sandy clayish soil, stones, sandstone, plant matter and fragments of plaster.

No asbestos detected.

Sample No. 11. ASET42851 / 46031 / 11. BH4 0.8 - 1.0.

Approx dimensions 6.8 cm x 5.5 cm x 3.6 cm

Approx total weight of sample = 161.0g

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of plaster.

No asbestos detected.

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Sample No. 12. ASET42851 / 46031 / 12. BH5 0.3 - 0.4.

Approx dimensions 5.5 cm x 5.0 cm x 4.2 cm

Approx total weight of sample = 123.0g

The sample consisted of a mixture of sandy clayish soil, stones, sandstone and plant matter.

No asbestos detected.

Sample No. 13. ASET42851 / 46031 / 13. BH6 0.4 - 0.5.

Approx dimensions 6.5 cm x 5.0 cm x 4.2 cm

Approx total weight of sample = 138.0g

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of plaster.

No asbestos detected.

Sample No. 14. ASET42851 / 46031 / 14. BH7 0.4 - 0.5.

Approx dimensions 5.5 cm x 4.8 cm x 3.9 cm

Approx total weight of sample = 118.0g

The sample consisted of a mixture of clayish soil, stones, fragments of plaster, glass, bitumen, cement and brick like material.

No asbestos detected.

Sample No. 15. ASET42851 / 46031 / 15. BH8 0.5 - 0.6.

Approx dimensions 6.5 cm x 4.7 cm x 3.5 cm

Approx total weight of sample = 128.0g

The sample consisted of a mixture of clayish sandy soil, stones, sandstone, plant matter, fragments of plaster and cement.

No asbestos detected.

Sample No. 16. ASET42851 / 46031 / 16. BH9 1.0 - 1.2.

Approx dimensions 5.5 cm x 5.0 cm x 3.7 cm

Approx total weight of sample = 109.0g

The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of glass and brick like material.

No asbestos detected.

Sample No. 17. ASET42851 / 46031 / 17. BH10 0.0 - 0.2.

Approx dimensions 5.5 cm x 4.8 cm x 3.5 cm

Approx total weight of sample = 98.0g

The sample consisted of a mixture of sandy clayish soil, stones, sandstone and plant matter.

No asbestos detected.

Sample No. 18. ASET42851 / 46031 / 18. BH11 0.2 - 0.4.

Approx dimensions 6.5 cm x 5.0 cm x 4.5 cm

Approx total weight of sample = 162.0g

The sample consisted of a mixture of clayish sandy soil, stones, plant matter, fragments of cement, plaster, paint flakes and cement.

No asbestos detected.

Sample No. 19. ASET42851 / 46031 / 19. BH13 0.0 - 0.15.

Approx dimensions 5.7 cm x 5.2 cm x 3.2 cm

Approx total weight of sample = 103.0g

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of plaster.

No asbestos detected.

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Sample No. 20. ASET42851 / 46031 / 20. BH14 0.0-0.2.

Approx dimensions 7.0 cm x 6.0 cm x 4.5 cm

Approx total weight of sample = 201.0g

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of cement and plaster.

No asbestos detected.

Sample No. 21. ASET42851 / 46031 / 21. BH15 0.6 - 0.7.

Approx dimensions 6.0 cm x 5.2 cm x 2.9 cm

Approx total weight of sample = 104.0g

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of plaster.

No asbestos detected.

Analysed and reported by,

Chamath Annaldage, BSc
Environmental Technician/Approved Identifier

Mahen De Silva, BSc, MSc, Grad Dip (Occ Hyg)
Occupational Hygienist / Approved Signatory



Accredited for compliance with ISO/IEC 17025.

This report is consistent with the analytical procedures and reporting recommendations in the Western Australia Guidelines for the Assessment Remediation and Management of Asbestos contaminated sites in Western Australia and it also satisfies the requirements of the current NEPM Guidelines. NATA Accreditation does not cover the performance of this service (NATA ISO/IEC17025 AUG 2014).

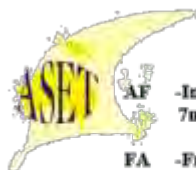
Disclaimers;

The approx; weights given above can be used only as a guide. They do not represent absolute weights of each kind of asbestos, as it is impossible to extract all loose fibres from soil and other asbestos containing building material samples using this method. However above figures may be used as closest approximations to the exact values in each case. Estimation and/ or reporting of asbestos fibre weights in asbestos containing materials and soil is out of the Scope of the NATA Accreditation. NATA Accreditation only covers the qualitative part of the results reported.

ACM - Asbestos Containing Material - Products or materials that contain asbestos in an inert bound matrix such as cement or resin. Here taken to be sound material, even as fragments and not fitting through a 7mm X 7 mm sieve.

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AF -Includes asbestos free fibres, small fibre bundles and also ACM fragments that pass through a 7mm X 7 mm sieve.

FA -Friable asbestos material such as severely weathered ACM, and asbestos in the form of loose fibrous material such as insulation products.

[^] denotes loose fibres of relevant asbestos types detected in soil/dust and fragments of ACM smaller than 7mm diameter.

^{*} denotes asbestos detected in ACM in bonded form.

[#] denotes AF.

All samples indicating "No asbestos detected" are assumed to be less than 0.001 % unless the actual approximate weight is given.

^Q (Sample volume criteria of 500 mL have not been satisfied).

ITEM 3 (continued)

ATTACHMENT 2



AUSTRALIAN SAFER ENVIRONMENT & TECHNOLOGY PTY LTD

ABN 36 088 095 112

Our ref: ASET42851/ 46031 / 22 - 50
Your ref: J130282
NATA Accreditation No: 14484

10 February 2015

Greencap| NAA
Level 2, 11 Khartoum Road
North Ryde NSW 2113



Accredited for compliance with ISO/IEC 17025.

Attn: Ms Naomi Price

Dear Naomi

Asbestos Identification

This report presents the results of twenty-nine from fifty samples, forwarded by Greencap| NAA on 6 February 2015, for analysis for asbestos.

1.Introduction: Twenty-nine samples forwarded were examined and analysed for the presence of asbestos.

2. Methods : The samples were examined under a Stereo Microscope and selected fibres were analysed by Polarized Light Microscopy in conjunction with Dispersion Staining method (Safer Environment Method 1 and Australian Standard AS 4964 - 2004).

The report also provides approximate weights and percentages, categories of asbestos forms appearing in the sample, such as AF(Asbestos Fines), FA(Friable Asbestos and ACM (Asbestos Containing Material), also satisfying the requirements⁶ of the WA/ NEPM Guidelines)

3. Results : **Sample No. 22. ASET42851 / 46031 / 22. BH16 - 0.6-0.8.**
Approx dimensions 4.0 cm x 4.0 cm x 3.0 cm
Approximate total weight of soil = 58.0g
The sample consisted of a mixture of clayish soil, stones and plant matter.
No asbestos detected.

Sample No. 23. ASET42851 / 46031 / 23. BH17 - 1.5-1.6.
Approx dimensions 5.5 cm x 5.5 cm x 4.2 cm
Approximate total weight of soil = 125.0g
The sample consisted of a mixture of clayish soil, stones and plant matter.
No asbestos detected.

Sample No. 24. ASET42851 / 46031 / 24. BH18 - 0.0-0.2.
Approx dimensions 5.0 cm x 5.0 cm x 4.0 cm
Approximate total weight of soil = 116.0g
The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of cement and bitumen.
No asbestos detected.

Sample No. 25. ASET42851 / 46031 / 25. BH19 - 0.05-0.2.
Approx dimensions 5.5 cm x 4.5 cm x 4.0 cm
Approximate total weight of soil = 105.0g
The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of plaster, cement and bitumen.
No asbestos detected.

SUITE 710 / 90 GEORGE STREET, HORNSBY NSW 2077 – P.O. BOX 1644 HORNSBY WESTFIELD NSW 1635
PHONE: (02) 99872183 FAX: (02)99872151 EMAIL: aset@bigpond.net.au WEBSITE: www.Aaset.com.au

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ASBESTOS DETECTION & IDENTIFICATION • REPAIR & CALIBRATION OF SCIENTIFIC EQUIPMENT • AIRBORNE FIBRE & SILICA MONITORING

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Sample No. 26. ASET42851 / 46031 / 26. BH19 - 0.2-0.3.

Approx dimensions 5.0 cm x 5.0 cm x 3.5 cm

Approximate total weight of soil = 116.0g

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of plaster.

No asbestos detected.

Sample No. 27. ASET42851 / 46031 / 27. BH20 - 0.25-0.4.

Approx dimensions 6.5 cm x 6.5 cm x 3.0 cm

Approximate total weight of soil = 171.0g

The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of plaster and cement.

No asbestos detected.

Sample No. 28. ASET42851 / 46031 / 28. BH21 - 0.0-0.2.

Approx dimensions 4.0 cm x 4.0 cm x 2.5 cm

Approximate total weight of soil = 63.0g

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of plaster.

No asbestos detected.

Sample No. 29. ASET42851 / 46031 / 29. BH22 - 0.25-0.35.

Approx dimensions 5.5 cm x 5.5 cm x 3.5 cm

Approximate total weight of soil = 155.0g

The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster, cement, brick and bitumen.

No asbestos detected.

Sample No. 30. ASET42851 / 46031 / 30. BH23 - 0.5-0.6.

Approx dimensions 5.0 cm x 5.0 cm x 4.0 cm

Approximate total weight of soil = 121.0g

The sample consisted of a mixture of clayish soil, stones and plant matter.

No asbestos detected.

Sample No. 31. ASET42851 / 46031 / 31. BH24 - 0.0-0.1.

Approx dimensions 5.0 cm x 5.0 cm x 2.5 cm

Approximate total weight of soil = 74.0g

The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster, cement and bitumen.

No asbestos detected.

Sample No. 32. ASET42851 / 46031 / 32. BH25 - 0.6-0.8.

Approx dimensions 5.5 cm x 5.5 cm x 3.0 cm

Approximate total weight of soil = 100.0g

The sample consisted of a mixture of sandy soil, stones, plant matter and fragments of bitumen.

No asbestos detected.

Sample No. 33. ASET42851 / 46031 / 33. BH26 - 0.2-0.4.

Approx dimensions 6.5 cm x 6.5 cm x 3.5 cm

Approximate total weight of soil = 180.0g

The sample consisted of a mixture of clayish soil, stones and plant matter.

No asbestos detected.

ITEM 3 (continued)

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Sample No. 34. ASET42851 / 46031 / 34. BH27 - 0.0-0.2.

Approx dimensions 7.0 cm x 7.0 cm x 4.0 cm

Approximate total weight of soil = 245.0g

The sample consisted of a mixture of soil, stones, plant matter, fragments of cement and bitumen.

No asbestos detected.

Sample No. 35. ASET42851 / 46031 / 35. BH28 - 0.2-0.4.

Approx dimensions 5.0 cm x 5.0 cm x 3.5 cm

Approximate total weight of soil = 128.0g

The sample consisted of a mixture of clayish soil, stones and plant matter.

No asbestos detected.

Sample No. 36. ASET42851 / 46031 / 36. BH29 - 0.4-0.6.

Approx dimensions 7.5 cm x 7.5 cm x 3.6 cm

Approximate total weight of soil = 238.0g

The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of plaster and glass.

No asbestos detected.

Sample No. 37. ASET42851 / 46031 / 37. BH30 - 0.8-0.9.

Approx dimensions 4.0 cm x 4.0 cm x 4.0 cm

Approximate total weight of soil = 75.0g

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of plaster.

No asbestos detected.

Sample No. 38. ASET42851 / 46031 / 38. BH31 - 0.0-0.2.

Approx dimensions 6.0 cm x 6.0 cm x 3.4 cm

Approximate total weight of soil = 145.0g

The sample consisted of a mixture of soil, stones, plant matter, fragments of cement and bitumen.

No asbestos detected.

Sample No. 39. ASET42851 / 46031 / 39. BH32 - 0.0-0.2.

Approx dimensions 6.5 cm x 6.0 cm x 3.5 cm

Approximate total weight of soil = 146.0g

The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of cement and bitumen.

No asbestos detected.

Sample No. 40. ASET42851 / 46031 / 40. BH34 - 0.4-0.5.

Approx dimensions 6.0 cm x 5.0 cm x 3.0 cm

Approximate total weight of soil = 130.0g

The sample consisted of a mixture of clayish soil, stones and plant matter.

No asbestos detected.

Sample No. 41. ASET42851 / 46031 / 41. BH35 - 0.0-0.2.

Approx dimensions 5.0 cm x 5.0 cm x 3.0 cm

Approximate total weight of soil = 95.0g

The sample consisted of a mixture of sandy soil, stones and plant matter.

No asbestos detected.

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Sample No. 42. ASET42851 / 46031 / 42. BH36 - 0.1-0.2.

Approx dimensions 5.0 cm x 5.0 cm x 2.5 cm

Approximate total weight of soil = 35.0g

The sample consisted of a mixture of clayish soil, stones and plant matter.

No asbestos detected.

Sample No. 43. ASET42851 / 46031 / 43. BH37 - 0.3-0.4.

Approx dimensions 6.0 cm x 5.0 cm x 2.5 cm

Approximate total weight of soil = 88.0g

The sample consisted of a mixture of sandy soil, stones, plant matter and fragments of plaster.

No asbestos detected.

Sample No. 44. ASET42851 / 46031 / 44. BH38 - 0.3-0.4.

Approx dimensions 5.0 cm x 4.0 cm x 4.0 cm

Approximate total weight of soil = 93.0g

The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster, cement and bitumen.

No asbestos detected.

Sample No. 45. ASET42851 / 46031 / 45. BH39 - 0.0-0.2.

Approx dimensions 7.0 cm x 7.0 cm x 3.6 cm

Approximate total weight of soil = 206.0g

The sample consisted of a mixture of clayish soil, stones and plant matter.

No asbestos detected.

Sample No. 46. ASET42851 / 46031 / 46. BH41 - 0.2-0.3.

Approx dimensions 6.0 cm x 6.0 cm x 3.6 cm

Approximate total weight of soil = 121.0g

The sample consisted of a mixture of clayish soil, stones and plant matter.

No asbestos detected.

Sample No. 47. ASET42851 / 46031 / 47. GW1 - 0.2-0.3.

Approx dimensions 5.5 cm x 5.0 cm x 4.0 cm

Approximate total weight of soil = 139.0g

The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of plaster, cement and bitumen.

No asbestos detected.

Sample No. 48. ASET42851 / 46031 / 48. GW1 - 0.4-0.45.

Approx dimensions 5.0 cm x 5.0 cm x 5.0 cm

Approximate total weight of soil = 142.0g

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of plaster.

No asbestos detected.

Sample No. 49. ASET42851 / 46031 / 49. GW2 - 0.1-0.2.

Approx dimensions 7.0 cm x 7.0 cm x 4.0 cm

Approximate total weight of soil = 215.0g

The sample consisted of a mixture of soil, stones, sandstones and plant matter.

No asbestos detected.

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Sample No. 50. ASET42851 / 46031 / 50. GW3 - 0.2-0.3.

Approx dimensions 6.0 cm x 5.0 cm x 2.0 cm

Approximate total weight of soil = 55.0g

The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of plaster, cement and bitumen.

No asbestos detected.

Analysed and reported by,

Nisansala Maddage, BSc(Hons)
Environmental Scientist/Approved Identifier
Approved Signatory



Accredited for compliance with ISO/IEC 17025.

This report is consistent with the analytical procedures and reporting recommendations in the Western Australia Guidelines for the Assessment Remediation and Management of Asbestos contaminated sites in Western Australia and it also satisfies the requirements of the current NEPM Guidelines. NATA Accreditation does not cover the performance of this service (NATA ISO/IEC 17025 AUG 2014).

Disclaimers;

The approx; weights given above can be used only as a guide. They do not represent absolute weights of each kind of asbestos, as it is impossible to extract all loose fibres from soil and other asbestos containing building material samples using this method. However above figures may be used as closest approximations to the exact values in each case. Estimation and/or reporting of asbestos fibre weights in asbestos containing materials and soil is out of the Scope of the NATA Accreditation. NATA Accreditation only covers the qualitative part of the results reported.

ACM - Asbestos Containing Material - Products or materials that contain asbestos in an inert bound matrix such as cement or resin. Here taken to be sound material, even as fragments and not fitting through a 7mm X 7 mm sieve.

AF -Includes asbestos free fibres, small fibre bundles and also ACM fragments that pass through a 7mm X 7 mm sieve.

FA -Friable asbestos material such as severely weathered ACM, and asbestos in the form of loose fibrous material such as insulation products.

[^] denotes loose fibres of relevant asbestos types detected in soil/dust and fragments of ACM smaller than 7mm diameter.

^{*} denotes asbestos detected in ACM in bonded form.

[#] denotes AF.

All samples indicating "No asbestos detected" are assumed to be less than 0.001 % unless the actual approximate weight is given.

^o (Sample volume criteria of 500 mL have not been satisfied).

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Detailed Site Investigation

Government Property NSW

Proposed Lot 1, 45-61 Waterloo Road, Macquarie Park, NSW

Appendix E: Quality Assurance and Quality Control

ITEM 3 (continued)

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1 INTRODUCTION

The aim of quality control and quality assurance (QA/QC) is to deliver data that is:

- representative of what is sampled;
- precise;
- accurate; and
- reproducible.

As investigations involve both field and laboratory QA/QC, these are similarly divided. The objective of this document is to evaluate and identify the data quality objectives (DQOs) and the data quality indicators (DQIs), which are used to assess whether the DQOs have been met.

The NSW guideline documents used in the evaluation of the data set for this investigation are:

- Australian and New Zealand Environment and Conservation Council 1992, *Australian and New Zealand Guidelines for the assessment and management of contaminated sites*, Australia and New Zealand Environment Council, National Health and Medical Research Council, Melbourne, Vic;
- Department of Environment and Conservation NSW 2006, *Contaminated sites: Guidelines for NSW Site Auditors Scheme, 2nd edition*, Department of Environment and Conservation NSW, Sydney, NSW;
- National Environment Protection Council (NEPC) 2013/1999, *National Environment Protection (Assessment of Site Contamination) Measure*, National Environment Protection Council, Adelaide, SA;
- NSW Environment Protection Authority (EPA) 1995, *Contaminated sites: Sampling design guidelines*, EPA NSW, Chatswood, NSW; and
- NSW EPA 2011, *Contaminated sites: Guidelines for consultants reporting on contaminated sites*, EPA NSW, Chatswood, NSW.

Data quality is typically discussed in terms of Precision, Accuracy, Representativeness, Comparability and Completeness. These are referred to as the PARCC parameters. The PARCC (and additional QA) parameters are discussed within this report.

The following items form part of the QA/QC appendix:

- repeatability;
- precision;
- accuracy;
- representativeness;
- completeness;
- comparability;
- sensitivity;
- holding times;
- blanks; and
- procedures for anomalous samples and confirmation checking.

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1.1 Background

The terms “quality assurance” and “quality control” are often confused. In any program, quality control is required before assurance can be put in place. Quality Assurance (QA) is “a set of activities intended to establish confidence that quality requirements will be met” (AS/NZS ISO 9000:2005).

This encompasses all actions, procedures, checks and decisions undertaken to ensure the accuracy and reliability of analysis results. It includes routine procedures which ensure proper sample control, data transfer, instrument calibration, the decisions required to select and properly train staff, select equipment and analytical methods, and the day to day judgements resulting from regular scrutiny and maintenance of the laboratory system.

Quality Control (QC) is “a set of activities intended to ensure that quality requirements are actually being met” (AS/NZS ISO 9000:2005). In other words, the operational techniques and activities that are used to fulfil the requirements for quality.

These are the components of QA which serve to monitor and measure the effectiveness of other QA procedures by comparison with previously decided objectives. They include measurement of the quality of reagents, cleanliness of apparatus, accuracy and precision of methods and instrumentation, and reliability of all of these factors as implemented in a given laboratory from day to day.

A complete discussion of either of these terms or the steps for implementing them is beyond the scope of this document. It is widely recognised, however, that adoption of sound laboratory QA and QC procedures is essential and readers are referred to documentation available from the National Association of Testing Authorities (NATA), if further information is required.

2 DATA QUALITY OBJECTIVES

The Data Quality Objectives (DQOs) process is a systematic approach used to define the type, quantity and quality of data supporting decisions which relate to the environmental condition of a site. Undertaking DQOs for site assessment and remediation is a requirement of the DECC (2006), *Contaminated sites: Guidelines for NSW Site Auditors Scheme (2nd edition)*. The DQO process was formulated by the US EPA and provides sound guidance for a consistent approach to understanding site assessment and remediation.

The DQOs are defined in a series of seven steps. Table 1 outlines the seven steps and refers to the sections of the report which address these quality objectives.

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Table 1: Data Quality objectives		
Step	Description	Comment
1	State the problem	The site is a former vehicle station and has been used for commercial/industrial purposes. A preliminary site assessment identified the need for a DSI to be undertaken based on an historical tank farm being present (with 12 underground tanks having been installed). There is the potential for contamination in the soil and groundwater from this as well as from widespread filling and other site activities. The site owners wish to sell the land (land uses once sold may include commercial, public open space and residential). It is necessary to carry out a site soil and groundwater investigation to assess the extent of the contamination and to assess the need for any future remediation.
2	Identify the decision	Once the site has been investigated decisions will be made on whether further remediation is required.
3	Identify the inputs for the decision	Inputs into the decision comprise of a soil and groundwater investigations. Laboratory results will then be compared to generic soil and groundwater guideline values.
4	Define the boundaries for the study	The site is described as Proposed Lot 1 in DP1130630 The temporal boundary of the project is restricted to the timing of the investigations. The specific boundaries are indicated on Figure 1b
5	Develop a decision rule	Under the DQO process, it is important to nominate action levels for decision making. All analytical data for chemicals of concern in soil and groundwater across the site must be below the proposed criteria specified in this report otherwise further evaluation, management control, remedial action or risk assessment may be required.
6	Specify tolerable limits on decision error	Most of the procedures in the NSW EPA (1995) <i>Sampling design guidelines</i> , Standards Australia AS 4482.1 (2005) and NEPM (1999, 2013 amendment) have risk probabilities associated with allowable error margins incorporated into them. It is therefore proposed that no further "tolerable limits" be investigated at this stage of the project.
7	Optimise the design for obtaining data	The investigation will target areas of environmental concern based on previous investigations. The sample layout, density and testing regime may not be suitable to adequately define the impacts and may warrant further investigation. Remedial work may be required.

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Table 2: Data quality indicators				
Parameter	Procedure	Minimum Frequency	Criteria	
			(5 to 10x LOR ¹)	>10x LOR
Precision	Field Duplicates	1 in 20 - metals	<80 RPD	<50 RPD
		1 in 20 - semi-volatiles	<100 RPD	<80 RPD
		1 in 20 - volatiles	<150 RPD	<130 RPD
	Lab Replicate*	1 in 20	<50 RPD	<30 RPD
Accuracy*	Reference Material	1 in 10	60% to 140%R	80% to 120%R
	Matrix spikes			
	Surrogate spikes			
Representativeness*	Reagent Blanks	1 per batch	No detection	
	Holding Times*	Every sample	-	
Blanks**	Trip Blank	1 per batch	No detection	
	Rinsate Blanks			
Sensitivity	Limit of Reporting	Every sample	LOR < ½ site criteria	
Notes:				
1. RPD – relative percentage difference				
2. %R – percent recovery				
3. LOR – limit of reporting				
4. ⁴ no limit at <5x LOR				
5. * the MDQI is usually specified in the standard method. If not, use the default values set out in this table				
6. ** only necessary when measuring dissolved metals and volatile organic compounds in water samples				

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It should be noted that Standards Australia (AS4482.1) specify that typical MDQs for precision should be $\leq 50\%$ RPD, however also acknowledge that low concentrations and organic compounds in particular can be acceptably outside this range. The standard suggests that $\leq 50\%$ RPD be used as a 'trigger' and values above this level of repeatability need to be noted and explained.

Our adopted MDQs for precision acknowledge the intrinsic heterogeneity of metal and semivolatile chemical concentrations in disturbed soil that may potentially cause large variations in results between laboratory subsamples (although all efforts are made to homogenise non-volatile duplicate samples). Similarly, large variations in volatile chemical concentrations between duplicates may be unavoidable even when using best practice sampling methodology, especially as we seek to minimise the disturbance to the sample while splitting it which means a high degree of inherent heterogeneity is expected.

As such, our adopted RPD criteria are considered to be a suitable measure for the reproducibility of results within a naturally heterogeneous media such as soil. A $\leq 50\%$ RPD trigger value will be used, with any exceedances being discussed and assessed for acceptability.

3 SAMPLING AND ANALYSIS PLAN

3.1 Rationale for sampling strategy and density

The field soil sampling program was both a systematic design, based on access and site coverage, and a targeted design. The following bores were drilled at the site:

- soil sampling locations – 15 bores;
- groundwater monitoring wells – one monitoring well.

The sampling locations for the boreholes are shown on Figure 3.

Boreholes for soil sampling were drilled until refusal was met, to a maximum depth of 9 m BGL. Groundwater well GW1 was terminated at 9 m BGL after discussion with the Client. Soil samples were collected on a discrete basis at changes in the lithology or 0.5 to 1.0 metre depth intervals, whichever is the lesser.

Groundwater was encountered at the site between 5 and 8 m BGL.

3.2 Sampling methods

Boreholes were installed and sampled depending on location and accessibility utilising either a push tube or the tip of the drill rig auger. Soil samples for analysis were placed into glass jars which were labelled with the borehole number, depth of discrete sample collection, site reference and date before being placed in a chilled, darkened cooler.

Groundwater samples were collected in amber glass bottles, volatile vials or plastic bottles depending on the individual analytes.

All sampling procedures were undertaken in accordance with industry practice, further details can be provided on request.

3.3 Rationale for laboratory analysis schedule

The analytes selected are based on determination of the Contaminants of Potential Concern (CoPC) for the site, and their potential derivatives (based on the historic use as a fuel depot and market garden). The analytical methods selected are based on those recommended by the laboratories and publications such as Standard methods for the examination of water and waste-water (APHA 2005,

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21st edition) and Australian laboratory handbook of soil and water chemical methods (Rayment & Higginson 1992).

4 QUALITY CONTROL AND QUALITY ASSURANCE

4.1 Measurement data quality objectives

Step 7 of the DQO process (Section 2) is a focus on the quality of the information by measurement, that is, measurement data quality objectives (MDQOs). The aim of a quality control and quality assurance (QA/QC) is to deliver data that is representative of what is sampled, precise, accurate and reproducible. As investigations involve both field and laboratory QA/QC, these are similarly divided. The objective of this section is to provide the MDQOs and the measurement data quality indicators (MDQIs), which will be used to establish whether the DQOs have been met.

All surface water, groundwater and soil sampling procedures need to be undertaken according to a standard procedure, for example those procedures set out in:

- National Environment Protection Council (NEPC) 1999, as amended 2013 *National Environment Protection (Assessment of Site Contamination) Measure*, National Environment Protection Council, Adelaide, SA;
- NSW Environment Protection Authority (EPA) 1995, *Contaminated sites: Sampling design guidelines*, EPA NSW, Chatswood, NSW;
- NSW EPA 1997, *Contaminated sites: Guidelines for consultants reporting on contaminated sites*, EPA NSW, Chatswood, NSW.
- Standards Australia, 2005, *Guide to the investigation and sampling of sites with potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds*, (AS 4482.1), Standards Australia, Sydney, NSW; and
- Standards Australia, 1999, *Guide to the investigation and sampling of sites with potentially contaminated soil, Part 2: Volatile substances*, (AS 4482.2), Standards Australia, Homebush, NSW.

Measurement data quality is typically discussed in terms of precision, accuracy, representativeness, comparability and completeness. Although not necessarily considered in list order, the following items should form part of the QA/QC data evaluation:

- Measured Parameters: precision, accuracy, repeatability (comparability), blanks; and
- Assessed Parameters: completeness, representative of site conditions, sensitivity, and holding times.

The laboratories used should be NATA accredited for the analytical methods performed. Containers, sample preservation (if necessary) and holding times should be consistent with industry practices as set out in NEPM and as defined by ASTM.

The QA parameters selected and the criteria used to evaluate the analytical data are defined below and presented in Table 2 of this report.

4.1.1 Repeatability (Field collected intra-laboratory duplicates)

These samples provide a check on the analytical performance of the laboratory. At least 5 percent of soil samples (1 in 20) per day of sampling from a site are collected in duplicate. For comparability of data, it is important that there is little delay in the sample submission. For split samples, because of error associated with field splitting, an RPD of between 80 and 150% (depending on the substance) will be allowed as the MDQI. Soil heterogeneity due to the "nugget effect" could result in significantly greater difference, particularly for metals. Consequently, samples with the most observable field homogeneity are selected.

Any value >50% RPD will be noted and discussed, as per Standards Australia requirements, with respect to its acceptability for inclusion in the data-set.

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4.1.2 Precision

Precision is a measure of the reproducibility of results, and is assessed on the basis of agreement between a set of replicate results obtained from duplicate analyses. The precision of a duplicate determination can be measured as relative percentage difference (RPD), and is calculated from the following equation:

$$RPD = \left[\frac{X1 - X2}{\left(\frac{X1 + X2}{2} \right)} \right] \times 100$$

Where: X1 is the first duplicate value
X2 is the second duplicate value

The field blind and split duplicate results and calculated RPDs are presented in Table 3. The majority of results are considered to be within the acceptable range, any which are not are discussed in Section 5.1.

4.1.3 Accuracy

Accuracy is a measure of the agreement between an experimental determination and the true value of the parameter being measured. The determination of accuracy can be achieved through the analysis of known reference materials or assessed by the analysis of matrix spikes. Accuracy is measured in terms of percentage recovery as defined by the following equation:

$$\%R = \frac{SSR - SR}{SA} \times 100$$

where: %R = percentage recovery of the spike
SSR = spiked sample result
SR = sample result (native)
SA = spike added

Laboratories calculate percentage recoveries of spiked compounds, which are evaluated against control or acceptance limits taken from the appropriate method or the Contract Laboratory Program Statement of Work. If the spike recovery for a sample does not fall within the prescribed control limits, laboratory based corrective action is required.

Surrogate spikes consist of spiking non-target compounds into the sample prior to analysis. The spiked compounds are expected to behave during analysis in the same way as the target compounds. Every sample is spiked prior to extraction or analysis with surrogate compounds that are representative of the analysis. If surrogate spike recovery does not meet the prescribed control limits, samples should be reanalysed.

For inorganic analyses, certified reference materials are analysed.

4.1.4 Representativeness

Data Point Evaluation

Representativeness expresses the degree to which sample data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, or an environmental condition.

Representativeness is primarily dependent on the design and implementation of the sampling program. Representativeness of the data is partially ensured by the avoidance of contamination,

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adherence to sample handling and analysis protocols, and use of proper chain-of-custody and documentation procedures. Blanks, holding times and field duplicates are all QA parameters that can assist in the analysis of representativeness for data point evaluation and will need to be analysed as part of the measurement data quality assessment.

Data Set Evaluation

Whether the data is representative of the site is checked in part by undertaking an evaluation of the whole data set to establish the data is compatible. Data compatibility is authenticated by confirming that the laws of chemistry are upheld (e.g. nitrate is not present when Eh is -250 mV), that intra-laboratory analysis relationships are consistent (e.g. BTEX is a subset of the TPH C6-C9 fraction), that observations and field measurements are in agreement with other field data and the laboratory data and that results are consistent with the geology, history and logic.

4.1.5 Completeness

The following information is required to check for completeness of data sets:

- chain-of-custody forms (completed by NAA and the laboratory);
- sample receipt forms;
- all requested sample results reported;
- all blank data reported;
- all laboratory duplicates reported and relative percent differences (RPDs) calculated;
- all surrogate spike data reported;
- all matrix spike data reported; and
- NATA stamp on reports.

4.1.6 Comparability

Comparability is the evaluation of the similarity of conditions (e.g. sample depth, sample homogeneity, sampling procedures) under which separate sets of data are produced to ensure minimal common error. Data comparability should be demonstrated by the use of standardised sampling and analysis procedures. Data comparability was maintained by undertaking the investigations as follows:

- sampling during the investigation was conducted by trained NAA field team using standard operating procedures;
- all soil samples were collected using push tube sampling methods;
- groundwater samples were collected using well specific tubing and bladders; and
- the same laboratory (ALS) was used for organic and inorganic analysis for all relevant samples using the same NATA approved analytical methods.

4.1.7 Sensitivity

When interferences are present in the sample, a loss of sensitivity can occur resulting in an increase in the method detection limit. In some instances (e.g. where one or more compounds have particularly high concentrations) the sample must be diluted for analysis. This increases the method detection limit by the dilution factor.

The detection limits achieved by the laboratory, when adjusted for dry weight and interferences from the presence of other chemicals within the sampled matrix, must be less than half the site criteria for all analytes tested (i.e. $2 \times \text{LOR} < \text{site criteria}$).

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4.1.8 Holding times

Where standard holding times are exceeded, a discussion, using professional judgement, as to the integrity of the data will be required, taking into account such factors as field storage, laboratory storage and even sample bottle characteristics.

4.1.9 Procedures for anomalous samples and confirmation checking

All results should be checked for discrepancies by the project manager against the anticipated results and all other results within 8 hours of receipt of the results from the laboratory.

Any result that is considered by the supervising scientist to be unusually high or at variance with other results is automatically reanalysed. A significantly different result requires immediate remedial action on the whole sample batch (retesting or using an alternative analytical method) at the laboratory's expense.

After appropriate checking by laboratories, all sample analysis result work-sheets, including those of duplicates and replicate analyses, should be checked by the consultant.

Soil (for the purpose of laboratory analysis) is defined as the portion that passes through a 2 mm sieve when air dry. The retained gravel fraction is assumed to be inert. Analysis is undertaken on the less than 2 mm fraction where possible. This procedure is not possible for organics, and original laboratory sheets are reported on an 'as received' basis unless a correction has been applied.

All results of chemical analysis are analysed on an air dry weight basis and reported on an oven (105°C) dry weight basis, unless specified otherwise. All samples should be adjusted for moisture content when not reported on an oven dry basis.

Once confirmation checking is completed the final laboratory report is issued.

For blind duplicates, if one sample has more than two analytes exceeding the data quality objectives, the sample is carefully checked. If the error is not apparent, the sample is rejected. If more than three samples are rejected all the samples collected at that time are rejected. These samples are then re-sampled and reanalysed.

4.2 Field QA/QC

4.2.1 Details of sampling team

Fieldwork was conducted over a period from 29th January to 3rd February 2015 by Naomi Price.

4.2.2 Sampling controls

Decontamination procedures carried out between sampling events:

- Soil samples were collected from soil profiles removed from a push tube, or in the case of groundwater wells from the tip of the auger. New nitrile gloves were used at each sampling location, no equipment was reused between holes in either the soil or groundwater sampling rounds.
- Dedicated sampling equipment (low flow kit) was used for each groundwater borehole. Bores were sampled in order of least contaminated to most contaminated, this was assumed based on drilling observations and suspected locations of tanks. Groundwater samples were collected directly from the pump tubing and did not pass through the flow cell used to collect readings of water quality.

4.2.3 Sample notation details

The borehole logs details for each sample collected (including time, location, initials of sampler, duplicate locations, duplicate type and field screening details) are presented in Appendix B. The chemical analyses performed on each sample are presented on the chain of custody documentation (Appendix D) which also identify for each sample – the sampler, nature of the sample, collection

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date, analyses to be performed, sample preservation method (if any), departure time from the site and dispatch courier.

Site observations are described in Section 3 of the report.

4.2.4 Duplicate sampling

Duplicate samples were collected on each day of sampling. The number of duplicates collected and analysed for each analytical method is provided in Table 3, while duplicate analysis results are presented in Table 4.

Analysis	Number Primary samples		Number duplicate samples	
	Soil	Water	Soil	Water
TRH	31	1	2	-
BTEX	31	1	2	-
PAH	31	-	2	-
OCP	31	-	2	-
PCB	31	-	2	-
Heavy metals	31	1	2	-
pH and EC	-	1	-	-
Asbestos	15	-	-	-

Duplicates are prefixed as FD which stands for Field Duplicate and differentiated by number.

Duplicate soil samples were split using two separate methods. In the case of non-volatile samples, the soil sample was mixed and then distributed between two bags. In the case of volatile samples (collected from a clayey soil core), an undisturbed soil core was removed from the push tube, the outer layer of the soil core was then scraped off using a spatula (to prevent cross contamination) then the soil core was cut in half (lengthways) with each half being placed in separate sample jars.

Blanks, spikes and rinsate samples

The scope of this project did not include analysis of background samples, or laboratory prepared trip blanks for the soil sampling program, rinsates were not required during the soil investigation as no equipment was reused. Rinsate samples were not collected during the groundwater investigation due to the fact that new consumables were used at each bore and the pump mechanism was triple rinsed between each bore (Decon90, followed by tap water followed by deionised water). The lack of any detectable organic analytes in the groundwater samples indicates that there was no requirement to collect a rinsate sample.

Greencap did not consider analysis of background samples necessary for the following reasons:

- **Background samples** are used to establish natural soil and groundwater concentrations. Background samples were not possible on this site or in the area as the region surrounding the site has been an industrial area for over 50 years. A true background sample in this region would include organic and inorganic impacts from surrounding industries.

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5 LABORATORY QA/QC

Samples for this project were analysed by Analytical Laboratory Services (ALS) who are accredited by NATA for the methods used, details of this accreditation can be viewed at <http://www.nata.asn.au/>, while details of the samples sent to each laboratory and the analysis requested are contained in the chain of custody documentation held in Appendix D. The analytical methods are noted on the laboratory transcripts. The collection date of samples, laboratory extraction date and allowable holding time are presented on laboratory transcripts. All analysis was completed within the allowable holding times.

The laboratories complete laboratory control samples, laboratory blanks, sample duplicates, surrogate spikes and matrix spikes. These results are presented in the reports included in Appendix D. These reports include details of surrogates and spikes used, percent recoveries of surrogates and spikes used, the instrument detection limits, the method detection limits, the practical quantification limits and the reference samples results. All results were within acceptable limits and there were no exceedances or breaches.

5.1 QA/QC data evaluation

5.1.1 Soil QAQC

RPDs, where calculated, are indicated in Tables 4 and 5. The majority of RPD results were below the adopted suitability criteria of 50%.

Eight RPDs exceeded the adopted criteria of less than 50% RPD adopted for the investigation, however this is a conservative criteria and it should be noted that Standards Australia (AS4482.1) acknowledges that low concentrations and organic compounds in particular can be acceptably outside this range. The standard suggests that $\leq 50\%$ RPD be used as a 'trigger' and values above this level of repeatability need to be noted and explained. Greencap notes that as the concentrations of chromium, C₆-C₁₀ and F1 fractions are between 5 to 10x the LOR the criteria could safely be extended to 80% in which case the samples would pass the criteria.

These exceeding RPDs are likely attributed to both natural heterogeneity of the soil and the "nugget" effect, as well as the difficulty in accurately splitting soil with a high clay content without loss of volatile and semi volatile compounds. As such, the exceeding RPD values are not considered grounds for rejecting the data as a whole.

Field observations and measurements are comparable to laboratory data. The presence (and absence) of odours noted by olfactory senses and/or photoionisation detector (PID) measurements correspond to the detected concentration of volatile chemicals at those locations.

All results adhered to chemical laws or were not outside logical explanation. Metal levels in natural soil were within the expected range.

Extraction and analysis of samples were all within the relevant prescribed holding times. The internal laboratory control results (blanks, duplicates and spikes) are considered to be acceptable.

Based on information presented in this report it can be confidently stated that the MDQO's for this project have been met and the data set is considered to be reliable

5.1.2 Groundwater QAQC

Laboratory measured pH and TDS were compared to field pH and EC and were within acceptable ranges indicating that field collection methods and transport were adequate, pH was generally within 0.5 of a unit between the two analysis methods. As pH is subject to change very quickly this is a good indication of the reliability of the sample methods. The data set for groundwater is considered accurate and reliable based on these results.

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Table 4: RPD – Soil results

Analyte	Primary		Duplicate	Primary		Duplicate	
	BHA 1-1.2	FD3		RPD	BHG 0.4-0.6	FD4	RPD
Arsenic	5	<5	<5	-	6	5	18
Chromium	2	8	2	120	23	15	42
Lead	5	23	16	36	24	24	0
Phenanthrene	0.5	1	1.4	33	2.4	6.7	95
C ₆ – C ₁₀	10	1	1.4	33	4.3	8.1	61
C ₆ – C ₁₀ (F1)	10	14	29	70	<10	14	-
>C ₁₀ – C ₁₄	50	14	29	70	<10	14	-
>C ₁₆ – C ₃₄	100	570	660	15	1640	3750	78
>C ₃₄ – C ₄₀	100	550	760	32	2100	3800	58
>C ₁₀ – C ₁₄ (F2)	50	1120	1420	24	3740	7550	67
Notes:							
1. All data expressed in mg/kg							
2. Bold text indicates exceedance of 50% RPD (discussion required)							
3. Any samples where no concentration was detected have been omitted from the table							

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6 QAQC APPENDIX REFERENCES

- American Public Health Association (APHA) 2005, *Standard methods for the examination of water and waste-water*, 21st edition, APHA, Washington DC.
- Australian/New Zealand Standard 2008, *Quality management systems - Requirements (AS/NZS ISO 9001:2008)* Standards Australia/Standards New Zealand, Sydney/Wellington.
- International Organisation for Standardisation 2005, *Quality management systems – Fundamentals and vocabulary, (ISO 9000:2005)*.
- Lock, WH 1996, *Composite sampling*, National Environmental Health Forum (NEHF), Adelaide, SA.
- National Environment Protection Council (NEPC) 1999 as amended 2013, *National environment protection (assessment of site contamination) measure*, National Environment Protection Council, Adelaide, SA.
- NSW Department of Environment and Conservation (2006), *Contaminated sites: Guidelines for NSW Site Auditors Scheme (2nd edition)*.
- NSW Environment Protection Authority (EPA) 1995, *Contaminated sites: Sampling design guidelines*, EPA NSW, Chatswood, NSW.
- NSW EPA 1994, *Contaminated sites: Guidelines for the assessment of service station sites*, EPA NSW, Chatswood, NSW.
- NSW EPA 2011, *Contaminated sites: Guidelines for consultants reporting on contaminated sites*, EPA NSW, Chatswood, NSW.
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- Standards Australia, 1999, *Guide to the investigation and sampling of sites with potentially contaminated soil, Part 2: Volatile substances, (AS4482.2)*, Standards Australia, Homebush, NSW.

4 SUBMISSION TO DRAFT NORTH DISTRICT PLAN

Report prepared by: Senior Strategic Planner

File No.: URB/08/1/1 - BP16/1454

REPORT SUMMARY

Strategic planning for Sydney's future is outlined in the Metropolitan Plan "A Plan for Growing Sydney" (Metropolitan Plan) released in December 2014. The Metropolitan Plan established six districts and the draft plans for each District have now been prepared by the Greater Sydney Commission (GSC) and released for public comment. This includes the Draft North District Plan (the Draft Plan), which is on exhibition from 9 January to 31 March 2017. This report summarises the content of the Draft Plan and recommends that a submission regarding the Plan be forwarded to the GSC.

The North District covers the Hornsby, Hunters Hill, Ku-ring-gai, Lane Cove, Mosman, North Sydney, Northern Beaches, Ryde and Willoughby local government areas. The role of the plan is to implement the Metropolitan Plan, establish a 20 year vision, set priorities and identify actions for the District. The document informs the assessment of Planning Proposals and outlines action for the state government to achieve the vision.

The Draft Plan includes sections on a "Productive City" (Economic Development, transport and tourism), a "Liveable City" (housing, liveability, walking/cycling and heritage) and a "Sustainable City" (biodiversity/resilience/establishment of a "Green Grid").

The Draft Plan includes dwelling targets of 97,000 additional dwellings for the District by 2036 and identifies housing growth of an additional 7,600 dwellings in the City of Ryde from 2016 to 2021.

Council officers have reviewed the Plan and prepared a draft submission to the GSC (see **ATTACHMENT 1**). The submission outlines general comments related to:

- Infrastructure provision
- Macquarie Park
- Role and context of the Plan
- Document content and structure

The submission then provides more detailed comments relating to the three chapters of the Draft Plan (Productive City, Sustainable City and Liveable City) then provides some comments relating to implementation.

This report recommends that Council forward the submission to the GSC prior to the exhibition closing date of 31 March 2017 for consideration.

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RECOMMENDATION:

That Council forward the submission in **ATTACHMENT 1** to the Greater Sydney Commission for consideration.

ATTACHMENTS

- 1** Draft Submission to Greater Sydney Commission - March 2017
- 2** Submission to Greater Sydney Commission - July 2016

Report Prepared By:

Lara Dominish
Senior Strategic Planner

Report Approved By:

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Dyalan Govender
Acting Manager - City Planning

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Acting Director - City Planning and Development

ITEM 4 (continued)

Background

Strategic planning in Sydney is governed by the Metropolitan Plan “A Plan for Growing Sydney”. The metropolitan area is divided into six districts and the City of Ryde forms part of the North District, which comprises Hornsby, Hunters Hill, Ku-ring-gai, Lane Cove, Northern Beaches, Mosman, North Sydney, Ryde and Willoughby local government areas.

The draft District Plans were prepared by the Greater Sydney Commission (GSC) which was established by the State Government to undertake metropolitan strategic planning.

The preparation of the draft District Plans has been informed by Technical Working Group meetings held with Council and Department of Planning officers over the past 2 years.

In July 2016 Council wrote to the GSC to supplement the comments made by Council Officers in previous Technical Working Groups and outline Council’s key principles for the draft District Plan (see **ATTACHMENT 2**).

On 1 November 2016 a Councillor Information Bulletin was prepared outlining the public exhibition process being conducted by the GSC for the exhibition of the draft North District Plan (the Draft Plan).

Discussion

The Draft Plan is on exhibition from 9 January to 31 March 2017. Council officers have reviewed the Plan and prepared a draft submission to the GSC (**ATTACHMENT 1**).

The Draft Plan sets a vision for the future of the District to 2031. The District Plan will guide the preparation of future local planning studies and local environmental plans.

The Draft Plan identifies actions for the GSC, state government agencies and local government in achieving this vision. Consistency with the Draft Plan is a consideration in the assessment of Planning Proposals.

The Draft Plan is split into three parts: Productive City, Liveable City and Sustainable City.

ITEM 4 (continued)

The submission commences by addressing the following five key issues with the Draft Plan:

- The need for upfront infrastructure provision to unlock growth capacity and facilitate the orderly development of the city, and the identification of clear delivery mechanisms;
- Commending the approach to Macquarie Park which identifies it as a Strategic Centre, and recognising the need for infrastructure provision and importance of additional commercial floor space;
- That the current trend of the City of Ryde being allocated a greater share of the District's housing growth targets cannot continue to 2031 (the Plan establishes a target of 97,000 additional dwellings in the North District by 2036, a five year housing target for the City of Ryde of 7600 dwellings by 2021, with a 20 year housing target to be identified in the final version of the District Plan);
- The need for the Plan to take a more integrated approach to the complex relationship between different aspects of city planning such as transport and growth; and
- The content and structure of the Plan, with further clarification requested of the Plan's vision and content and the role of the GSC.

The submission then provides more detailed comments with regard to the Productive City, Liveable City and Sustainable City sections of the Plan. These comments are summarised below:

Productive City

- Support for taking a precautionary approach to the rezoning of industrial and urban services land to ensure these lands are protected;
- Questioning the target of 73,000- 79,000 jobs in Macquarie Park by 2036, which is lower than previous forecasts;
- Supporting a more cautious approach to residential intensification in strategic centres including Macquarie Park;
- Requesting that the identified "health and education super precincts", which for the North District are St Leonards and Northern Beaches Hospital, also include Macquarie Park (Macquarie University, Macquarie University Hospital and health related businesses); and
- Highlighting the importance of including long term transport actions in the Plan.

ITEM 4 (continued)

Liveable City

- Requesting further details of the requirements for councils to prepare a local housing strategy to increase capacity and housing choice;
- Supporting the introduction an affordable housing target of 5-10% for urban renewal areas, with the ability for councils to have their own affordable housing provisions for other areas; and
- Seeking further clarification with respect to the provision of social facilities and services.

Sustainable City

- Highlighting the need for additional open space provision (based on a 6 minute walk to amenities);
- Requesting that resilience is built into every action, not just part of the Sustainability section. Most importantly, the blue and green grid outcomes in the Draft Plan should feature more strongly in connection with active transport and liveability/environmental outcomes, not as a standalone subsidiary item;
- Initiatives to adapt to climate extremes, to improve air and water quality and to increase urban greening need to be strengthened and more uniform throughout the Plan;
- Initiatives that promote green skills and sustainable green space design are mentioned but lack the necessary rigour effectively to inform implementation plans and future planning strategy in a meaningful way.

The submission also discusses the proposed mechanisms for implementing the actions within the Plan.

Amendments to the Metropolitan Plan

The document “Towards our Greater Sydney 2056” is on exhibition concurrently with the draft District Plans. It proposes to amend the Metropolitan Plan “A Plan for Growing Sydney” by establishing a metropolis of three cities: Sydney City (focused around the Sydney CBD, Sydney Airport and the North Shore/ Northern Beaches), Central City (focused on Parramatta CBD) and Western City (focused around Western Sydney Airport at Badgerys Creek).

The submission does not object to the creation of these three cities but questions the relationship between the three cities and the District boundaries as it is not clear whether Macquarie Park is in the Central or Western City.

Financial Implications

Adoption of the recommendation will have no financial impact.

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Consultation with relevant external bodies

The Draft Plan is on exhibition until Friday 31 March 2017.

To support the exhibition, the GSC held a series of stakeholder and district specific briefings and open community drop-in sessions across Greater Sydney.

The GSC also held a number of community group briefings and drop-in sessions, and held an information session for planners in the North District and for Mayors and General Managers (held 24 November 2016).

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ATTACHMENT 1



Ms Sarah Hill
Greater Sydney Commission
PO Box 257
Parramatta NSW 2124

March 2017

Dear Ms Hill,

Thank you for the opportunity to comment on the Draft North District Plan, which is on exhibition until 31 March 2017. The City of Ryde has been an active participant in the consultation process which informed the drafting of the North District Plan, including participation in Technical Working Group sessions, and submitting a letter to the Greater Sydney Commission (GSC) dated 22 July 2016 to supplement those sessions.

Council commends the GSC on delivering the six District Plans for public comment, the consultation process to date and taking on the challenge of metropolitan planning at this level.

The District Plans need to strike the right balance between high level strategic planning at a metropolitan scale (A Plan for Growing Sydney) and detailed land use planning at a district level. Council is of the view that the draft North District Plan could provide further guidance for local planning decisions and could be refined by further developing the vision for the District, and by adding detail with respect to the outcomes for the future.

This submission outlines general comments relating to the District Plan following five key issues:

- Infrastructure provision
- Macquarie Park
- Housing targets
- Role and context of the Plan
- Document content and structure

The submission then provides more detailed comments relating to the three chapters of the Plan (Productive City, Sustainable City and Liveable City) then provides some comments relating to implementation.

Infrastructure provision

The Ministerial Statement of Priorities for the GSC encourages the Commission to show innovation in "the alignment between government

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infrastructure decision making and land use planning". In particular there is an opportunity for the GSC to achieve this through the District Plans.

One of the key opportunities for the District Plan is to ensure upfront and concurrent infrastructure provision to unlock growth capacity and facilitate the orderly development of the city. The Draft Plan fails to plan for infrastructure to meet the demand created by residential and employment growth, for transport infrastructure including public transport, hospitals, schools and other community infrastructure such as open space.

The City of Ryde is already experiencing rapid growth as a result of our efforts to meet previous growth targets and consequential pressure on open space, school places and community infrastructure. Growth in both the local area and other LGAs to the north and west of Ryde has exacerbated local congestion and through traffic particularly on major arteries such as Lane Cove Rd and Epping Rd. The Plan does not sufficiently provide for the significant levels of anticipated population growth, particularly with regard to the provision of transport, open space and social infrastructure.

The failure to clearly explain growth targets is particularly concerning given the significant housing growth targets specified for the City of Ryde, within the next 5 year period, which are double the rate of any other local government area in the District. The Draft Plan fails to clearly explain the targets with respect to the opportunities and constraints of the LGAs in the District. Nor can the community feel confident in the strategic direction set out for their communities. Without detail relating to targets both in the short and long term, the Plan cannot inform better local and regional decision making, infrastructure planning and associated resourcing and funding.

The Plan provides insufficient commitment to the delivery of social and community infrastructure to support this housing growth. There is an opportunity through the District Plans for the State Government to commit to scaling housing targets to infrastructure delivery thresholds or benchmarks for schools and open space, for example:

New dwellings	Infrastructure provision	Source document
2500	One new primary school	Department of Education "Advisory notes for new education facilities sites"
25000	One new hospital	Australian Institute of Health and Welfare guidelines
2000	11.3 ha of open space	Based on industry standard of 2.83ha/1000 persons (standard requires review)

Customer Service Centre
1 Poplar Street, Ryde NSW 2112
(Within Top Ryde City shopping centre)

North Ryde Office
Level 1, Building G, Binary Centre,
9 Richardson Place, North Ryde NSW 2113

Phone (02) 9952 6222
Email cityofryde@ryde.nsw.gov.au
Post Locked Bag 2089, North Ryde NSW 1670
www.ryde.nsw.gov.au
TTY (02) 9952 8470 Fax (02) 9952 8070
Translating and Interpreting Service 131 450

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ATTACHMENT 1



This would assist with meeting the Plan's Liveability Framework. It is noted that benchmarks developed for the Plan may not only be quantitative but may be assessed against performance criteria.

The Draft Plan should provide local government access to potential funding sources and identify funding availability to enable implementation and monitoring of the Plan. In this regard, provision of State led infrastructure must not lag behind population growth. Funding sources such as a regional infrastructure levy for identified works specified within a District schedule must be available to accommodate this.

The Draft Plan is lacking in this rigour and should identify some indicative costing of actions to enable priority scoping and future analysis to be undertaken. The costed infrastructure schedules recently prepared for the Parramatta Road Project are a good example of rigorous planning with respect to the requirements and funding needed to deliver a major urban growth project. Innovative approaches to infrastructure delivery should be considered and may include a variety of mechanisms including amending legislation and planning practice. The Section 117 directions for example could require infrastructure provision to be considered as appropriate in planning proposals.

Macquarie Park

Council commends the approach of the Commission to Macquarie Park, which recognises:

- The role and function of Macquarie Park as a Strategic Centre;
- The Strategic Investigation which will maximise opportunities for sustainable growth;
- The need for provision of infrastructure and consideration of a potential Special Infrastructure Contribution; and
- The importance of enabling growth capacity for commercial floor space.

Given the unparalleled significance of Macquarie Park as an employment centre and contributor to the national GDP (\$9.1 billion in 2014), it is crucial that growth in the City of Ryde is supported by the delivery of the required infrastructure to ensure that the continued economic output of the precinct is not undermined or constrained by congestion.

Council is also supportive of an approach that protects Commercial Core Zones in strategic centres to reinforce and support the operation and viability of non-residential uses including local office markets, thus preventing

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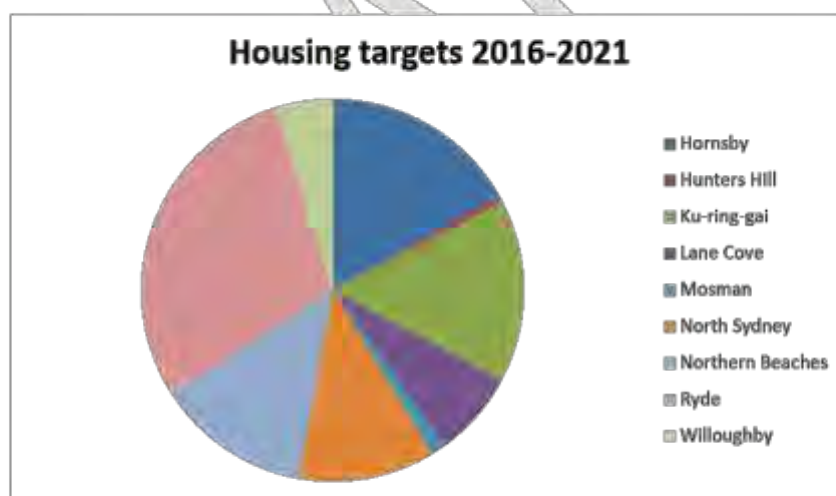
ATTACHMENT 1

residential creep. Council would support this approach being given more prominence with respect to the Plan's framework for Macquarie Park.

The Plan identifies "health and education super precincts", which for the North District are St Leonards and Northern Beaches Hospital. The criteria for determining super precincts are not identified and it is unclear why Macquarie Park has not been identified as such a precinct. Macquarie Park is home to Macquarie Hospital and Macquarie University (possibly the third largest in terms of enrolments in NSW) in addition to the headquarters for many high-tech biomedical services. There is a significant argument that Macquarie Park should be recognised as a health and education super precinct.

Housing targets

The Plan estimates the need for 97000 additional dwellings in the North District by 2036 based on a medium growth scenario. The Plan includes short term 5 year housing targets based on local government area. The 2016-2021 housing target for City of Ryde is 7600 dwelling completions. This is **double** the rate of any other local government area in the District.



Achieving a housing target of 7600 dwellings between 2016 and 2021 may be possible given the unprecedented high levels of growth currently experienced in City of Ryde.

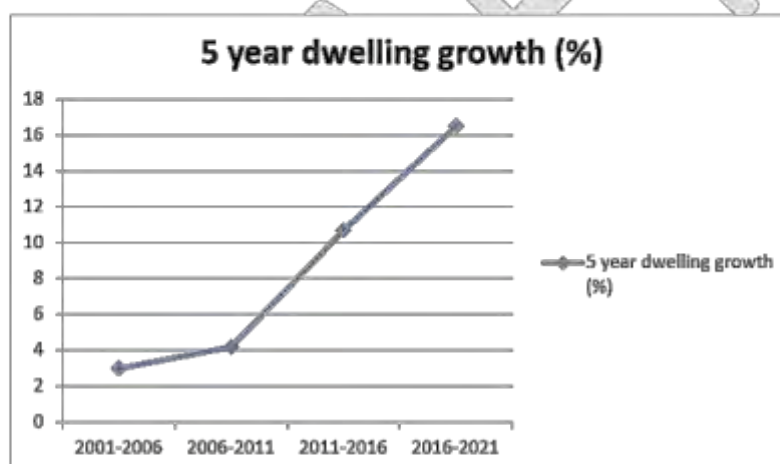
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It is understood that the expectation of the Greater Sydney Commission is that the 20 year housing target for each local government area will be at a similar rate to the current 5 year target. While it is appreciated that City of Ryde is currently experiencing a significant spike in housing approvals (driven by the State Government's establishment of Priority Precincts in Herring Road and North Ryde Station), the current level of growth far exceeds the trend experienced in recent history and cannot be expected to be replicated in the ensuing 15-20 year period, particularly without a commensurate provision of infrastructure. This is because the current housing spike in Ryde is in part the product of the rezoning large industrial tracts in Shepherds Bay and commercial areas in Macquarie Park. Such sites are no longer available for conversion to housing.

This method of forecasting housing growth on a longer term basis in the Plan (based on current growth levels) is rudimentary and fails to take into account the cyclical nature of housing growth. The graph below shows that the current growth is unprecedented.



Extrapolating the dwelling target out to a 20 year timeframe does not take into account the role that City of Ryde currently plays in bearing the burden of the District's housing growth. City of Ryde currently has **13% of the District's population**, yet is carrying the burden of **30% of dwelling delivery** in the next five year period. To require this unprecedented growth to continue for the lifetime of the Plan is unrealistic and unreasonable.

In Council's view the 5 year targets set out in the Plan should be accompanied by a clear high level summary of the relevant principles that will

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form the basis of the distribution of the growth over the longer term. These principles would also guide councils in their local planning studies, forming the foundation for their more detailed consideration of local constraints and opportunities.

Role and context of the Plan

There is an opportunity through the draft District Plan to build an understanding of the intended outcomes for the District, and this should not occur in isolation.

The ability to recognise the complex relationship between the layers of the city has not been fully explored or articulated in the Draft Plan. There is an interplay that is not defined between the various elements of the Metropolitan region with discrete "Cities" (Western City, Central City, Eastern City), the Districts, and all of the centres throughout Sydney. For example:

- What is the relationship between the three cities approach and each District? The boundaries of the Districts do not align with the boundaries of the three cities. It is not clear if Macquarie Park is in the Central or Western City
- Appropriate transitional arrangements should be in place for the boundaries between adjoining District Plans and respective accountabilities. In this regard, all of the District Plans need to be synchronised particularly at their fringes to ensure planning and strategies across adjoining Districts is consistent. Ryde and Parramatta Councils for instance are in adjoining Districts and share substantial neighbouring boundaries and varying land uses in immediately adjoining areas and a demand for shared infrastructure. There does not appear to be any clear mechanism in the Plans to properly manage the planning across both the areas and incompatible land use and planning decisions are likely to occur as a result. City of Ryde is currently preparing submissions to the Melrose Park Structure Plan and DAs for which the significant issues include the infrastructure demand created within the City of Ryde.
- City of Ryde is supportive of the approach taken to defining centres by function rather than position in the hierarchy. However, the Plan should coherently manage the role of Macquarie Park within the Global Economic Corridor and identify the relationship between the Strategic Centres- Parramatta/ Greater Parramatta and Olympic Park precinct (GPOP), Macquarie Park, Chatswood and St Leonards. In particular the Plan should define how the Global Economic Corridor is to be protected and enhanced, taking an integrated and coherent approach to the strategic centres.

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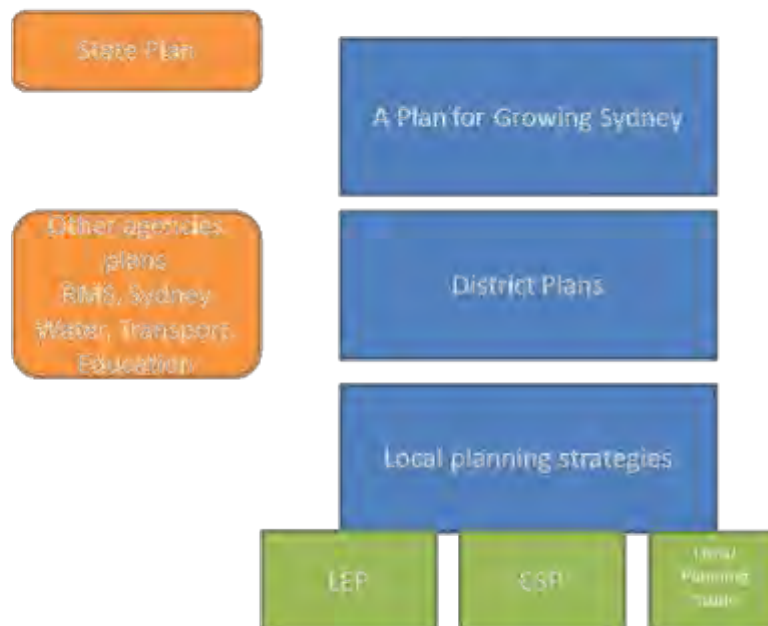
- The role of the Plan and Local Plans should be more clearly articulated. For example it should be clarified that those centres not mentioned by the Plan will be subject to Local Plans prepared by Councils. City of Ryde welcomes the opportunity to manage the growth and future look and feel of local centres in close consultation with the local community.

Council would welcome revisions which explain and clarify these relationships.

Document content and structure

Improvements are recommended to the introductory section of the Plan to clarify the role of the District Plan and to improve its structure.

Understanding the position the District Plan has in the broader policy context and defining the relationship of the Plan to other policies is important. This could be outlined as indicated in the figure below:



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The introductory section of the Plan establishes the vision for the District then goes into the finer detail of implementation actions, but appears to be missing the higher level objectives and principles. These finer detail actions could be moved to the back of the Plan and include a table linking the relevant principle, evidence base, proposed action, responsibility, benchmark/ key performance indicator and monitoring mechanism.

The Plan should identify the relationship between the GSC and other entities (other State Government agencies, the Department of Planning and Environment, local councils) and tighten up the allocation of responsibilities for implementation of the Plan's actions.

The principle of allowing local government to do local planning with the community is supported. However, more clarity with respect to role definition is required. Specifically, the plan should be explicit in assigning responsibility to councils, via their local planning studies, for centres below "District" and "Strategic" levels.

Productive City

Precautionary approach to industrial/ urban services land

Council commends the Commission for ensuring that the Plan reaffirms the value of the District's much needed employment and urban services land and the economic contributions they make. Employment lands are a scarce resource that are fundamental to the functions of the city, with only 2% of land in the North District comprising industrial land compared with 9% in the Central District (SGS Economics and Planning 2014).

Employment and urban services land also provides local employment opportunities, such as the Gladesville Industrial Area where many of the staff live within a 5 kilometre radius.

Council will be seeking for this policy position to be supported in decision making with respect to Planning Proposals seeking to rezone industrial land.

Macquarie Park

Macquarie Park is identified as a Strategic Centre with a baseline target of 73,000 jobs by 2036 and a higher target of 79,000 jobs by 2036 (it is noted that Figure 3-6 of the Plan incorrectly identifies Macquarie Park as a District Centre and should be corrected to Strategic Centre). These targets differ significantly from previous targets for Macquarie Park as outlined below:

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Document	Target
Draft North District Plan	73,000-79,000
2015 Employment Centres Analysis (SGS)	94,000
Strategic Employment Review (BIS Shrapnel)	110,910

Council's letter to the Greater Sydney Commission of 22 July 2016 recommended setting a jobs target of 94,000 in 2036 for Macquarie Park consistent with the findings of the SGS report, however the jobs target in the Plan does not adopt this. Council would welcome the opportunity to discuss the justification for the discrepancies between these targets with the Greater Sydney Commission.

Given the job target ranges for Macquarie Park, it is essential that the current Macquarie Park Strategic Investigation retains sufficient commercial floor area to allow for the employment targets to be achieved. While Council acknowledges the significant investment in upgrading rail infrastructure in Macquarie Park this alone will not sufficiently unlock Macquarie Park's potential and future growth must be supported by the requisite upgrades to open space provision, the road network, and other essential infrastructure.

The Plan does not specify interim 5-10 year targets, and therefore monitoring ongoing progress with achieving the 20 year job target and therefore staging infrastructure planning and delivery may prove problematic.

Part 3.4 of the Plan recognises that a cautious approach to ongoing residential intensification should be adopted to balance the capacity for further jobs growth with other uses in strategic centres and this approach is supported. However, the Plan does not clearly outline what this "cautious approach" means. Council is concerned that mixed use precincts in Sydney have resulted in the residential component overwhelming and eliminating the commercial components. For this reason City of Ryde supports a precinct based approach to the introduction of additional residential development into Macquarie Park.

These issues have been faced by many centres in the North District over the past 15 years (e.g. Chatswood, St Leonards and Macquarie Park) and the Plan does not embed a clear understanding of how this issue will be managed into the future.

Transport

Land use planning and transport are inextricably linked. Urban mobility is finely woven into the spatial, social, economic, political and environmental fabric of the North. In charting a path for sustainable urban mobility, it is essential to apply an interdisciplinary framework that recognises this

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interdependence. Many of the contemporary challenges facing cities – for example vehicle-dependent sprawl, persistent poverty, and lack of accountability – are structural in nature, rooted in current regulatory, institutional and economic systems and approaches. City of Ryde supports the 30 minute city. However, the Plan needs further refinement in order to be effectual.

The Plan discusses increasing the number of jobs and centres within 30 minutes of homes (the “30-minute city”) and this is also outlined in the draft “Towards our Greater Sydney 2056”. However, the Plan does not include any concrete transport actions, despite the fact there are many parts of the North District where employment centres cannot be accessed by residents within 30 minutes, especially by public transport. Further, the 30 minute city concept only relates to proximity to employment, and not other services such as shopping and community facilities. In particular, guides for implementing the 30 minute city need to be developed. City of Ryde argues that one of the key principles for the 30 minute city is to ensure jobs within close proximity to residents and therefore to protect the jobs capacity of Ryde’s urban services lands and Macquarie Park.

Principle 3 of “A Plan for Growing Sydney” discusses providing efficient transport and linkages but the North District Plan does not have actions reflecting this principle. The Plan should at a minimum identify certain transport connection improvements to serve the growing District, for example dedicated transport links from Macquarie Park to Parramatta, and/or the Olympic Park and a rail connection from Top Ryde to Sydney City along Victoria Road, or a high-frequency bus route from the Northern Beaches/ Frenchs Forest to Macquarie Park.

Part 3.6 of the Plan identifies “additional east-west connections within the North District” but does not articulate what these are. Providing east –west connections in addition to the radial transport system is critical for the functioning of the North District. The North District has some topographical constraints restricting east-west movement (gullies and rivers) but the Plan does not identify how to address these through future transport provision.

While it is understood that Transport for NSW will develop the Future Transport Strategy and Future Transport Services and Infrastructure Plan for Sydney and Infrastructure NSW will review the State Infrastructure Strategy, transport is a fundamental consideration in determining future areas for growth, both residential and commercial, and should not be subject to later or diminished consideration.

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The Draft Plan is very light on new walking and cycling initiatives. Mostly, it refers to the implementation of existing Council and Regional plans that are already in circulation. Very little investigation has been undertaken to identify new walking and cycling linkages within the Draft Plan area or what the Greater Sydney Commission can do to help Councils implement their local and regional plans. Incentives in building these links will aid in reducing short trip car use and congestion. This should be more of a focus in the Draft Plan.

Liveable City

Housing

Further clarity needs to be provided with regard to the dwelling targets, in particular:

- Whether the target is for dwelling completions (as opposed to approvals);
- Whether the target includes all residential dwelling types (i.e. secondary dwellings, student accommodation, residential care facilities etc.). These dwelling types provide alternative forms of housing but cater for the City's growing population and should be included in determining whether the target has been achieved; and
- Whether the target is to be measured by calendar years or financial years.

Liveability Action L1 (prepare local housing strategies), L2 (identify the opportunities to create the capacity to deliver 20-year strategic housing supply targets) and L3 (councils to increase housing capacity across the District) all relate to the identification of housing opportunities. However it is unclear how these three actions will work together and to what extent these housing opportunities and efforts to reach housing targets will be implemented by local councils or through future identification of growth areas in the final version of the District Plan.

Action L1 requires councils to prepare local housing strategies, however does not provide sufficient detail to allow an understanding of the framework for this to occur. The following aspects of this Action are unclear:

- The timeframe and process for delivery of these strategies. The development of a robust housing strategy including community engagement is a time consuming process that requires budgetary and other resourcing. An expectation that a comprehensive local housing strategy could be delivered within a 9 month period (i.e. to inform the final content of the District Plans) would be an extremely tight timeframe and may not be achievable.

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- The outcome of the housing strategies. Is it intended that these will identify areas which are rezoned or other measures (such as the relaxation of controls for medium density housing)?
- Will the housing strategies need to address the social aspects of housing provision such as homelessness, affordable housing, adaptable housing, social mix, housing for older people etc.).

City of Ryde supports an approach that allows Council to identify areas for growth in consultation with the local community. However, in order to do this growth targets will need to be more clearly explained and defined as previously noted.

A Plan for Growing Sydney identified a number of "Urban renewal investigation" areas in the District, and these have generally not been referred to in the Plan.

Part 4.4.2 of the Plan aims to support planning for adaptable housing and aged care but does not provide any benchmarks for the provision of adaptable housing.

The Plan refers to housing supply targets being tested using the Urban Feasibility Model, but the status of this tool is unclear and the most recent involvement with this tool by councils uncovered a number of major flaws with the methodology informing the tool.

Action L4 states that the Department of Planning and Environment will encourage housing diversity by supplying housing data. The provision of housing data will not however achieve this outcome. If the outcome is to achieve housing diversity, this should be done through a clear set of directions or benchmarks related to social mix and dwelling typologies or the requirement for each council to establish these through their local housing strategy.

Affordable housing

Part 4.4.4 of the Plan aims to deliver affordable rental housing. The City of Ryde strongly supports this watershed moment to facilitate the provision of affordable housing through planning controls across the metropolitan area, especially as several councils have long been lobbying the State Government for this action to be taken.

The Plan introduces a "layering" of planning controls for affordable housing, by creating a new Affordable Rental Housing Target which will apply to "new urban renewal areas", while allowing councils to have their own affordable housing strategies under SEPP70 that apply to other development within the

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local government area which could potentially cause confusion and inequity between developments.

There is a lack of clarity with respect to the affordable housing provisions of the Plan. What constitutes a "new urban renewal area" is unclear. The target of 5-10% affordable housing "will be applied at the rezoning stage" however it is unclear whether this is to be negotiated through a VPA or will be included in the LEP. Further, the 5-10% target is subject to a "feasibility assessment" at the precinct scale, and it is uncertain how this feasibility is to be assessed and by whom, to determine the appropriate affordable housing requirement.

The move to allow additional council areas to have affordable housing provisions under the auspices of SEPP70 is supported. The "City of Ryde Affordable Housing Policy 2016-2031" was adopted by Council in April 2016 and outlines a number of projects, including the preparation of planning controls such as inclusionary zoning for inclusion in Ryde LEP 2014. Council has commissioned an Affordable Housing Study to inform the preparation of the amendments to Ryde LEP 2014.

It is understood that the intention of the affordable housing obtained through the Affordable Rental Housing Target will exclude moderate income households. This deviation from the agreed definition of affordable housing, which has been in place since the *National Housing Strategy Issues Paper 2* (1991), is not sufficiently justified in the Plan. It is important to remember that moderate income households may constitute any number of non-income earning dependents. Again this may result in confusion and inequity between schemes and may undermine efficacy.

While the mechanism for management of affordable housing dwellings obtained through the target is not explained in the Plan, the experience from local councils responsible for affordable housing portfolios is that having a mix of tenants across the three income bands assists with meeting short and long term property costs and supports the long term sustainable financial viability of any affordable housing portfolio.

Liveability framework

The Liveability Framework identifies a number of areas to improve the lives and meet the needs of people in the North District. Many of the nine areas identified are outputs, not outcomes. It is useful to know the number of social infrastructure provision (outputs) resulting from the Plan, however this does not necessarily measure how the liveability of the District has been improved or objectives to get there.

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The Liveability Framework needs to be revised to include goals, objectives and outcomes with connected measures or indicators (short, medium or long term) that can be used to demonstrate how the Plan is actually contributing to the District's liveability.

Need for service provision

Several of the priorities identified in the Plan responding to the need for service provision have a narrow focus and are too high level to be achieved solely through the assessment of planning proposals. Should these matters be addressed through planning proposals, this must be supported by a local policy context outlining either specific details or a set of indicators/benchmarks of what is to be provided such as a social and cultural framework that specifies not only strategies but also community infrastructure needs as they relate to precincts.

The role of social and cultural planning at a local level has not been recognised in the Plan.

Liveability Priority 8 requires arts and culture to be achieved through the assessment of relevant planning proposals. The capability of arts and cultural facilities to be delivered through policy and programs, interagency collaboration, not for profit groups and changes to land use permissibility to deliver the intended outcomes of the Priority are not taken into consideration in the Plan.

Liveability Priority 10 aims to support innovative school planning and delivery. There is limited capacity for local government to influence this through relevant planning proposals. Emphasis should be given on the objectives of this priority being addressed by the State Government.

The use of travel management plans appears to be irrelevant to Liveability Priority 10.

Action L17 and Liveability Priority 11 aims to provide socially and culturally appropriate infrastructure and services, however is limited to the provision of services for Aboriginal residents. The focus of this Priority is too narrow and should be expanded to include residents from Culturally and Linguistically Diverse backgrounds.

Liveability Action 12 required consideration of the co-location of ancillary uses to complement health precincts, as part of any relevant planning proposal. Generally, by the time a planning proposal is being considered the opportunity to make wholesale changes to the proposed land uses has passed.

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The Draft Plan correctly refers to an ageing population and the need to focus on senior housing, hospital and health needs for the District. However, nothing in the Plan provides measurable targets and does not sufficiently address support for vulnerable communities such as elderly or those living alone or how the plan will better connect these communities to support and reduce vulnerable occurrence.

Similarly the plan has an insufficient focus on establishing actions for youth in the District, and considering youth needs and services in relevant planning decisions.

The Plan does not discuss the importance of encouraging a night time economy which is particularly important in the North District. The City of Ryde currently has a limited night time economy and a recent study found that most residents would like to expand this. Encouraging the establishment of a night time economy would support the Plan's productive and liveable city objectives.

Heritage

Part 4.7.1 of the Plan aims to conserve and enhance environmental heritage. The Plan identifies the legislation that guides the conservation of heritage; however, these plans also promote the identification, protection and management of heritage.

The Plan suggests that development should enhance heritage, however the enhancement of heritage through development is rare and subject to limited circumstances such as the demolition of a detracting building adjoining a heritage item.

The last two paragraphs before Action L13 are repetitive.

The intention of Action L13 is to conserve and enhance environmental heritage, however effective identification, mapping and listing needs to be supported by robust updated heritage studies. This may require additional funding as many local councils are operating with outdated heritage studies to support both existing heritage items and the identification of new heritage items.

Action L13 places an emphasis on mapping Aboriginal owned lands and places of significance, but should also refer to the mapping of European and natural heritage. City of Ryde has identified between 55 and 60 places of Aboriginal Heritage Significance. Under current legislation this mapping may

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not be released to the public. The action outlines a role for the Greater Sydney Commission in promoting best practice in heritage management, however it is understood that the role of the Commission is to be more strategically focussed through the identification of overarching principles for heritage protection rather than intervening in procedural matters. Liveability Priority 7 focuses principally on the adaptive reuse of heritage buildings. The planning framework and strategic vision should be to achieve the protection of heritage places in their existing context and use rather than suggesting adaptive reuse as best practice.

Sustainable City

The Draft Plan does not provide an evidence base for the Sustainability actions priorities. Evidence underpins the Productivity and Liveability sections of the plan.

The Draft Plan does not demonstrate resilience across all of the actions and this is a significant flaw. For instance, the productivity actions fail the resilience test for adaptability, identity and diversity as well as the ability to promote social cohesion. Similarly, the sustainability and liveability actions fail to build capacity to interact with global supply chains, city networks and each other or build social cohesion across actions. Only when resilience is properly integrated into productivity, liveability and sustainability actions can resilience be integrated into the implementation and monitoring actions.

Many of the items in the Sustainable City section do not appear to be supported by clear implementation strategies. It is unclear how to apply the big picture, high level objectives for biodiversity, waterways and resilience into individual planning proposals such as how to apply the objectives for urban heat islands into the assessment of an individual planning proposal.

The list of 'Sustainability Priorities' referred to in the Draft Plan are very broad and do not provide specific detail as to how priority actions will be addressed other than through key theme areas. Many of the priorities provide an overarching 'wish list' or assumed approaches relying on the drive of individual councils. Cohesive connection is needed within this framework providing assurance to Councils that this document will be enacted and provides the necessary guidance for change.

Water and energy

The Draft Plan does not pay sufficient regard or lead the development for a more diversified water supply system to cater for periods of drought or heat as population grows. The same applies for the need to maintain a high reliability

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of energy supply whilst the economy is transitioning to cleaner renewable sources. Both are referred in Section 3 of the Draft Plan, but without any real direction.

The Draft Plan refers to the creation of coastal reserves which is an excellent initiative. However, other than keeping certain activities out of those reserves, there is inadequate direction given on how they will be protected. Water quality has a huge impact on these reserves. Water quality impacts from land use draining to these reserves should be flagged as a requisite consideration in relevant planning decisions. Rising sea levels will also impact on marine reserves and low lying parks created by land fill (e.g. Meadowbank Park).

Foreshore areas provide key corridor links and water quality opportunity whereas certain actions in the Draft Plan appear to support the opposite through foreshore amenity access goals. Greater consistency and clarity is required.

The Draft Plan pays lip service to improving water quality in our natural waterways. There is a strong focus on the economic benefit of Sydney harbour but not in areas that require attention such as pollutant inputs from development, urban encroachment impacts or the need for education for protection including community. It refers to monitoring and reporting but nothing in respect to addressing opportunities to capture and treat stormwater for reuse, encourage water quality improvements and mandate water sensitive urban design.

Adoption of the Office of Environment and Heritage (OEH) targets for stormwater and wastewater do not adequately assist at a local level for improvements. Instead, revision of water quality targets through the Australian and New Zealand Environment Conservation Council guidelines need updating to sufficiently measure conditions within developed urban and modified landscapes. This should be scoped and provision made in the Draft Plan to enable this to happen.

Open Space Provision

The Draft Plan and the mapping contained within the document is often misleading. On numerous occasions the Plan shows large areas as regional open space, however a large proportion of this public open space is land managed by National Parks and Wildlife Service and therefore in line with their core values, is inaccessible and greatly restricts recreational opportunities. For example, the public open space proposed to support Macquarie Park, which is undergoing considerably uplift and population increases, is the Lane Cove National Park.

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Whilst this open space allows for some recreation (e.g. bushwalking on identified pathways), its governance does not allow for the introduction of organised sport and active recreation which future residents of the District will require. The greater need for open space in areas such as Macquarie Park and the district is for structured active recreation such as sports fields and indoor recreation facilities, which cannot be provided in National Parks. Sportsfields in particular often support organised district level competitions. The establishment of these facilities needs to be supported by Special Infrastructure Contributions to fund improvements in open space and community facilities, and relieve the burden placed on local government to provide regional infrastructure.

A key component of the Plan in relation to open space is to "create opportunities for more recreation and community facilities". In order to adequately achieve this and supply the needed infrastructure the State Government must establish an open space inventory that incorporates the hierarchy of open space. It should also set principles and benchmarks for the provision of open space. The City of Ryde, through its 2012 Integrated Open Space Plan establishes the following principles to champion the City's commitment to providing open space to the community:

1. Ample, Accessible Open Space;
2. Open Space shared and enjoyed by all.
3. Founded on a healthy natural environment.
4. Conserve our rich history, culture and local character
5. Manage sustainably now and for future generations

The GSC is strongly encouraged to adopt or develop similar principles for the North District Plan.

The action of developing benchmarks needs to go further than simply indicating how many hectares of open space are required. Ryde Open Space Strategy for example sets out principles for all dwelling to be within 400m of active open space and in high density precincts this is reduced to 200m. The existing open space standard of 2.83ha per 1000 population, while still relevant, needs to be reviewed. New standards and benchmarks need to be developed for higher densities where lack of available land for open space is most pronounced.

Open space inventories are required and must include and determine benchmarks around the quantum, size, distribution and shape of open space. It must also establish a diversity of open space typologies that includes regional, district, neighbourhood and local open space. A mixture of setting types is required to serve the community's needs, including passive parklands, outdoor sports, civic and urban spaces, conservation and heritage,

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river foreshores, natural areas and bushland, creeks and wetlands and indoor facilities and aquatic facilities.

Councils, developers and the community need realistic targets to work towards. Moreover, support tools and methodologies for local open space planning need to be further outlined as a priority to enable effective planning. Some realistic targets have been established and these need to be reviewed and streamlined for a consistent approach to the provision of active and passive recreation, not just across the District but the greater metropolitan area. These benchmark targets are outlined in the following documents:

- City of Sydney 2016 Sports Facilities Demand Study.
- Urban Growth 2016 Parramatta Road Corridor Urban Transformation Strategy.
- Sydney Olympic Park Authority 2015 Community Facilities Strategy for Sydney Olympic Park Master Plan 2030.

The Department of Planning's 'Recreation and Open Space Planning Guidelines for Local Government, 2010' also needs to review its default standards for open space planning in NSW.

The development of a North District Sport and Recreation Participation Strategy and Sport and Recreation Facility Plan needs to be undertaken as a priority to establish the future needs of the community and assist with planning. This strategy should build in agreed targets and should have a focus on regional facilities that need to be funded by the State Government.

This is particularly pertinent with projected population increases within the District and the usage and demands this will place on Council sports field/facilities. The State Government needs to support councils in the acquisition of properties to provide both organised sport (active recreation), public open space (passive recreation) and the Green Grid for an expanding population. The establishment of these documents is critical to the liveability of Sydney.

Green Grid

Sustainability and vegetation profile maps lack enough detail to clearly define and distinguish areas for conservation, protection and or enhancement. This will impede a consistent approach to managing foreshore areas, facilitating connection regionally and allowing integration by Councils into planning controls. Better mapping will, in particular, help prioritise corridor connection programs, assist in providing informed planning decisions and how coastal inundation, erosion and foreshore impacts should be managed.

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The blue and green grid outcomes should feature more strongly in connection with active transport, liveability and environmental outcomes.

The Plan has real opportunity to draw strong strategic linkages between reducing short trip car congestion, improving air quality in our key town centres whilst strengthening our blue and green corridors but yet this has not been well supported in the Draft Plan. These grid links have opportunity to provide significant transport, cooling, water quality, ecological and positive environmental, social and human health impacts through the strengthening of these corridors.

By building availability and connection for people to walk and cycle and incorporate with biodiversity corridor linkages would encourage active use as well as provide cool and passive spaces. To deliver a Green Grid that supports both active and passive recreation as well as biodiversity and accessibility through active transport, the acquisition of properties to support this network would be required. The Plan does not outline how the acquisition is to occur and does not address the conflict that exists between biodiversity and sporting/ recreation needs.

The Plan lists Lane Cove National Park and Lane Cove River as a priority project to deliver the Green Grid. For this to occur the model for acceptable recreational activities and infrastructure within National Parks, particular metropolitan national parks, needs to be reviewed to allow for greater access, hard infrastructure and active and passive recreation, i.e. shared paths, bike paths. Similarly, the RMS needs to rethink its position and resistance to planting trees within the road corridor if the aspiration of incorporating trees within the urban environment and busy road corridors is to be achieved.

Similarly, the State Government needs to rethink its position on railway corridors to allow active transport cohabitation to be incorporated, which in turn supports the amenity, activity and accessibility of the Green Grid as outlined in the Plan. These spaces have historically been listed as the last remaining key opportunities for biodiversity corridor connections for small fauna and also provide extended linkages for particle and air quality improvements within these spaces. This should be better supported in the Draft Plan.

The Plan identifies the provision of 'high quality public areas and places' as an objective for the Green Grid. In Council's experience, foreshore access areas provided by the development industry are valued for their aesthetic appeal and amenity but not necessarily environmental benefit. The bare minimum is delivered to value add to the development but the water quality or biodiversity value of these areas is not valued. This needs to be considered in the Plan to

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work with the stakeholder groups. These 'high quality areas' address issues like canopy connection but understorey areas that provide key corridor links through food and protection are neglected and more often biodiversity loss occurs in these areas because they are not considered in the broader connection context. The Draft Plan has the opportunity to address this point.

It is unclear whether the programs outlined in the Plan (Metropolitan Greenspace Program, Environmental Trust grants programs and Sydney's Walking Future) have sufficient funding to facilitate the expansion of the Green Grid. There is no commitment to linking the delivery program for open space to development and population projections.

Resilience

There is no support/ direction for Heat Island effect and no recognition of impact to vulnerable communities through environmental health, species impact or potential support for program direction. Stronger recognition of this is needed in the Draft Plan.

The promotion of Biodiversity Certification should not be given first priority as an offsetting action for conservation, protection and is completely in opposition to the principles of Green Grid connectivity. It should only be promoted as a last resort option for development. Promotion of this provides an easy, paid response for developers and planners that will fragment the vulnerable corridor links. Evidence is already showing diversity and abundance levels of fauna decreasing due to fragmented and island effects due to removal of critical habitat.

Waste management

Consideration should be given to including actions to identify future waste and recycling infrastructure requirements and to develop a future plan for their provision.

Sustainable design

Consideration should be given to reviewing relevant design standards to embed sustainable design requirements and to capture industry and technological improvements. Mandating a particular design standard in the Draft Plan similar to what is happening at Barangaroo will raise standards and promote uniformity and consistency in the development market.

Plan Implementation

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ITEM 4 (continued)

ATTACHMENT 1



The implementation of the Plan is based on an expectation that many of the priorities can be achieved by local government simply as a "consideration" in the assessment of Planning Proposals, for example, delivery of district and regional cycling networks and locational requirements for cemeteries and crematoria. This approach is far too simplistic and will not achieve the specified objectives. In order for the Plan's objectives to be achieved (or even worked towards), they need to be supported by a robust suite of other mechanisms, including direct State Government involvement or investment, and planning for major matters such as transport and open space planning at a regional level.

The document contains high level objectives but a low level implementation plan, with the expectation that many of the priorities can be achieved by local government simply as a "consideration" in the assessment of Planning Proposals without an emphasis on direct State Government involvement or investment. In order for the objectives to be achieved, they need to be supported by a robust suite of other mechanisms. Further, several of the issues raised in the Plan do not have corresponding actions to address these issues.

The Draft Plan points toward aspirational objectives, and whilst the intent is sound and supported, the Plan lacks adequate information as to how this will occur. For example, "community facilities, open space and cultural facilities will be available to all...". However, the Plan does not acknowledge or address an open space deficiency in the region and provide the basis on which Councils may assess (or reject) rezoning proposals. With population growth, changing needs and demographics, more expensive infrastructure such as synthetic playing fields and indoor facilities are required and the Plan does not outline how these are to be funded and where are they to be located nor does it provide any clarity as to the respective roles of the State Government, councils and developers in infrastructure delivery.

The importance given to implementation of the Plan's priorities is disproportionate throughout the document. For example, the establishment of a District Tourism Plan is proposed, however no District Transport Plan or District Open Space Plan is proposed. These latter two plans would be far more beneficial in achieving regional planning outcomes.

The Plan lacks quantitative targets and enough measurable KPI's choosing to rely on or defer to other plans being prepared or being exhibited concurrently. This is considered confusing and will divert attention away from the Plan to other plans when detailing actions and measuring performance and outcomes which will dilute the importance and use of the Plan.

ITEM 4 (continued)

ATTACHMENT 1



The Plan should contain measurable targets and actions without needing to cross reference other plans to enable the Plan to be measured in its own right. Other plans still need to be integrated and consistent, but we question why the specific measures are not in this Plan, given the specific growth targets it imposes.

The Plan relies on the next action detail phase to realise the principles and outcome statements. The next phase will require qualitative and quantitative analysis of actions to be completed. This should be more clearly articulated in the Plan to frame the process and to better manage community and stakeholder expectations.

Should you have any questions regarding this submission please contact Dyalan Govender, Acting Manager City Planning, on 9952 8188.

Yours faithfully,

Liz Coad
Acting Director City Planning and Development

CC: DPE- Sydney Region East and Malcolm McDonald

ITEM 4 (continued)

ATTACHMENT 2



Dr Deborah Dearing
District Commissioner- North
Greater Sydney Commission

22 July 2016

Dear Dr Dearing,

Thank you for the opportunity to be involved in the Technical Working Groups to inform the preparation of the North District Plan. Council would like to supplement the comments made at these workshops to date with the following comments outlined below, relating to:

- Employment;
- Housing;
- Recreation;
- Transport;
- Environment; and
- Infrastructure.

These comments explore the issues and opportunities for each theme and make specific recommendations to be considered for inclusion in the District Plan.

EMPLOYMENT

Commercial development in the Macquarie Park Corridor

Issues

- Ongoing pressure for residential development within the Park
- Need to improve pedestrian amenity, street activation and services and facilities
- Need to improve infrastructure provision with respect to public transport and traffic congestion
- Urban structure needs to adapt to changing commercial demand and function of the Park.
- Maintain the commercial core.
- Through traffic on M2, Epping Road, Delhi Road and Lane Cove Road which is significant north-south "orbital".

Opportunities

- Define the role/ function of the Corridor as an educational/ health innovation centre in the District
- Negotiation of public benefits from Planning Proposals

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ITEM 4 (continued)

ATTACHMENT 2



- Building collaboration between Macquarie University and similar businesses in Macquarie Park
- Diversification of commercial offering in Macquarie Park; augmenting traditional business park/ single tenancy commercial development with more intensive CBD functions.
- Provision of diversity of commercial building typologies.

Specific recommendations for District Plan

- Protect/ retain B3 zone and employment capacity of B7 zone in Macquarie Park as the centre's commercial core with no residential permitted. Area to be protected from Wicks Road to Khartoum Road.
- Set jobs target of 94000 in 2036 for Macquarie Park

It is considered that the upper bound figure of the employment projection for Macquarie Park of 94000 jobs by 2036 within the *SGS 2015 Employment Centres Analysis* is in line with Council expectations. It should be noted that in the recent *Strategic Employment Review – Macquarie Park (SER)* undertaken by BIS Shrapnel for the Department of Planning and Environment it is estimated that based on the existing planning controls that a total of 110 910 jobs will exist in Macquarie Park/North Ryde by 2035.(SER pg. 27)

BIS Shrapnel estimate floor space as at December 2015 is 887,000m² which is significantly less than the potential floor space available under the current planning controls and should not be used as the basis of any employment figures.

Some local issues/barriers that may affect the expected commercial and employment growth in Macquarie Park include:

- Traffic congestion – parking issues
 - Residential encroachment – pressure from developers to rezone land to B4 for mixed residential /retail uses
 - Competition from other employment Centres
 - Infrastructure inadequacies – area is not a preferred location because it has a lack of services such as child care centres, open space, active recreation areas
 - Staff – High quality staff may not be attracted to the area because of traffic and infrastructure issues and business relocate or are not attracted to area
- Improve urban amenity to encourage growth and the transition from business park to vibrant and modern commercial centre.

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ITEM 4 (continued)

ATTACHMENT 2



- Improve amenity particularly by reducing impact of vehicles on pedestrian experience and introducing a fine grain road network.
- Employment growth should achieve no net increase in traffic generation.
- Conduct priority transport infrastructure projects as outlined in the attached "City of Ryde Top 10 Priority Transport Projects Summary Report".
- Achieve a modal shift from car based trips to public transport (Macquarie Park Parking Rates Study, Bitzios Consulting 2015).
- Promote walking, cycling and public transport to and within the centre (Macquarie Park Parking Rates Study, Bitzios Consulting 2015).
- Delivery of the fine grain road network (access network) identified in Ryde Development Control Plan Part 4.5- Macquarie Park Corridor to enhance connectivity and provide new access points.
- Promote excellence in urban design through a holistic approach to placemaking and delivering public domain upgrades.
- Facilitate the delivery of an innovation ecosystem in Macquarie Park, capitalising on the relationship with the adjoining University and high tech and medical corporations located in the Corridor.

Commercial development generally

Issues

- Defining the role of centres in the District- not all centres need to have commercial/ retail- some can be just residential.
- "Making places"- increasing residential does not create vibrancy and nice places to live in and visit.
- Achieving true mixed use centres (development proposals in mixed use areas are dominated by residential).
- Managing interface issues between residential and non-residential uses in mixed use centres.
- Insufficient infrastructure for the growing urban population.
- Open space/ 'urban place' requirements of centres to meet the needs of residents and workers

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ITEM 4 (continued)

ATTACHMENT 2



Opportunities

- Improve liveability through placemaking by creating spaces in commercial areas which provide opportunities for informal recreation and social gathering; opportunities for privately owned public spaces e.g. urban plazas such as in the Top Ryde Shopping Centre.
- Emphasis on job containment and employment being available locally (within 30 minutes from home).
- Reconsider the definition of mixed use to create "true" diversity within a centre.

Recommendations

- The District Plan should provide clarity with respect to the vision and function of employment land. Distinguish centres by purpose/ specialisation and character/ identity and define the role of each centre type rather than the scale. It should be recognised that not all centres are suitable to accommodate growth. Some centres may have a limited or specialised function and not be suitable to accommodate a mix of uses. The Local Planning Study 2010 identified a hierarchy of centres.
- The District Plan should provide employment targets to support the importance of employment land (based on both employment numbers and the role/ functionality of employment land).
- Some neighbourhood centres may be suitable for expansion however this should be determined by local planning.
- Growth/ densities linked to infrastructure provision and improvements to public transport.

Industrial development

Issues

- The majority of industrial areas should be retained as they provide local services such as automotive repairs, child care centres and local manufacturing (uses that support urban needs). They provide local employment opportunities and affordable premises for start-up industries.
- Pressures for rezoning industrial land for residential development
- There is very little industrial land in the North District- 2% approx. compared to 9% Central District (SGS Economics and Planning 2014).
- IN2 lands provide diverse employment opportunities and support the automotive and construction sectors, in particular.

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ITEM 4 (continued)

ATTACHMENT 2



- There are no alternative zones in which to locate many of the activities in the industrial zones land.

Opportunities

- There is scope to allow further flexibility in permitting land uses such as exploring non- traditional industrial uses e.g. creative industries, entertainment and recreational uses.
- Industrial areas across the District are given a defined role- catering for different needs.
- Increased height and densities.

Recommendations

- Protect industrial lands in the North District both to provide local services and jobs diversity
- Diversify the permitted land uses in the Standard Instrument LEP to facilitate flexibility within IN2 zones to include creative industries
- Explore the zoning provisions for each industrial centre in the District to implement their roles e.g. establish a new industrial zoning of IN5 providing local services and other compatible uses such as restaurants (but no residential)- retaining the IN2 zone for predominantly manufacturing uses and IN1 zone for heavy industrial.
- Local provisions to allow for creative industries/ activities in industrial zones- e.g. in West Ryde to allow for complementary linkages with the adjoining TAFE.
- Develop a holistic approach to managing and protecting industrial land, including the development of robust criteria for the consideration of rezoning applications for industrial land.

HOUSING

Issues

- Lack of affordable housing to support key worker households and the local economy
- Lack of diversity of dwelling types e.g. only choices are a 2 storey house or 6 storey residential flat building
- Housing targets provided in previous metropolitan plans and subregional plans have been rudimentary and not established based on housing markets, development trends, constraints, and feasibility.
- A housing target is supported as long as it is soundly based.
- Consider overall targets combined with tools to measure success (e.g. KPIs based on distance to open space, community facilities and public transport)

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ITEM 4 (continued)

ATTACHMENT 2



- The impact of the proposed expansion of complying development to include two storey medium density housing types needs to be considered as this could sterilise land around existing centres and corridors which should be protected from further subdivision to retain opportunities for future growth.
- Land reserved for SP2 Infrastructure needs to be protected from housing pressures to ensure the future provision of hospitals and schools.

Opportunities

- Further opportunities exist for medium density development adjoining town and neighbourhood centres and railway stations. There is an opportunity for Transit Oriented Developments of varying scales.
- A Plan for Growing Sydney identifies Urban Renewal Investigation corridors along Lane Cove Road and Victoria Road
- Scope exists for planned growth south of Epping Road within the vicinity of North Ryde, Macquarie Park and Macquarie Centre stations
- Recent significant growth in Ryde has provided a significant number of additional dwellings, catering for local demand
- The proposed amendments to the strata legislation may enable the redevelopment of a number of lower scale strata properties adding to housing supply however may potentially result in the loss of low cost housing.

Recommendations

- The District Plan should have a target that 5% of new housing be affordable housing. Action 2.3.3 of the Metropolitan Plan "A Plan for Growing Sydney" is to deliver more opportunities for affordable housing and states that the Government will *"require local councils to include affordable housing in their local housing strategies, to respond to local demand"*.
- Housing targets need to be staged/ linked to infrastructure provision (see "Infrastructure" below).
- Rapid expansion in dwelling provision over the last few years has resulted in an infrastructure deficit. Consideration should be given to lifting the Section 94 cap for dwellings.
- The following potential growth can be identified, to be supported by appropriate planning studies:
 - Eastwood/ Denistone/ West Ryde railway stations
 - Southern side of Epping Road (Policy link: Local Planning Study)
 - Victoria Road corridor (as outlined in APFGS)
 - Wharf Road, Melrose Park.

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ATTACHMENT 2



- The Lane Cove Road Corridor identified in A Plan for Growing Sydney is of limited suitability due to residential amenity, availability of cross city public transport connections and traffic congestion, and should not be identified in the District Plan.
- The location of growth along corridors should consider the amenity impacts for existing and future residents with "fingers" of growth coming out from the corridor (e.g. development between Oliver Road and Eddy Road, Chatswood) as distinct from growth occurring parallel to the corridor
- Any target needs to provide diversity and a mix of densities and vertical scale. e.g. high rise, townhouses and villas (not a "one size fits all" approach)
- Medium density should be explored on the edges of town centres and adjoining neighbourhood centres however there should be consistency in the implementation of this across local government areas.
- Guidance should be provided for the design of high density developments where the interface with the public domain, street activation and the interface between land uses need to be addressed.

RECREATION

Issues

- Ryde appears to have a large quantum of open space but much of this is National Park which is not very accessible, does not support organised sport, and has some constraints (e.g. certain activities such as mountain biking are not permitted in some places)
- Increasing demand for organised sport facilities e.g. Netball, soccer fields, futsal
- Developing an accurate estimate of the demand for open space needs to be developed at a District level based on population projections
- Connectivity between open spaces within Ryde and across the District
- Restrictions on use of certain areas of open space (e.g. places where certain activities such as mountain biking are not permitted)
- The availability of multiple open space typologies e.g. sportsgrounds, passive recreation spaces and informal sporting facilities
- Open space and recreational facilities are available in educational establishments but not available for public use.
- (References: Integrated Open Space Plan 2012, Draft Sport and Recreation Strategy, Draft Open Space Future Provision Plan 2034)

Opportunities

- Coordinated delivery of facilities for regional open space needs

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ITEM 4 (continued)

ATTACHMENT 2



- Exploring opportunities for multi-use of certain facilities for example school sites.

Recommendations

- The District Plan should identify open space areas for acquisition and this should be accompanied by the identification of appropriate funding models. The delivery program should be linked to development and population projections.
- Need to develop a district plan for social infrastructure with regional facilities to be funded by the State Government. This could include 4 District sporting facilities and 10 indoor facilities.
- State government investment in synthetic surfaces (which maximise use of existing public open space)
- Connection of open space across the District- "Green Grid".

TRANSPORT

Issues

- High volumes of through traffic
- Mode share, in particular high percentage of inbound work trips by car (Policy Link- Draft Ryde Integrated Transport Strategy)
- Poor public transport link to Western Sydney/ Eastern suburbs/ Northern Beaches, particularly to Macquarie Park

Opportunities

- Reducing the proportion of inbound work trips by private vehicle
- Support the Global Economic Corridor by providing better connectivity to Western Sydney/ Northern Beaches

Recommendations for District Plan

- Rail connection from Top Ryde along Victoria Road
- Link Macquarie Park to Parramatta through railway connection or light rail
- High frequency bus route from Northern Beaches/ Frenchs Forest to Macquarie Park
- Facilities in areas closely linked to development outcomes.
- Road/ intersection upgrades required (see attached "City of Ryde Top 10 Priority Transport Projects Summary Report").

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ITEM 4 (continued)

ATTACHMENT 2



ENVIRONMENT

Issues

- Vulnerable to sea level rise, storm surges and heat island effects, and particularly bushfire and flooding.
- Parks on the foreshore are vulnerable to sea level rise.

Opportunities

- Reinstating the Parramatta River to a swimmable condition
- Greener building design
- Potential to improve bushland corridor connectivity

Recommendations for District Plan

- District Resilience Plan with a consistent approach to the implementation of strategies for mitigating the impact of climate change and responding to sea level rise and heat islands
- Reinforce the protection of National Parks and Blue Gum High forest
- Promote design excellence to achieve higher ecologically sustainable design baseline targets.
- Flood management for Eastwood- cross LGA/ District
- Retain land zoned E2
- 20 year plan for open space areas.

INFRASTRUCTURE

Issues

- Infrastructure needed to support growth – delivery infrastructure should not lag behind population growth. Major new development being planned without additional state infrastructure provision e.g. Herring Road.
- Housing targets are not accompanied by scaled infrastructure provision
- Mechanisms / funding for infrastructure don't exist

Opportunities

- Improve existing State Government infrastructure
- Create a District schedule of works and timing for delivery.

ITEM 4 (continued)

ATTACHMENT 2



Recommendations

- The District Plan needs to provide delivery tools for major infrastructure upgrades
- Scale housing targets to infrastructure delivery e.g.

New dwellings	Infrastructure provision	Source document
2500	One new primary school	Department of Education "Advisory notes for new education facilities sites"
25000	One new hospital	Australian Institute of Health and Welfare guidelines

- Infrastructure outcomes identified linked to employment growth
- Work with educational institutions and other state government agencies for the use of open space/ recreational use.
- Regional infrastructure levy for identified District schedule of works
- Retain existing TAFE facilities.
- Deliver the Ryde Hospital upgrade
- Identify land for a new school in Macquarie Park.
- District identification and provision of social infrastructure including major cultural facilities and recreation needs e.g. swimming pools.

Council hopes that the comments provided in this letter are of assistance in the drafting of the District Plan.

Should you require any further information please contact Lara Dominish, Senior Strategic Planner on 9952 8455.

Yours sincerely

Meryl Bishop
Manager, Strategic City

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5 EXHIBITION OF PLANNING PROPOSAL ADJOINING BLenheim PARK AND AMENDMENT TO THE INTEGRATED OPEN SPACE PLAN

Report prepared by: Senior Strategic Planner
File No.: LEP2016/3/3 - BP16/1423

REPORT SUMMARY

In April 2016 Council resolved to prepare a Planning Proposal (PP) to rezone land at 86 Blenheim Road, 12A and 14 Epping Road to RE1 Public Recreation. It is Council's intention to acquire the land to expand Blenheim Park and address an open space deficiency in North Ryde.

On 18 October 2016 Council received a Gateway Determination from the Department of Planning and Environment (DPE) for the PP (**ATTACHMENT 1**). The conditions of the Gateway Determination require that prior to community consultation, Council is to:

- Revise the City of Ryde Integrated Open Space Plan 2012 to include new population projections and new open space either supplied or proposed in Macquarie Park, and
- Amend the planning proposal to reflect the findings and recommendations of a revised City of Ryde Integrated Open Space Plan.

Amendments to the Integrated Open Space Plan (IOSP) 2012 have been prepared and are in **ATTACHMENT 2**. The amendments address changing demographic trends including post-2012 increased population growth forecasts. The updated population projections forecast significant additional population growth in the Macquarie Park Corridor above that estimated in the original IOSP, in particular in the North Ryde Station and Macquarie University Station Priority Precincts. This growth will further exacerbate the existing demand for additional open space and the current open space deficit. The amendment to the IOSP provides additional justification for the proposed expansion of Blenheim Park and includes a number of recommendations including:

- "Identify land adjacent to existing Council open space to expand these open spaces to increase active and/or passive recreation opportunities (e.g. 86 Blenheim Rd, 12A and 14 Epping Rd for incorporation into Blenheim Park)"

The PP submitted to the DPE in August 2016 has now been updated to include the revised population projections and recommendations of the amended IOSP and is presented to Council for approval to proceed. The updated PP is in **ATTACHMENT 3**.

ITEM 5 (continued)

This report recommends that the amended PP and IOSP be exhibited concurrently. The exhibition is anticipated to occur from early May to early June 2017. Consultation activities will include an online survey and community drop in session at Blenheim Park.

This report outlines the proposed consultation process in detail and recommends that Council endorse the consultation process.

Following the exhibition period, a report will be brought back to Council outlining the survey results and submissions received. Following this, the PP may be forwarded to the Department of Planning and Environment for the amendments to Ryde Local Environmental Plan 2014 to be made. Council does not have delegation to make the Plan.

RECOMMENDATION:

- (a) That Council exhibit the amended Planning Proposal for 86 Blenheim Road, 12A and 14 Epping Road as shown in **ATTACHMENT 3** in accordance with the Gateway Determination.
- (b) That Council exhibit the draft amendments to the Integrated Open Space Plan 2012 including updated population projections and new open space in Macquarie Park, as shown in **ATTACHMENT 2**.
- (c) That Council endorse the proposed community consultation process for the exhibition of the Planning Proposal for 86 Blenheim Road and 12A and 14 Epping Road, North Ryde, and the amended Integrated Open Space Plan 2012 as outlined in this report.
- (d) That a report be brought back to Council outlining the survey results and submissions received with respect to the public exhibition.

ATTACHMENTS

- 1** Gateway Determination - Blenheim Park
- 2** Draft Amendments to the Integrated Open Space Plan
- 3** Updated Planning Proposal
- 4** Communications and Engagement Plan

ITEM 5 (continued)

Report Prepared By:

Lara Dominish
Senior Strategic Planner

Report Approved By:

Lexie Macdonald
Senior Coordinator - Strategic Planning

Dyalan Govender
Acting Manager - City Planning

Liz Coad
Acting Director - City Planning and Development

ITEM 5 (continued)

Background

A Planning Proposal (PP) was received by Council in June 2015 from the landowner of the site at 86 Blenheim Road, 12A and 14 Epping Road, North Ryde which proposed to amend Ryde Local Environmental Plan 2014 by rezoning the site R4 High Density Residential with a maximum height of 45m (approximately 16 storeys).

Council officers expressed a number of concerns with high density residential development on the site and the bulk and scale proposed. On 8 March 2016, Council resolved not to support the PP.

The proponent lodged a pre-Gateway review for their proposal with the Department of Planning and Environment (DPE). The DPE referred the matter to the Sydney Region East Joint Regional Planning Panel (JRPP) who recommended that the proposed instrument should not be submitted for a Gateway Determination due to the highly adverse impact of a potential 16 storey building on Blenheim Park. The DPE has determined not to allow the proposal to proceed.

On 26 April 2016, Council resolved to prepare a new PP to rezone the site RE1 Public Recreation, remove the current floor space ratio (FSR) and building height controls and identify the site on the Land Reservation Acquisition Map in Ryde Local Environmental Plan 2014. On 26 May 2016, Council forwarded their planning proposal to the DPE requesting a Gateway Determination.

Discussion

On 18 October 2016 Council received a Gateway Determination for its PP to expand Blenheim Park (**ATTACHMENT 1**). The conditions of the Gateway Determination require that prior to community consultation, Council is to:

- *“Revise the City of Ryde Integrated Open Space Plan 2012 to include new population projections and new open space either supplied or proposed in Macquarie Park, and*
- *Amend the planning proposal to reflect the findings and recommendations of a revised City of Ryde Integrated Open Space Plan”.*

The Gateway Determination also required that:

- Prior to finalisation, the planning proposal is to be amended to demonstrate consistency with any available findings of the Macquarie Park Strategic Investigation; and
- Council consult with the property owner.

The Gateway Determination did not require consultation with any public authorities.

ITEM 5 (continued)

Integrated Open Space Plan 2012

Council adopted the Integrated Open Space Plan in 2012. The Plan identifies the demand for open space according to population forecasts at the time, and makes recommendations for the improvement of open space in the City. It identified a shortfall in open space in North Ryde and Macquarie Park. Appendix 1 of the Plan relates specifically to the Macquarie Park Corridor. When the Plan was prepared in August 2011, the forecast additional residential population was 6,000 in Macquarie Park.

Amendments to the Plan have now been prepared which address the requirements of the Gateway Determination for the Planning Proposal. This will become a new Appendix titled “Macquarie Park Corridor 2016 update” (see **ATTACHMENT 2**).

The amendments identify an estimated population increase of up to 38,000 residents in the Macquarie Park Corridor to 2036.

Council has reviewed the population projections provided by the DPE for the Macquarie University Station Precinct (MUSP) and North Ryde Station Precinct (NRSP), based on the permitted floor space ratio for the MUSP and the approved concept plan for Lachlan’s Line and approved development applications for Ryde Gardens and Centrale in the NRSP. The revised figures result in a projected dwelling count of 17,261. It is noted that the outcome of the Macquarie Park Strategic Investigation may impact on dwelling numbers in the Macquarie Park Corridor however the outcomes of the Investigation are yet to be revealed.

It is noted that the projected population growth may be influenced by the following factors:

- The percentage of sites which are redeveloped under the current planning controls (which may be as a result of the current use of the site or the condition and age of existing buildings)
- Suitable sites becoming available (for example, owners of strata titled lots agreeing to sell the property, or the ability to consolidate adjoining lots)
- Development feasibility (for example, if land prices increase beyond the value of the development controls)
- Major economic fluctuations
- Future Planning Proposals and Development Applications requesting variations to the current development standards.

The draft North District Plan proposes a short- term dwelling target for the City of Ryde of 7600 dwellings between 2016 and 2021.

ITEM 5 (continued)

The following recommendations are proposed in the updated Integrated Open Space Plan:

- *“Identify land adjacent to existing Council open space to expand these open spaces to increase active and/or passive recreation opportunities (e.g. 86 Blenheim Rd, 12A and 14 Epping Rd for incorporation into Blenheim Park),*
- *Provide ample open space within 200m of all residents in the Macquarie Park Corridor,*
- *Identify open space for active recreation for acquisition beyond the corridor to service both the corridor and the wider City (e.g. RMS land east of Christie Park),*
- *Establish potential locations for either land acquisition or dedication to address the identified reduction in open space provision (e.g. expansion of Shrimpton's Creek Corridor),*
- *Establish worker and residential population open space and recreation requirements for a physically and mentally healthy community in Macquarie Park to ensure that the corridor continues to grow as a globally and locally recognised innovative education and technology hub.*

The revised population forecasts and recommendations further support the need for additional open space to serve the Macquarie Park Corridor.

The Planning Proposal which was submitted to the DPE has been amended to include these recommendations. The amended PP (which is the version which will be exhibited) is in **ATTACHMENT 3**. The amendments to the IOSP will be exhibited concurrently with the Planning Proposal.

Consultation with relevant external bodies

The exhibition is planned to occur from early May to early June 2017. A Draft Communications and Engagement Plan (prepared by Council's Community Engagement team) is in **ATTACHMENT 4**. The proposed community consultation includes:

- A community drop in session and lunch at Blenheim Park;
- Visits to Blenheim Park during peak times;
- An online survey, with paper copies available at North Ryde library;
- A drop-in session at Cox's Road;
- Letters distributed to residents within approximately 500m of the site;
- Advertisements in the Northern District Times; and
- Letter to the landowners (in accordance with the Gateway Determination).

ITEM 5 (continued)

A Councillor Information Bulletin will be prepared to inform Councillors of the specific details of the consultation closer to the time.

A letter will be sent to the property owners of the site as required by the Gateway Determination.

Next steps

This report recommends that a further report be brought back to Council summarising the submissions received and the results of the community survey. The conditions of the Gateway Determination require that the PP be amended to demonstrate consistency with any available findings of the Macquarie Park Strategic Investigation and this may occur at this stage if the findings of the Investigation are available.

Council does not have authorisation to make the Plan and it will need to be forwarded back to the Greater Sydney Commission for the plan making stages.

Following this, Council may resolve for the PP to be forwarded to the DPE for the amendments to Ryde Local Environmental Plan 2014 to be made.

Financial Implications

The draft Communications and Engagement Plan is attached and details events and costings. Should Council resolve to undertake the consultation as outlined in this report it will result in a financial impact of \$12,000 and this can be funded through the City Planning operational budget.

The process for the proposed acquisition of the land is occurring independently of the Planning Proposal and will be reported to Council separately. Council has made contact with the landowner requesting a meeting to discuss the acquisition.

Options

1. That Council proceed with the exhibition of the Planning Proposal and amendments to the Integrated Open Space Plan 2012 as outlined in this report. This option satisfies the requirements of the Gateway Determination and will allow Council to later adopt the Planning Proposal for finalisation. This will complete one of the steps for Council to achieve the expansion of Blenheim Park.
2. That Council not proceed with the Planning Proposal and amendments to the Integrated Open Space Plan. This option would result in the land remaining zoned as R2 Low Density Residential and not allow for the future expansion of Blenheim Park.

ITEM 5 (continued)

The preferred option is to proceed with the Planning Proposal and amendments to the Integrated Open Space Plan as outlined in this report as the precursor to expanding Blenheim Park to assist in meeting open space shortfalls in North Ryde and Macquarie Park.

ITEM 5 (continued)

ATTACHMENT 1



Mr Roy Newsome
Acting General Manager
Ryde City Council
PO Box 2069
North Ryde NSW 1670

Our ref: PP_2016_RYDEC_007_00 (16/07805)

Dear Mr Newsome

Planning proposal to amend Ryde Local Environmental Plan 2014

I am writing in response to your Council's letter dated 26 May 2016 requesting a Gateway determination under section 56 of the Environmental Planning and Assessment Act 1979 (the Act) in respect of the planning proposal to rezone 86 Blenheim Road and 12 – 14 Epping Road, North Ryde for public recreation purposes.

As delegate of the Greater Sydney Commission, I have now determined the planning proposal should proceed subject to the conditions in the attached Gateway determination.

I have also agreed, as delegate of the Secretary, the planning proposal's inconsistency with S117 Direction 3.1 is of minor significance. No further approval is required in relation to this Direction.

Plan making powers were delegated to councils by the Minister in October 2012. It is noted that Council has requested to be issued with delegation for this planning proposal. I have considered the nature of Council's planning proposal and have decided not to issue an authorisation for Council to exercise delegation to make this plan.

The amending Local Environmental Plan (LEP) is to be finalised within 12 months of the week following the date of the Gateway determination. Council should aim to commence the exhibition of the planning proposal as soon as possible. Council's request for the Department of Planning and Environment to draft and finalise the LEP should be made 6 weeks prior to the projected publication date.

The State Government is committed to reducing the time taken to complete LEPs by tailoring the steps in the process to the complexity of the proposal, and by providing clear and publicly available justification for each plan at an early stage. In order to meet these commitments, the Minister may take action under section 54(2)(d) of the Act if the time frames outlined in this determination are not met.

Department of Planning and Environment
320 Pitt Street Sydney 2000 | GPO Box 39 Sydney 2001 | planning.nsw.gov.au

ITEM 5 (continued)

ATTACHMENT 1

Should you have any queries in regard to this matter, I have arranged for Mr Wayne Williamson of the Department's regional office to assist you. Mr Williamson can be contacted on (02) 9228 6585.

Yours sincerely



Marcus Ray
Deputy Secretary
Planning Services

10/10/2016
Encl:
Gateway Determination

ITEM 5 (continued)

ATTACHMENT 1



Gateway Determination

Planning proposal (Department Ref: PP_2016_RYDEC_007_00): to rezone 86 Blenheim Road and 12 – 14 Epping Road, North Ryde for public recreation purposes.

I, the Deputy Secretary, Planning Services at the Department of Planning and Environment as delegate of the Greater Sydney Commission, have determined under section 56(2) of the *Environmental Planning and Assessment Act 1979* (the Act) that an amendment to the Ryde Local Environmental Plan (LEP) 2014 should proceed subject to the following conditions:

1. Prior to community consultation, Council is to:
 - (a) revise the City of Ryde Integrated Open Space Plan 2012 to include new population projections and new open space either supplied or proposed in Macquarie Park; and
 - (b) amend the planning property proposal to reflect the findings and recommendations of a revised City of Ryde Integrated Open Space Plan.
2. Prior to finalisation, the planning proposal is to be amended to demonstrate consistency with any available findings of the Macquarie park strategic investigation.
3. Community consultation is required under sections 56(2)(c) and 57 of the Act as follows:
 - (c) the planning proposal must be made publicly available for a minimum of **28 days**;
 - (d) the relevant planning authority must comply with the notice requirements for public exhibition of planning proposals and the specifications for material that must be made publicly available along with planning proposals as identified in section 5.5.2 of *A Guide to Preparing LEPs (Department of Planning and Environment 2016)*; and
 - (e) the relevant planning authority consult with the property owner.
4. No consultation is required with public authorities under section 56(2)(d) of the Act.
5. A public hearing is not required to be held into the matter by any person or body under section 56(2)(e) of the Act. This does not discharge Council from any obligation it may otherwise have to conduct a public hearing (for example, in response to a submission or if reclassifying land).

PP_2016_RYDEC_007_00 (16/07805)


ITEM 5 (continued)

ATTACHMENT 1



6. The timeframe for completing the LEP is to be **12 months** from the week following the date of the Gateway determination.

Dated 10th day of October 2016



Marcus Ray
Deputy Secretary
Planning Services
Department of Planning and Environment
Delegate of the Greater Sydney Commission

PP_2016_RYDEC_007_00 (16/07805)

ITEM 5 (continued)

ATTACHMENT 2

The following has been prepared in response to the gateway determination for a Planning Proposal to acquire land next to Blenheim Park as open space.

The Gateway Determination requires that prior to community consultation, Council is to;

- Revise the City of Ryde Integrated Open Space Plan 2012 to include new population projections and new open space either supplied or proposed in Macquarie Park; and
- Amend the planning proposal to reflect the findings and recommendations of the revised City of Ryde Integrated Open Space Plan.

Appendix 4: Macquarie Park 2016 Update

The following information provides an update on the population projections and new open space supplied or proposed within Macquarie Park to October 2016. The overview is based on available population projections, executed VPA's, and related background documents.

Since the IOSP was prepared, two significant urban renewal projects have been announced by the State Government in the Macquarie Park Corridor; Macquarie University Station (Herring Rd) Priority Precinct (MUSPP) and North Ryde Station Priority Precinct (NRSP).



Residential Population Projections

The projected dwelling numbers (Table MP.01) estimated to be delivered within each Precinct is based on the *Herring Road, Macquarie Park Finalisation Report* (2015) and the *North Ryde Station Urban Activation Precinct Finalisation Report* (2013) prepared by the NSW Department of Planning and Environment (DP&E).

Priority Precinct	Projected Dwelling Count	Projected Residential Population
MUSPP	5,800	12,760
NRSP	2,400	5,280
Total	8,200	18,040

Table MP.01 DP&E Projected Dwelling and Residential figures

Council has reviewed the population projections (Table MS.02) based on the permitted floor space ratio in MUSPP. The projection for NRSP is based on the approved concept plan for Lachlan's Line and approved development applications for Ryde Gardens and Centrale.

ITEM 5 (continued)

ATTACHMENT 2

Priority Precinct	Council Projected Dwelling Count	Council Projected Residential Population
MUSPP	13,400	29,480
NRSP	3,861	8,494
Total	17,261	37,974

Table MP.02 CoR Projected Dwelling and Residential figures

Council's estimate of future dwelling numbers in the Macquarie Park Corridor is far higher than that estimated by DP&E initial forecasts.

Over the next 20 years, it is currently projected that further growth will occur in the area south east of Epping Rd, North Ryde/Chatswood West (17.71%) and Marsfield (5.73%).

Overall, the City of Ryde is planned to grow by 37.18% under the current planning controls by 2036. These controls will be reviewed following the implementation of the District Plan and Macquarie Park Strategic Investigation, scheduled in 2017. It is expected that the District Plan will require the City of Ryde to set more ambitious housing targets.

Worker Population Projections

Macquarie Park, including the commercial area around North Ryde station is Sydney's second largest office market, surpassing North Ryde in 2013. It has experienced the fastest growth in stand-alone office employment of all major centres over the last two decades growing by 6.6% per annum. Macquarie Park forms a critical part of the Global Economic Corridor, as identified in *A Plan for Growing Sydney* (DP&E, 2014).

The stand-alone office workforce within the Macquarie Park Corridor is estimated to be approximately 42,000 as at December 2015, representing approximately 69% of the total workforce within the precinct. Based on existing planning controls and land use zonings, the stand-alone office workforce is forecast to grow at an average annual rate of 2.9%, reaching a level of 55,800 by 2025 and an estimated 173,000 by 2065. Over the same horizon, the total workforce within Macquarie Park is forecast to grow from 60,800 to around 269,000. Office employment is expected to be the primary driver of economic growth (*Strategic Employment Review: Macquarie Park* BIS Shrapnel 2015).

These figures represent an annualised increase of total workforce population of 4.2% and the estimated total workforce population in 2036 is 102,680. These projections will be revised upwards following the finalisation of the Macquarie Park Strategic Review.

Open Space

The availability of and ease of access to parks at a local level is central to people's ability to access leisure and recreation opportunities on a daily basis. Level 3 and 4 open spaces by their nature and distribution serve a smaller catchment of the City's population compared to Level 1 and 2 that are designed to service the whole of the City, if not the region (IOSP, pg 96-97).

Macquarie Park is currently serviced by 12 areas of open space ranging across all levels. Only four of these open spaces are located within the 'core' of Macquarie Park, in a small cluster in the north west of the corridor. The remaining reserves are all located north of the M2 and service an existing residential population. There is currently no open space that exists between Khartoum Rd (west), M2 (north), Epping Rd (south) and Julius Ave (east).

ITEM 5 (continued)

ATTACHMENT 2



ITEM 5 (continued)

ATTACHMENT 2

	Reserve Name	Area in m ²	Within Macquarie Park Corridor	Level 1	Level 2	Level 3	Level 4
1	Christie Park	52,214		•			
2	Dunholm Reserve	1,366					•
3	Elouera Reserve	6,514	•			•	
4	Fontenoy Park	19,548			•		
5	Kywung Reserve	33,483			•		
6	Porters Park	2,038					•
7	Quandong Reserve	2,604	•				•
8	Tasman Park	10,895					•
9	Tuckwell Park	23,881			•		
10	Unnamed Park on Lane Cove Road	2,056					•
11	Wilga Reserve	18,842	•			•	
12	Yurrah Reserve	2,855					•
Total within Macquarie Park Corridor		2.79Ha				2	2
Total within Macquarie Park suburb		17.62Ha		1	3	2	6

Table MS.03 Existing Open Space within Macquarie Park suburb

Current Open Space Provision

The current open space provision for Macquarie Park suburb is provided in Table MS.04. The population data is sourced from Id Profile.

Suburb	Total Residential Population 2016	Total/Ha Open Space	Total Ha per Hierarchy				Total Ha/1000 2016 Population	Total Ha/1000 2016 Population per Hierarchy			
			Level 1	Level 2	Level 3	Level 4		Level 1	Level 2	Level 3	Level 4
Macquarie Park	8,172	17.62	5.2	7.6	2.5	2.1	2.13	0.64	0.93	0.31	0.26

Table MS.04 Amount of open space per 1,000 residential population, Macquarie Park suburb

New Open Space

Some additional open space is to be delivered through the implementation of the Priority Precincts and Planning Proposals. The following table demonstrates the amount of open space to be delivered. Note that these open spaces are currently subject to ongoing negotiations with land owners and the finalisation of amendments to the Ryde LEP 2014.

ITEM 5 (continued)

ATTACHMENT 2



ITEM 5 (continued)

ATTACHMENT 2

	Location	Area in m ²	Level 1	Level 2	Level 3	Level 4
1	66 – 68 Talavera Rd	6,100			•	
2	45 - 61 Waterloo Rd	7,000			•	
3	Lachlan's Line	17,885				•
4	Ivanhoe Estate	4,500			•	
	Total	3.55Ha			1.76Ha	1.78Ha

Table MS.05 New Open Space within Macquarie Park corridor

Future Open Space Provision

The proposed open spaces will form part of the new urban fabric of Macquarie Park corridor. The revised open space within Macquarie Park corridor is provided in Table MS.06.

Location	Area in m ²	Level 1	Level 2	Level 3	Level 4
66 – 68 Talavera Rd	6,100			•	
45 - 61 Waterloo Rd	7,000			•	
Lachlan's Line	17,885				•
Ivanhoe Estate	4,500			•	
Elouera Reserve	6,514			•	
Quandong Reserve	2,604				•
Wilga Reserve	18,842			•	
Total	6.34Ha			4.30Ha	2.05Ha

Table MS.06 Existing and Proposed Open Space within Macquarie Park Corridor

These open spaces will start to service the identified lack of open space throughout the suburb, however the provision of this additional open space will still far from meet the open space requirements of the existing and future populations (Table MS.07).

Suburb	Total Residential Population 2036	Total/Ha Open Space	Total Ha per Hierarchy				Total Ha/1000 2036 Population	Total Ha/1000 2036 Population per Hierarchy			
			Level 1	Level 2	Level 3	Level 4		Level 1	Level 2	Level 3	Level 4
Macquarie Park corridor	37,974	6.34	0	0	4.3	2.05	0.17	0	0	0.11	0.05

Table MS.07 Amount of open space per 1,000 residential population in 2036, Macquarie Park corridor

Table MS.08 explores the impacts of incorporating the currently projected 2036 worker population with the projected 2036 residential population.

Suburb	Projected Worker and Residential Population	Total/Ha Open Space	Total Ha per Hierarchy				Total Ha/1000 2036 Population	Total Ha/1000 2036 Population per Hierarchy			
			Level 1	Level 2	Level 3	Level 4		Level 1	Level 2	Level 3	Level 4
Macquarie Park corridor	140,716	6.34	0	0	4.3	2.05	0.05	0	0	0.03	0.01

Table MS.08 Amount of open space per 1,000 projected worker and residential population, Macquarie Park corridor

ITEM 5 (continued)

ATTACHMENT 2

Conclusions from Analysis

Table MS.09 updates Table OS.08 (page 128) to reflect the revised population projections and additional open space provision.

Suburb	Quantum and Size	Distribution and Diversity	Ratio to Population	Accessibility/Connectivity	Conclusions and Implications
Macquarie Park	Only 15 open spaces in the second largest suburb by area in the City. Aside from Christie Park, most parks are less than 3.0Ha in size.	Aside from Shrimpton Creek Reserves (Wilga and Quandong Reserve), almost all parks are on the northern boundary of the suburb adjoining Lane Cove National Park. Setting diversity is limited and park embellishment is at most very limited across the suburb (there are only five minor play areas in the suburb).	Current population (2016) is relatively low (5% of the City) and ratio of open space is also low but growth projections are extremely high (average 11.3% per annum), creating the need for more local open space essentially in the centre of the suburb and active recreation surrounding the corridor. Approved and proposed LEP amendments to business and residential land use will continue to add to this demand. Due to the significant worker population both existing and future, the provision of open space is extremely low.	A large part of the suburb comprises of business park and the University, therefore street access is limited. M2 Motorway is a major barrier to reserves along Lane Cove River and Great North Walk. Epping Road is a major barrier to movement south and Lane Cove Rd splits the corridor east and west. These barriers need to be broken down to increase circulation patterns in to and around the corridor.	Council planning for the corridor is ongoing. Given the significant growth in residential and worker population already approved through the Urban Activation Precincts, there is a need for significant development negotiations for new open space at all Levels for active and passive recreation, specifically 3 and 4 and open space expansion surrounding the corridor. Improving cycle and pedestrian access in northeast/southwest axis, especially with M2 and Epping Rd is important. Ongoing partnership with the University for shared uses is worthy of further exploration.

Table MS.09 Summary of Open Space Provision for Macquarie Park suburb

The character of Macquarie Park will be transformed over the next 20 years by growth of up to 40,000 and an ever increasing worker population. This results in a reduction in the provision of open space per capita from 2.13Ha/1,000 to 0.17Ha/1,000 based on the projected residential population within the corridor. Once the increasing worker population is included the provision rate drops to 0.05Ha/1,000. Unless this trend is addressed through land dedication, acquisitions, and embellishments, the health and wellbeing of the population will be significantly compromised.

Therefore this update identifies the following actions for Council;

- Identify land adjacent to existing Council open space to expand these open spaces to increase active and/or passive recreation opportunities (eg 86 Blenheim Rd, 12A and 14 Epping Rd for incorporation into Blenheim Park)
- Provide ample open space within 200m of all residents in the Macquarie Park Corridor
- Identify open space for active recreation for acquisition beyond the corridor to service both the corridor and the wider City (eg RMS land east of Christie Park),
- Establish potential locations for either land acquisition or dedication to address the identified reduction in open space provision (eg expansion of Shrimpton's Creek Corridor),
- Establish worker and residential population open space and recreation requirements for a physically and mentally healthy community in Macquarie Park to ensure that the corridor continues to grow as a globally and locally recognised innovative education and technology hub.

IOSP Changes to document;

Pg 30: Addition to Appendices to the IOSP

Insert: - Macquarie Park 2016 Update

ITEM 5 (continued)

ATTACHMENT 3



**City Planning and
Development Department**

**Planning Proposal
LEP (Blenheim Park) 2017**

March 2017

ITEM 5 (continued)

ATTACHMENT 3

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ITEM 5 (continued)

ATTACHMENT 3

Introduction

A planning proposal is a document that explains the intended effect of a proposed local environmental plan (LEP) and sets out the justification for making that plan. This planning proposal has been prepared in accordance with the requirements of the Environmental Planning and Assessment Act 1979 (in particular section 55) and relevant guidelines produced by the Department of Planning and Environment, including “A Guide to preparing Planning Proposals”.

The Department of Planning and Environment requires a Planning Proposal to cover six main parts which form the basis of this document as follows:

- Part 1 – Statement of Objectives and Intended Outcomes of the proposed LEP
- Part 2 – Explanation of the Provisions to be included in the LEP
- Part 3 – Justification of objectives, outcomes and process for implementation
- Part 4 – Maps to identify intent and applicable area
- Part 5 – Community Consultation proposed to be undertaken on the Draft LEP
- Part 6 – Project timeline - anticipated timeframe for the making of the LEP

Background

In July 2015 Council received a Planning Proposal for 86 Blenheim Road, 12A and 14 Epping Road, North Ryde, proposing to rezone the land from R2 Low Density Residential to R4 High Density Residential, and increasing the height to 45 metres to allow the construction of a residential flat building up to 16 storeys in height. On 8 March 2016 Council considered a report assessing the original proposal and resolved not to support the Proposal as it (inter-alia):

- Constitutes an ad-hoc rezoning of the site in isolation of an agreed strategic vision for the southern side of Epping Road;
- Is not supported by any strategic land use study prepared by either Council or the Department of Planning and Environment;
- Will have an unacceptable traffic impact on the intersection of Pittwater Road/ Blenheim Road and Pittwater Road/ Epping Road;
- Is inconsistent with the development options for the site previously outlined to the proponent to develop the site for multi-dwelling housing (villas) or a lower scale residential flat development;
- Does not provide urban design rationale for high rise development in this low rise residential and parkland setting;
- Has overshadowing impacts on neighbouring Blenheim Park and Myall Reserve;
- Will have an unacceptable visual impact on surrounding low density residential areas.

ITEM 5 (continued)

ATTACHMENT 3

Council also resolved at this meeting to delegate authority to the General Manager to investigate and action the acquisition of the land for open space to be incorporated into Blenheim Park.

On 26 April 2016 Council considered a Notice of Motion and resolved as follows:

- (a) *“That Council prepare and submit to the NSW Department of Planning and Environment for Gateway Determination, a Planning Proposal for 86 Blenheim Road and 12A-14 Epping Road, North Ryde. The effect of the Planning Proposal is to amend Ryde Local Environmental Plan 2014 to:*
- i. Rezone the land from R2 Low Density Residential to RE1 Public Recreation in order to facilitate the expansion of Blenheim Park and address an open space deficiency in the North Ryde and Macquarie Park area; and*
 - ii. Amend the maximum floor space ratio (FSR) development standard applicable to the site in order to remove the FSR consistent with the planning approach to land zoned RE1 in the City of Ryde; and*
 - iii. Amend the maximum height of building development standard to remove the height limit applicable to the site consistent with the planning approach to land zoned RE1 in the City of Ryde; and*
 - iv. Include 86 Blenheim Road and 12A-14 Epping Road (DP 410408 parcels C, D and E) on the relevant Land Acquisition Reservation Map as “Local Open Space.”*
- (b) *That, consistent with the Council resolution of 8 March 2016, the General Manager be delegated authority to immediately proceed with the acquisition of 86 Blenheim Road and 12A-14 Epping Road, North Ryde”.*

Site description



ITEM 5 (continued)

ATTACHMENT 3

The subject site consists of three properties 86 Blenheim Road and 12-14 Epping Road, North Ryde, legally known as Lots C, D and E DP 410408. Current development on the site includes three dwelling houses, 12A and 14 Epping Road being single storey and 86 Blenheim Road being 2 storey. 12A and 14 Epping Road have driveway crossings from Epping Road, and 86 Blenheim Road has vehicular access from Blenheim Road.

The site adjoins Blenheim Park and has a combined site area of 2004.5m² (86 Blenheim Road – 790.4m², 12A Epping Road – 607.03m², 14 Epping Road- 607.03m²). The site has a frontage of 41 metres to Epping Road. The site slopes away from Epping Road with a three metre crossfall to the rear boundary.



The existing provisions for 86 Blenheim Road, 12A and 14 Epping Road under RLEP2014 are:

- Zoned R2 Low Density Residential;
- Maximum building height of 9.5m; and
- Maximum FSR of 0.5:1.

These controls in association with Ryde Development Control Plan 2014 (RDCP) currently allow a single two storey residential dwelling on each of these three sites or multi-unit housing in the form of villas.

ITEM 5 (continued)

ATTACHMENT 3

1.0 Objectives or Intended Outcomes

This part of the planning proposal responds to Section 55(1) of the Environmental Planning and Assessment Act 1979 which requires an explanation of what is planned to be achieved by the proposed amendments to RLEP2014.

The intent of this Planning Proposal (PP) is to change the zoning of the site to reserve the land for open space. This will address an open space deficiency in the vicinity and enable the future creation of a recreational precinct in this location.

This PP involves the following amendments to RLEP2014:

1. Change the zoning of the subject land from R2 Low Density Residential to RE1 Public Recreation;
2. Remove the current Floor Space Ratio control of 0.50:1;
3. Remove the current Height of Buildings control of 9.5m; and
4. Identify the site as “Local Open Space” on the Land Reservation Acquisition Map.

ITEM 5 (continued)

ATTACHMENT 3

2.0 Explanation of Provisions

The proposed outcomes identified in the previous part of the PP reflecting the acquisition of the subject land as public open space require the following amendments to RLEP2014.

Schedule of amendments to RLEP2014

LEP part	Proposed change
Land Zoning Map	Amend map LZN_009 to change the zoning of the site from R2 Low Density Residential to RE1 Public Recreation.
Floor Space Ratio Map	Amend map FSR_009 to remove the FSR control for the subject land.
Height of Buildings Map	Amend map FSR_009 to remove the FSR control for the subject land.
Land Reservation Acquisition Map	Amend map LRA_009 to identify the site as “Local Open Space” (coloured yellow).

ITEM 5 (continued)

ATTACHMENT 3

3.0 Justification

Section 55 (3) of the Environmental Planning and Assessment Act 1979 enables the Director-General to issue requirements with respect to the preparation of a PP. This section responds to all matters to be addressed in a PP – including Director-General's requirements for the justification of all PPs (other than those that solely reclassify public land).

3.1 Need for the Planning Proposal

The existing planning controls in RLEP2014 do not reflect the Council's intent to acquire the land as public open space. An open space deficiency and consequent need for additional open space in the vicinity has been identified in Council's Integrated Open Space Plan. The Planning Proposal represents an opportunity to expand on a well utilised and popular area of open space, being Blenheim Park.

3.1.1 Is the planning proposal a result of any strategic study or report?

State Environmental Planning Policy Amendment (North Ryde Station Precinct) 2013 identified a number of sites for additional density in close proximity to North Ryde Station. The North Ryde Station Priority Precinct is located on the northern side of Epping Road and the subject site was not included in the Precinct.

The Finalisation Report prepared by the Department of Planning and Environment in July 2013 removed two sites from the Precinct, including land owned by Roads and Maritime Services land on the northern side of Epping Road and the Tennis World site on the southern side of Epping Road. The reasons for removing the RMS land was its limited capacity for high density uses, its small size, poor residential amenity and the site being effectively an isolated "island" surrounded by major arterial roads. The reasons for removing the Tennis World site included that the proposed development would be out of context with the surrounding residential homes and would set a precedent for increases in density on the southern side of Epping Road which would be a poor planning outcome in terms of residential amenity and potential access constraints to Epping Road.

The City of Ryde Integrated Open Space Plan 2012 reviewed the provision of open space in the City of Ryde, identified needs and demands and outlined an implementation plan. The Plan identified North Ryde as a priority area for the acquisition of open space. The Plan concluded that substantial population growth in North Ryde will require Council to optimise the capacity of existing open space and evaluate options for future land acquisition for additional open space in order to meet the growing demand.

Further, the objectives of the Plan discuss the need for a strategic approach to extending the existing quantum of open space, based on consolidation, stand-alone acquisitions and rationalisation. The Plan identifies Blenheim Park as a potential option for land consolidation:

ITEM 5 (continued)

ATTACHMENT 3

“Consolidation: identifying properties or spaces that are not currently zoned as public open space either within reserves or adjoining reserves, the consolidation of which would extend the capacity of that reserve; an example would include identifying residences adjoining or interjecting into park spaces for acquisition when they come to market, permitting extension of an existing reserve or joining of two separated parks (e.g. Blenheim Park)”

Amendments to the Integrated Open Space Plan have been prepared and are being exhibited concurrently with the Planning Proposal. These amendments address the requirements of the Gateway Determination for the Planning Proposal, which required that prior to community consultation, Council is to:

- *“Revise the City of Ryde Integrated Open Space Plan 2012 to include new population projections and new open space either supplied or proposed in Macquarie Park, and*
- *Amend the planning proposal to reflect the findings and recommendations of a revised City of Ryde Integrated Open Space Plan”.*

This amendments comprise a new Appendix titled “Macquarie Park Corridor 2016 update”. The Appendix identifies an estimated population increase of 40,000 residents in the Macquarie Park Corridor to 2036 and makes the following recommendations:

- *“Identify land adjacent to existing Council open space to expand these open spaces to increase active and/or passive recreation opportunities (e.g. 86 Blenheim Rd, 12A and 14 Epping Rd for incorporation into Blenheim Park)*
- *Provide ample open space within 200m of all residents in the Macquarie Park Corridor*
- *Identify open space for active recreation for acquisition beyond the corridor to service both the corridor and the wider City (e.g. RMS land east of Christie Park),*
- *Establish potential locations for either land acquisition or dedication to address the identified reduction in open space provision (e.g. expansion of Shrimpton’s Creek Corridor),*
- *Establish worker and residential population open space and recreation requirements for a physically and mentally healthy community in Macquarie Park to ensure that the corridor continues to grow as a globally and locally recognised innovative education and technology hub”.*

The revised population forecasts and recommendations further support the need for additional open space to serve the Macquarie Park Corridor.

The Planning Proposal is consistent with the objectives of Council’s “Generic Plan of Management: Sportsgrounds, Parks, Natural Areas, General Community Use 2001”, which include the objective *“to improve the land in such a way as to promote and facilitate its use”*. The future design and function of the land is to form the creation of a recreation precinct incorporating Blenheim Park and Tennis World.

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The Planning Proposal reflects Council's intention to acquire the site as public open space as outlined in the Council resolution of 21 April 2016.

The Planning Proposal removes controls for height and FSR for the subject site which is consistent with the approach for other sites zoned RE1 within the City of Ryde.

3.1.2 Is the planning proposal the best means of achieving the objectives or intended outcomes?

A PP under the Environmental Planning and Assessment Act which proceeds as an amendment to RLEP2014 is the only means to change the zoning and identify the site as open space.

3.2 Relationship to strategic planning framework

This section discusses relevant strategic planning documents and their relationship to the PP.

3.2.1 Is the planning proposal consistent with the objectives and actions of the applicable regional or sub-regional strategy (including the Sydney Metropolitan Strategy and exhibited draft strategies)?

In December 2014 the NSW Government released Sydney's Metropolitan Plan "A Plan for Growing Sydney". The PP is consistent with this Plan.

The proposed amendments to RLEP2014 to identify the site as open space is consistent with Action 1.11.3: "*Undertaken long-term planning for social infrastructure to support growing communities*". The amendments also align with Direction 3.2 "*Create a network of interlinked, multipurpose open and green spaces across Sydney*" and Direction 3.3 "*Create healthy built environments*".

3.2.2 Is the planning proposal consistent with the local council's local strategy, or other local strategic plan?

City of Ryde 2021 Community Strategic Plan

The Community Strategic Plan sets out the future vision for the City of Ryde. The plans set the desired outcomes and the aspirations of the community, and the goals and strategies on how they will be achieved. The following parts of the Community Strategic Plan are relevant to this Planning Proposal:

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Outcome	Goal	Strategy
A City of Liveable Neighbourhoods	All residents enjoy living in clean, safe, friendly and vibrant neighbourhoods. Our neighbourhoods thrive and grow through sustainable design, planning and regulation that support community needs.	To collaborate with our partners to increase social and recreational opportunities in our neighbourhoods.
		To create active public places and spaces through good planning and design.
A City of Wellbeing	Our residents are encouraged and supported to live healthy and active lives.	To offer a range of cultural, sport, recreational and leisure facilities to meet the needs of all.
		To provide a variety of activities that encourage social interaction and stimulate every day wellbeing.
		To collaborate with our partners to encourage more people to lead healthy and active lives locally.
	Residents feel secure and included in an environment where they can connect socially and are supported by their neighbours.	To encourage a healthy, happy, inclusive and active community where neighbours look out for each other.
		To provide safe community spaces and places for people to meet and get to know each other
A City Of Progressive Leadership	Our city is well led and managed.	To be responsive to the changing needs of our community.

Local Planning Study (LPS)

Council adopted *Local Planning Study (December 2010)*. This study informed the preparation of RLEP2014.

The PP supports the Study's Principle to "retain the total area of open space" and in particular the recommendation to "undertake a program that investigates ... the purchasing of appropriate land to increase the size of larger parks for active sports".

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3.2.4 Is the planning proposal consistent with applicable state environmental planning policies?

A summary assessment of the PP in terms of State Environmental Planning Policies (SEPPs) is contained in the table below (Table 1).

This assessment indicates that the draft amendments to RLEP2014 contained in this PP is consistent with all relevant SEPPs.

Table 1 – Consistency with relevant SEPPs

State Environmental Planning Policies (SEPPs)	Consistent		N/A	Comment
	YES	NO		
SEPP No 19 Bushland in Urban Areas			✓	Applies to the whole of the State. Not relevant to proposed amendment. The Planning Proposal will ensure that bushland in the neighbouring Reserve is protected from overshadowing from inappropriate development.
SEPP No 21 Caravan Parks			✓	Applies to the whole of the State. Not relevant to proposed amendment.
SEPP No 30 Intensive Agriculture			✓	Applies to the whole of the State. Not relevant to proposed amendment.
SEPP No 32 Urban Consolidation (Redevelopment of Urban Land)			✓	Applies to all urban land. Not relevant to the proposed amendment
SEPP No 33 Hazardous and Offensive Development			✓	Applies to the whole of the State. Not relevant to the proposed amendment
SEPP No 50 Canal Estate Development			✓	Applies to the whole of the State. Not relevant to proposed amendment.
SEPP No 55 Remediation of Land			✓	Applies to the whole of the State.
SEPP No.62 Sustainable Aquaculture			✓	Applies to the whole of the State. Not relevant to proposed amendment.
SEPP No 64 Advertising and signage			✓	Applies to the whole of the State. Not relevant to the proposed amendment
SEPP No 65 Design Quality of Residential Flat Development			✓	Applies to the whole of the State. Not relevant to the proposed amendment.
SEPP (Affordable Rental Housing) 2009			✓	Applies to the whole of the State. Not relevant to the proposed amendment.
SEPP(BASIX) 2004			✓	Applies to the whole of the State.

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ATTACHMENT 3

State Environmental Planning Policies (SEPPs)	Consistent		N/A	Comment
	YES	NO		
SEPP (Exempt and Complying Development Codes) 2008			✓	Applies to the whole of the State. Not relevant to proposed amendment
SEPP(Housing for Seniors or People with a Disability) 2004			✓	Applies to the whole of the State. Not relevant to proposed amendment
SEPP (Infrastructure) 2007			✓	Applies to the whole of the State. Not relevant to proposed amendment
SEPP (Major Development) 2005			✓	Applies to the whole of the State. Not relevant to proposed amendment
SEPP (Mining, Petroleum Production and Extractive Industries) 2007			✓	Applies to the whole of the State. Not relevant to proposed amendment
SEPP (State and Regional Development) 2011			✓	Not relevant to the proposed amendment
Deemed SEPPs				
Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005			✓	The PP is not inconsistent with the relevant planning principles for the Sydney Harbour Catchment.
Draft State Environmental Planning Policies				
SEPP No 66 - Integration of Land Use and Transport 2001			✓	Not relevant to proposed amendment
SEPP (Competition) 2010			✓	Applies to the whole of the State

3.2.5 Is the planning proposal consistent with applicable Ministerial Directions (s.117 directions)?

A summary assessment of the PP in terms of the Directions issued by the Minister for Planning under Section 117 of the *EP&A Act* (last update 1 February 2011) is contained in the Table 2).

The following is a list of Directions issued by the Minister for Planning to relevant planning authorities under section 117(2) of the *Environmental Planning and Assessment Act 1979*.

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These directions apply to PPs lodged with the Department of Planning and Environment on or after the date the particular direction was issued:

Consideration of Relevant Section 117 Directions applying to PPs

Ministerial Directions under Section 117 of the Environmental Planning and Assessment Act 1979	Consistent		N/A	Comment
	YES	NO		
3. Housing, Infrastructure and Urban Development				
3.1 Residential Zones		✓		<p>The Planning Proposal is inconsistent with Section 5 (b) of this direction. This inconsistency is considered to be justifiable and of minor significance in terms of the objectives of this direction as it involves the loss of only 3 residential lots. The purpose of the Planning Proposal is to facilitate the expansion of an existing area of open space which will help to accommodate the open space needs of residents in the neighbouring North Ryde Station Precinct. Council seeks the Director General's view that this inconsistency is justifiable and of minor significance.</p> <p>The housing supply and numbers are sufficient to meet the demand and housing targets and needs of the residents of Ryde, with an estimated 20,000 units to be completed by 2031. These additional dwellings will primarily be delivered in Priority Precincts and town centres.</p>
6. Local Plan Making				
6.2 Reserving Land for Public Purposes	✓			The proposal seeks the acquisition of land for public open space.

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ATTACHMENT 3

3.3 – Environmental, social and economic impact

3.3.1 Impact on Critical Habitat, Threatened Species and Ecological Communities

The PP will not affect any critical habitat or threatened species, populations or ecological communities, or their habitats nor is it expected to have any adverse environmental effects.

3.3.2 Are there any other likely environmental effects as a result of the planning proposal and how are they proposed to be managed?

The site is located to the north of Myall Reserve and any potential high density development on the subject site would have shadowing impacts on the Reserve. The PP will reduce the likelihood of inappropriate development impacting negatively on Myall Reserve.

3.3.3 Has the planning proposal adequately addressed any social and economic effects?

The PP would result in a positive social impact, by increasing the availability of public open space in an area with a growing population.

3.4 State and Commonwealth interests

3.4.1 Is there adequate public infrastructure for the planning proposal?

The planning proposal will not place additional demands on public infrastructure.

3.4.2 What are the views of State and Commonwealth public authorities consulted in accordance with the Gateway determination?

The PP does not raise any issues that are expected to be of concern to any State or Commonwealth public authority.

Any State or Commonwealth authority that is identified in the gateway determination will be consulted following that determination.

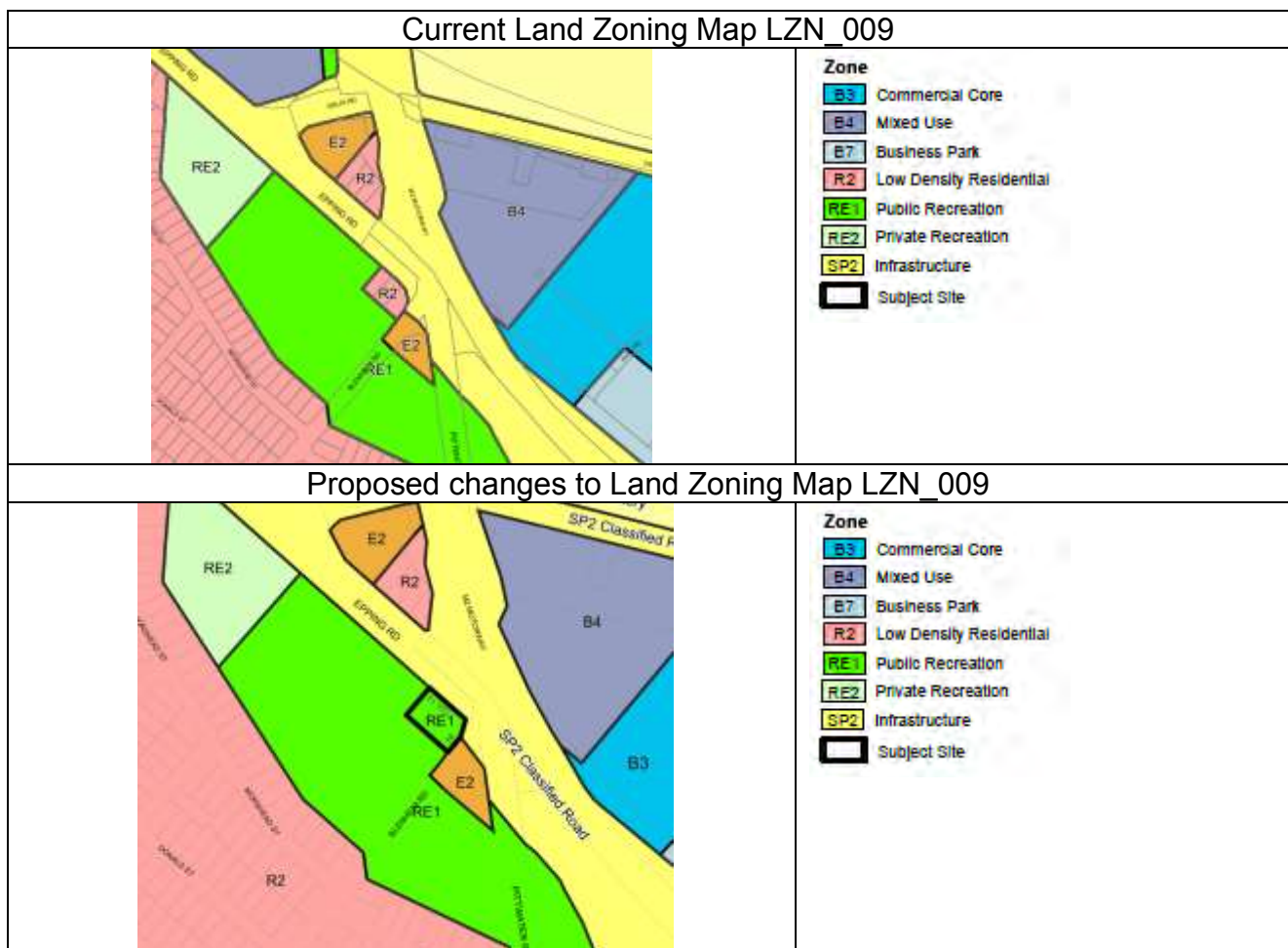
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ATTACHMENT 3

4.0 Mapping

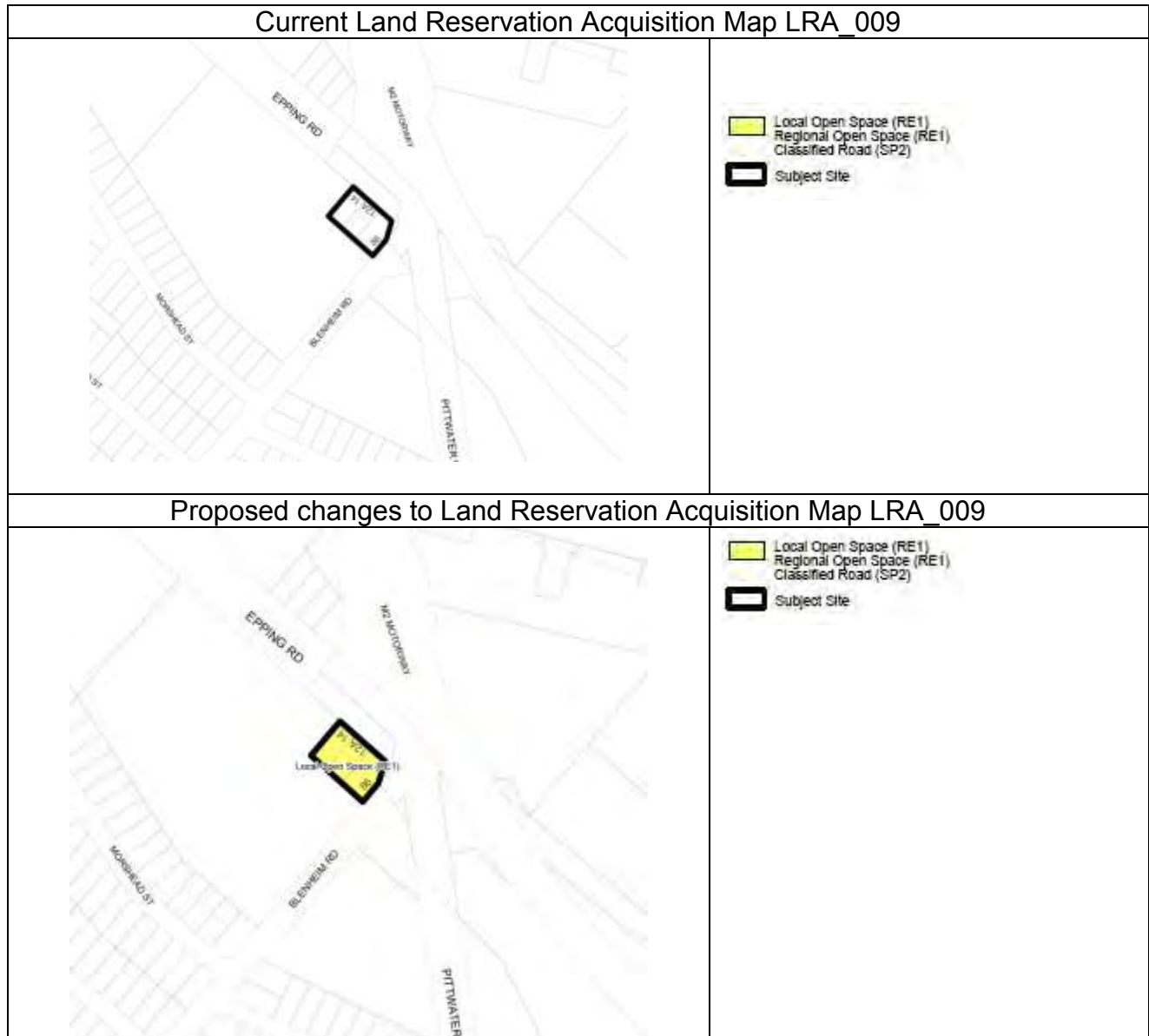
Maps identifying the intent of the PP are provided below.

Map	Proposed amendment
LZN_009	Amend the Land Zoning Map to rezone the site from R2 Low Density Residential to RE1 Public Recreation
LRA_009	Amend the Land Reservation Acquisition Map to reserve the site for Local Open Space (RE1)
FSR_009	Amend the Floor Space Ratio Map to remove the floor space ratio for the site
HOB_009	Amend the Height of Buildings Map to remove the height control for the site



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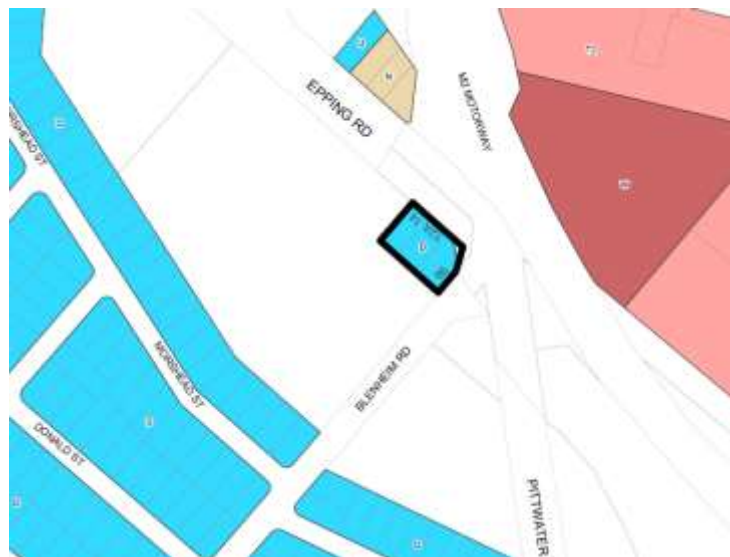
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ATTACHMENT 3

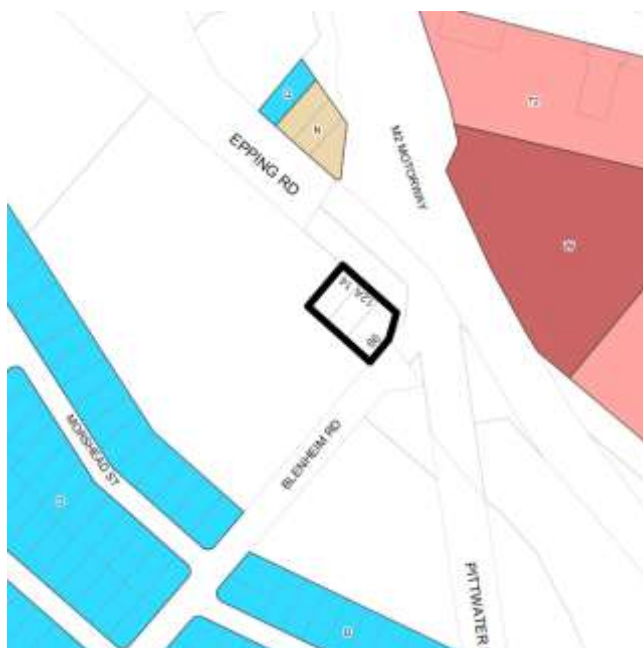
Current Floor Space Ratio Map FSR_009



Maximum Floor Space Ratio (n:1)



Proposed changes to Floor Space Ratio Map FSR_009



Maximum Floor Space Ratio (n:1)



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ATTACHMENT 3

Current Height of Buildings Map HOB_009



Maximum Building Height (m)

J	9.5
U1	30
V	37
X	45
Z	57
AE1	92
	Subject Site

Proposed Height of Buildings Map HOB_009



Maximum Building Height (m)

J	9.5
U1	30
V	37
X	45
Z	57
AE1	92
	Subject Site

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ATTACHMENT 3

5.0 Community Consultation

This section provides details of the community consultation that is to be undertaken on the planning proposal.

The community consultation process to be undertaken for this PP is expected to be undertaken in the following manner for a period of 4 weeks:

- written notice given:
 - in the local newspaper circulating in the area
 - on Council's webpage
 - to subject landowners and surrounding residents
 - to local state government representatives
 - consultations considered necessary by the Department of Planning and Environment with relevant State and Commonwealth authorities.
- the written notice will:
 - provide a brief description of the objectives and intended outcomes,
 - indicate the land affected,
 - state where the planning proposal can be inspected,
 - indicate the last date for submissions and
 - confirm whether the Minister has chosen to delegate the making of the LEP.
- The following materials will be placed on exhibition:
 - the PP
 - the Gateway determination.


The consultation process will include an opportunity to book an appointment with a planner to explain the provisions of the Planning Proposal.

6.0 Project Timeline

Planning Proposal submitted to Gateway	August 2016
Gateway determination received by Council	October 2016
Community consultation (4 weeks)	May/June 2017
Outcomes of community consultation presented to Council	September 2017
PP submitted to DoPE requesting notification on Government website	November 2017

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ATTACHMENT 4

<div>  City of Ryde Lifestyle and opportunity @ your doorstep </div> <div> Communications & Engagement Plan BLenheim PARK </div>			
Activity	Spectrum	Activity Detail	Stakeholders
Have Your Say Period	Consult	Exhibit the planning proposal to acquire the sites at 86 Blenheim Rd, 12A and 14 Epping Rd as open space and consult the community on their support of the planning proposal.	<ul style="list-style-type: none"> All stakeholders
eNewsletter	Inform	An eNewsletter will be sent to stakeholders with information about the planning proposal, how they can provide feedback, and of the upcoming drop-in session / park lunch and pop-up stall on Cox's Road.	<ul style="list-style-type: none"> Sporting groups Remote Control Race Car group Previous submitters
Advertisement 1 – Have Your Say is open	Inform	An advertisement will feature in the City of Ryde 'City News' section of the Northern District Times newspaper to inform readers the Have Your Say period is open and about the upcoming drop-in session / park lunch and pop-up stall on Cox's Road.	<ul style="list-style-type: none"> Newspaper Readers
Online survey	Consult	An online survey will be created for stakeholders to provide their feedback, where they will need to enter their details and answer 'yes' or 'no' to the question 'Are you in support of the planning proposal to acquire sites at 86 Blenheim Rd, 12A and 14 Epping Rd as open space?'. There will also be a comments field, should the stakeholder wish to provide additional feedback.	<ul style="list-style-type: none"> All stakeholders
Have Your Say Website	Consult	A dedicated webpage on the 'Have Your Say' section of the City of Ryde website will allow users to access information about the planning proposal and be a portal where stakeholders can provide their feedback through an online survey on whether they are in support of the changes. Stakeholders will also be able to subscribe to	<ul style="list-style-type: none"> Website users

ITEM 5 (continued)

ATTACHMENT 4

Communications & Engagement Plan:
BLENHEIM PARK

		project updates.	
Letter mail out	Inform	Letters will be sent to residents in the vicinity of Blenheim Park to inform them of the planning proposal, how they can provide feedback and about the drop-in session / park lunch and pop-up stall we will be holding.	<ul style="list-style-type: none"> Surrounding residents (520m radius from the park)
Facebook	Inform	A paid advertisement will go out to Facebook users within the City of Ryde suburbs with a short blurb on the planning proposal and the upcoming drop-in session / park lunch and a link to the webpage.	<ul style="list-style-type: none"> Facebook users
Posters/ Paper Surveys	Consult	Posters and paper surveys will be available at City of Ryde libraries to inform them of the exhibit and Have Your Say for the planning proposal and providing an opportunity to give their feedback on a paper version of the online survey.	<ul style="list-style-type: none"> Library users Council customers
Banners and Signage (at Park and maybe Tennis World)	Inform	Banners and signage will be installed at the park to inform park users and passers-by of the exhibit and Have Your Say period of the planning proposal, upcoming drop-in session / park lunch and to go to the City of Ryde webpage for more information.	<ul style="list-style-type: none"> Passers by Park users Surrounding residents and commuters.
Advertisement 2 – Drop-in session reminder	Consult	An advertisement will feature in the City of Ryde 'City News' section of the Northern District Times newspaper to remind readers of the upcoming drop-in sessions and closing date of the Have Your Say period.	<ul style="list-style-type: none"> Newspaper Readers
Drop-in session / Park lunch event at Blenheim Park	Consult	A drop-in session will be held on a Saturday at Blenheim Park where the community can ask Council questions and get further information about the planning proposal and site acquisition, as well as provide their feedback in person on whether they support the changes.	<ul style="list-style-type: none"> All interested stakeholders
Advertisement 3 – Pop up stall reminder	Inform	An advertisement will feature in the City of Ryde 'City News' section of the Northern District Times newspaper	<ul style="list-style-type: none"> Newspaper Readers

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ATTACHMENT 4

Communications & Engagement Plan:
BLENHEIM PARK

		to remind readers of the upcoming pop-up stall and closing date of the Have Your Say period	
Pop-up stall at Cox's Road	Consult	A pop-up kiosk will be held on a Saturday at Cox's Road where the community can ask Council questions and get further information about the planning proposal and site acquisition, as well as provide their feedback in person on whether they support the changes.	<ul style="list-style-type: none"> All interested stakeholders
Library visits	Consult	City of Ryde staff will go to libraries during busy periods to inform library users of the exhibit of the planning proposal and carry out surveys.	<ul style="list-style-type: none"> Library users
Blenheim Park visits	Consult	City of Ryde staff will go to parks during busy periods to inform park users of the exhibit of the planning proposal and carry out surveys.	<ul style="list-style-type: none"> Park users
Advertisement 4 – Have Your Say closing reminder	Inform	A fourth advertisement will feature in the City of Ryde 'City News' section of the Northern District Times newspaper to remind readers of the closing date of the Have Your Say period.	<ul style="list-style-type: none"> Newspaper Readers