

Appendix 6

Site contamination review

Prepared by JBS&G – Environmental consultants

6 August 2014

Frank Nastasi
East Quarter Hurstville Pty Ltd
Via email: fnastasi@eastquarter.com.au
cc. Andrew Young, ayoung@eastquarter.com.au

**East Quarter Stage 3 Mixed Use Development Site, 93 Forest Road, Hurstville
Review of Updated Masterplan Drawings Regarding Site Contamination Concerns**

Dear Frank,

1. Introduction and Background

JBS&G Australia Pty Ltd (JBS&G) has been engaged by East Quarter Hurstville Pty Ltd (EQH) to provide specialist environmental consulting services in relation to construction of Stage 3 of the proposed mixed use development at 95 Forest Road, Hurstville (the Site) located as shown in **Figures 1 and 2 (Attachment 2)**. The proposed development will comprise construction of a multistorey building including basement levels, retail floor space and residential apartments located to the east of the existing Stages 1 and 2 development footprints.

JBS&G has been requested to review the available site contamination assessment information in relation to the updated/revised masterplan concept¹ for the Stage 3 portion of the site and provide advice on the suitability of the available documentation to meet the regulatory requirements under State Environmental Planning Policy no 55 – Remediation of Land as addressed by Clause 22B Hurstville Local Environmental Plan (HLEP) 1994.

It is understood from the provided plans that the updated development scheme will comprise the construction of two mixed use buildings known as Building X and F, overlying a common basement which together comprise development Stage 3. The majority of the basement footprint will be completed as a single level apart from a small extension of the existing four level basement in the south-west of the development footprint.

2. Existing Assessment Information and Site Auditor Advice

JBS&G has been provided with copies of the following documentation previously prepared for the Stage 3 site:

- *Remediation Action Plan, 95 Forest Road, Hurstville, Sydney, NSW 2220*. Golder Associates Pty Ltd, December 2004, Report No. 03623097/024-M (Golder 2004);
- *Addendum to Remedial Action Plan, 95 Forest Road, Hurstville NSW 2220*. Aargus Pty Ltd, February 2012 (Aargus 2012).
- *Site Audit Report, Site Audit No. 201* by Dr Ian Swane, Stage 2 of East Quarter High-rise Residential / Commercial Development at 93 Forest Road, Hurstville, NSW 2220. S&N Environmental Engineers & Contractors, Final 16 October 2012 (S&N 2012a)

¹ Building X Concept Plans for ground floor and basement level prepared by Dem (aust) Pty Ltd plotted 30/7/2014, rev -01 (Dem 2014)

- *Site Audit Report, Site Audit No. 201B by Dr Ian Swane, Stage 3 of East Quarter High-rise, Residential / Commercial Development at 93 Forest Road, Hurstville 2220. S&N Environmental Engineers & Contractors, Final 26 October 2012 (S&N 2012b).*

As documented in the above reports, the Stage 3 site comprises the eastern portion of the former Containers Packaging property that has progressively been redeveloped since 2004 for mixed commercial and high density residential uses. In addition to the historical industrial use of the property by Containers Packaging, part of the Stage 3 portion of the site overlies a historical quarry that was reinstated with a mixture of soil and waste materials. The underlying landfill is known to extend beyond the Stage 3 site both to the west, underlying a portion of the Stage 2 development, and to the east, underlying the adjoining Kempt Field public open space, where the majority of the historical quarrying and landfilling occurred. The known extent of the former quarry and landfilled material in addition to the proposed extent of the basement footprint is shown in **Figure 2**. Given the existing conditions, remediation of Stage 3 will be necessary prior to future use of the site for commercial and residential purposes.

3. Evaluation of the Amended Plans

Main Single Level Basement Portion Within The Former Landfill

As documented in the Golder (2004) Remedial Action Plan (RAP) and the Aargus (2012) RAP addendum that were prepared following detailed consideration of the original masterplan, the overall Stage 3 remediation strategy for areas within the former landfill/quarry comprises:

- Retention in-situ of the landfilled material within the Stage 3 footprint beneath a low permeability clay cap keyed in at the margins of the landfill area to the natural, low permeability clay and shale geology;
- Installation of landfill gas drainage measures overlying the clay cap such that any landfill gas that may migrate from the landfilled material can be vented to the atmosphere and not accumulate beneath or within the constructed buildings;
- Construction of a combined basement level underlying the proposed Stage 3 buildings within the former landfill footprint at a minimum finished floor level of 56 m RL;
- Given the retention of the landfilled material and construction of the landfill gas mitigation measures, it is anticipated that an ongoing environmental management plan (EMP) would require implementation at the completion of the remediation works to address the capped portion of Stage 3.

The site audit review completed by Dr Ian Swane of S&N for Stage 3 reviewed the available information with respect to the assessment of site contamination and resulted in the prepared a Section B Site Audit Statement (SAS Ref: 201B, dated 26 October 2012b) for the site. This SAS states that in the opinion of the auditor, the site can be made suitable for the proposed high density residential and commercial uses if the site is remediated in accordance with the Aargus (2012) RAP. The SAS includes other conditions that require to be addressed prior to the commencement of construction works.

South-Western Deep Four Basement Section

The south-west most portion of Stage 3 located as shown in **Figure 2**, comprises an area that was initially inferred to be entirely beyond the footprint of the former landfill/quarry. As such, excavation works would be within the natural clay/shale formation similar to the Stage 2 area and not require specific remedial/management actions. However, recent detailed geotechnical investigation activities, including stereo pair mapping of historical quarry images following submission of the

previous Development Application (JK Geotechnics, 2014²) has identified that a minor portion of the former quarry/landfill does extend within the deep basement portion.

This occurrence is consistent with conditions identified in a minor portion of Stage 2 as addressed in the Aargus (2012) RAP amendment and endorsed by the auditor (S&N 2013a). Management of the potential gas and leachate attenuation risks associated with this minor portion of the Stage 3 site will be completed consistent with this approved remedial strategy as implemented for Stage 2.

The proposed works will include the construction of a permanent low permeability cut-off wall (as a diaphragm wall or similar) at the extent of the deep basement area at the south-west of Stage 3, to provide a migration barrier for potential landfill gas and leachate as may be encountered within the capped area of Stage 3 to the east of this wall. All fill material will be excavated from the deep basement portion of Stage 3 and removed from the site. Virgin excavated natural material sourced from the balance of the deep basement excavation will then be used to reinstate ground levels within the deep basement portion (as required) to reach the proposed B4 level.

Given that this strategy has been adequately documented and subsequently successfully implemented in construction of the Stage 2 development such that the final SAS has been issued (S&N 2013a), the available information is considered suitable to address the proponents obligations under SEPP55.

4. Review of Regulatory Requirements

Requirements in relation to the consent of planning approval under SEPP55 as addressed by Clause 22B Hurstville Local Environmental Plan (HLEP) 1994 comprise the following:

1. the consent authority must not consent to the carrying out of development on land unless:
 - a) It has considered whether the land is contaminated; and
 - b) If the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out), and
2. If the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, is satisfied that the land will be remediated before the land is used for that purpose.

The existing SAS prepared by Dr Ian Swane of S&N³ clearly states that whilst the site is contaminated, he is satisfied that the site could be made suitable for the proposed use if the site is remediated in accordance with the existing RAP (Aargus 2012⁴). It is noted that whilst there were a number of conditions that would be required to be addressed prior to the commencement of construction works for the auditor's opinion to remain valid, the statement as provided in the SAS is sufficient to satisfy the requirements of SEPP 55/HLEP 1994 in relation to remediation of the site.

5. Conclusions and Recommendations

The updated/revised development concept plans are considered to be consistent with the requirements of the site remedial strategy in relation to management of site contamination.

JBS&G are currently engaged by EQH to collect appropriate landfill gas monitoring data over a sufficiently representative time period such that the conditions nominated by the auditor in the

² Report to East Quarter Hurstville Pty Ltd on Geotechnical Investigation for Proposed East Quarter Hurstville Stage 3 at Jack Brabham Drive, Hurstville, NSW. JK Geotechnics 11 June 2014 (JK Geotechnics 2014)

³ Site Audit Report, Site Audit No. 201B by Dr Ian Swane, Stage 3 of East Quarter High-rise, Residential/Commercial Development at 93 Forest Road, Hurstville 2220. S&G Environmental Engineers and Contractors, Final 26 October 2012 (S&N 2012).

⁴ Addendum to Remedial Action Plan, 95 Forest Road, Hurstville NSW 2220. Aargus Pty Ltd, February 201 (Aargus 2012)

Stage 3 SAS can be appropriately addressed prior to the commencement of Stage 3 construction works. In the meantime, sufficiently conservative technical advice on gas mitigation requirements has been provided to assist with design of Stage 3 to address conditions reported to be present at the site based on historical and current monitoring.

On this basis, the available information provided in the existing remedial strategy documents and supporting site audit documentation are considered suitable to address the requirements for consideration of site contamination at this stage of the planning process.

Should you have any queries or require further clarification, please feel free to contact the undersigned on 02 8245 0300 or by email jrosner@jbsg.com.au.

Yours sincerely:



Joanne Rosner
Principal Contaminated Land
JBS&G

Reviewed/Approved by:



Matthew Bennett
Principal Contaminated Land
JBS&G

Attachments:

- 1) Limitations
- 2) Figures

Attachment 1 – Limitations

This report has been prepared for use by the client who has commissioned the works in accordance with the project brief only, and has been based in part on information obtained from the client and other parties.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

JBS&G accepts no liability for use or interpretation by any person or body other than the client who commissioned the works. This report should not be reproduced without prior approval by the client, or amended in any way without prior approval by JBS&G, and should not be relied upon by other parties, who should make their own enquires.

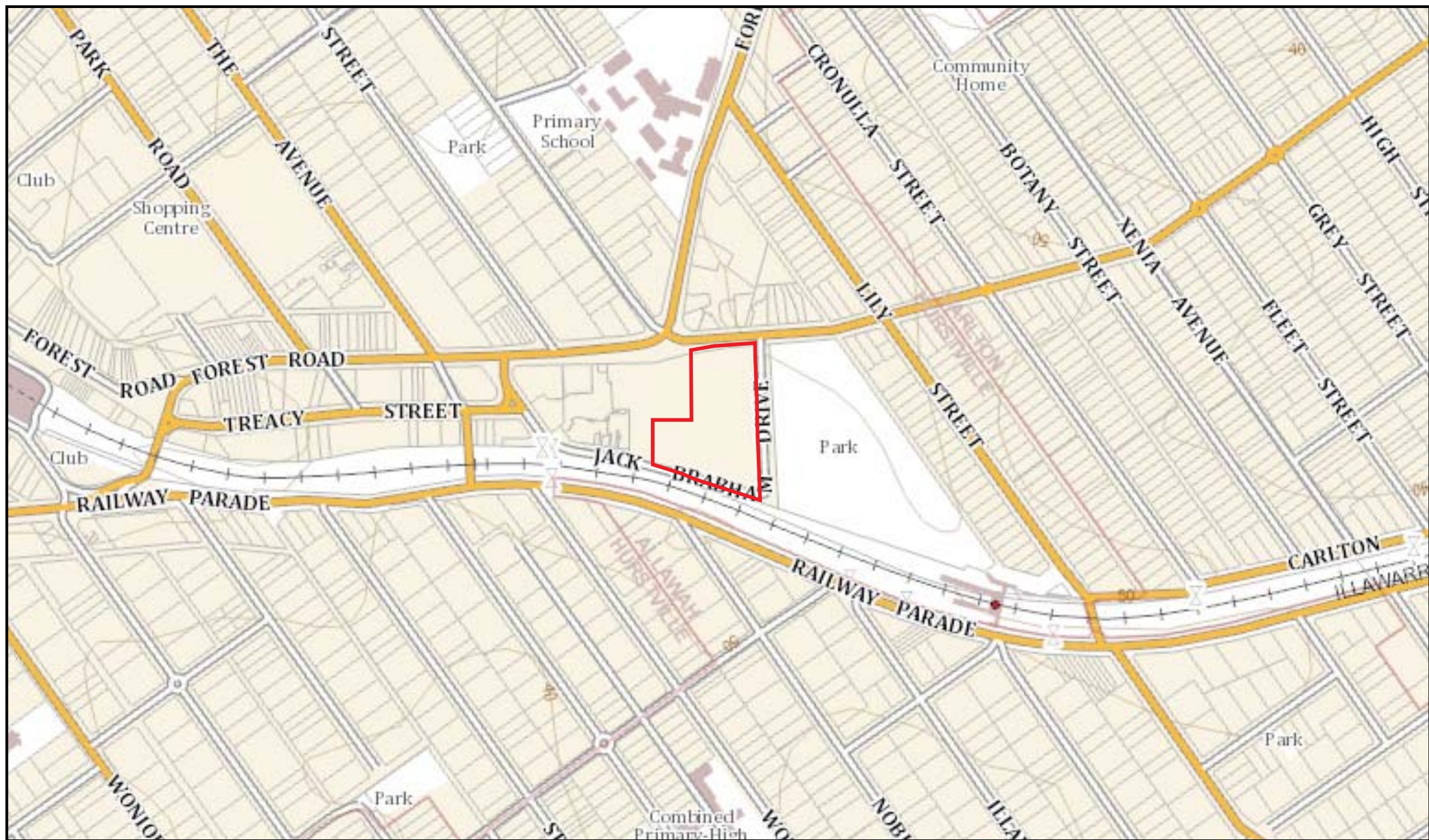
Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements.

Limited sampling and laboratory analyses were undertaken as part of the investigations undertaken, as described herein. Ground conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history and which may not be expected at the site.

Changes to the subsurface conditions may occur subsequent to the investigations described herein, through natural processes or through the intentional or accidental addition of contaminants. The conclusions and recommendations reached in this report are based on the information obtained at the time of the investigations.

This report does not provide a complete assessment of the environmental status of the site, and it is limited to the scope defined herein. Should information become available regarding conditions at the site including previously unknown sources of contamination, JBS&G reserves the right to review the report in the context of the additional information.

Attachment 2 – Figures



Source: Base Images: © Six Maps NSW Gov accessed 13/08/2013

© 2013 JBS&G

0 50 100 200 m			
Scale:			
Datum: MGA94 Zone 56 - AHD			
A4			
0	Original Issue - L005	JR	11/04/2014
Rev	Description	Drn.	Date

Legend:

— Approximate Stage 3 Site Boundary



Figure 1: Site Location

Client: East Quarter Hurstville Pty Ltd

Project: Stage 3 Landfill Gas Monitoring

Job No: 42635

File Name: 42635_01





Source: Base Image - © NearMap www.nearmap.com.au, imagery date 28/08/2013, accessed 5/10/2013

© JBS&G 2013

0 5 10 20 m			
Scale: Approximate			
Datum: MGA94 Zone 56 - AHD			
A4			
0	Original Issue - L005	JR	11-04-2014
Rev	Description	Drn.	Date

Legend:

- Approximate Lot Boundary
- Approximate Stage 3 Development Boundary
- Approximate Extent of Stage 2 Cut Off Wall
- Stereo pair analysis - interpreted extent
- Four level Basement Footprint



Figure 2: Relative Location of Stage 3 and Landfill Extent

Client: East Quarter Hurstville Pty Ltd

Project: Stage 3 Gas Risk Assessment - Amended RAP

Job No: 42635

File Name: 42635-02

