

15 November 2021

Aqualand B Development Holding Pty Ltd
Level 47, Tower 1, 100 Barangaroo Avenue
Barangaroo NSW 2000
Attn: Grahame Edwards, Planning Manager

By email: grahame.edwards@aqualand.com.au

Dear Grahame,

RE: SUITABILITY OF JBS REMEDIAL ACTION PLAN FOR CENTRAL BARANGAROO MP06_0162 (MOD 9)

EXECUTIVE SUMMARY

As a NSW-EPA accredited Contaminated Sites Auditor, I am conducting a contamination audit in relation to the Central Barangaroo development at Barangaroo, NSW, having taken over this role from Graeme Nyland in June 2018. A Site Audit Report (SAR) and accompanying Section B Site Audit Statement (SAS) dated 31 July 2013 (GN439B-5) were previously prepared regarding a Remediation Action Plan (RAP) for the site prepared by JBS Australia Pty Ltd (JBS), dated May 2013.

The RAP contemplated development of Central Barangaroo in the long term for high density residential usage in the east with open space areas in the west, with interim development for public open space. The residential development was proposed to be constructed over two basement areas to a depth of 10 m below ground and the proposed southern basement was partially located with the Declaration Area in Block 5.

The proposed MOD 9 to Barangaroo Concept Plan comprises a series of mixed use buildings, new streets and public spaces overlying a common basement spanning Blocks 5, 6 and 7 in the east of the site, designed to a nominal depth of 15 m below ground level.

The differences between the RAP and MOD 9 developments and the implications of these on the proposed site remediation have been considered in a letter prepared by EDP Consultants Pty Ltd (EDP). The Auditor has reviewed the letter and the proposed MOD 9 to Barangaroo Concept Plan and considers that:

- The implications of variations in basement design and public domain development plans can be adequately addressed by the detailed design and additional documentation to be prepared (and approved by the Site Auditor) prior to the commencement of works. A further risk assessment to address retail and commercial usage within basements is also required.

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- The JBS RAP (Rev H, May 2013) and the Central Barangaroo SAS/SAR (GN439B-5, 31 July 2013) are considered applicable to the proposed MOD 9 to Barangaroo Concept Plan for the relevant area assessed in the RAP and SAS/SAR.
- The RAP and Central Barangaroo SAS/SAR did not address that portion of Block 5 located within the Declaration Area, which is included within the footprint of the proposed MOD 9 Barangaroo Central basement. Consistent with the findings of the Central Barangaroo SAS/SAR, it is recommended that remediation planning documentation be prepared, and a site audit review of the proposed remediation be conducted, for the Declaration Area portion of the basement. Preparation of the additional documentation and completion of the audit review as part of the Stage 2 Development Application process would be appropriate.

1. INTRODUCTION

As a NSW-EPA accredited Contaminated Sites Auditor, I am conducting a contamination audit in relation to the Central Barangaroo development at Barangaroo, NSW on behalf of Aqualand B Development Holding Pty Ltd (Aqualand). The locality of Central Barangaroo and the development block layout is shown on Attachments 1 and 2, respectively.

A Site Audit Report (SAR) and accompanying Section B Site Audit Statement (SAS) dated 31 July 2013 (GN439B-5) (the Central Barangaroo SAS/SAR) regarding the Remediation Action Plan (RAP) for the site was previously prepared by Graeme Nyland of Ramboll Australia Pty Ltd (previously ENVIRON Australia Pty Ltd). The RAP reviewed in the Central Barangaroo SAS/SAR was prepared by JBS Australia Pty Ltd (JBS) and was dated May 2013 (Rev H).

The portion of Barangaroo which previously contained part of a manufactured coal gasworks and which was previously declared by the NSW EPA as a Remediation Site (the Declaration Area) adjoins the southeast part of Central Barangaroo and includes portions of Hickson Road and Block 5 (shown in pink hatching on Attachment 3).

RAPs for additional portions of Barangaroo surrounding the site have been reviewed by Graeme Nyland with Section B SAS/SAR prepared on behalf of the Barangaroo Delivery Authority (now Infrastructure NSW), Crown Sydney Property Pty Ltd (Crown) or Lendlease (Millers Point) Pty Ltd (Lendlease).

As of June 2018, I (Rowena Salmon) have taken over the role of Site Auditor from Graeme Nyland for the Central Barangaroo project and for other portions of Barangaroo, including the Declaration Area, for Lendlease and Crown.

The purpose of this letter is to consider the applicability of the JBS RAP and Central Barangaroo SAS/SAR to the proposed MOD 9 to Barangaroo Concept Plan for Central Barangaroo in consideration of the requirements of State Environmental Planning Policy No 55 - Remediation of Land (SEPP 55).

2. JBS REMEDIAL ACTION PLAN AND CENTRAL SITE AUDIT REPORT

The RAP (JBS, 2013) contemplated development of Central Barangaroo in the long term for high density residential usage in the east with open space areas in the west, with interim development for public open space. The residential development was proposed to be constructed over two basement areas to a depth of 10 m below ground. The footprints of the basement areas are shown on Attachment 3. The proposed southern basement was partially located with the Declaration Area in Block 5, although the RAP (and Central Barangaroo SAS/SAR) did not address remediation of this area.

The Central Barangaroo SAS/SAR identified a number of documents that are required to be prepared and reviewed by the Site Auditor prior to commencement of works, specified as conditions of the site audit, including:

1. A revised remedial works plan (RWP) to confirm the sequence of proposed remediation and validation tasks. Clarification is also required around the site acceptance criteria and relevant data sets and the proposed remedial extent (including vertically)
2. Materials Compliance Management Plan (MCMP)
3. Validation Sampling and Analysis Quality Plan (VSAQP)
4. Asbestos Management Plan (AMP).

The RAP also contemplated implementation of a long-term environmental management plan (LTEMP). The need for and nature of long-term management measures would be considered following completion of the development as part of the ongoing (Section A) site audit for site suitability.

In determining the required extent of remediation documented in the RAP, JBS referred to and derived a range of risk-based criteria. The derivation of these criteria was based on assumptions that need to be applied and validated for the basement construction.

It was noted in the Central Barangaroo SAS/SAR that the southern basement proposed for the future residential development crosses into the Declaration Area. This part of the Declaration Area has not been addressed in a RAP considering the suitability of the site for future residential use. It was recommended that a site audit confirming the site can be made suitable for its intended use be performed for the Declaration Area portion of the southern basement.

3. MOD 9 TO BARANGAROO CONCEPT PLAN

The proposed MOD 9 to Barangaroo Concept Plan comprises a series of mixed use buildings, new streets and public spaces overlying a common basement spanning Blocks 5, 6 and 7 in the east of the site (refer Attachment 2). The site is divided by Barangaroo Avenue, which includes shared streets and dedicated pedestrian spaces. West of Barangaroo Avenue is public open space and a small area of retail. Up to four levels of basement are proposed, equivalent to 15 m below ground level, with retail in the basement levels.

A comparison of the MOD 9 Central Barangaroo basement design with assumptions made in the RAP (and the risk assessment documents it relied on) has been completed by EDP Consultants Pty Ltd (EDP) in the letter detailed below:

- "Suitability of JBS Remedial Action Plan for Central Barangaroo MP06_0162 (MOD 9)", Ref: S-00715.LOA.004 by EDP Consultants Pty Ltd, dated 26 July 2021 (the EDP letter).

The EDP letter identifies where the basement design details for the proposed MOD 9 to Barangaroo Concept Plan are not consistent with assumptions made in the RAP and appropriate actions to be undertaken. The most significant departures from the RAP documented by EDP are as follows:

- Item 3 of the EDP letter identifies that there is a departure between the number and depth of basement levels contemplated by MOD 9. MOD 9 Central Barangaroo proposes a single basement that be designed to a nominal depth of 15 m below ground level. This departs from the original basement design contemplated in the JBS RAP which was two basements to a depth of 10 m below ground level (refer Attachment 3). The Declaration Area includes a portion of Block 5, and the basement may be exposed to residual gasworks waste in deep fill, marine sediment or fractured bedrock should the final basement design remain greater than 10 m.

- The proposed uses within the MOD 9 Central Barangaroo basement design allow for retail, commercial, car parking, storage and plant spaces. The original basement design contemplated in the JBS RAP only included car parking uses within the basement. This presents a change in the exposure scenario for the risk assessments, which will need to be revisited to confirm potential risks to retail workers and other potential receptors are acceptable.

In addition to the above, the Site Auditor notes that the RAP contemplated open space use for the public domain area. The MOD 9 to Barangaroo Concept Plan includes retail uses within the public domain, above ground only.

In the Auditor's opinion, the above issues can be adequately addressed by the additional documentation to be prepared (and approved by the Site Auditor) as part of the Stage 2 Development Application for each development Block, as listed in Section 2 above, with the addition of a further risk assessment to address retail and commercial usage within basements.

There is a more extensive requirement for additional remediation planning documentation for the proposed mixed use development over the Declaration Area in the south of Block 5, particularly with the increase in basement depth beyond 10 m, which is beyond the remediation depth proposed for removal of the Declaration. More detailed consideration of remediation requirements in this area is required as part of the Stage 2 Development Application for Block 5 since there is currently a gap in the remediation planning documentation for this area and therefore the requirements of SEPP 55 have not yet been met in full. However, the nature of issues likely to be encountered in this area are consistent with issues addressed and managed for other portions of Barangaroo, including within and adjacent to the Declaration Area. The feasibility of remediation is therefore not in question.

4. CONCLUSION

EDP concluded in their letter: "*EDP considers the JBS RAP suitable to be adopted for the MOD 9 submission, with consideration given to the requirements of the SAS/SAR, which provides further management detail*".

Based on review of the EDP letter and the proposed MOD 9 to Barangaroo Concept Plan, the Auditor considers that:

- The implications of variations in basement design and public domain development plans can be adequately addressed by the detailed design and additional documentation to be prepared (and approved by the Site Auditor) prior to the commencement of works, including: RWP, MCMS, VSAQP and AMP. A further risk assessment to address retail and commercial usage within basements is also required. The need for a LTEMP will be considered at a later stage of the site audit process, although the RWP documentation should be clear regarding the project objectives with regards to the need for long-term management.
- The JBS RAP (Rev H, May 2013) and the Central Barangaroo SAS/SAR (GN439B-5, 31 July 2013) are considered applicable to the proposed MOD 9 to Barangaroo Concept Plan for the relevant area assessed in the RAP and SAS/SAR and are considered to meet the requirements of SEPP 55.
- The RAP and Central Barangaroo SAS/SAR did not address that portion of Block 5 located within the Declaration Area, which is included within the footprint of the proposed MOD 9 Central Barangaroo basement. Consistent with the findings of the Central Barangaroo SAS/SAR, it is recommended that remediation planning documentation be prepared, and a site audit review of the proposed remediation be conducted for the Declaration Area portion of the basement. Preparation of remediation planning documentation and site audit review will be undertaken for the Stage 2 Development Application for this portion to meet the requirements of SEPP 55.

* * *

Consistent with the NSW EPA requirement for staged 'signoff' of sites that are the subject of progressive assessment, remediation and validation, it is advised that:

- This advice letter does not constitute a Site Audit Report or Site Audit Statement.
- At the completion of the remediation and validation of the site I will provide a Site Audit Statement and supporting documentation.
- This interim advice will be documented in the Site Audit Report.

Yours faithfully
Ramboll Australia Pty Ltd



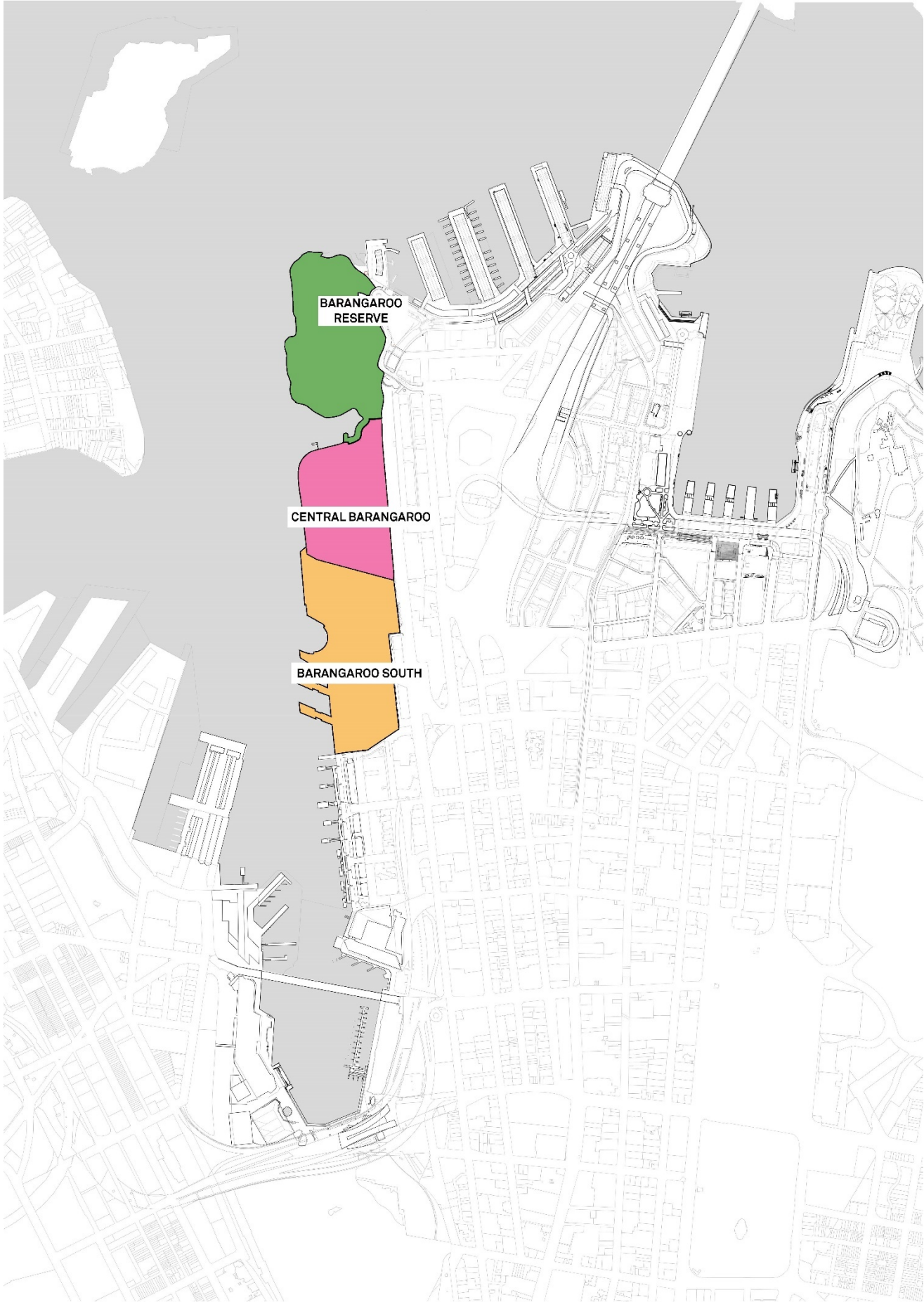
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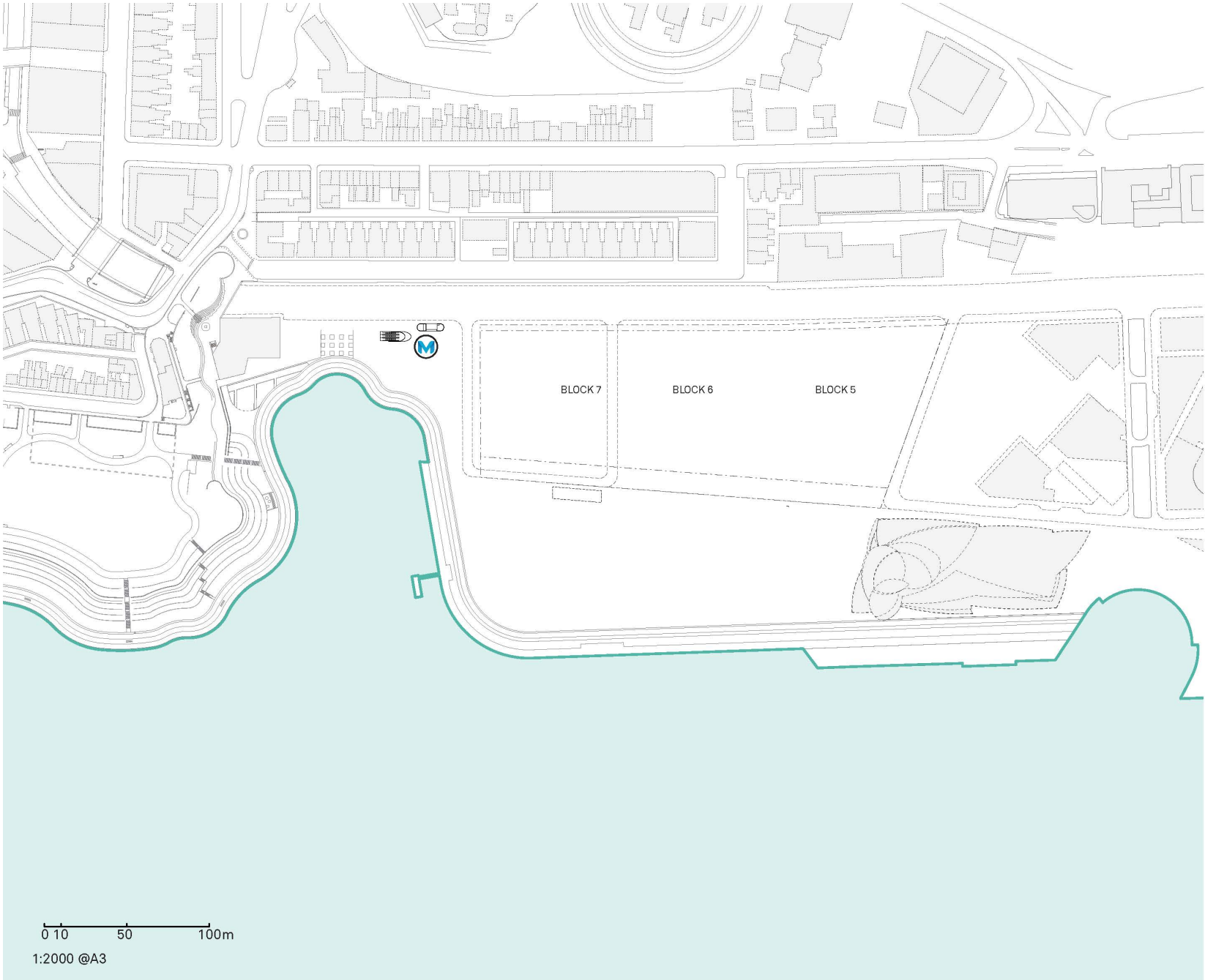
Encl:

- Attachment 1: Central Barangaroo Site Locality
- Attachment 2: Central Barangaroo Block Layout
- Attachment 3: Basement Footprints Considered in JBS RAP (2013)

Attachment 1: Central Barangaroo Site Locality



Attachment 2: Central Barangaroo Block Layout



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PRELIMINARY

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Project
BARANGAROO CENTRAL

Drawing Name
Building Envelope Plan

Drawing # **SK-004** Revision

0 10 50 100m

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Attachment 3: Basement Footprints Considered in JBS RAP (2013)



Source: Base Image www.nearmap.com (23-10-2011)

© 2013 JBS Environmental Pty Ltd

0 12.5 25 50 m		
Scale: 1:1,500		
Datum: MGA94 Zone 56 - AH D		
A4		
G	Original Issue - R06	RF 27-3-2013
Rev	Description	Drn. Date:

- Legend:**
- Soil Sample Locations (JBS May 2012)
 - Historic Soil Sample Locations
 - Approximate Site Boundary
 - Barangaroo Central Residential Basements (10 m Depth)
 - Overlap of Area Already Assessed (Headland Park)
 - Inaccessible for soil and groundwater sampling
 - Part of Declaration Area - Approximate Extent



Figure 5: JBS (2012a) Soil Sample Locations

Client: Barangaroo Delivery Authority

Project: Barangaroo - Central

Job No: 42021

File Name: 42021_05

