

ESR Australia
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Sydney NSW 2000

219609.01
15 June 2026
R.006.Rev0
DIH:jl

Attention: Gannon Cuneo
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Response to Remediation SSDA Comments Proposed Warehouse Development 49-61 Stephen Road, Banksmeadow

1. Introduction

The following provides responses by Douglas Partners Pty Ltd (DP), in consultation with ESR Australia Pty Ltd (ESR), to the additional information sought by the Department of Planning, Housing and Infrastructure (DPHI), DPHI (2026)¹. This is with respect to the State Significant Development Application (SSD-65924461) and the associated proposed warehouse development at 49-61 Stephen Road, Banksmeadow.

Responses herein are with respect to the 'Remediation of Contaminated Land', Items 1-4 in Attachment 1 of DPHI (2026).

The following sections refer to drawings from Appendix A1 of DP's remediation action plan (RAP), DP (2024)². For ease of reference these drawings have been extracted from the RAP and attached to this letter.

2. Containment Cell (Point No. 1)

DPHI Comment:

The Remedial Action Plan (RAP) proposes placing soils containing organochlorine pesticide concentrations exceeding the remediation criteria within a containment cell. Additional information is required to clearly define the location and design of the proposed containment cell, its relationship to the overall development, and to provide written interim advice from the Site Auditor confirming acceptance of this approach.

¹ Department of Planning, Housing and Infrastructure, 'Subject: Request for Additional Information – Stephen Road Multi-level Warehouse, Banksmeadow (SSD-65924461)', DPHI reference: SSD-65924461, dated 28 May 2026 (DPHI, 2026).

² Douglas Partners Pty Ltd, 'Remediation Action Plan, Proposed Industrial Development, 49-61 Stephen Road, Banksmeadow', DP reference: 219609.01.R.002.Rev1, 3 Volumes, dated 12 December 2024 (DP, 2024).

DP Response:

As outlined in Section 10.2 of DP's RAP, the intention is for the final design, dimensions and location of the containment cell to be informed by the developments final design. Notwithstanding, Section 10.2, in conjunction with Section 11.2 and Drawing 12 (Appendix A1) of the RAP do outline parameters and requirements to be met to achieve the required remediation outcomes.

With respect to the containment cell the following is noted:

- The cell is required to have sufficient capacity for the stockpiled soils (to be placed within the cell) with some capacity contingency. Survey to confirm the volume of stockpiled material to be placed within the cell forms part of the methodology outlined in the RAP. In this regard, as a guide ESR in consultation with DP has currently estimated in the order of 3,000 m³ of material will be placed in the containment cell. This includes allowance for approximately:
 - o 1,200 m³ for organochlorine pesticide (OCP) impacted soils. This includes in the order of 100 m³ of material with OCP concentrations above the remediation acceptance criteria (RAC) that is required to be placed in the cell for remediation purposes. This material is located around JBS&G Australia Pty Ltd (JBS&G) sample location BH67.

The remaining balance (i.e. ~1,100 m³) comprises other OCP impacted material with lower concentrations, namely above 40 mg/kg but below the RAC. Hence whilst preferable and recommended to place this material in the cell, it is not technically required.

Areas with OCP impacted soils are shown on Drawings 8, 8A and 8B in Appendix A1 of the RAP (also attached).
 - o 1,300 m³ for soils with high lead concentrations above 15,000 mg/kg, namely from the vicinity of boreholes 210 and 333 in Area 6. Whilst preferable and recommended to place this material in the cell, it is not technically required.

Area 6 is shown on Drawings 7 and 9, Appendix A1 of the RAP (also attached).
 - o Contingency in the order of 20% (or ~500 m³). Moreover, contingency has also been incorporated into the approach by distinguishing between the material required to be placed in the cell and that recommended to be placed in the cell (discussed further in Section 3 below and in Section 10.2 of the RAP).
- Placement of the cell below the marker layer and capping layer. The capping layer is a minimum 1 m thick and likely to be in the order of 1.5 m to achieve design levels. Allowing for construction of pavements, the top of the cell is expected to be in the order of 1.5-2 m below finished surface levels.
- The base of the cell is to be a minimum 2 m above the groundwater table. Viz. about reduced level (RL) ~7 m Australian Height Datum (AHD) or a maximum depth of 3 m relative to current site levels given the existing site pad is at approximately RL ~10 m AHD.
- The cell is to be lined with a lower permeable liner which has a hydraulic permeability of less than 1x10⁻⁹ m/s. The liner is to cover the base, walls and top of the cell.
- DP has identified in Section 11.2 of the RAP that a textured 1.5 mm thick welded high density polyethylene (HDPE) liner with protective geofabric (e.g. Bidim A44) to minimise potential for damage to the liner would be suitable and meet the above requirement.

DP noted that other liners may also be suitable including, for example, geosynthetic clay liner (GCL) and geosynthetic cementitious composite mats (GCCM) and could be considered for use where appropriate. Use of alternative liners would need to meet the above cell requirements and be subject to review and approval of both the Environmental Consultant and the Site Auditor prior to being able to be used as an alternative.

- Placement of a protective layer above the cell liner and extending a minimum 500 mm past the footprint of the cell is required. Moreover, DP recommended that this is a minimum 300 mm thick, comprise a sand matrix and is installed directly after liner completion to assist with its protection. This may either be formed by the capping layer above the marker layer from imported soils, or formed from site won excavated sands placed above the liner but below the marker layer (and the associated imported fill capping layer).

As noted above the final design, including location and dimensions, will be informed by the final design, most notably piling design (location and spacing of piles). Section 10.7 (page 35) of the RAP also recommends '*...where possible where possible, the cell is located in an area where other impacts are not present (e.g. areas indicated on Drawing 7, Appendix A1, etc.)...'*. Consistent with this recommendation and the information above, Drawing 16, attached, shows an indicative area in the north-eastern quadrant of the site that the containment cell could be located within. This also represents an area of the development where deeper inground services are not proposed, is outside of areas where the main inground stormwater pipes are proposed to be located, does not include areas with lower finish levels (e.g. recessed docks), and is below areas with concrete slabs surface finishes which by their nature will reduce the potential for water infiltration into the subsurface in the area.

This indicated area has approximate dimensions of 60 m x 60 m. As a general guide and example, assuming a pile spacing approach of ~11 m centres (commonly adopted for warehouse developments), this area could contain five parallel cells located between the rows of piles. Each cell 60 m long, 9 m wide and up to 3 m depth. Hence, in this scenario each cell could have a capacity of between ~540-1,620 m³ (for a cell between 1-3 m depth) with an overall capacity for the area in the order of ~2,700-8,100 m³ (for five parallel cells).

3. Remediation Approach (Point No. 2)

DPHI Comment:

The RAP identifies both 'required' and 'recommended' remediation works. Please clarify which remediation measures are proposed to be implemented as part of the development to make the site suitable for the proposed industrial warehouse use, and provide written interim advice from the Site Auditor confirming their acceptance of these proposed works.

DP Response:

The following subsections provide general clarifying information on the required and recommended remediation. Reference should be made to the referenced section of the RAP, DP (2024), for further information.

3.1 Required Remediation

The RAP has been developed to outline those tasks that are required to render the site suitable from a contamination perspective for the proposed warehouse development. These are identified as 'required' in the remediation strategy, Section 10 of the RAP.

In summary the required remediation comprises:

- **Section 10.2 of the RAP - Placement of OCP impacted soils with concentrations above the RAC in a contaminated cell.** This refers to the soils located around JBS&G sample location BH67 (indicated by yellow hatching on Drawings 8 and 8a from the RAP). Placing these soils in a containment cell will remove exposure pathways associated with direct exposure and the potential to impact groundwater quality.
- **Section 10.3 of the RAP - Validation of the aboveground storage tank (AST) farm footprints.** Required given these areas cannot currently be accessed for assessment / validation. Therefore, the validation works to be undertaken post demolition of structures and pavements for the main AST farms. The AST farms are shown on Drawing 3 from the RAP. The outlined process also includes a step to determine if remediation is required, and if required, the proposed remediation approach is to be determined in consultation and agreement from relevant parties (which includes *et al.* ESR, Environmental Consultant and Site Auditor).
- **Section 10.4 of the RAP - Validation of the underground storage tank (UST) farm footprints.** This to be undertaken post removal of the USTs and excavation and stockpiling of soils surrounding the tanks. The UST farms are shown on Drawing 3 from the RAP. The outlined process also includes a step to remediate the excavated soils, if required (i.e. material is identified to exceed the RAC and/or is not considered to be suitable by the Environmental Consultant). The remediation approach to be determined by the Environmental Consultant for the contaminant of concern consistent with approaches (for the relevant contaminant) outlined in the RAP. Where required, consultation and agreement from relevant parties is to be undertaken (e.g. ESR, Environmental Consultant and Site Auditor).
- **Section 10.5 of the RAP - Ex Situ remediation of VOC and TRH / TPH contaminated soils from above the groundwater table.** This outlines a process to address soils with volatile contaminants to be excavated for *ex situ* treatment. Subject soils to be treated are those above the groundwater table in Area 5 (as shown on Drawing 7 from the RAP). It also provides a process to be implemented for other soils that may be encountered during other remedial works (e.g. soils from AST and UST farms that may require remediation as noted in the preceding dot points). The remediation works involve the excavation of impacted soils and placing these soils in covered stockpiles / biopiles to facilitate bioremediation (breakdown of contaminants via biodegradation). Post treatment validation of the soils to confirm the remediation achieved is suitable for the warehouse development, and subsequent placement of the validated soils in suitable areas at the direction of the Environmental Consultant.

- **Section 10.6 of the RAP - Remediation of asbestos and lead contaminated soils.** To address the presence of asbestos and/or lead above the RAC in the fill across large sections of the site. This remediation requirement creates a barrier between the contaminated soils and future site users and hence removes the exposure pathway linkage³. The works involve placing a marker layer over the existing soils and then subsequently placing a minimum 1 m thick layer of imported clean soils over the marker layer to allow construction of a capping layer. In this regard, DP notes that from a contamination perspective, placement of a minimum 0.5 m thick capping layer would generally be sufficient, although the thicker 1 m layer provides greater contingency in the remediation approach and is therefore supported by DP. Moreover, given the site is to be raised, the actual capping layer is likely to be generally around 1.5-2 m thick to allow earthworks design levels to be achieved. Bespoke approaches to the capping will be implemented in landscape areas where existing trees are retained (as outlined in Section 10.6.1 of the RAP).
- **Section 10.7 of the RAP - Management of existing site soils during works.** This requirement highlights the need for considering and implementing soil management strategies during the works. It has been included with a view so as to not negatively impact on the long-term contamination risk profile of the site from the development and/or remediation works. For example (and as noted in the RAP), implementation of a general principle of not placing any existing soils impacted with chemical contaminants within 1.5 m of the groundwater table without further consideration by the Environmental Consultant.
- **Section 10.8 of the RAP – Addressing inground infrastructure (pits, sumps, drains and services) encountered during works.** Given the age and historical use of the site it is expected that there will be unidentified inground pits, sumps, drains and/or services encountered during the civil works. This requirement outlines the considerations and processes for assessment, remediation and validation to be implemented, if and when, inground infrastructure is encountered.

3.2 Recommended Remediation

Others remediation tasks were outlined in the RAP for ESR's consideration given the required remediation tasks (as outlined in Section 3.1 above) and other site development works to be undertaken. Whilst these additional remediation tasks will assist with site management and/or assist with management of contamination risk in the long-term, and hence have been 'recommended' by DP, they are not considered to be required to render the site suitable from a contamination perspective for the proposed warehouse development. Furthermore, a decision to implement a recommended remediation tasks is not required prior to commencing works. Indeed, the decision to implement may be informed by the degree of success of other remediation works. For example, if the required remediation undertaken is significantly more successful than required (i.e. exceeding the minimum remediation requirement), this may reduce the predisposition to undertake additional recommended remediation tasks. Conversely, if the required remediation only meets the minimum requirement this may increase the

³ DP notes that significant or widespread impacts on groundwater from lead were not recorded during DP's investigation (as reported in December 2024 and provided as part of the SSDA documentation) and hence leaving lead impacted soils in place is considered appropriate. Moreover, it is noted that the placement on a capping layer, along with construction of the new pavements across the vast majority of the site would reduce water infiltration into the subsurface. Hence relative to current site conditions, associated potential risks of lead leaching into the groundwater is considered to be reduced by the proposed development.

predisposition to undertake additional recommended remediation tasks as a conservative approach.

In summary the recommended remediation tasks include:

- **Section 10.2 of the RAP - Placement of OCP impacted soils (above 40 mg/kg but below the RAC) and with high lead concentrations above 15,000 mg/kg in a containment cell.** Given the impacted soils are generally located within the eastern section of the site, and that excavation is proposed in this area to achieve site levels and/or for remediation purposes (e.g. excavation and remediation of Area 5 on Drawing 7 as outlined in Section 10.5 of the RAP), and that a containment cell will be constructed for the OCP impacted soils with concentrations above the RAC, such additional works are considered to complement the other remedial works being undertaken. These recommended works are also expected to assist with management of the soils during works and in the longer term by their consolidation into one area and within a low permeable cell.
- **Section 10.9 of the RAP - Building Slabs Sealing.** Whilst not considered required, nevertheless, an on-grade concrete building slab with sealed joints and penetrations can provide a *quasi* or legitimate barrier to soil vapour ingress into buildings. As residual volatile organic compounds (VOC) and total recoverable hydrocarbons (TRH)/total petroleum hydrocarbons (TPH) contamination will be present at the site post remediation, albeit at acceptable concentrations, given the minor nature of these recommended works, it has been included for consideration. Such an approach could also be extended to sealing inground services and services pits.
- **Section 10.10 of the RAP - In Situ remediation of VOC and TRH /TPH contaminated soils from below the groundwater table.** ESR may wish to consider a part immobilisation of the remaining contamination in the soil media at depth. The objective would be to reduce contaminant mass in soils at depth (near and) below the groundwater level that are to be retained on site and hence reduce longer term risk profile of the site. A full immobilisation approach is not considered to be warranted given the due diligence nature of the works and the other remedial works that are already to be undertaken. The process would involve drilling boreholes to within 0.5 m of the top of the target depth and injection / mixing of the stabilising matrix (e.g. grout, bentonite, additive, etc.). This treatment would continue 0.5 m below the depth of the target zone (target zone varies between areas, however, is generally 3-4 m thick and between 4-9 m below existing ground level). Spacing and final approach would be informed by the level of risk reduction wanting to be achieved by ESR and the results of any trials undertaken.

4. Off-Site Biopiling (Point No. 3)

DPHI Comment:

The development proposes off-site biopiling, however, it is unclear whether approval for this activity is being sought under the current application or whether it is intended to be addressed through a separate application or an existing consent. Please clarify the approval pathway for the proposed off-site biopiling.

DP Response:

As outlined in response to Point 2 above, off-site biopiling is not proposed for the remediation works. Therefore, approval for such works is not being sought under the current application, or any other application.

5. VMP Works in South-Eastern Area (Point No.4)

DPHI Comment:

Section 6.3 of Volume 1 of the Report on Supplementary Site (Contamination) Investigation refers to 'Additional VMP Works – South-Eastern Area', noting that this remediation system has yet to be designed, finalised, and approved. Please clarify whether these works will be carried out by Allnex under the Voluntary Management Plan, or if they form part of the Remedial Action Plan for the current application.

DP Response:

Allnex Resins Australia Pty Ltd (Allnex) is the former site owner, current site tenant and party subject to the voluntary management proposal (VMP)⁴. ESR and DP have been advised by Allnex that their consultant, JBS&G, has undertaken further investigations in the south-eastern area of the site with respect to the contamination encountered in the area and the associated 2022 notification to the NSW EPA under the VMP. Moreover, Allnex has also advised that the results of these additional investigations have been discussed with the Site Auditor for the VMP (Rowena Salmon of Ramboll Australia Pty Ltd) and the NSW EPA and no further actions are currently proposed. Notwithstanding, DP notes that all works under the VMP, including any works regarding the referenced south-eastern area of the site notified under the VMP, will be carried out by Allnex and do not form part of the RAP for the current application.

The above advice from Allnex was provided to ESR and DP post drafting of the RAP.

⁴ Allnex, 'Voluntary Management Proposal Under the Contaminated Land Management Act 1997', 16 September 2020 (Allnex, 2020).

6. Closure

DP notes that the limitations outlined in Section 23 of the RAP, DP (2024), by extension also apply to the above advice.

DP trusts the above clarifies DPHI's inquiries. Please contact the undersigned if any further information is required.

Yours faithfully

Douglas Partners Pty Ltd



David Holden
Associate (Senior)

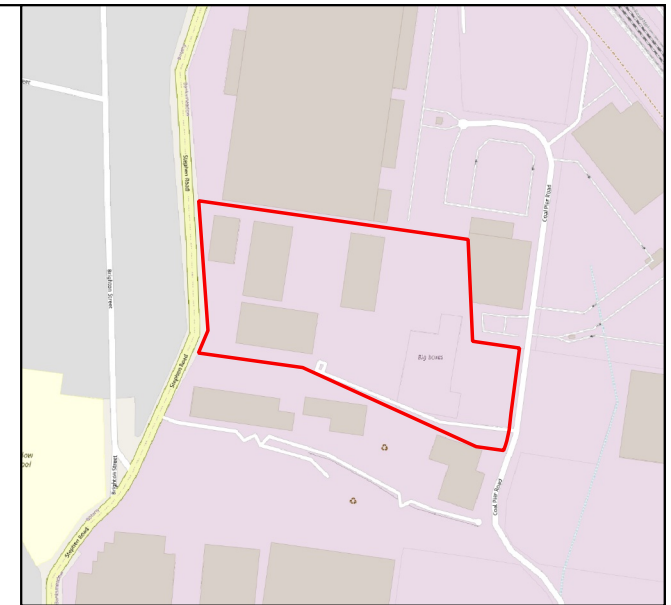
Reviewed by:



Paul Gorman
Principal

Attachments:

- Drawings 3, 7, 8, 8a, 8b, 9 and 12 extracted from the RAP, DP (2024).
- Drawing 16 – Indicative Area of Containment Cell



LOCALITY MAP

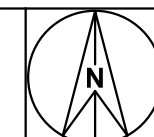
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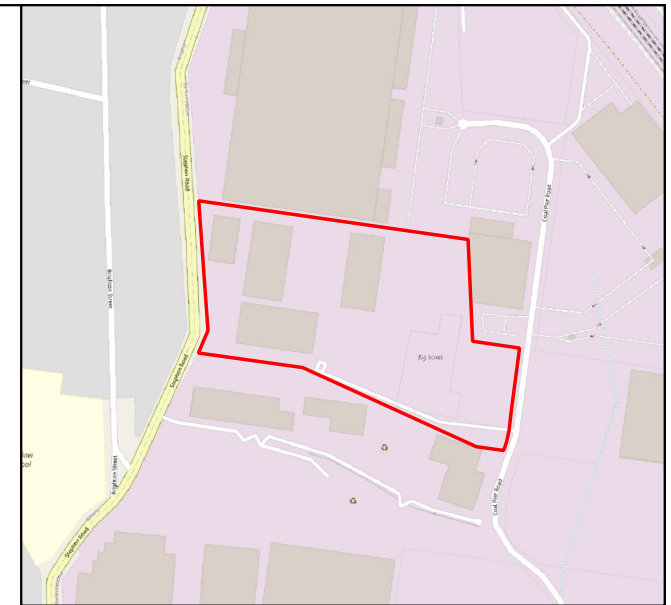
1. Drawing projection GDA2020 / MGA zone 56.
2. Aerial imagery sourced from Metromaps.
3. Boundaries and land features are approximate only.
4. Groundwater remediation infrastructure for the eastern area (south of the Nuodex plant building near wells JBMW06, JBMW07, JBMW12 and JBMW13) still to be designed and installed.

Legend

- Site Boundary
- Above ground Storage Tank
- Underground Storage Tank
- Internal Storage Area
- External Storage Area
- Production Area
- Current Remediation Infrastructure
 - Horizontal Well - Screened Section
 - Horizontal Well - Solid Casing
 - Boundary Remediation System Wells

0 10 20 30 40 50 60 70 80 m





LOCALITY MAP

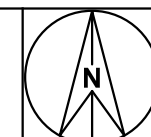
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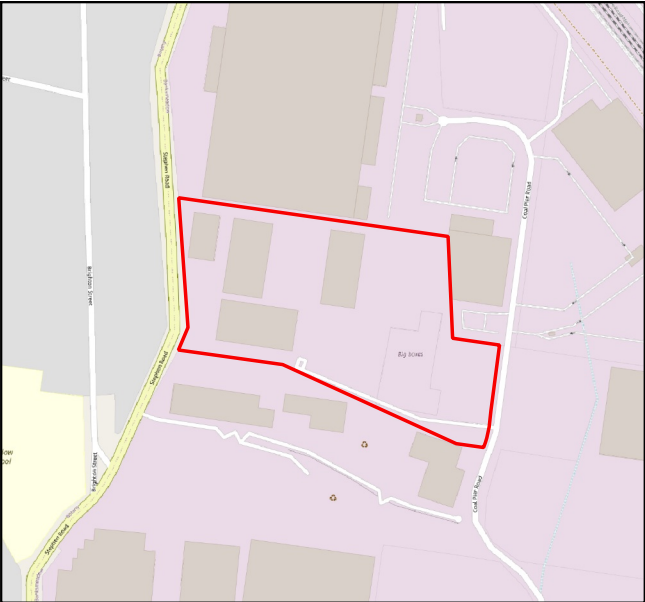
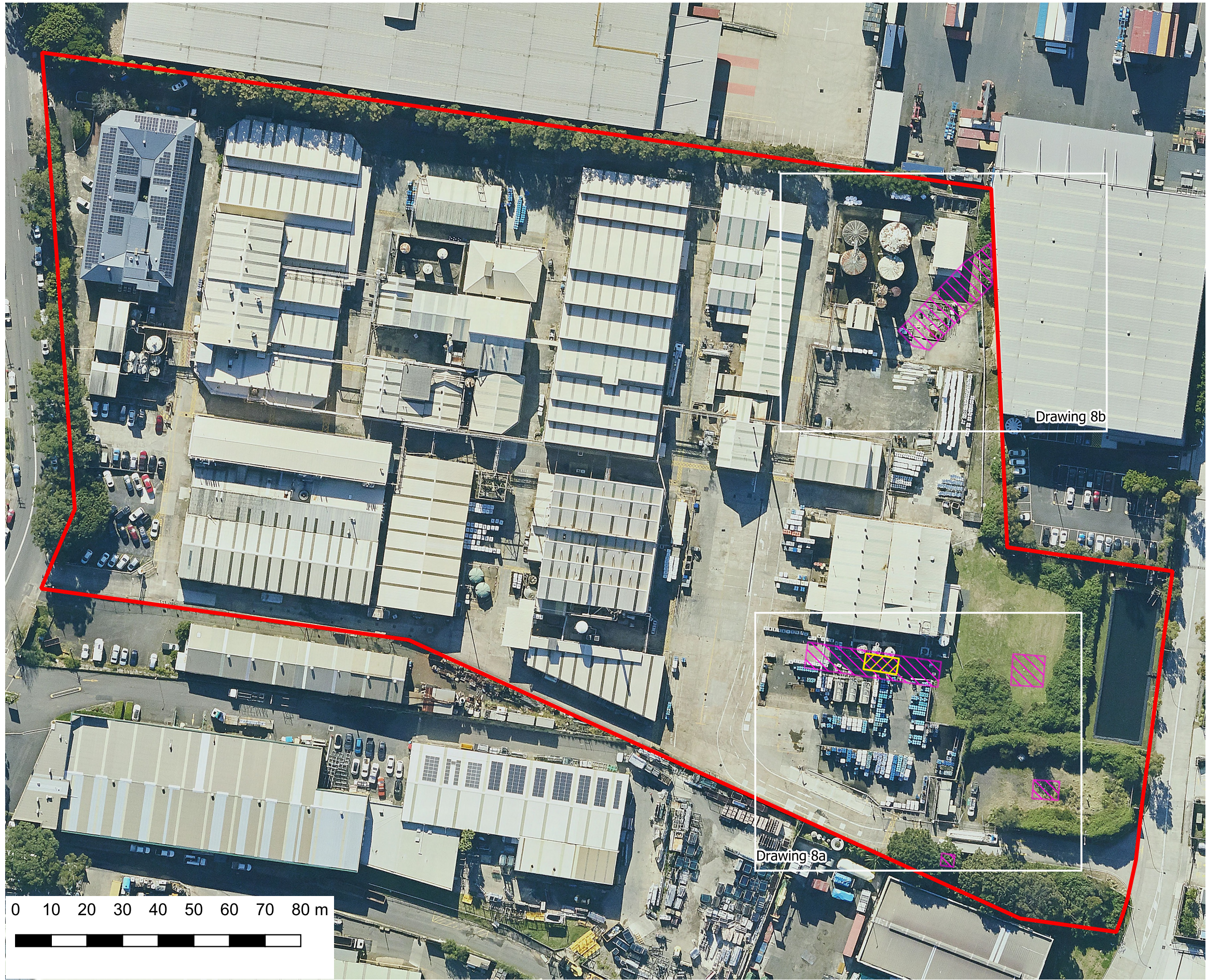
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2. Aerial imagery sourced from Metromaps.
3. Boundaries are approximate only.
4. Main areas of concern are indicative only. Areas may change or other areas may be identified during works.
5. Lighted shaded areas for Area 1, Area 2 , Area 3 and Area 4 are indicative contingency areas for consideration.
6. AST = Above ground Storage Tank
7. Broadscale contamination impacts (e.g. asbestos, lead, etc.) not indicated by shaded areas.

Legend

- Site Boundary
- Area 1
- Area 2
- Area 3
- Area 4
- Area 5
- Area 6
- AST Farm - Footprint to be checked post demolition

0 10 20 30 40 50 60 70 80 m





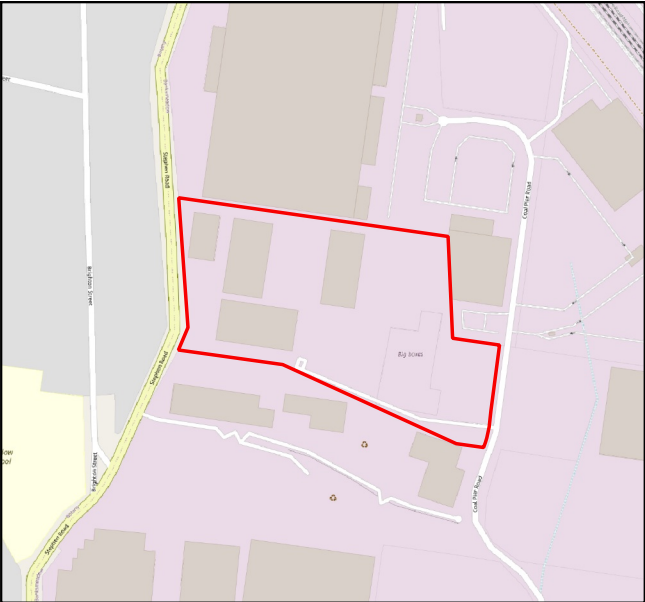
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- Notes:
1. Drawing projection GDA2020 / MGA zone 56.
 2. Aerial imagery sourced from Metromaps.
 3. Boundaries are approximate only.
 4. Sample locations within buildings are approximate only.
 5. JBS&G test locations extracted from JBS&G drawing 'Sampling Locations' Figure 5, JBS&G report dated 19/01/2023.
 6. OCP remediation areas are indicative only. Areas may change or other areas may be identified during works.
 7. RAC = Remediation Assessment Criteria
 8. Elevated OCP concentrations considered to be concentrations of DDT+DDE+DDD above approximately 40mg/kg.

Legend

- Site Boundary
- High OCP Concentrations Exceeding RAC
- Elevated OCP Concentrations





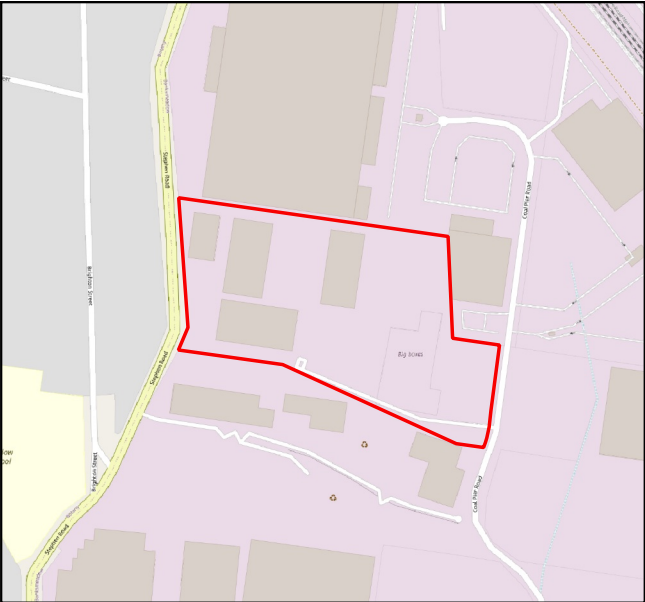
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Legend

- Site Boundary
 - High OCP Concentrations Exceeding RAC
 - Elevated OCP Concentrations
- Soil Test Locations - Previous Investigations
- DP Environmental Borehole
 - DP Geotechnical Borehole
 - DP Groundwater Well
 - DP Soil Vapour Port
 - DP Geotechnical CPT
 - JBS&G Environmental Borehole
 - JBS&G Groundwater Well
 - JBS&G Hand Auger





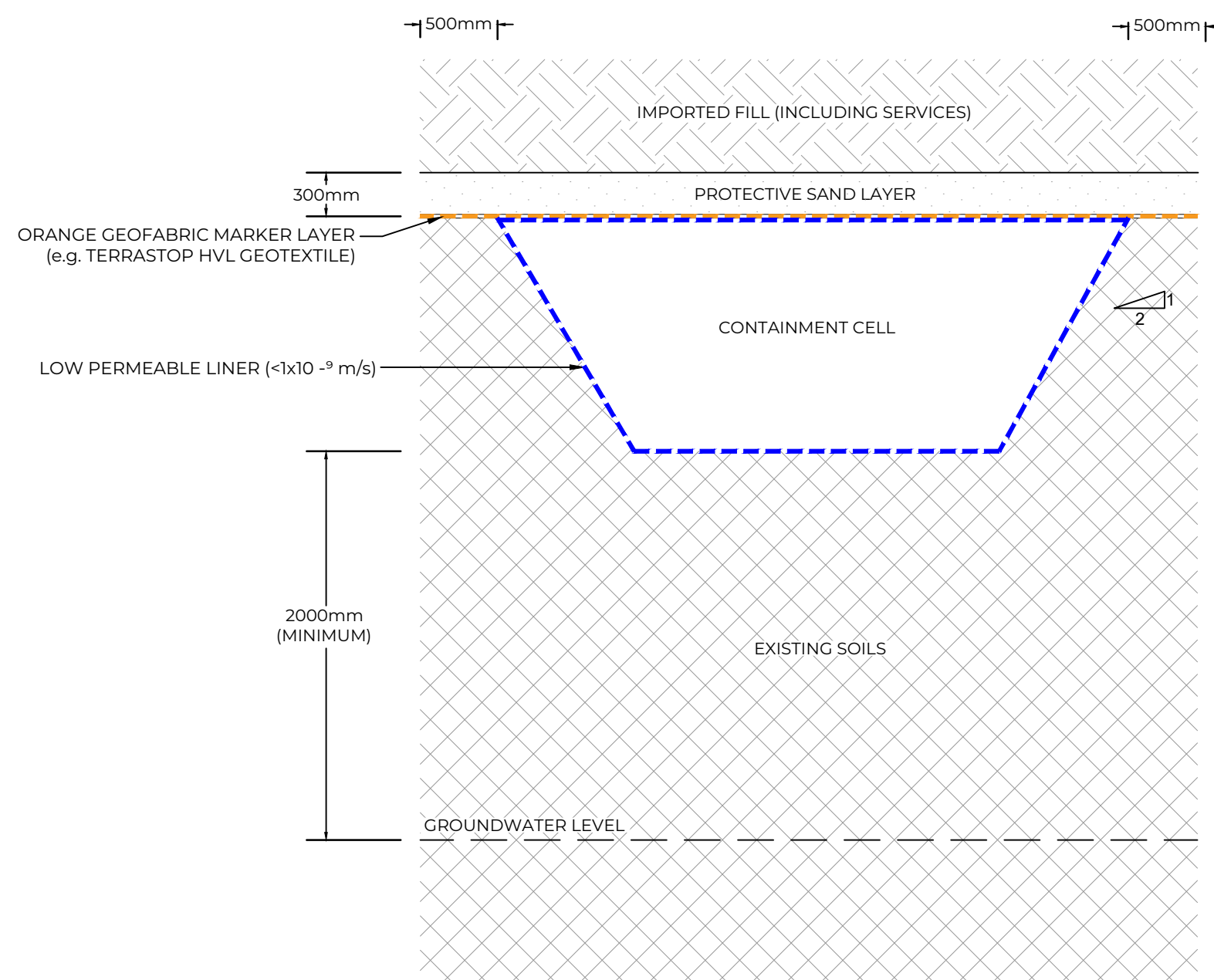
LOCALITY MAP

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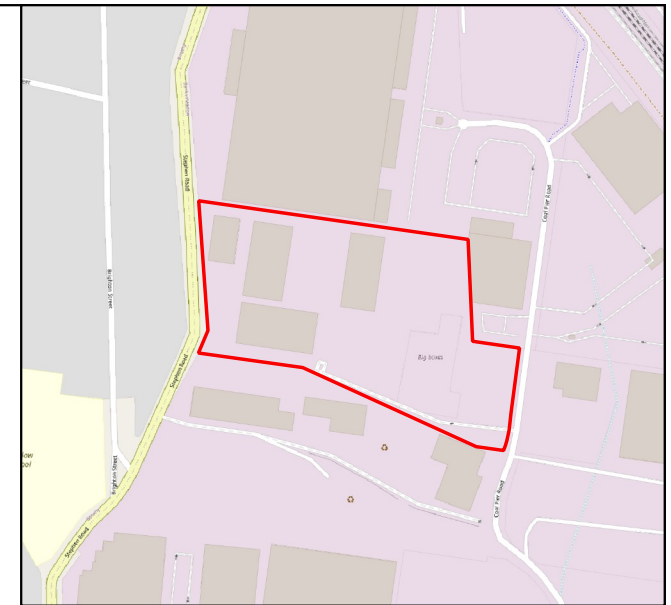
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 - DP Geotechnical CPT
 - JBS&G Environmental Borehole
 - JBS&G Groundwater Well
 - JBS&G Hand Auger





- NOTES:
- 1. Drawings are not for construction purposes.
 - 2. Dimensions and location of containment cell to be confirmed during detailed design.
 - 3. Liner material to be approved by the Environmental Consultant prior to use.
 - 4. Liner may require protective geotextile. To be confirmed during design and liner CQA.
 - 5. Protective sand layer can comprise imported soils above marker layer or site won soils placed below the marker layer, and is to extend 500mm past the edge of the contaminated cell.
 - 6. Battering and other geotechnical requirements to be confirmed with Geotechnical Consultant during design and prior to commencing works.

 Douglas Partners <i>Geotechnics Environment Groundwater</i>	CLIENT: ESR Australia		TITLE: Sketch - Containment Cell Approach Proposed Industrial Development 49-61 Stephen Road, Banksmeadow	PROJECT No: 219609.01.R.002	
	OFFICE: Sydney	DRAWN BY: EC		DRAWING No:	12
	SCALE: NTS	DATE: 08.10.2024		REVISION:	0



LOCALITY MAP

- Notes:
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 2. Aerial imagery sourced from Metromaps.
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 4. Main areas of concern are indicative only. Areas may change or other areas may be identified during works.
 5. Lighted shaded areas for Area 1, Area 2 , Area 3 and Area 4 are indicative contingency areas for consideration.
 6. AST = Above ground Storage Tank
 7. Broadscale contamination impacts (e.g. asbestos, lead, etc.) not indicated by shaded areas.
 8. Location of containment cell to be confirmed during design finalisation.

Legend

- Site Boundary
- Indicative Area for Containment Cell
- Area 1
- Area 2
- Area 3
- Area 4
- Area 5
- Area 6
- AST Farm - Footprint to be checked post demolition

0 10 20 30 40 50 60 70 80 m

