

15 October 2014

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URS Project No. 43218448

To Matt

RE: 181 James Ruse Drive, Camellia – Summary of Remediation and Containment Cell Management.

The purpose of the letter is to summarise the remediation plan and future management of the proposed containment cells at the property known as 181 James Ruse Drive, Camellia (the site) for the Planning Proposal.

Summary of Remediation

The following presents the Executive Summary of the Remediation Action Plan (RAP) (URS, RAP_RevC Sept 2013)¹ prepared for the site as a summary of the proposed remediation.

“Statewide Planning Pty Ltd (Statewide) commissioned URS Australia Pty Ltd (URS) to prepare this Remediation Action Plan (RAP) for remediation works to be conducted at 181 James Ruse Drive, Camellia, NSW (the site). The site has a total area of 6.095 hectares (Ha) (60,950 m²) and can be defined as the western portion of the former James Hardie Pty Ltd (JH) manufacturing property, to the west of the Clyde to Carlingford Railway.

Past industrial site uses, which include the manufacture of asbestos-containing materials by JH, the Camellia Chemical factory close to James Ruse Drive, a drum cleaning operation in the northeast corner and a former boiler stationed close to the southeast corner, have resulted in asbestos filling across most of the site, localised, metal and hydrocarbon-impacted shallow soils, with limited occurrences of buried materials containing high concentrations of polycyclic aromatic hydrocarbons.

Localised phase-separated hydrocarbons (PSH) have also been detected in perched groundwater at the northeast corner of the site, with elevated arsenic also identified in groundwater sampled close to the western site boundary.

Statewide propose to redevelop the site for mixed land use comprising of commercial and residential apartments with basement car parking, subject to planning approval. The overall goal of remediation is to make the site suitable for the proposed land use, such that adverse health risks to future site users and the environment are mitigated and controlled in the long term.

The site is subject to a statutory site audit by a NSW EPA accredited Site Auditor under the Contaminated Land Management Act 1997 (CLM Act) and after successful completion of site

¹ URS Australia, Remediation Action Plan Revision C, 181 James Ruse Drive, Camellia NSW, 5 September 2013.

remediation it is envisaged that the Site Auditor will issue a Site Audit Statement (SAS) concluding on the suitability of the land for its proposed use.

The objective of the RAP is to document the contamination status of the site, document the preferred remedial approach (or combined approaches), establish validation criteria and approach, document the legislative framework the remediation will be subject to, and document a site management plan for long term management of residual contamination.

The site is predominantly covered by a concrete and asphalt hardstand capping layer and is currently regulated by the NSW EPA under a Public Positive Covenant. This is enforced given the public health issues associated with asbestos materials that have been used to fill and level the site. The cap is to be maintained under the covenant to prevent the release of airborne asbestos materials into the environment.

Surrounding the site is the Parramatta River (north), mixed commercial/industrial (south), a rail corridor (east), and James Ruse Drive (west).

The contaminated materials and estimated quantities requiring remediation are as follows:

Material Type	Estimated Quantity (m ³)	Total Estimated Quantity (m ³)
Fill Intended for On-site Encapsulation in Containment Cell(s):		
Asbestos waste fill	67,507	
Clinker Material	683	68,190
Impacted Natural Soil to be Biologically Treated and Reused On-site:		
Hydrocarbon impacted soil	10,020	10,020

Other materials that may require remediation include localised lead and arsenic impacted soils, of which the lead impacts will require additional investigation to delineate the extent.

The preferred remedial approaches are:

- internment of fill that consists of asbestos, ash fill and clinker material within three, purpose-built, concrete containment cells that will be integrated with the proposed site redevelopment infrastructure; and
- bioremediation of hydrocarbon-impacted soils utilising biopiling or landfarming technologies, after which the soils are to be beneficially reused onsite, or buried within the containment cells.

If space is available in the containment cells, then other fill materials may also be contained. The total estimated volume of fill materials onsite is 89,000 m³.

Impacted groundwater including impacts by PSH, dissolved phase hydrocarbons and metals, is proposed to be ameliorated through the remediation of the soil contamination sources in localised areas, with the installation of monitoring wells at strategic locations, to monitor the quality of groundwater migrating across the site boundaries. Any water accumulated in excavation pits, including impacted groundwater, will be subject to onsite treatment through a wastewater treatment system prior to reuse onsite (as dust suppression) or offsite discharge.

To refine the proposed approaches and reduce uncertainty associated with aspects of the remedial design, a program of preparatory investigative works is required. The objectives of these works are to:

- *Assess the migration potential and extent of PSH and dissolved phase impacts in groundwater at the north eastern site area;*
- *Assess the TPH-leaching capacity of clinker material;*
- *Assess the extent of lead-impacted soils at the northern boundary;*
- *Validate in-situ materials at designated containment cell locations; and*
- *Implement trials to verify the proposed bioremediation approach can meet the remedial objectives.*

At the time of preparing this RAP an Environmental Impact Statement (EIS) was being prepared to address conditions set under the planning approval process, including air quality, community, waste, traffic, and soil and water management.

Containment of the contaminated materials will be managed under a site specific Site Management Plan (SMP) such that contained materials can be monitored in the long term.”

Containment Cell Management

The following presents excerpts from the RAP prepared for the site in relation to management of the containment cells post redevelopment.

In light of the current proposal for redevelopment of the site, planting of vegetation proximal to the containment cell capping layer would be considered appropriate subject to a suitable capping design and consideration of containment cell integrity. This should be documented in future construction drawings.

“10 Long Term Site Management

The preferred remedial strategy will involve an ongoing monitoring and management commitment by the site owner or the notional site owner. A Site Management Plan (SMP) will be developed after the completion of the remediation to account for:

- 1. potential ongoing risks to future Site users from residual contamination;*
- 2. management of the containment cells; and*
- 3. monitoring and management of potential groundwater impacts.*

The EMP will document the potential exposure risks posed by post-remediation residual contamination and provide detailed procedures for undertaking works where risks may be encountered.

10.1 Governance

The site is currently maintained by the NSW EPA under a Public Positive Covenant, under section 88E (3) of the Conveyancing Act 1919. After site remediation, the site will be maintained under the Public Positive Covenant or the EPA will instruct orders of an Ongoing Maintenance Order under section 29 of the Contaminated Land Management Act 1997.

The SMP will form the main document to communicate the status of the site and details of the containment of contamination, the final cell locations and dimensions, as well as relevant environmental safeguards and occupational health and safety measures.

Provisions must be made for updating the status of the site on EP&A Act Section 149 Planning Certificates administered by the local authority.

The provisions to be considered for the SMP will need to include:

- *Limitations on construction of any kind within a specified area of the containment cells, including new buildings and underground services/structures.*
- *A surveyed plan of the final cell location and dimensions is required and needs to be made available to relevant title holders.*
- *Maintenance of the concrete capping is required to ensure ongoing integrity. This may include regular inspections for cracking or movement.*
- *Procedures for sub service works within the vicinity of the containment cell need to be established to limit any potential for breaches.*
- *Management of appropriate on-going use of the capped area, consistent with its intended purpose as sealed vehicle roadway or access.*
- *Monitoring of groundwater to ensure containment of the materials.*

10.2 Site Monitoring Programme

The SMP will detail the requirements for long term site monitoring to assess the integrity of the containment cells and detect potential leaks or degradation in groundwater quality adjacent to the cells or along the eastern boundary. The eastern boundary has been identified as an area of uncertainty whether groundwater impacts are potentially migrating onsite. Greater certainty surrounding this issue will be gained by implementing the proposed monitoring for remediation investigations (refer to Section 5.6).

The long term site monitoring programme should comprise:

- *A network of groundwater monitoring locations for ambient, onsite and flux boundary monitoring.*
- *Containment cell observation points to monitor cell leachate, groundwater seepage and vapour generation.*
- *A scheduled program of environmental site monitoring, whereby sampling frequency is lowered over time if monitoring indicates negligible long term effects from onsite containment.*

Figure 8 is a schematic plan of potential site monitoring locations to be used for this purpose."

Yours sincerely

URS Australia Pty Ltd



Adam Sullivan
Principal Environmental Scientist