

JBS&G 60990-144,002 L002 (Interim Advice 0503-2109-002) Rev A

27 February 2022

Adam Greentree Senior Project Engineer Roberts Co (NSW) Pty Limited Level 9, 60 Castlereagh Street Sydney, NSW, 2000 Via email: <u>adam.greentree@au.roberts.co</u>

L002 Interim Audit Advice (0503-2109-002) - SOPHS Wentworth Point

Dear Mr Greentree,

1. Introduction and Background

Andrew Lau of JBS&G Australia Pty Ltd (JBS&G), was engaged on the 28 July 2021 by Roberts Co (NSW) Pty Ltd, on behalf of the Department of Education (School Infrastructure NSW) to conduct a site audit at the property located at 7-11 Burroway Road, Wentworth Point, NSW, 2127. The site audit relates to the proposed development of the site including the Sydney Olympic Park High School (SOPHS) and associated infrastructure (i.e., adjacent playing field). This Interim Audit Advice (IAA) has been prepared with regard to the SOPHS portion of the site only, occupying an area of 0.95 hectares. The extent of the site area and the location of the site is shown in Figure 1, included in **Attachment 2**.

Andrew Lau ('the auditor') is a Site Auditor accredited by the NSW Environment Protection Authority (EPA) under the *Contaminated Land Management Act 1997* (CLM Act 1997) (Accreditation Number 0503). Andrew was previously engaged as site auditor at the Wentworth Point Development, and therefore possesses intimate knowledge regarding contamination issues relating to the site. Further, Andrew is currently fulfilling the role of site auditor on the adjacent development sites including the proposed Wentworth Point Peninsula Park, Rowing Club and Marina.

A draft Remediation Action Plan (RAP) was prepared by PB in 2014 which was reviewed by the Auditor, with an IAA issued in December 2014. This IAA specifically pertained to the portions of the site that formed the infrastructure delivery components of the previously identified Stage 1 and Stage 2 parcels. It is noted that the high school area, which forms part of this current audit, forms part of the previously identified Stage 1 area, however the PB RAP did not make specific reference to the high school portion. As part of this IAA, the Auditor concluded that the remediation objectives were "appropriate and consistent with the proposed future use of the site (infrastructure related)". As noted in the IAA, the Auditor concluded that the "final design for the residential and commercial buildings has yet to be determined, gas protective measures have not been included within the DRAP and will be the subject of separate detailed RAP(s) in conjunction with the individual lot divestment strategy.

Noting the above Auditor's conclusions, Geosyntec Consultants Pty Ltd (Geosyntec) have recently prepared a RAP Addendum and Ground Gas Protection, Technical Specification for the SOPHS site detailing the proposed remediation works to enable the site to be suitable for its intended use, i.e, high school.



In considering the suitability of the remediation strategy for the site, as detailed in this IAA, the auditor has considered the following reports and supplementary information:

- DRAFT Ground Gas Protection System Design and Verification, 7-11 Burroway Road, Wentworth Point, NSW 2127, 5 November 2021, prepared by Geosyntec Consultants Pty Ltd (Geosyntec 2021a);
- DRAFT Remediation Action Plan Addendum, 7-11 Burroway Road, Wentworth Point, NSW 2127, 18 February 2022 (Rev 1), prepared by Geosyntec Consultants Pty Ltd (Geosyntec 2022); and
- DRAFT Ground Gas Protection System, Technical Specification, Sydney Olympic Park High School, 7-11 Burroway Road, Wentworth Point, NSW 2127, 27 January 2022, prepared by BGL Nominees Pty Ltd (BGL 2022).

1.1 Supporting Information

Other documents made available to the Site Auditor and considered in this review include the following:

- Additional Contamination Assessment, Homebush Bay West Stage 1 Area, November 2012, prepared by GHD Pty Ltd (GHD 2012);
- Soil Contamination Assessment Burroway Road and Hill Road, Wentworth Point Park Development, Homebush Bay, NSW 2127, 1 December 2014, prepared by Parsons Brinckerhoff (PB 2014);
- Detailed Remediation Action Plan Infrastructure Delivery, Wentworth Point Development, 9 January 2015 (Rev C), prepared by Parsons Brinckerhoff (PB 2015);
- Interim Validation Report, Early Works Package, Headland Park, Wentworth Point Development, 7,9 and 11 Burroway Road, Wentworth Point NSW, 5 March 2020 (Final) prepared by Zoic Environmental Pty Ltd (Zoic 2020);
- Sampling Analysis and Quality Plan Sydney Olympic Park High School, 7-11 Burroway Road, Wentworth Point, NSW 2127, 19 November 2021 (Final), prepared by Geosyntec Consultants Pty Ltd (Geosyntec 2021b); and
- DRAFT Interim Validation Report, Sydney Olympic Park High School, 7-9 Burroway Road, Wentworth Point, NSW 2127, 18 February 2022 (Rev 1), prepared by Geosyntec Consultants Pty Ltd (Geosyntec 2022c).

2. Summary of Contamination Status / Issues

Environmental investigations have been undertaken across the broader Wentworth Point Peninsula and were subject to a previous site audit report and site audit statement (JBS&G 2012a and JBS&G 2013b).

To supplement findings from the previous investigation works and to close out identified data gaps, additional works were undertaken by Geosyntec in November 2021, with findings presented in the RAP Addendum (Geosyntec 2022a). It is noted that the scope of the additional investigation works was undertaken in accordance with the Auditor approved SAQP (Geosyntec 2021).

A summary of the findings from the recent investigation (Geosyntec 2022a) are summarised as follows:

• Fill material underlying the site are impacted with metals, total recoverable hydrocarbons (TRH), polycyclic aromatic hydrocarbon (PAHs), benzo(a)pyrene (B(a)P and asbestos.

- Intrusive investigation works confirmed the presence of the historical petroleum storage infrastructure within the central eastern and central western portion of the site. Sampling in the vicinity of the USTs was undertaken, with soil samples collected to a maximum depth of 1.4 m below ground surface (bgs). Preliminary sampling undertaken reported concentrations of TRH and PAHs above the adopted soil criteria.
- A former mechanic pit area was also identified within the central eastern portion of the site, in the vicinity of the USTs. Sampling in this area reported concentrations of TRH exceeding the adopted soil criteria, with field observations reporting the presence of a hydrocarbon sheen / odour in water which had accumulated within the pit. It has been reported that this water was pumped and disposed offsite.
- The former wash bay was confirmed within the central portion of the site, also adjacent to the USTs. Sampling was undertaken at two locations. It is noted that sampling within the former wash bay area was not undertaken as per the requirements of the SAQP. Preliminary soil sampling confirmed concentrations of <C10-C16 (F2) above adopted soil criteria at WB1 at a depth of 0-0.2 m bgs. Impact at WB1 did not extend deeper. PAHs were also reported above the adopted soil criteria at WB2 at a depth of 0.8-1.0 m bgs.
- Asbestos containing materials (ACM) were observed within the northeastern portion of the site.
- Groundwater sampling of the four existing onsite wells reported concentrations of PFOS at concentrations above the NEMP 2020 guidelines. Concentrations of TRH, BTEX and PAHs were reported at concentrations below the laboratory limit of reporting (LOR). Metals were generally below the groundwater criteria except for copper at most locations. Concentrations of ammonia were also reported above the nominated criteria.
- Findings from the ground gas monitoring are summarised as follows:
 - $\circ~$ Methane was recorded at concentrations above the adopted NSW 2020 criteria of 1 % v/v at three locations.
 - Carbon dioxide was reported at concentrations above the adopted NSW 2020 criteria of 5 % v/v at six locations.
 - Oxygen was reported at concentrations below the minimum 19.5 % v/v criteria (as per the AS2865-1995 Safe Working inf a Confined Space) in all wells.
 - Hydrogen sulfide and carbon monoxide was recorded at concentrations ranging from < 1 to 3 ppm, at concentrations below the SafeWork NSW 2018 TAW screening criteria.
- Hazardous ground gas sampling reported that the gas screening value (GSV) was calculated at 1.34 L/hr, which gives a characteristic situation (CS) of CS3, moderate risk. The calculated CS is within the historical range for the site (CS2 to CS4), which is consistent with that previously reported in PB 2015.
- The consultant reported that tidal activity does not affect ground gas behaviour at the site.

3. Remediation Approach

As detailed in **Section 1**, a RAP (PB 2015) was previously prepared for the site, with the remediation objective to remediate and validate the partial site areas which relate to the infrastructure delivery phase of the site to a suitable standard to enable future building development works. The consultant (Geosyntec 2022a) reported that the PB 2015 RAP was prepared on a HIL C landuse category, consistent with the proposed future use of the site, i.e, high school. Based on this,

Geosyntec recommended that the remediation strategy, i.e, capping, nominated in the PB 2015 RAP is still applicable for the site to enable site suitability for the proposed high school use.

To supplement the PB RAP (PB 2015), a DRAFT RAP Addendum (Geosyntec 2022a) has been prepared for the site. The DRAFT RAP Addendum takes into consideration findings from supplementary investigation works, addressing data gaps, and reports amendments, where required, to the PB 2015 RAP. The RAP and RAP Addendum is supplemented with the DRAFT Ground Gas Protection System Design and Verification Report (GGPSD&V Report) (Geosyntec 2021a) and DRAFT BGL Technical Specification (BGL 2022).

The proposed remediation approach is summarised as follows:

- Removal of identified USTs and associated infrastructure; removal of the mechanical pit; excavation of hydrocarbon impacted soils; and offsite disposal of materials to a NSW EPA approved facility;
- Reinstatement of excavations with validated imported material;
- Capping of remaining areas; and
- Installation of ground gas protection measures in line with CS4.

4. Review of Remedial Action Plan Addendum / Technical Specification and Auditor Opinion

As discussed in **Section 1**, the Auditor has previously endorsed the PB 2015 RAP, which proposes a capping remediation strategy.

The Auditor has additionally assessed the DRAFT RAP Addendum (Geosyntec 2022a), DRAFT Ground Gas Protection System Technical Specification (BGL 2022) and supplementary information (as summarised in **Section 1.1**) by comparison with the checklist included in Consultants Reporting on Contaminated Land Contaminated Land Guidelines, 2020, NSW EPA (EPA 2020). Subject to the limitations provided in **Attachment 1**, the available RAP Addendum and associated Technical Specification documents were found to address the required information and meet the requirements of the audit, as detailed below in **Table 1**.

Remedial Action Plan Requirement	Auditor Comments
Remedial Goal The RAP Addendum (Geosyntec 2022a) identifies that the objective of the remediation works is to make the site suitable for the proposed intended use as a high school.	The Auditor considers that the goal is appropriate. It is noted that the site plans detailing the proposed layout of the buildings and development of the high school including landscaped gardens and basketball courts have been provided in Geosyntec 2022a, Geosyntec 2021a and BGL 2022 reports.
Discussion of the extent of remediation required Based on the previous investigations and recent supplementary investigation works completed, a summary of the remediation extent is discussed above in Section 2 .	 The scope of remedial works is considered generally acceptable, however the following is noted: All identified hydrocarbon impacted soils require excavation, where residual soils remain onsite, the consultant is required to ensure that the levels remaining do not pose a potential health or ecological risk. ACM has been identified at the site. Where ACM remains beneath the cap at the site, an asbestos register will be required. Further to this, the long term environmental management plan will be required to incorporate an asbestos management plan.

Table 1: Audit Opinions / Requested Actions

Remedial Action Plan Requirement	Auditor Comments
	 Impact exceeding the adopted soil criteria has been identified within the former wash bay area. Where materials are to remain onsite, or be excavated and placed beneath the cap, the consultant is required to confirm that the TRH and PAH levels do not pose a potential health or ecological risk. Should the proposed building footprint change, reassessment of soils may be required. The consultant is required to determine whether the site is a source of PFAS and whether the PFAS poses a potential health or ecological risk to onsite and offsite receptors. Where the site is considered a source of PFAS that pages an uncentral health or ecological risk.
	poses an unacceptable health or ecological risk, the remedial strategy will be required to be revised to address the PFAS.
Remedial Options Remedial options were assessed as part of the PB 2015 RAP including onsite treatment of impacted soils; excavation and offsite disposal; and onsite capping and containment of contaminated soils with inclusion of ground gas measures and long erm environmental management.	The Auditor considers that the range of remedial options previously considered in the PB 2015 RAP were appropriate.
Selected Preferred Option	Noting the nature of contamination identified at the
The preferred remedial option for soils was nominated in the previously endorsed PB 2015 RAP, which in included:	site; the Auditor considers that preferred remediation approach nominated in the PB 2015 RAP and
 capping the contaminated fill with at least 500 mm of validated clean fill (VENM or ENM); 	Geosyntec RAP addendum is appropriate to reduce both site workers and site users.
 installation of ground gas protection measures; and 	Overall, the auditor considers that the nominated
 protection of buildings and structures from direct contact with PASS. 	remediation approach is considered appropriate for the site.
Based on findings from the additional investigation works, the following has been considered by Geosyntec in the RAP addendum:	
 Removal of the identified USTs and associated infrastructure; mechanical pit and associated impacted soils; 	
 Waste classification and offsite disposal of hydrocarbon impacted soils; and 	
 Subsequent validation of in-situ soils; backfilling of the excavation with validation imported fil and inclusion of the backfilled excavations beneath the final capping layer. 	
Rationale	The Auditor previously considered that the rationale
The PB 2015 RAP provided a rationale for the selection of the soil remediation strategy as being cost-effective, preventing long-term liabilities and not imposing constraints on future site use.	provided is technically feasible; environmentally justifiable and consistent with relevant laws, policies and guidelines.
Proposed Validation Testing	The Auditor considers that the validation approach is
The proposed validation approach has been previously nominated in the PB 2015 RAP and endorsed by the Auditor.	acceptable, however notes the following:Where the existing capping layer within the
The proposed validation approach will be supplemented by RAP	western portion of site is breached during the

Remedial Action Plan Requirement	Auditor Comments
Addendum (Geosyntec 2022a); BGL Technical Specification (BG 2022) and GGPSD&V Report) (Geosyntec 2021a).	removal of the USTs, reinstatement of the marker and capping layer will be required.
	• Temporary capping works undertaken within the eastern portion of the site during early works program (Geosyntec 2022c) must be included in the remediation and validation scope of PB 2015 (i.e, the extent of the temporary works is insufficient for long term).
	• A material tracking system is required to be implemented and documented in the validation report.
	• Sampling locations, inclusive of sample depths, should be sufficient to delineate / characterise soils from within the former USTs and mechanical pit (both lateral and vertical).
	• Notwithstanding the lack of detail in the RAP addendum, hold point inspections and testing will be required during all key validation phases and be detailed with the material tracking system.
	• Detail on the staging of the works has not been provided.
	• The contractor responsible for the installation of the gas protection measures shall issue an Construction Quality Assurance Plan (CQAP) to the Auditor for review and endorsement prior to commencing site works.
	• The CQAP shall also include measures to be undertaken in response to a range of potential contingency scenarios (i.e, odours or gases are detected at the low-level outlets).
	• An appropriately competent and experienced validation consultant, engaged independent of the liner installation contactor, shall require to validate the proper installation of the complete extent of the gas protection measures.
	• The validation report as prepared by the independent consultant shall be inclusive of CQA proformas, testing certificate(s), completed independent verification(s) etc.
Proposed Validation Criteria The proposed validation strategy has been nominated in the	The Auditor considers that the selected validation criteria are generally appropriate and in accordance
Geosyntec SAQP (Geosyntec 2021b) and includes the following:	with the proposed landuse. The validation criteria proposed in Geosyntec SAQP
 Soils assessed by NEPM 2013 HIL-C; HSL-A/B for sand soil; Management Limits for total petroleum hydrocarbons for residential, parkland and public open space use for coarse soil. 	(Geosyntec 2021b) should be used in conjunction with the amended criteria proposed in Geosyntec 2022a.
• EILs/ESLs for soils present within the top 2 m across the site.	
 Ground gases assessed against the NSW EPA 2020 Hazardous Ground Gas Guidelines and SafeWork NSW 2018 Workplace Exposure Standards for Airborne Contaminants. 	
 Acid sulfate soils assessed in accordance with NSW Acid Sulfate Soils Management Advisory Committee 1998 Acid Sulfate Soils Assessment Guidelines (AASSMAC 1998). 	

Remedial Action Plan Requirement	Auditor Comments
 Groundwater assessed against the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG) 2018 Default Guideline Values for Marine water with 95 % protection level and PFAS NEMP 2020. 	
Noting that the proposed layout of the proposed high school development has been finalised, validation criteria specific for buildings and outdoor areas have been proposed by Geosyntec in the RAP addendum (Geosyntec 2022a). The proposed HSL validation criteria is adopted from the NEPM 2013 and includes the following:	
 HSL-A/B for school building footprints; and HSCL-C for school grounds / outdoor areas. 	
Interim Site Management Plan (before remediation)	Acceptable.
Pre-remediation/ early works have been undertaken recently at the site, with findings from these works presented in Geosyntec 2022c. All aboveground features including the concrete hardstand have been removed from the site and temporary fencing has been erected around the site.	
Unexpected Finds (UF) Potential for unexpected finds and a contingency management plan has been previously documented in the PB 2015 RAP.	The contingency management plan as detailed in the PB 2015 RAP is considered acceptable, however where changes to the site conditions are observed / encountered, the consultant is required to notify the Auditor.
Site Management Plan requirements (during remediation) Site Management Plan (operation phase) including stormwater, soil, noise, dust, odour and OH&S.	The PB 2015 RAP has made provision for the preparation of relevant health, environment and safety plan (HESP) to control these aspects and will be prepared prior to the commencement of site works.
	Further Geosyntec 2022a have reported all soils and materials during the remediation works will be managed as per the environmental controls stipulated in the Geosyntec 2021 CEMP. The Auditor notes that the CEMP has not been provided to the auditor for review.
	An Asbestos Management Plan (AMP) will need to be prepared and submitted for review to the Auditor.
	The PB 2015 RAP nominates that an Acid Sulfate Soils Management Plan will need to be developed in conjunction with the CEMP detailing management / soil/water monitoring requirements, treatment and contingency measures for the identified potential acid sulfate soils (ASS). The ASSMP will require review by the Auditor prior to commencing remediation works.
Contingency Plan if Selected Remedial Strategy Fails Options for additional works to address a range of potential failures / problems in the remedial approach have been identified.	The contingency plan detailed in previously endorsed PB 2015 RAP is generally acceptable.
Contingency Plans to Respond to Site Incidents Incident reporting has been detailed in the PB 2015 RAP. Incident reporting will be further documented in the HESP.	Both the PB 2015 RAP and Geosyntec have made provision for the preparation of a HESP and CEMP.
Remediation Schedule and Hours of Operation Working hours for the remedial works have been stipulated in the PB 2015 RAP and are in accordance with the development	The Auditor notes the schedule can be provided prior to commencement of remediation works and with engagement of a remedial contractor.

Remedial Action Plan Requirement	Auditor Comments
approval conditions, with works outside the normal working hours requiring prior agreement and as per Council's consent. A remediation schedule has not yet been developed.	
Licence and Approvals Regulatory requirements and approvals have been detailed in the PB 2015 RAP. Further Geosyntec have reported that the remediation works are subject to Part 5 of the planning approval by Schools Infrastructure.	The consultant should confirm that the extent of development works described in the planning documents are consistent with the scope as proposed to be undertaken as described in the RAP and relevant addendum / documentation.
Contacts/Community Relations Contacts are provided will be provided in the HESP and CEMP and will be displayed on signs located adjacent to the site access throughout the remediation program. Community consultation with the surrounding community has been detailed in the PB 2015 RAP.	Acceptable.
Validation Reporting The PB 2015 RAP states that validation report will be prepared following completion of the remediation and validation works. The consultant has nominated that validation report will be prepared in accordance with EPA guidelines.	The Auditor considers this to be acceptable, noting that the report will need to meet the requirements of EPA 2020 and will require review and endorsement by the Auditor. For completeness, the final validation report for the site should make reference to the previous interim validation reports (Zoic 2020 and Geosyntec 2021a); and include a summary of the hazardous ground gas and groundwater investigation recently presented in the RAP addendum.
Long term site management plan At the completion of the remediation works, a long-term environmental management plan (LTEMP) will be prepared for the site. Geosyntec 2022a have reported that the objective of the LTEMP will be to document provisions / protocols within the cap; below the excavation marker layer; and provisions / protocols for any environmental monitoring. The Auditor notes that the LTEMP should also provide management provisions for the maintenance of the gas protection system.	A LTEMP will be prepared following completion of the remediation works and installation of gas protection measures. The LTEMP will require review and endorsement by the Auditor at completion of the works.

Prior to the commencement of the remediation works and/or during the implementation of the remedial / validation works on the site, the auditor requests the following in order to meet the requirements of the auditor:

- Advice, when available, to the auditor of the condition of tanks and lines removed from the site.
- Appropriate monitoring and control measures should be implemented to ensure that there is no recontamination of the previously validated / capped western portion of the site (Zoic 2020).
- Copies of VENM certification and other relevant details of fill materials proposed to be imported to the site prior to the receipt of materials on the site.
- All future works should be conducted by a consultant suitably experienced in the assessment and management of groundwater contamination issues, and applicable consultant personnel should be Certified Environmental Practitioners (Site Contamination Specialist), or equivalent.

- Asbestos Management Plan(s), Construction Environment Management Plan(s) and Acid Sulfate Soils Management Plan(s) for the site must be reviewed and accepted by the auditor prior to commencement of remediation works.
- All reports, including final validation report and LTEMP prepared for the site must be reviewed and accepted by the auditor, with a SAS and SAR produced assessing the effectiveness of the remediation works.

Please note that this interim advice does not constitute a Site Audit Statement or a Site Audit Report but is provided to assist in the assessment and management of contamination issues at the site in regard to requirements of the site audit. The information provided herein should not be considered pre-emptive of the final audit conclusions, but rather represent the findings of the audit based on a preliminary review of available site information. Furthermore, the interim advice should not be regarded as approval of any proposed investigations or remedial activities, as any such approval is beyond the scope of an independent auditor.

Should you require clarification, please contact the undersigned on 08 8431 7113 or by email <u>alau@jbsg.com.au</u>.

Yours sincerely:

Mm Jean L.

Andrew Lau NSW EPA Accredited Site Auditor Accreditation Number 0503 JBS&G Australia Pty Ltd

Attachments

(1) Limitations(2) Site Plans

Attachment 1 Limitations

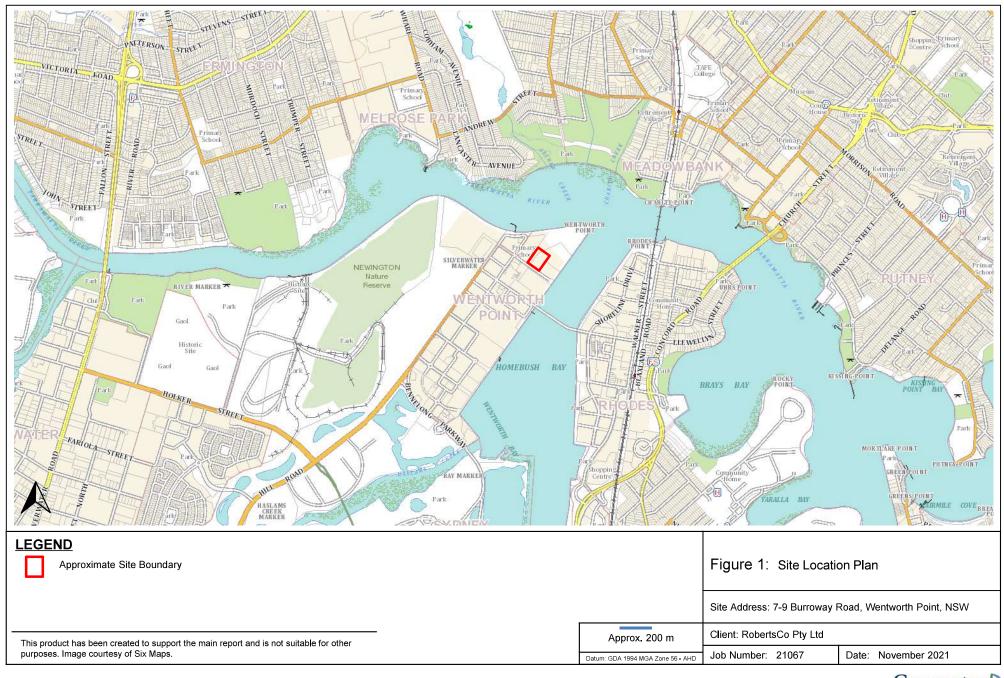
This audit was conducted with a reasonable level of scrutiny, care and diligence on behalf of the client for the purposes outlined in s.47 (1) of the Contaminated Land Management Act 1997. The data used to support the conclusions reached in this audit were obtained by other consultants and the limitations which apply to the consultant's report(s) apply equally to this audit report.

Every reasonable effort has been made to identify and obtain all relevant data, reports and other information that provide evidence about the condition of the site, and those that were held by the client and the client's consultants, or that were readily available. No liability can be accepted for unreported omissions, alterations or errors in the data collected and presented by other consultants. Accordingly, the data and information presented by others are taken and interpreted in good faith.

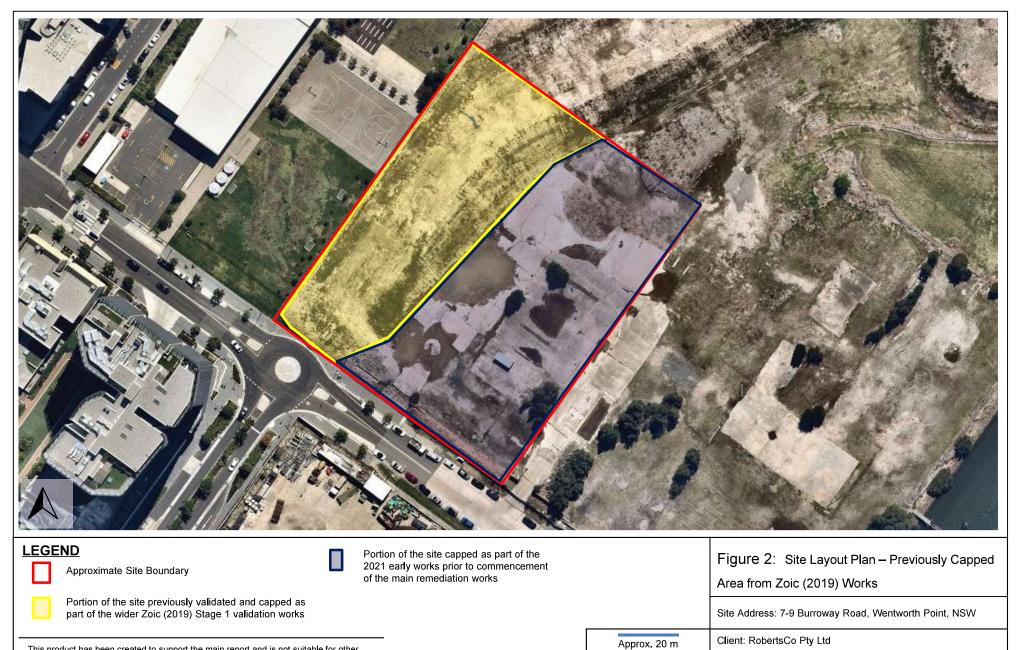
Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements. Limited sampling and laboratory analyses were undertaken as part of the investigations reviewed, 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 audit are based on the information obtained at the time of the investigations.

Attachment 2 Site Plans



Geosyntec^D

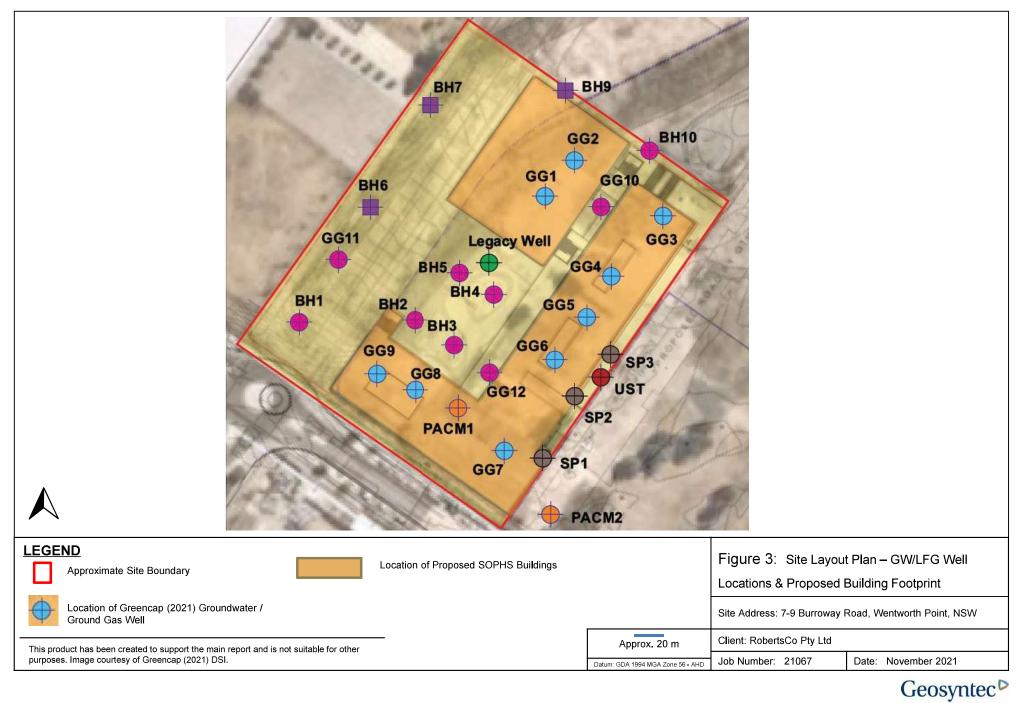


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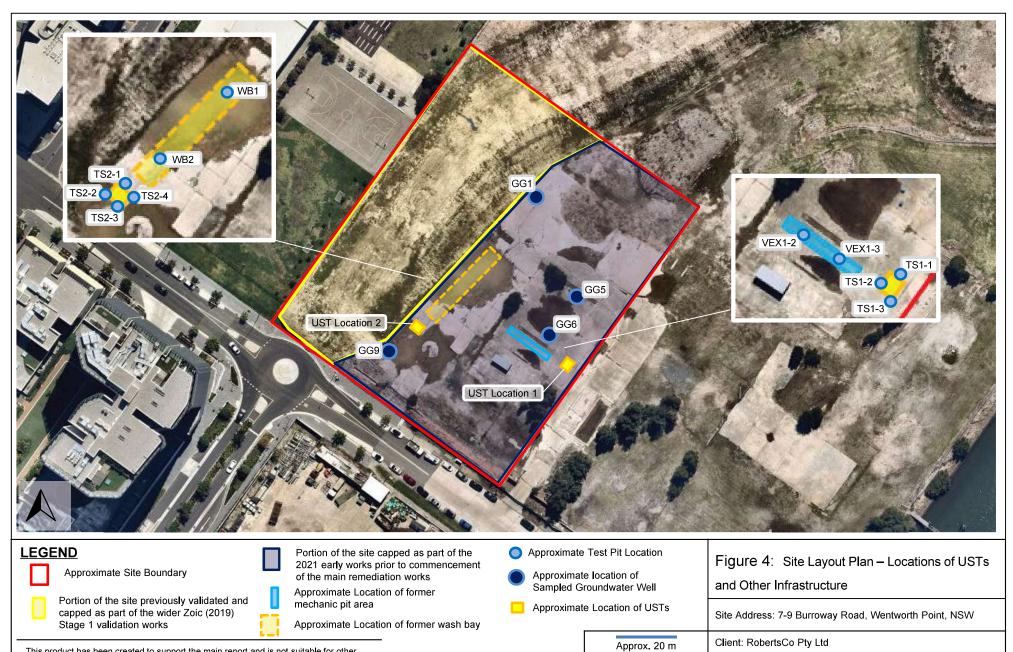
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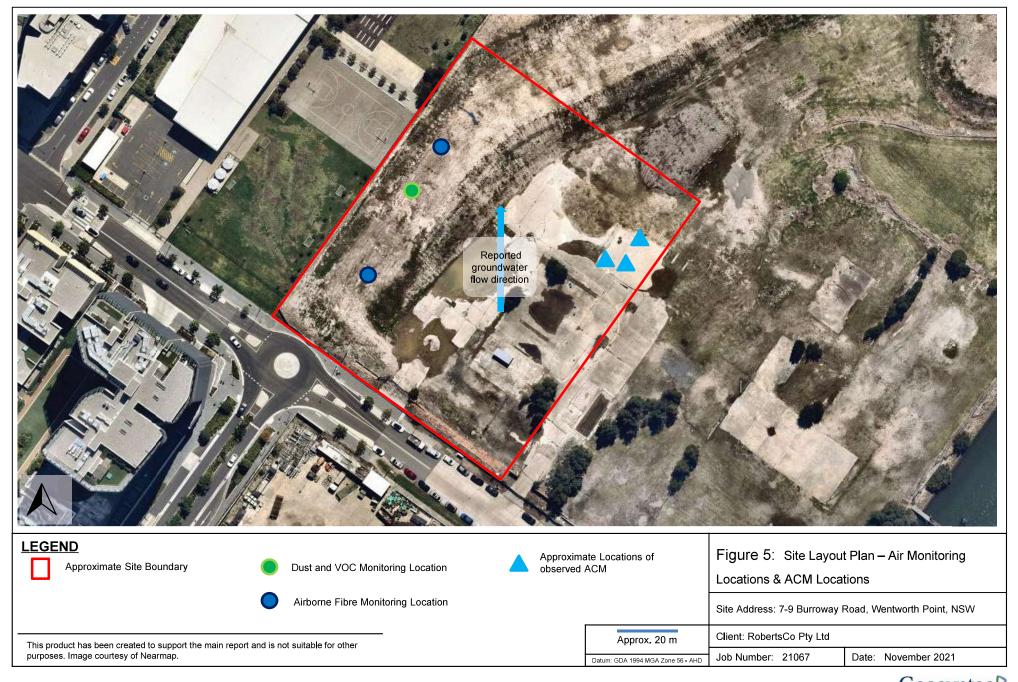
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Geosyntec Consultants