DEVELOPMENT CONSENT AUTHORITY
LITCHFIELD DIVISION

NORTHERN TERRITORY PLANNING SCHEME 2020

AGENDA ITEM: 3 **MEETING DATE:** 17/06/2026 **FILE:** PA2025/0344

APPLICATION PURPOSE:	Subdivision to create 2 lots
SUBJECT SITE:	Section 03987 Hundred of Strangways, (175) Brooking Circuit, Virginia
ZONE:	RL (Rural Living)
SITE AREA:	4ha
APPLICANT	Mr Terry Nixon
PERSONS ON WHOSE BEHALF THE APPLICATION IS MADE	Ioannis Glynatsis, Helen Glynatsis, George Skartados and Nicki Skartados
LANDOWNER	Ioannis Glynatsis, Helen Glynatsis, George Skartados and Nicki Skartados
ANY PERSON WITH AN AGREEMENT TO ACQUIRE AN INTEREST IN THE LAND	None

1. PROPOSAL

The application is for a subdivision to create 2 lots at 175 Brooking Circuit, Virginia. The 4 Ha site would be divided into two, creating 2, two hectare lots, Lot A and Lot B. Lot A has an existing dwelling on it located to the front of the site and an area of cleared and filled land behind the dwelling. Both lots would have direct access to Brooking Circuit.

A location plan is included at **Bookmark A** and a copy of the application is at **Bookmark B**.

2. REASON FOR APPLICATION AND LEVEL OF ASSESSMENT

An application is required for planning permission as the proposal is *Impact Assessable* under Clause 1.8(1)(c)(ii) of the NTPS2020 where the application is for the subdivision of land.

Zoning and Level of Assessment on Assessment Table	Part 3 Overlay	Consent required by virtue of Overlay Requirement	Part 5 – General and Specific Development Requirements	Level of Assessment

Zone RL (Rural Living)	Does Not Apply	No	2.0 - Strategic Framework 4.6 – Zone RL (Rural Living) 6.3 - Subdivision in Zones RR, RL, R and H, and Unzoned land 6.3.2 Subdivision in Zone RL, 6.3.3 - Site Characteristics for Subdivision for Lots of 1ha or Greater in Zones RR, RL, R and H, and Unzoned Land, 6.3.4 Infrastructure in Zones RL, R and Unzoned Land.	Impact Assessable

The exercise of discretion by the consent authority that applies is clause 1.10 (4).

3. ASSESSMENT SYNOPSIS

This report concludes that the Authority should approve and consent to the application subject to conditions on the development permit as detailed in section 9 of this report.

4. BACKGROUND

ITEM	DATE	PURPOSE	STATUS	EXPLANATION
PA2025/0010 (DP2025/0010)	30/06/2025	Excavation and fill	Approved	The application was for retrospective approval for fill comprising an area of 3,200m² at a nominal depth of 0.5m, between existing contours on a portion of the site, to reduce ponding, provide landscaping and improve overall site amenity and water safety. The fill was to also facilitate the creation of a building pad for a future dwelling, which was not proposed as part of the application.
Covenant No. 576114	1/07/2019	Remove Covenant	Refused	The land is burdened by a Restrictive Building Covenant 'Morgan Heights' No 576114. Listed requirements include of relevance: 'd) no more than one private dwelling house shall be erected on the land and no profession, business, trade or manufacture of any kind shall be at any time set up or carried on in or upon the land without the appropriate consent required pursuant to the Planning Act (NT).'
PA2003/0071	21/03/2003	Subdivision to create 2 lots	Refused	A subdivision to create 2 lots which was refused on the basis of environmental constraints. The reasons listed in the Notice of Refusal, NR03/0010 are below:

				1. The proposal does not take account of the environmental constraints of the site, in particular the large seepage areas, which have been filled in breach of the Planning Act. 2. The proposal represents an inappropriate re-subdivision of a 4ha property that was intentionally left larger than the minimum lot size of 2 hectares to allow for the large proportion of the property that is constrained by seasonal waterlogging.* 4. Policy No.1 of the Litchfield Division of the Authority states that "every lot in excess of 1 hectare must have a minimum of 1 hectare of land adjacent to a formed, public road .which is not subject to flooding during a 1 in 100 year flood event or to seepage". The Authority does not consider the constrained areas of Section 3987 that have subsequently been filled to now be unconstrained for the purposes of this policy. 5. The practice of filling constrained land without appropriate approvals and environmental safeguards is illegal under the section 75 (use or development to comply with the Act) of the Planning Act, and section 40 (prohibition of unauthorised works) of the Water Act and potentially damaging to the environment. This practice is not supported by the Authority.
*In 2001 an application was made to subdivide Lots 3987 and 3995 to create 4 lots. Ground truthing was undertaken with representatives from Development Assessment Services, Litchfield Council and the applicant which determined that Section 3987 *only* had 1.58 ha of dryland. On 14 June 2002 the Authority delegated determination of the application subject to the receipt of amended plans that "delete all references to the proposed subdivision of Section 3987' and, in September 2001, a permit for the proposed 2 lot subdivision of Section 3995 only was issued.				

Previous Notice of Refusal, Notices of Consent and Permit can be found at **Bookmark E**.

5. PUBLIC EXHIBITION

- The application was placed on public exhibition for a period of two weeks from 31/10/2025 to 14/11/2025. No public submissions were received under section 49(1) of the *Planning Act 1999*.
- Further information was provided and the application was placed on exhibition for a second time for a period of two weeks from 27/3/2026 to 10/4/2026. No public submissions were received under section 49(1) of the *Planning Act 1999*.

6. MATTERS TO BE TAKEN INTO ACCOUNT (SECTION 51 OF THE *PLANNING ACT 1999)*

Pursuant to Section 51(1) of the *Planning Act 1999*, a consent authority must, in considering a development application, take into account any of the following relevant to the development:

(a) any planning scheme that applies to the land to which the application relates

The NT Planning Scheme 2020 applies to the land and Subdivision requires consent under Clause 1.8 (When development consent is required). It is identified as I*mpact Assessable* under Clause 1.8(1)(c)(ii), therefore Part 2 of the Scheme, including the Darwin Regional land Use Plan and Holtze to Elizabeth River Subregional Land Use Plan, the zone purpose and outcomes of Clause 4.7, Clause 3.2, Clause 6.3 , Clause 6.3.2, Clause 6.3.3, and Clause 6.3.4, need to be considered. A Technical Assessment can be found at **Bookmark D.**

(b) any proposed amendments to such a planning scheme:
(i) that have been or are on exhibition under Part 2, Division 3;
(ii) in respect of which a decision has not been made under Part 2, Division 5; and
(iii) that are relevant to the development proposed in the development application

There are no proposed amendments to the Northern Territory Planning Scheme 2020 which affect this proposal.

(c) an interim development control order, if any, in respect of the land to which the application relates

There are no interim development control orders relevant to the site.

(d) an environment protection objective within the meaning of the Waste Management and Pollution Control Act 1998 that is relevant to the land to which the application relates

There are no environmental protection objectives relevant to the land.

(e) any submissions made under section 49, and any evidence or information received under section 50, in relation to the development application

No public submissions were received during the exhibition period under Section 49 of the *Planning Act 1999* with respect to the proposal.

(f) a matter that the Minister has, under section 85, directed it to consider in relation to development applications generally

The Minister has made no direction in relation to the application.

(h) the merits of the proposed development as demonstrated in the application

The application submits that the proposal has the following merits:

- Access to a road and infrastructure
- Located within an area designated for residential use
- Whilst the site was constrained it is now able to provide 1Ha of unconstrained land for each lot.

(j) the capability of the land to which the proposed development relates to support the proposed development and the effect of the development on the land and on other land, the physical characteristics of which may be affected by the development

The applicant has provided a Land Suitability, Soil and Drainage Report, a Soil Contamination report on the earthworks for the previous permit PA2025/0010, a Soil & Erosion (Drainage) Plan and a Soil Compaction Report in support of the subdivision which do demonstrate that the land is capable of supporting a subdivision with at least one hectare of unconstrained land for each lot.

Environmental Constraints
The site is within an area that forms a seepage basin to the Wells Creek. The original subdivision of the lots in the section reflected the reduced land capability with a number of lots greater than 2 Ha created in the area of the seepage basin. These larger lots of which the current site is one, were required to be larger, given that much of the land was constrained by waterlogging and the 1Ha of unconstrained land was not possible to achieve on a standard 2 Ha Lot.

At lodgement, a basic Land Suitability Assessment (LSA) and Drainage Plan were provided, neither of which addressed requirements. Further information was requested from the applicant. The applicant then provided the following reports:

- A Land Suitability, Soil and Drainage Report (WANT Geotechnics, 5/2/2026)
- A Soil & Erosion (Drainage) Plan (Precision Civil & Hydraulic Engineering)
- A Soil Compaction Report (WANT Geotechnics, 29/4/26)

Land Suitability, Soil and Drainage Report (WANT Geotechnics, 5/2/2026)
The soil is shown to be Class S1 and S2 which is highly suitable to moderately suitable. Drainage is moderately suitable and so would need to be managed. The onsite wastewater risk category was low as the soils are well drained, no runoff would occur and there was no risk of secondary tide inundation and no risk of river flooding. In summary of the findings of this report indicated that all seven categories that compose a Land Suitability Assessment were evaluated and exhibited the requisite characteristics to warrant a classification as unconstrained land, and no remedial recommendations are necessary for the fill and that both Lot A and Lot B contain in excess of 1ha of unconstrained land, making it suitable for subdivision in accordance with the requirements of a Land Suitability

Soil & Erosion Plan (Precision Civil & Hydraulic Engineering)
The Soil & Erosion Plan (Precision Civil & Hydraulic Engineering) provides support to the LSA and shows how the drainage would work.
Following the response from Land Resources Division DLPE (see section (m)), further information was requested of the applicant to clarify that the fill, which had been placed on Lot A, was suitable for development and could therefore be classified as unconstrained land. The applicant provided a Compaction Report.

Compaction Report (WANT Geotechnics, 29/4/26)
The Compaction Report provides additional clarification around the suitability of the filled soil for residential use and development. WANT Geotechnics did Dynamic Cone Penetrometer (DCP) testing of the filled soil to confirm its bearing capacity. The DCP test results indicated the fill pad has a minimum bearing capacity of 105kPa. A bearing capacity of 100kPa is typically taken as competent ground on which a house could be built indicating the fill has been placed and compacted to achieve a stable landform. In addition, the batters of the pad were inspected following the 2025/2026 record wet season. The batters showed no signs of erosion or loss of shape confirming the material used is not susceptible to erosion.

Land Capability
It has been demonstrated through assessments and reports that the land has the capability to support a two-lot subdivision and future residential development on Lot B, including

wastewater and removal of vegetation, and that this can be effectively managed without impacts to the site or site surrounds. Previous permits, decisions and submissions can be found at **Bookmark E**.

(k) the public facilities or public open space available in the area in which the land is situated and the requirement, if any, for the facilities, or land suitable for public recreation, to be provided by the developer

There is no requirement for the provision of public facilities or open space as part of the proposed application.

(m) the public utilities or infrastructure provided in the area in which the land is situated, the requirement for public facilities and services to be connected to the land and the requirement, if any, for those facilities, infrastructure or land to be provided by the developer for that purpose

The proposal was circulated to the following authorities for comment:

Local Authority:

Litchfield Council– **Bookmark G1**
Council did not object to the granting of a permit as the proposed subdivision design aligns with the Litchfield Subregional Land use Plan and the preliminary stormwater Management plan and land suitability assessment is satisfactory. Council requested precedent conditions in relation to the following:

- The crossover and driveway designed in accordance with the NT Subdivision and Development Guidelines and to the requirements of Litchfield Council

- Prior to the commencement of works, a schematic plan demonstrating the on-site collection of stormwater

A crossover condition would be placed on the permit but this does not need to be a precedent condition given it will not change the proposed subdivision design. The stormwater condition will be a precedent condition. Standard conditions and notes were also requested and would be placed on the permit.
Litchfield Council commented in relation to Lot B Access to the whole of the unconstrained land. Litchfield Council supported the Applicant's proposal to cut a swale drain down the side of Lot A to divert the runoff away from Lot B. The required drainage easement would be in favour of Litchfield Council. This would be achieved through the requested stormwater precedent condition.
Standard conditions and notes were also requested and would be placed on the permit.

Service Authority:

Department of Lands, Planning, and Environment – **Bookmark G2**
The Lands Resources Division raised the following comments for consideration:

- Concerns as to whether the filled area on proposed Lot A was suitable for development and could be classified as unconstrained.
- Concerns as to access to the whole of the unconstrained land on Lot B from a road.

The applicant provided updated reports provided further information around the land suitability. After some discussion (emails) DLPE finally confirmed that these reports supported

that both Lot A and Lot B have more than 1H of unconstrained land and are therefore suitable for subdivision.

Standard conditions and notes were also requested and would be placed on the permit.

Power and Water Corporation - Power – **Bookmark G3**
Electrical supply - standard conditions requested for an existing power connection.

Power and Water Corporation - Water – Bookmark G**4**
Water supply and sewerage- standard conditions including noting that reticulated sewer services are not available.

NT Fire and Emergency Services – Bookmark G**5**
NFES requested a standard firebreaks condition. Which would be placed on the permit.

(n) the potential impact on the existing and future amenity of the area in which the land is situated

The Land Suitability, Soil and Erosion (Drainage) Plan and Soil Compaction Report indicate that water pollution and sedimentary erosion would be prevented. Development through subdivision, subsequent native vegetation clearing and construction of a dwelling with a wastewater system could also be managed effectively to prevent impacts to the environment.

(p) the public interest, including (if relevant) how the following matters are provided for in the application:

(i) community safety through crime prevention principles in design;
(ii) water safety;
(iii) access for persons with disabilities

The proposed development will not impact on the public interest.

(pa) for a proposed subdivision or consolidation of land in a Restricted Water Extraction Area – whether the subdivision or consolidation complies with the restrictions of sections 14A and 14B of the Water Act 1992 and the requirements of section 14C(1) of that Act;

The subject site is not within a Restricted Water Extraction Area.

(q) for a proposed subdivision of land on which a building is, or will be, situated – whether the building complies, or will comply, with any requirements prescribed by regulation in relation to the building (including, for example, requirements about the structural integrity and fire safety of the building)

There is a building on site and a statement has been provided by AB Consulting Bookmark B, confirming that no building will cease to comply with the Building Act 1993 if the proposed development were to proceed.

(r) any potential impact on natural, social, cultural or heritage values, including, for example, the heritage significance of a heritage place or object under the Heritage Act 2011

There are no known natural, social, cultural or heritage values on the site or in the immediate surrounding area.

(s) any beneficial uses, quality standards, criteria, or objectives, that are declared under section 73 of the Water Act 1992

The following declared beneficial uses apply to the subject land for Darwin Harbour:

- Aquaculture, environment, cultural, rural stock and domestic [*as per NR Maps]*.

It is the responsibility of the developer and land owner to ensure that land use does not result in a contravention of the *Water Act 1992*.

(t) other matters it thinks fit

No other matters are raised for consideration by the consent authority.

Section 51(2) of the *Planning Act 1999*

If a development proposal is required to be referred to the NT EPA under Part 4, Division 3 of the Environment Protection Act 2019, the consent authority must not make a decision under this Division in relation to a development application for the proposal unless:
(a) the NT EPA has determined that an environmental impact assessment is not required under that Act for that proposal; or
(b) if the NT EPA has determined that an environmental impact assessment is required – an environmental approval has been granted under that Act for the proposal and the decision is consistent with that approval; or
(c) the Environment Protection Act 2019 otherwise permits the making of the decision.

An environmental impact assessment was not required. The *Environmental Protection Act 2019* otherwise permits the making of the decision by virtue that referral is not required.

7. RECOMMENDATION

That, pursuant to section 53(a) of the *Planning Act 1999*, the Development Consent Authority consent to the application to develop Section 03987 Hundred of Strangways, (175) Brooking Circuit, Virginia for the purpose of a subdivision to create 2 lots, subject to the following conditions:

CONDITIONS PRECEDENT

1. Prior to the endorsement of plans and prior to the commencement of works, a schematic plan demonstrating the on-site collection of stormwater and its discharge into the Litchfield Council stormwater drainage system shall be submitted to and approved by Litchfield Council, to the satisfaction of the consent authority. The plan shall include details of site levels and Council's stormwater drain connection point/s. The plan shall also indicate how stormwater will be collected on the site and connected underground to Council's system or an alternate approved connection.

GENERAL CONDITIONS

1. The works carried out under this permit shall be in accordance with the drawings endorsed as forming part of this permit.

2. The kerb crossovers and driveways to the site are to meet the technical standards of Litchfield Council, to the satisfaction of the consent authority.

3. Engineering design and specifications for the proposed and affected roads, street lighting, stormwater drainage, vehicular access, pedestrian/cycle corridors, and streetscaping shall be to the technical requirements and approval of Litchfield Council, with all approved works constructed at the developer's expense. Note: Design drawings shall be approved by Litchfield Council prior to construction of the works.

4. The owner of the land must enter into agreements with the relevant authorities for the provision of water supply and electricity to each lot shown on the endorsed plan in accordance with the authorities' requirements and relevant legislation at the time.

5. Any developments on or adjacent to any easements on site shall be carried out to the requirements of the relevant service authority to the satisfaction of the consent authority.

6. All existing and proposed easements and sites for existing and required utility services must be vested in the relevant authority for which the easement or site is to be created on the plan of subdivision submitted for approval by the Surveyor General.

7. No polluted and/or sediment laden run-off is to be discharged directly or indirectly into Litchfield Council drains or to any watercourse.

8. Before the use commences/occupation of the development/issue of titles, firebreaks along boundaries or at appropriate locations shall be provided to the satisfaction of the consent authority on advice from the Bushfires NT Division of the Northern Territory Fire and Emergency Services.

9. Before the completion of the subdivision, the applicant must, in accordance with Part 6 of the Planning Act 1999, pay a monetary contribution to the Litchfield Council for the upgrade of local infrastructure, in accordance with its Development Contribution Plan.

Notes

1. This permit will expire if one of the following circumstances applies: the development and use is/are not started within two years of the date of this permit; or the development is not completed within four years of the date of this permit. The consent authority may extend the periods referred to if a request is made in writing before the permit expires.

2. For the purposes of best practice land management and environmental protection it is recommended that an Erosion and Sediment Control Plan (ESCP) be developed. The ESCP should be prepared prior to commencement of works and implemented during the construction phase (including clearing and early works); and all disturbed soil surfaces should be satisfactorily stabilised against erosion at completion of works. Resources to assist with the preparation of an ESCP are available on the IECA website www.austieca.com.au and Land Management Factsheets at https://nt.gov.au/environment/soil-landvegetation. For further advice, contact the Development Coordination Branch: (08) 8999 4446.

3. Litchfield Council's current Fees and Charges may apply to the above conditions. Additional information can be found at www.litchfield.nt.gov.au.

4. A Works Permit is required from Litchfield Council before commencement of any work within the road reserve, which would include creation of any driveway crossover connecting to Litchfield Council's road network.

5. Notwithstanding any approved plans, signs within Litchfield Council's municipal boundaries are subject to approval under Interim Development Control Order 33.

6. The Power and Water Corporation advises that the Water and Sewer Services Development Section (waterdevelopment@powerwater.com.au) and Power Network Engineering Section (powerdevelopment@powerwater.com.au) should be contacted via email a minimum of 1 month prior to construction works commencing in order to determine the Corporation's servicing requirements, and the need for upgrading of on-site and/or surrounding infrastructure.

7. Only one water service is permitted for each proposed lot. All new services are constructed by the developer, at no cost to Power and Water.

8. Prior to the use/occupation of the development and connection of services (i.e. power and water), the owner of the land must apply for street addressing from the Surveyor-General of the Northern Territory. This will form the legal address and will be required to be placed on the meters within the development in accordance with the allocation. An Occupancy Permit will not be able to be granted until such time as addressing is obtained.

9. Before the use commences/occupation of the development/issue of titles, firebreaks along boundaries or at appropriate locations shall be provided to the satisfaction of the consent authority on advice from the Bushfires NT Division of the Northern Territory Fire and Emergency Services.

10. There are statutory obligations under the Waste Management and Pollution Control Act 1998 (the Act), that require all persons to take all measures that are reasonable and

practicable to prevent or minimise pollution or environmental harm and reduce the amount of waste. The proponent is required to comply at all times with the Act, including the General Environmental Duty under Section 12 of the Act. There is also a requirement to obtain an authorisation prior to conducting any of the activities listed in Schedule 2 of the Act. Guidelines to assist proponents to avoid environmental impacts are available on the Northern Territory Environment Protection Authority website at
https://ntepa.nt.gov.au/publications-and-advice/environmental-management.
The Act, administered by the Northern Territory Environment Protection Authority, is separate to and not reduced or affected in any way by other legislation administered by other Departments or Authorities. The Environment Operations Branch of the Environment Division may take enforcement action or issue statutory instruments should there be non-compliance with the Act.

11. All land in the Northern Territory is subject to the Weeds Management Act 2001 (WM Act). The WM Act describes the legal requirements and responsibilities that apply to owners and occupiers of land regarding declared weeds. Section 9 general duties include the requirement to take all reasonable measures to prevent land being infested with a declared weed and to prevent a declared weed from spreading. There are additional duties including a prohibition on buying, selling, cultivating, moving or propagating any declared weed and the requirement to notify the Weed Management Branch of a declared weed not previously present on the land within 14 days of detection. Should you require further weed management advice contact the weed management branch by phone on (08) 8999 4567 or by email to weedinfo@nt.gov.au

8. REASONS FOR THE RECOMMENDATION

1. Pursuant to section 51(1)(a) of the *Planning Act 1999*, the consent authority must take into consideration the planning scheme that applies to the land to which the application relates.

   The NT Planning Scheme 2020 applies to the land and Subdivision requires consent under Clause 1.8 (When development consent is required). It is identified as I*mpact Assessable* under Clause **1.8(1)(c)(ii)**, therefore Part 2 of the Scheme, including the Darwin Regional land Use Plan and Holtze to Elizabeth River Subregional Land Use Plan, the zone purpose and outcomes of Clause 4.7, Clause 3.2, Clause 6.3 , Clause 6.3.2, Clause 6.3.3, and Clause 6.3.4, need to be considered.

   These clauses have been considered, and it is found that the proposal complies with the relevant requirements of the Planning Scheme.

2. Pursuant to section 51(1)(j) of the *Planning Act 1999*, the consent authority must take into consideration the capability of the land to which the proposed development relates to support the proposed development and the effect of the development on the land and on other land, the physical characteristics of which may be affected by the development.

   The subject site is located within an environmentally sensitive area that forms a seepage basin to the Wells Creek. It has been demonstrated through a Land Suitability Assessment, a Soil and Drainage Report, a Soil & Erosion Plan, and a Soil Compaction Report that the land has the capability to support a two-lot subdivision and future residential development on Lot B, providing one hectare of unconstrained land for each lot and can support an additional effluent system and the removal of vegetation, and that this can be effectively managed without impacts to the site or site surrounds.

3. Pursuant to section 51(1)(m) of the Planning Act 1999, the consent authority must take into consideration the public utilities or infrastructure provided in the area in which the land is situated, the requirement for public facilities and services to be connected to the land and the requirement, if any, for those facilities, infrastructure or land to be provided by the developer for that purpose.

   The two lots to be created as part of the subject subdivision can be provided with a grid electricity supply. Unconstrained driveway/crossover access to Lot B can be achieved, noting Lot A already has access to Brooking Circuit. Lot B would require an effluent system. To ensure these subdivision works are completed accordingly, conditions of approval for the benefit of the relevant service authority providers for this infrastructure have been imposed on the development permit.

4. Pursuant to section 51(1)(n) of the *Planning Act 1999*, the consent authority must take into consideration the potential impact on the existing and future amenity of the area in which the land is situated.

   A thorough response has been provided by the applicant, and this indicates that the site has the capacity to support the two-lot subdivision and potential future residential development on Lot B, without impacting on the existing and future amenity of the area. The subdivision creates an additional Rural Living zoned lot of a size suitable to retain the existing horticulture and intended rural lifestyle use of the subject property, which is consistent with the rural character and historical land use development of the rural locality. On this basis, it is concluded that the subdivision is unlikely to adversely impact on the existing and future amenity of the Virginia locality.

Figure 1. Subject Site 175 Brooking Circuit Virginia, NT

Development Consent Authority
Northern Territory

GPO BOX 1680
DARWIN NT 0801

Telephone No: (08) 8999 6046
Email: das.ntg@nt.gov.au

In reply please quote: **PA2025/0010**

Mr Terry Nixon
20 Dorling Street
Muirhead NT 0810

Via email: nixonterry5@gmail.com

Dear Sir/Madam

NOTICE OF CONSENT (SECTION 53B OF THE *PLANNING ACT 1999*)
SECTION 03987 (175) BROOKING CIRCUIT, VIRGINIA, HUNDRED OF STRANGWAYS

The Development Consent Authority has determined, pursuant to section 53(a) of the *Planning Act 1999*, grant consent to the proposal to use and develop the abovementioned land for the purpose of Excavation and Fill, subject to the conditions specified on the attached Development Permit DP2025/0010

Reasons for the Determination

1. Pursuant to section 51(1)(a) of the *Planning Act 1999*, the consent authority must take into consideration the planning scheme that applies to the land to which the application relates.

   The Northern Territory Planning Scheme 2020 applies to the land and requires consent under Clause 1.8 (When development consent is required). It is identified as Impact Assessable under Clause 1.8(1)(c)(i), therefore: the strategic framework (Part 2 of the Scheme, including the Darwin Regional Land Use Plan 2015 and the Holtze to Elizabeth River Subregional Land Use Plan 2022 is relevant to this application), zone purpose and outcomes of zone purpose and outcomes of Clause 4.7 (Zone RL – Rural Living); Clause 3.2 (CNV (Clearing of Native Vegetation)); Clause 5.2.1 (General Height Control); Clause 5.2.4 (Car Parking); Clause 5.2.5 (Loading Bays); Clause 5.2.6 (Landscaping); Clause 5.2.7 (Setbacks for Development Adjacent to Land in Zones LR, LMR, MR or HR); and Clause 5.8.9 (Excavation and Fill) need to be considered.

   These clauses have been considered and it is found that the proposal complies with all relevant requirements of the Northern Territory Planning Scheme 2020.

2. Pursuant to section 51(1)(j) of the *Planning Act 1999*, the consent authority must take into consideration the capability of the land to which the proposed development relates to support the proposed development and the effect of the development on the land and on other land, the physical characteristics of which may be affected by the development.

   The land is considered capable of supporting the proposed fill earthworks to result in drainage improvements and better utilisation of the property for the zoned rural lifestyle purposes. The separation distance, relatively flat surface slopes, and existing established drainage network associated with the proposed filling site is low risk to the downstream

receiving environment; and industry standard practices for erosion and sediment control are required to be implemented during construction.

3. Pursuant to section 51(1)(n) of the *Planning Act 1999*, the consent authority must take into consideration the potential impact on the existing and future amenity of the area in which the land is situated.

   The proposed bulk fill earthworks within the southern portion of the subject property to raise the natural ground levels and improve site drainage will result in a landform topography that is sympathetic and consistent with the context of the surrounding development in the Virginia locality. Furthermore, adherence with the approval conditions and notations will mitigate nuisances on the immediate locality. As a result, it is concluded that the proposal will not adversely impact on the current and future amenity of the Virginia rural lifestyle locality.

Right of Review

Applicants are advised that a right of review to the Northern Territory Civil and Administrative Tribunal exists under Part 9 of the *Planning Act 1999*. An application for a review under section 114 against a determination of a development application must be made within 28 days of the service of this notice.

The Northern Territory Civil and Administrative Tribunal can provide information regarding the Notice of Review form and fees payable. The address for lodgement of a Notice of Review is: Northern Territory Civil and Administrative Tribunal, PO Box 41860 CASUARINA NT 0810 or Level 1, The Met Building, 13 Scaturchio Street, CASUARINA NT 0810 (Telephone: 08 8944 8720 or Facsimile 08 8922 7201 or email AGD.ntcat@nt.gov.au).

If you have any queries in relation to this Notice of Consent or the attached Development Permit, please contact Development Assessment Services on telephone (08) 8999 6046.

Yours faithfully

SUZANNE PHILIP
Chair of the Development Consent Authority

30 June 2025

Attachment

cc Litchfield Council

STATEMENT OF EFFECT

LOT 3987 (No. 175) Brooking Circuit Virginia (Hundred of Strangways) Subdivision of land

This application is for the Sub-Division of an existing allotment to two alloments in excess of 2 hectares which is compliant under the *NT Planning Scheme*

Generally: The strategic land use has been addressed with the approval of the original Sub-division of the locality, this activity complies with that strategic land use.

Section 4.7 Zone RL- Rural Living

Zone outcomes

The site is connected to Town water, effluent disposal is by way of an approved septic tank

7. The design and site layout is sympathetic to the existing streetscape, scale and character of the surrounding development.

8. The proposal does not impose any further demand on surface or ground water.

Section 46 (3) of the Planning act (Matters to be addressed)

46 (3)(a)

The Activity complies with the *NT Planning scheme* in so far as it satisfies the land use of the area for zone RL and is an Impact Assessment use requiring the approval of the Development Consent Authority, reference is made to the Litchfield and Holtz to Elizabeth River Sub-regional Land use plans as follows:

The site is within the study area boundary of PA022/0011 and within the Brooking creek catchment area, there will be no effect on the environmental management of the area, particularly with regard to stormwater drainage.

Holtz and Adelaide River

With regard to the Natural environment, the activity:
0.1, Avoids detrimental impacts on hydrological flows,
0.2, Will have no exposure to riverine flooding, and,
0.3, Will negate the promulgation of biting insects.
The site is within the zone described 'Developed Land'.

Comments are made with regard to the *NT Planning Scheme* as follows:

46(3)(b)

There are no Interim Development Control Orders applying to the land

46(3)(c)

An environmental impact statement is not required for this application.

46(3)(d)

The proposal has merit as it provides for further habitation of land Zoned RL (Rural Living)

46(3)(e)

The site is generally flat over the building area, has a minimal fall (5 metres over a length of 223.840 metres and is suitable for the proposed development

46(3)(f)

Open spaces and recreation areas are not appropriate to this proposal

46(3)(g)

All appropriate services including water, sewer, electricity and drainage are provided, Public infrastructure such as roadways and access are suitable for the proposed use of this site.

46(3)(h

The development is suitable to the locality having the mass and a style in keeping with other developments in the areas and will not detract from the amenity of other buildings within the locality

46(3)(i)

There will be a positive impact on the public interest with this development being visibly passive.

Administration

The *Consent Authority* should consent to the use of; and be satisfied that it is consistent with the purpose (above) and is in accordance with clauses 2-5, and is appropriate to the zoning of the site

Requirements

2. There is no Particularly identified future use of the sites except for the possible addition of a Single Dwelling on the new sub-divided allotment.

3. The evident hydrological conditions of the site are demonstrated by the topography shown on the drawing (GLY/LF1a) which indicates no impact upstream or downstream of the site, except to eliminate ponding. This *Statement of Effect* and the drawings: indeed, constitute a hydrological assessment of the site, any further hydrological concerns can be addressed by the Litchfield Shire Council if appropriate.

4. There will be no contribution to the sedimentation of creeks or *Riparian* areas, it should be noted that *Riparian* areas relate mainly to administrative boundaries to which there will be alteration or breach. It should be noted that this application is not for a bore or any drilling operation or disturbance of the surface of the land.

6.3.2 Lot size & configuration for subdivision of land in Zones RR, RL, R and H and unzoned land.

The proposed allotments are greater than 2 hectares in area , each with an unconstrained area in excess of 1 hectare.

6.3.3 Site characteristics for subdivision of land in zones RR, RL, R and H and unzoned land.

A requirement for a land constraint report has been addressed in the recent development permit DP2025/0010 which has been uploaded with this application. All appropriate Environmental issues related to the Priority *Environmental management area for Litchfield* have also been addressed.

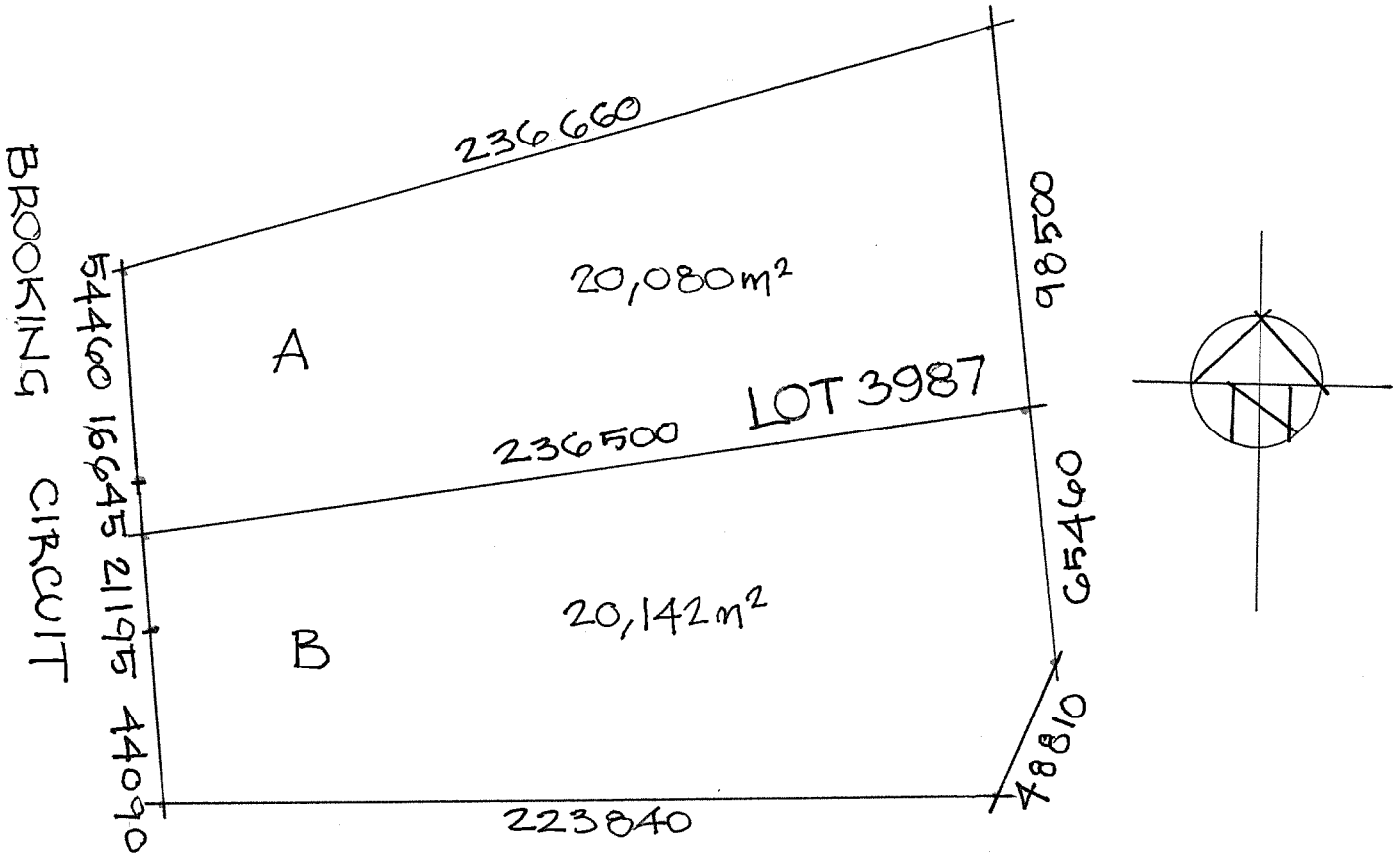
6.3.4 Infrastructure for subdivision of land in zones RR, RL, R and H and unzoned land.

The allotments are serviced with town water and electrical supply. Wastewater is treated by an existing approved effluent system on the Developed portion of the land, the land was found suitable for this purpose in the Development Permit DP2025/0010.
In the event that the land is Subdivided; an appropriate septic system will be installed to service any future development in accordance with the Building act.
Similarly, Electricity and Water supply would be separately metered accordingly.

SUB-DIVISION PLAN 1:2000

PROPOSED SUBDIVISION OF LOT 3987 BROOKING CIRCUIT VIRGINIA NT

GLY052/SD1
SEPT 2025



SUB-DIVISION PLAN 1:2000

PROPOSED SUBDIVISION OF LOT 3987 BROOKING CIRCUIT VIRGINIA NT

GLY052/SD1
SEPT 2025

AB Consulting (NT) Pty Ltd

ABN: 98 602 384 672

PO Box 1631, BERRIMAH NT 0828
Mobile: 0400 518 367
Email: annette@abconsultingnt.com.au

Our Ref: ABC-25101-1

To Whom it may concern,

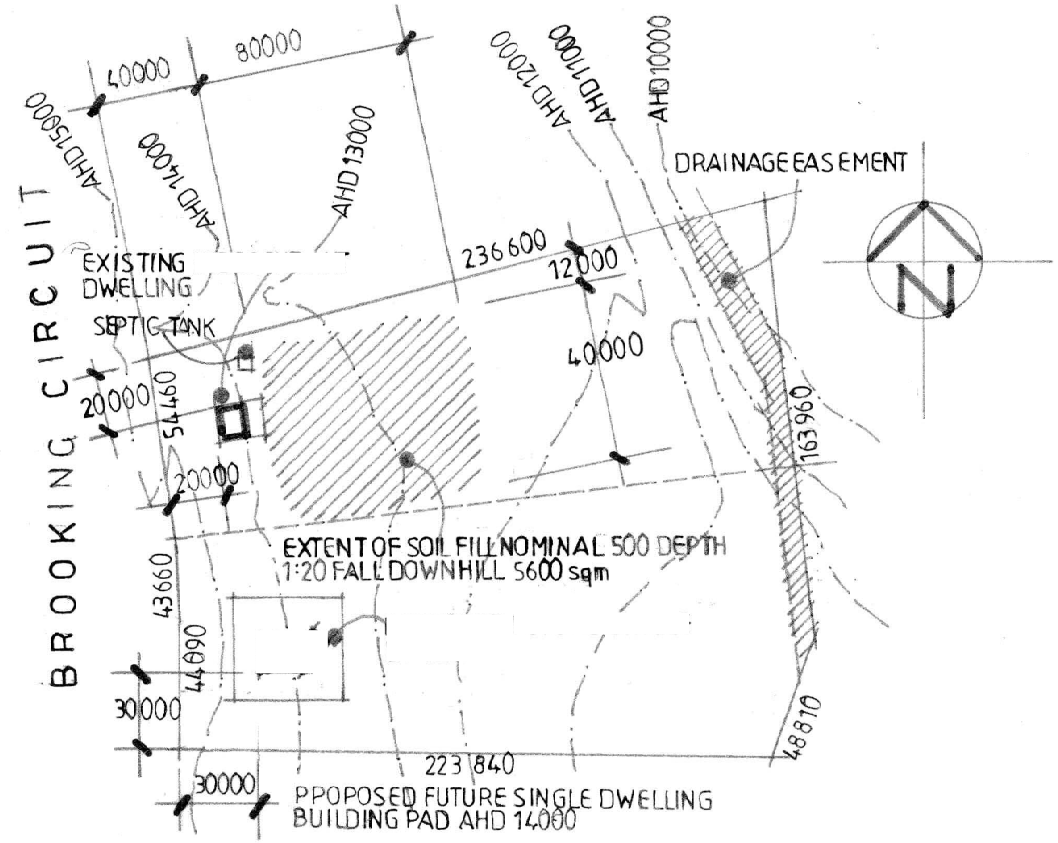
RE: Statement from a Building Certifier Re: Section 46(3)(k) of the Planning Act for Proposed Subdivision of Lot 3987 (175) Brooking Circuit, Virginia, Hundred of Strangways.

In accordance with Section 46(3)(k) & (l) of the Planning Act and Drawing '2025/0010/01' attached, I can confirm that the proposal is suitable for Subdivision and will not affect compliance with the NT Building Act or National Construction Code/Building Code of Australia.

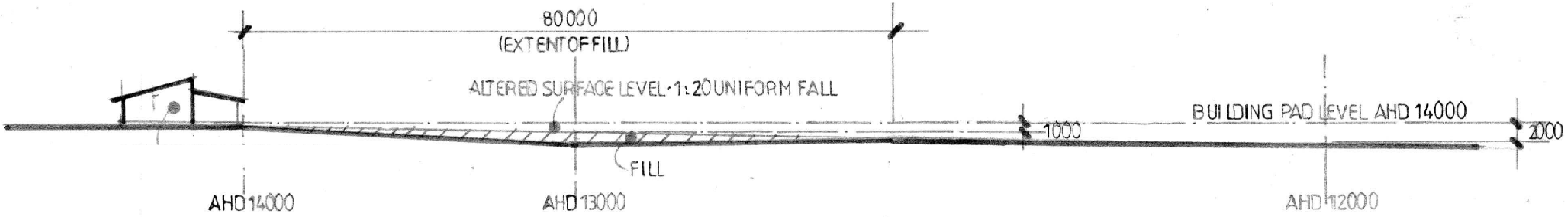
Yours Sincerely,

Annette Joseland
Building Certifier
Registration Number: 264433BU
14/10/2025

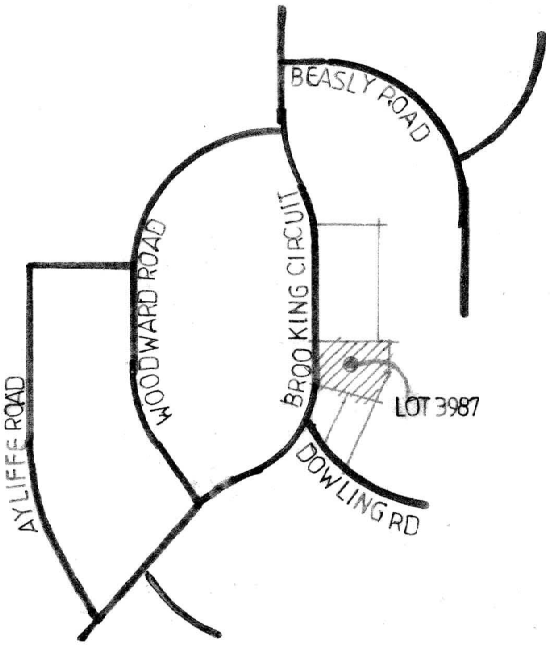
Documents Enclosed: '25/0010/01'



SITE AND EXCATION PLAN 1:2000



LONG SECTION 1:500



LOCALITY PLAN

INSTALLATION OF LANDFILL AT LOT 3987 BROOKING CIRCUIT VIRGINIA NT

Drawing number 2025/0010/01

Referred to in Permit No: DP2025/0010

This document contains drawing numbers:
2025/0010/01

Referred to in Permit No: DP2025/0010

Issued on: 30 June 2025

All drawings contained within this document have been authorised by the delegate of the consent authority.

Suzanne Philip
2025.06.30
10:24:47 +09'30'

Delegate

WANT Geotechnics Pty Ltd

10/17 Willes Road

Berrimah NT 0828

ABN 57 631 699 673

J Glynatsis
175 Brooking Circuit
Virginia NT

NTG20265272
26 February 2026

Dear Sirs

Project: 175 Brooking Circuit, Virginia – Assessment of Potential for Contamination in Imported Fill

Introduction

In response to the following request:

- An Environmental Assessment to determine if there are any contaminants in the filled soil, also prepared by a suitably qualified professional.

WANT Geotechnics have been engaged by Mr John Glynatsis of 175 Brooking Circuit in Virginia, Northern Territory to provide an assessment of the potential for the fill imported to site to contain contamination.

Data Relied On

The following documents have been provided by the Client as a record of soil testing and responses from Trakondy to assist with our assessment of the potential for the imported fill to contain contaminants.

- Trakondy In-situ and Stockpile Soil Waste Classification Report P724_v1.0 dated 4 April 2024
- Trakondy email dated 22 February 2026

A copy of the above are attached to this report.

WANT Geotechnics has relied upon the above documents in the preparation of this report, on the understanding they are a true and accurate reflection of the fieldwork and testing undertaken. WANT Geotechnics cannot be held responsible for errors or inaccuracies within the documentation supplied for assessment.

Assessment

The In-situ and Stockpile Soil Waste Classification Report detailed the fieldwork and testing of 48 samples from stockpiles and 49 in-situ soil samples taken from test pits. Along with the quality control and quality assurance samples, a total of 107 samples were collected and submitted for NATA accredited analysis, with 95 samples being analysed for total recoverable hydrocarbons, benzene, toluene, ethylbenzene, and xylene and eight metals (arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, silver, tin and zinc), and eight screening samples were analysed for a wide variety of analytes as per EPA Victoria Methodology.

The following is an excerpt from the report:

Results were assessed against the relevant guidelines, being:

- *Shoal Bay Waste Management Facility: Waste acceptance criteria (NT EPA, 2021);*
- *National Environment Protection Council. (2013). National Environment Protection (Assessment of Site Contamination) Measure 1999. Canberra: National Environment Protection Council.*
- *Northern Territory Environment Protection Authority. (2015). Fact sheet: How to avoid the dangers of*

accepting illegal fill onto your land. Darwin: NT EPA.

The assessment found that all metals and hydrocarbon results which were extensity tested across the site were within the most stringent guidelines specified, with the exception of arsenic. The screening samples with the exception of fluoride were within the most stringent guidelines specified.

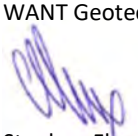
Arsenic and fluoride were identified in samples up to twice the threshold stated as being the NTEPA clean fill criteria, however the arsenic concentration was found to be many times lower than the most conservative thresholds as detailed within the NEPM which is HIL-A (low density residential housing); and indeed, if assessed against the HIL-C (Public Open Space) criteria would be approximately 15% of the allowable threshold. Whilst the NEPM does not provide HIL thresholds for fluoride individually, there is evidence that fluoride can occur naturally in clay soils and is bound to soils and doesn't easily dissolve. The levels of arsenic and fluoride are considered to be of natural origin.

In addition to the report, email correspondence from Trakondy confirms the material imported as fill to 175 Brooking Circuit was sourced from the same stockpiles and/or in-situ soils that were the subject of Trakondy's investigation, testing and report titled *In-situ and Stockpile Soil Waste Classification Report P724_v1.0* dated 4 April 2024.

Based on the above WANT Geotechnics confirms the fill material imported presents no environmental risk.

Yours faithfully

WANT Geotechnics



Stephen Flux BSc MSc CGeol AffillEAust
Director

Attachments

- Trakondy In-situ and Stockpile Soil Waste Classification Report P724_v1.0 dated 4 April 2024
- Trakondy email dated 22 February 2026

Limitations

WANT Geotechnics provides this geotechnical report to the client strictly subject to the terms in this clause. By accepting and/or relying on this report the client agrees to be bound by the terms in this clause.

SCOPE OF SERVICES

This geotechnical report has been prepared in accordance with the scope of services set out in the agreement between WANT Geotechnics and the client and is subject to any qualifications and assumptions set out in the report. In some circumstances the scope of services may have been limited by a range of factors such as time, budget, access and/or site disturbance constraints. This report is provided for the exclusive use of WANT Geotechnics's client for this project only and for the purposes as described in this report. It should not be used by or relied upon for other projects or purposes on the same or another site, or by a third party. Any party relying on this report beyond its exclusive use and purpose stated above, and without the express written consent of WANT Geotechnics, does so entirely at its own risk and without recourse to WANT Geotechnics for any loss or damage.

RELIANCE ON DATA

In preparing the report, WANT Geotechnics has relied upon data, surveys, and plans provided by the client and/or Third parties. WANT Geotechnics has not verified the accuracy or completeness of the data, to the extent that the any statements, opinions, facts, conclusions and/or recommendations in the report (conclusions) are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. WANT Geotechnics will not be liable for any errors, omissions, inaccuracies, or other defects in the report that are based on inaccurate or incomplete client or third-party data.

GEOTECHNICAL INVESTIGATION

Geotechnical engineering reports are prepared to meet the specific scope of the client and may not necessarily be adequate for a construction contractor. This report was prepared expressly for the client and expressly for purpose set out in this report. WANT Geotechnics does not consent to, or authorise, the use of this report by any other person(s) for any purpose, or by the client for a purpose outside the scope of this report. In such a case, the client should obtain additional geotechnical advice.

LIMITATIONS OF SITE INVESTIGATION

The findings contained within this report are the result of limited investigations conducted in accordance with normal practices and standards. To the best of our knowledge, they represent a reasonable interpretation of the general conditions of the site. Under no circumstances, however, can it be considered that these findings represent the actual state of the site at all points. In assessing a structure from a limited number of exploratory locations there is the possibility that variations may occur that were not encountered. Site exploration identifies specific subsurface conditions only at those points from which samples have been taken. The data derived from the investigation and subsequent laboratory testing have been extrapolated to form an inferred model and an engineering opinion is rendered about overall subsurface conditions and their likely behaviour regarding the structure. Actual conditions at the site might differ from those inferred to exist, since no subsurface exploration program, no matter how comprehensive, can reveal all subsurface details and anomalies. The exploratory test records are the subjective interpretation of subsurface conditions at a particular location, made by trained personnel. The interpretation may be limited by the method of investigation and cannot always be definitive. For example, inspection of an excavation or test pit allows a greater area of the subsurface profile to be inspected than borehole investigation; however, such methods are limited by depth and site disturbance restrictions. In borehole investigation, the actual interface between materials may be more gradual or abrupt than a report indicates.

SUBSURFACE CONDITIONS ARE TIME DEPENDENT

Subsurface conditions may be modified by changing natural forces or man-made influences. A geotechnical engineering report is based on conditions which existed at the time of subsurface exploration. Construction operations, at or adjacent to the site, and natural events, such as floods or groundwater fluctuations may also affect subsurface conditions and thus the continuing adequacy of a geotechnical report. WANT Geotechnics should be kept appraised of any such events and should be consulted to determine if additional tests are necessary.

EXPLORATORY LOGS SHOULD NOT BE SEPARATED FROM THE ENGINEERING REPORT

Final exploratory logs are developed by geotechnical engineers / engineering geologists based upon their interpretation of field logs and laboratory evaluation of field samples. Customarily, only the final exploratory logs are included in geotechnical engineering reports. These logs should not under any circumstances be redrawn for inclusion in architectural or other design drawings. To minimise the likelihood of exploratory log misinterpretation, contractors should be given access to the complete geotechnical engineering report prepared or authorised for their use. Providing the best available information to contractors helps prevent costly construction problems. For further information on this matter reference should be made to 'Guidelines for the Provision of Geotechnical Information in Construction Contracts' published by the Institution of Engineers Australia, National Headquarters, Canberra 1987.

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To the extent permissible under Australian Consumer Law and any other applicable laws, WANT Geotechnics's total liability in contract, tort (including negligence), breach of statutory duty or otherwise for any loss, damage, or injury arising from or in connection with the report provided will be limited to the lesser of: (a) the amount paid by the client for the particular service causing the loss, damage, or injury; or (b) the actual direct damages suffered by the client.

FAIR CONSIDERATION FOR SMALL BUSINESSES

In accordance with the principles set forth in the Australian Consumer Law regarding unfair contract terms, this limitation of liability clause aims to distribute risks between WANT Geotechnics and the client fairly and equitably. The limitations in this clause are set with the consideration that WANT Geotechnics cannot control various factors that may contribute to any potential damages, including but not limited to, third-party actions, subsurface conditions, and other unforeseeable events.

EXCEPTIONS FOR GROSS NEGLIGENCE AND STATUTORY RIGHTS

Notwithstanding the above, this limitation of liability will not apply to the extent that WANT Geotechnics has been found to be grossly negligent, fraudulent, or in breach of fundamental contractual obligations essential for the proper execution of the contract. For clarity, this clause does not limit any rights or remedies the client may have under the consumer guarantees provided by the Australian Consumer Law.

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Any claims must be initiated within a period of 12 months from the occurrence of the event giving rise to the claim, unless otherwise provided for under Australian law, as a means to encourage prompt resolution of any disputes and to prevent protracted legal uncertainty for both parties.

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This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from WANT Geotechnics. WANT Geotechnics will not be liable to update or revise the report to consider any events or emergent circumstances or facts occurring or becoming apparent after the date of the report. WANT Geotechnics disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

WANT Geotechnics Pty Ltd

"Unfortunately, soils are made by nature and not by man, and the products of nature are always complex. As soon as we pass from steel and concrete to earth, the omnipotence of theory ceases to exist. Natural soil is never uniform. Its properties change from point to point while our knowledge of its' properties is limited to those few spots at which the samples have been collected. In soil mechanics the accuracy of the computed results never exceeds that of a crude estimate and the principal function of theory consists in teaching us what and how to observe in the field"

Karl Terzaghi – Founder of Modern Geotechnology

TRAKONDY

Asbestos and Hazardous Materials Pty Ltd

In-Situ and Stockpile Soil Waste Classification

Mitchell Creek Green Stage 2K

Off Zuccoli Parade, Zuccoli, Northern Territory 0832

Site Works Conducted 04 – 06 March 2024

Prepared For: AKJ Services Pty Ltd

Approved By: Mark Kondakov of Trakondy

Reference Number: P724_v1.0

Trakondy Asbestos and Hazardous Materials Pty Ltd
120 James Circuit, Woodroffe, NT 0830
mark.kondakov@outlook.com
0400 260 483
ABN 53641441812

Document Control

Version	Date issued	Approved by	Signature
1.1	04.04.2024	Mark Kondakov	

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Abbreviations

AS	Australian Standard
ASC NEPM	National Environment Protection (Assessment of Site Contamination) Measure
BGL	Below ground level
BTEXN	Benzene, toluene, ethylbenzene, xylene and naphthalene
CSM	Conceptual site model
EIL	Ecological investigation level (ASC NEPM)
ESL	Ecological screening level (ASC NEPM)
HIL	Health investigation level (ASC NEPM)
NATA	National Association of Testing Authorities
NSW	New South Wales
NT	Northern Territory
CoPC	Contaminants of potential concern
QA/QC	Quality assurance/ quality control
SBWMF	Shoal Bay Waste Management Facility
TRH	Total recoverable hydrocarbons
WAC	Waste acceptance criteria (SBWMF)
WMPC	Waste Management and Pollution Control Act (NT)

Executive Summary

AKJ Services Pty Ltd (AKJ, *the client*) engaged Trakondy Asbestos and Hazardous Materials Pty Ltd (Trakondy) to undertake an *in situ* waste classification and *soil stockpile* classification of soils at Stage 2K of Mitchell Creek Green Development off Zuccoli Road, Zuccoli, Northern Territory 0832(*the site*).

Trakondy was engaged by the client to assess the environmental risks posed by contaminants of potential concern in approximately 12,400 m^3 of stockpiled soil that needs to be relocated either onsite or for offsite disposal, along with the excavation (cut and fill) of in-situ soils from various locations across the site, with the total volume of the cut material estimated to be approx. 15,000 m^3, with fill of up 15,000 m^3, possibly able to be reused onsite, and the remaining spoil to be disposed of at Shoal Bay Waste Management Facility.

Trakondy has not been engaged to assess the site holistically, nor have we been engaged to undertake any works in relation to the development of the site, our engagement has solely been in relation to undertaking a soil waste classification report for the in-situ and stockpiled materials.

The site was reported as being a "greenfield" site prior to the progressive development of Mitchel Creek Green in Zuccoli in approx. 2012, when aerial imagery first identified the construction of Zuccoli Parade, although about 95% of this area was still greenfield. Whilst the area round the current Stage 2K was progressively developed since 2012, the key observations in relation to the current site is the construction of a swale drain in 2014 and the sue of the site as a stockpile area from 2021-2022, which is when most of the site was cleared of bushland and the sediment basin constructed.

It is unknown exactly which stage of the Mitchell Creek Green development the soil in the stockpile originated from, without undertaking further investigations, however it is likely that the material originated from works immediately prior to the stockpile being created.

The conceptual site model, highlighted a number of potential contaminants of the soil; with the primarily containment identified as likely to be natural metals.

A field survey and sampling program were carried out to assess the site. The field survey confirmed the observations identified during the site history which was the site (MCG 2K) was found to contain various soil stockpiles, which could be described as top soil, general fill rock and small amounts of rubbish and deleterious material. With the remainder of the site appearing to have been largely cleared of natural vegetation a few years ago and the remnants of the site civil construction compound on the southern end of the site.

Apart from the planned clearance of the natural bushland, the location of the soil stockpiles, etc there was no evidence at the site of any observable indicators of other contamination such as staining, odours, dead vegetation, or evidence of fly tipping.

As part of this investigation 48 samples were collected from the soil stockpiles taken at various depths from within the stockpiles, whilst 49 samples were collected from test pits taken from the areas where cutting is required across the site ranging from less than 1,000 mm BGL on the southern end of the site, to as much as 3,000 mm BGL in is some areas on the northern section of the site. it must be noted that in addition to the cutting, there is also a significant requirement for fill across other portions of the site, which much of the stockpiled and/or cut material will be used for. Along with the quality control and quality assurance samples, a total of 107 samples were collected and submitted for NATA accredited analysis, with 95 samples being analysed for total recoverable hydrocarbons, benzene, toluene, ethylbenzene, and xylene and eight metals (arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, silver, tin and zinc), and eight screening samples were analysed for a wide variety of analytes as detailed within the Victorian EPA 1828.2 – Fill suite criteria (previously IWRG621). This screening activity identified levels of fluoride

approaching or exceeding the most conservative thresholds being the NT EPA Clean Fill Criteria, as such an additional sixteen samples were analysed for Fluoride (in total 25% of the samples were analysed for fluoride).

The sampling density achieved was considered suitable for the site and the works undertaken. The samples were sent to a NATA accredited laboratory for analysis. Of the samples analysed:

- All metals were below the NTEPA threshold for clean fill with the exception of arsenic;
- Within the in-situ test pits arsenic concentrations only exceeded the NT EPA clean fill threshold in a small number of locations and at shallow depths with the arsenic being identified in the southern section of the site to a depth of 1,000 mm BGL, and in the central and northern sections only on three occasions and only to a depth of 300mm BGL. All concentrations were less than twice the NTEPA Clean Fill threshold, and many times lower than the most conservative thresholds as detailed within the NEPM which is HIL-A (low density residential housing);
- Within the soil stockpiles the arsenic concentrations exceeded the NT EPA clean fill threshold in approximately half the samples analysed. All concentrations were approximately less than twice the NTEPA Clean Fill threshold, and many times lower than the most conservative thresholds as detailed within the NEPM which is HIL-A (low density residential housing);
- Total recoverable hydrocarbons, benzene, toluene, ethylbenzene, and xylene were detected at trace levels in less than 5% of the samples, with the remainder of the results being less than the laboratory's limit of detection and all samples being well under the most conservative threshold being the NTEPA Clean Fill Criteria;
- Fluoride was found to be just under the threshold for clean fill in approx. 50% of the samples and in the remaining 50% was found to be in the range of up to twice the threshold for the clean fill criteria and was found in both the soil stockpile and in the in-situ samples taken from the test pits. The NEPM does not provide a threshold for fluoride in soil concentrations, however the levels of fluoride are not considered excessive for the proposed disposal at SBWMF;
- Screening suite as detailed below returned results all below the NTEPA threshold for clean fill:
  - Organochlorine (OCP);
  - Organophosphorus (OPP);
  - Hexavalent Chromium;
  - Speciated Phenols;
  - Total Cyanides;
  - Polychlorinated Biphenyl's (PCB's);
  - Polycyclic Aromatic Hydrocarbons (PAH's); and
  - Volatile Organic Compounds (VOC's).

Results were assessed against the relevant guidelines, being:

- *Shoal Bay Waste Management Facility: Waste acceptance criteria* (NT EPA, 2021);
- *National Environment Protection Council. (2013). National Environment Protection (Assessment of Site Contamination) Measure 1999. Canberra: National Environment Protection Council.*
- *Northern Territory Environment Protection Authority. (*2015). Fact sheet: How to avoid the dangers of accepting illegal fill onto your land. Darwin: NT EPA.

All metals and hydrocarbon results which were extensity tested across the site were within the most stringent guidelines specified, with the exception of arsenic. The screening samples with the exception of fluoride were within the most stringent guidelines specified.

Arsenic and fluoride were identified in samples up to twice the threshold stated as being the NTEPA clean fill criteria, however the arsenic concentration was found to be many times lower than the most conservative thresholds as detailed within the NEPM which is HIL-A (low density residential housing); and indeed, if assessed against the HIL-C (Public Open Space) criteria would be approximately 15% of the allowable threshold. Whilst the NEPM does not provide HIL thresholds for fluoride individually, there is evidence that fluoride can occur naturally in clay soils and is bound to soils and doesn't easily dissolve.

The levels or arsenic and fluoride are considered to be of natural origin, and noting the fill is being disposed of at SBWMF, believe this material would not pose any significant risk being disposed of at the facility as clean fill.

1.0 Introduction

AKJ Services Pty Ltd (AKJ, *the client*) engaged Trakondy Asbestos and Hazardous Materials Pty Ltd (Trakondy) to undertake an *in situ* waste classification and *soil stockpile* classification of soils at Stage 2K of Mitchell Creek Green Development off Zuccoli Road, Zuccoli, Northern Territory 0832(*the site*).

Trakondy was engaged by the client to assess the environmental risks posed by contaminants of potential concern in approximately 12,400 m^3 of stockpiled soil that needs to be relocated either onsite or for offsite disposal, along with the excavation (cut and fill) of in-situ soils from various locations across the site, with the total volume of the cut material estimated to be approx. 15,000 m^3, with fill of up 15,000 m^3, possibly able to be reused onsite, and the remaining spoil to be disposed of at Shoal Bay Waste Management Facility.

Trakondy has not been engaged to assess the site holistically, nor have we been engaged to undertake any works in relation to the development of the site, our engagement has solely been in relation to undertaking a soil waste classification report for the in-situ and stockpiled materials.

1.1 Background

The site was reported as being a "greenfield" site prior to the progressive development of Mitchel Creek Green in Zuccoli in approx. 2012, when aerial imagery first identified the construction of Zuccoli Parade, although about 95% of this area was still greenfield. Whilst the area round the current Stage 2K was progressively developed since 2012, the key observations in relation to the current site is the construction of a swale drain in 2014 and the sue of the site as a stockpile area from 2021-2022, which is when most of the site was cleared of bushland and the sediment basin constructed.

It is unknown exactly which stage of the Mitchell Creek Green development the soil in the stockpile originated from, without undertaking further investigations, however it is likely that the material originated from works immediately prior to the stockpile being created.

1.2 Site

As shown in Figure 1 the site was a "greenfield" site located on the western side of Zuccoli Parade, east of Lasiandra Avenue, north of Sandpaper Court and south of Sandpaper Court.

As part of our desktop review, Trakondy reviewed aerial imagery and based on the available imagery have made the following observations:

- 2004: Natural bush, some dirt tracks to the east, south and west, Lambrick Avenue to the north. Rural blocks upslope about 600 m away. Some mango orchards upslope. Based on drainage lines, runoff doesn't look like it drains through the site, so surface water impact unlikely, groundwater though?
- 2012: First appearance of development in the area. Zuccoli Parade construction civil works, contacts the northern end of the site. Site is still 95% bushland.
- 2013: Zuccoli Parade development continued, now runs past the eastern boundary of the site.
- 2014: large swale drain constructed on the site. Suburb development taken shape to the north, development commencing to the east. 80% of block is still bushland.
- 2015: Suburb development to the immediate east, west and north of the site. Civil construction compound established inside the southern end of the site. 70% of block is now cleared.
- 2016-2020: Site largely untouched. Extensive development of suburb on all immediate sides of the block. Vegetation regrowth now covers about 70% of the site.
- 2021-2022: Current use of the site as a stockpile area commenced. Most of site cleared, about 15% of vegetation remains. Stockpiles established, internal unloading tracks established, all draining to a sediment basin which then drains via new drain to the original swale drain from 2014.

- 2023: stockpiling continues. civil construction compound still present inside southern end.

In relation to the civil construction compound located on the southern portion of the site, the available evidence indicates that over its lifespan (2015 on) has:

- stored civil plant and equipment;
- held a machinery workshop with concrete pads;
- site offices;
- laydown yards for tyres, steel, concrete structures (e.g. pipes, culverts, etc.);
- 2018-2020: was abandoned (just a laydown yard)
- 2021: Activity at site recommended with stockpiling facility.

Figure 1. Site image, Mitchell Creek Green Stage 2K - Off Zuccoli Parade, Zuccoli, N 0832

1.3 Aim

To ensure any potential environmental and human health risks posed by the spoil are quantified, qualified and effectively managed in its handling and disposal.

1.4 Scope

All spoil within the proposed project work area (approximately 12,400 m^3 of stockpiled material and, up to 15,000 m^3 of in-situ material that is to be cut, with up to approx. 15,000 m^3 of fill also required) which is required to be excavated and reused or disposed of.

1.5 Objectives

To meet the aim the following objectives were required:

- Determine suitable sampling method, including:
  - sample density;
  - CoPC for analysis; and
  - applicable comparative guidelines.
- field observations for contamination, including observing the excavation of the test-pits;
- take relevant samples to assess CoPC within the soils of each test-pit;
- compare results with guidelines;
- analyse and interpret results; and
- make management recommendations to inform the disposal options of surplus soil.

1.6 Deliverables

The following have been delivered during this investigation:

- Desktop review;
- conceptual site model;
- analysis plan;
- field survey;
- sampling program;
- analysis and interpretation of results;
- management recommendations; and
- summary report (this report).

2.0 Regulatory framework
National

2.1 National Environment Protection (Assessment of Site Contamination) Measure 1999

The National Environment Protection (Assessment of Site Contamination) Measure 1999 (ASC NEPM) (National Environment Protection Council, 2013) provides a nationally consistent framework for identification and investigation of contaminated sites and is given effect by individual legislation and guidelines in each state and territory.

The NEPM sets out the approach to assessment of a site from desktop review, through to quantitative risk assessment. Guidance schedules cover standard sampling and analysis techniques, data interpretation and quality review, and exposure settings for assessment of risk to human health or ecology. Health and ecological investigation levels are provided for some contaminants, under specific land-use scenarios. A framework is described to support derivation of risk-based levels, where default investigation levels are not provided, or the exposure settings are not relevant.

2.1.1 Soil sampling

Specific screening criteria for soil has been nominated within the NEPM. The screening criteria from the NEPM applicable to health and ecological investigation and screening levels for commercial and industrial land-uses (HIL/HSL/EIL-D) has been directly compared to the results obtained and used to evaluate whether the soil has any contaminates which may affect handling and disposal.

2.1.2 Health investigation levels

The health risk assessment methodology that forms the basis for calculation of Health Investigation Levels (HILs) is provided in Schedule B4 of the NEPM. The derivation of HILs is presented in Schedule B7 of the NEPM. HILs are scientifically based, generic assessment criteria designed to be used in the first stage (Tier 1 or 'screening') of an assessment of potential risks to human health from chronic exposure to contaminants. They are intentionally conservative and are based on a reasonable worst-case scenario for specific land-use settings. The HILs are referred to by regulators, auditors, and consultants in the process of assessing site soil contamination HILs are not intended to be clean-up levels. The decision on whether clean-up is required, and to what extent, should be based on site-specific assessment triggered by an exceedance of the HIL.

2.1.3 Ecological investigation levels and ecological screening levels

The ecological investigation levels (EILs) and ecological screening levels (ESLs) are derived from the toxicity of specific contaminants and the sensitivity of receptors, such as plants, animals, and humans. They are used to determine the appropriate response actions and to guide the development of site-specific remediation objectives. By employing EILs in the NEPM framework, a standardized and systematic approach to the assessment and management of contaminated sites is ensured, thereby protecting the environment and public health.

2.2 Australian Standard 4482.1:2005

AS 4482.1: *Guide to the investigation and sampling of sites with potentially contaminated soil; Part 1: Non-volatile and semi-volatile compounds* (Standards Australia, 2005) provides guidance for the collection of sufficient and reliable information for the assessment of a site potentially contaminated by non-volatile and semi-volatile compounds. It includes the formulation of data quality objectives and design of a sampling plan to meet the objectives of the investigation.

This Standard does not establish any regulatory limits, remediation requirements or make any recommendations about the proposed land-use. Statistical methods and tools other than those described in this Standard may be used if they can be proven to be equivalent and can be justified.

2.2.1 Definition of soil

For the purposes of this Standard, the term 'soil' is taken to also include other solid materials, such as fill, rubble and waste material, which includes concrete.

Northern Territory

2.3 Waste Management and Pollution Control Act 1998

The Northern Territory Waste Management and Pollution Control Act 1998 (Northern Territory Government, 2015) is a legislative framework that regulates waste management, pollution control, and the prevention of environmental harm in the Northern Territory. The Act aims to minimize harm to human health and the environment by controlling the generation, storage, transport, treatment, and disposal of waste, as well as regulating activities that may result in pollution or environmental harm.

The Act provides the legal basis for the development of waste management plans, the licensing and auditing of waste management and pollution control facilities, and the enforcement of regulatory measures to protect public health and the environment. It also establishes penalties for non-compliance with its provisions, including fines and imprisonment, and provides mechanisms for the recovery of costs associated with the clean-up of contaminated sites. Additionally, the Act promotes waste reduction and recycling initiatives by encouraging the development of waste reduction and recycling programs and supporting the use of environmentally sound waste management technologies.

Overall, the Northern Territory Waste Management and Pollution Control Act is an essential regulatory framework that helps to protect public health and the environment from the potential harms of waste management, pollution, and environmental harm in the Northern Territory.

2.4 Fact Sheet: How to Avoid the Dangers of Accepting Illegal Fill onto Your Land

The NT EPA (2015) provides guidance to landowners and operators to avoid the risks and potential harm associated with disposing of, or accepting illegal fill onto their land, which may contain contaminants exceeding guideline thresholds. Illegal fill may contain hazardous waste, construction and demolition waste, asbestos, or other contaminants that can pose a threat to human health and the environment. The Fact Sheet emphasizes the importance of verifying the source and nature of the fill material and checking whether the transporter has a permit to transport and dispose of the waste.

The Fact Sheet provides practical tips on how to identify and avoid illegal fill, such as conducting visual inspections of the fill material, asking for relevant documentation and certifications, and using a reputable waste management service provider. The Fact Sheet also highlights the legal consequences and penalties associated with accepting illegal fill, including fines and imprisonment. By following the Fact Sheet's guidance, landowners and operators can ensure that the fill material they dispose of or accept onto their land meets the relevant guideline thresholds and does not pose a risk to human health and the environment.

2.5 Guidelines on Conceptual Site Models

The NT EPA (2013) released guidelines on the development of conceptual site models (CSMs) for contaminated sites. The purpose of the CSM is to provide a comprehensive understanding of the potential sources, pathways, and receptors of contamination at a site, to guide the development of a site assessment and remediation plan. The NT EPA guidelines provide a step-by-step approach to developing a CSM, including

identifying the site history, potential contaminant sources, potential pathways and receptors, and developing a conceptual model that integrates this information.

The guidelines emphasize the importance of involving stakeholders in the CSM development process to ensure that local knowledge and concerns are incorporated into the site assessment and remediation plan. The guidelines also highlight the need for ongoing review and refinement of the CSM as new information becomes available or as the site conditions change. The guidelines provide a valuable resource for practitioners involved in the assessment and remediation of contaminated sites, by providing a structured approach to developing a comprehensive understanding of the contamination at a site and guiding the development of an effective remediation plan.

2.6 Shoal Bay Waste Management Facility: Waste Acceptance Criteria

The municipal waste facility for the greater Darwin region stipulates waste soil acceptance criteria for non-asbestos contaminated soils (NT EPA, 2021). Two levels are given, either “clean fill” which is the same criteria as the fact sheet in the above section, or “commercial” which accepts higher levels of CoPC in soil disposed of in a cell with a composite liner. Both solid waste and leachate thresholds are given. Waste soil that meets these thresholds can be disposed of in this facility.

In addition, this facility also has a dedicated asbestos waste cell, where asbestos containing materials, including asbestos in soils, and asbestos contaminated waste can be disposed of.

Other

2.7 Contaminated Land Guidelines: Sampling Design Part 1 - Application (NSW)

The Contaminated land guidelines: Sampling design part 1 – application (NSW EPA, 2022) provides information relating to the most suitable patterns for sampling and the number of samples to be taken to ensure the appropriate hazard categorisation is applied to soils being moved off-site for reuse, treatment or disposal. This guidance forms part of the New South Wales suite of resources to be used by consultants, site auditors, regulators, planning authorities, landholders and developers to assist with management of contaminated land. As when following any guidance, this document also clearly states that users should justify the approaches they use and demonstrate that they are appropriate and fit for purpose.

2.8 Industrial Waste Resource Guidelines 702: Soil Sampling (Victoria)

The Industrial Waste Resource Guidelines 702: Soil Sampling (IWRG702) provides information relating to the most suitable patterns for sampling and the number of samples to be taken to ensure the appropriate hazard categorisation is applied to soils being moved off-site for reuse, treatment or disposal (EPA Victoria, 2009). This guidance forms part of the Industrial Waste Resource Guidelines, which offer guidance for wastes and resources regulated under the Environment Protection (Industrial Waste Resource) Regulations 2009 in Victoria. As when following any guidance, users should justify the approaches they use and demonstrate that they are appropriate and fit for purpose.

3.0 Desktop review

3.1 Site characteristics

As part of our desktop review, Trakondy reviewed aerial imagery and based on the available imagery have made the following observations:

- 2004: Natural bush, some dirt tracks to the east, south and west, Lambrick Avenue to the north. Rural blocks upslope about 600 m away. Some mango orchards upslope. Based on drainage lines, runoff doesn't look like it drains through the site, so surface water impact unlikely, groundwater though?
- 2012: First appearance of development in the area. Zuccoli Parade construction civil works, contacts the northern end of the site. Site is still 95% bushland.
- 2013: Zuccoli Parade development continued, now runs past the eastern boundary of the site.
- 2014: large swale drain constructed on the site. Suburb development taken shape to the north, development commencing to the east. 80% of block is still bushland.
- 2015: Suburb development to the immediate east, west and north of the site. Civil construction compound established inside the southern end of the site. 70% of block is now cleared.
- 2016-2020: Site largely untouched. Extensive development of suburb on all immediate sides of the block. Vegetation regrowth now covers about 70% of the site.
- 2021-2022: Current use of the site as a stockpile area commenced. Most of site cleared, about 15% of vegetation remains. Stockpiles established, internal unloading tracks established, all draining to a sediment basin which then drains via new drain to the original swale drain from 2014.
- 2023: stockpiling continues. civil construction compound still present inside southern end.

In relation to the civil construction compound located on the southern portion of the site, the available evidence indicates that over its lifespan (2015 on) has:

- stored civil plant and equipment;
- held a machinery workshop with concrete pads;
- site offices;
- laydown yards for tyres, steel, concrete structures (e.g. pipes, culverts, etc.);
- 2018-2020: was abandoned (just a laydown yard)
- 2021: Activity at site recommended with stockpiling facility.

3.2 Previous investigations

Trakondy is not aware of any previous soil or waste classification investigations or documentation for the site.

3.3 Conceptual site model

The conceptual site model (CSM) indicates that the soils on the site may be impacted by CoPC with the most probable being natural metals, as the Darwin region is known to have elevated levels of some metals due to the underlying geology of the region. The following CSM is detailed in accordance with the NT EPA's guidelines (2013).

3.3.1 Sources

The relevant sources of potential contamination that Trakondy considered as possible included:

- civil construction compound, particularly machinery maintenance;
- stockpile materials of unknown constituents and origin;
- potential Illegal dumping;
- runoff from surrounding suburb;
- air pollution from traffic;
- any historical incidents and spills on the site;

- groundwater movement from upslope; and
- natural sources (e.g. fluoride, possibly arsenic).

3.3.2 Contaminants of potential concern

Based on the above sources the relevant CoPC are:

- hydrocarbons;
- BTEX; and
- metals.

3.3.3 Pathways

Human and ecological receptors could potentially be exposed to contamination present by:

- coming in contact with contaminated spoil;
- coming in contact with contaminated surface and groundwater;
- eating contaminated flora and fauna; and
- coming in contact with dusts from contaminated soil.

3.3.4 Receptors

Contaminated spoil could have the potential to affect the following receptors:

- downstream watercourses receiving runoff from the area;
- groundwater that feeds surface waters;
- aquatic and terrestrial ecosystems in downstream watercourses;
- public health and recreational uses of the water in the downstream groundwater and watercourses;
- the health of contractors and the public who come in contacted with contaminated spoil, water, flora and fauna; and
- waste managers, public health and the environment impacted by dusts, the improper storage, handling and disposal of spoil.

3.4 Analysis plan

To address the potential contamination and risks identified in the conceptual site model, a comprehensive sampling program was required, see Appendix B for the complete lab results.

3.4.1 Analytes

Soil samples were assessed for the following analytes:

- metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc);
- total recoverable hydrocarbons, benzene, toluene, ethylbenzene, and xylene; and
- Screening suite as detailed below returned results all below the NTEPA threshold for clean fill:
  - Organochlorine (OCP);
  - Organophosphorus (OPP);
  - Hexavalent Chromium;
  - Speciated Phenols;
  - Fluoride;
  - Total Cyanides;
  - Polychlorinated Biphenyl's (PCB's);
  - Polycyclic Aromatic Hydrocarbons (PAH's); and
  - Volatile Organic Compounds (VOC's).

3.5 Guidelines

To assess the CoPC and inform proper disposal of spoil, the following standards were found to be applicable.

- *Shoal Bay Waste Management Facility: Waste acceptance criteria* (NT EPA, 2021); *Shoal Bay Waste Management Facility: Waste acceptance criteria* (NT EPA, 2021);
- *National Environment Protection Council. (2013). National Environment Protection (Assessment of Site Contamination) Measure 1999. Canberra: National Environment Protection Council.*
- *Northern Territory Environment Protection Authority. (*2015). Fact sheet: How to avoid the dangers of accepting illegal fill onto your land. Darwin: NT EPA.

4.0 Method

4.1 Test-pits

A stratified sampling design was used, which employed a combination of systematic (grid-based) and judgemental sampling, with some adjustments based on site conditions, observations.

As shown in Figure 2 a total of 48 samples were collected from various depths and locations within the stockpiles, and 49 samples were collected from test pits in-situ. The stockpile testing and in-situ testing was conducted using a 32 tonne excavator, and whilst onsite Trakondy recorded our observations in site logs, ensures sampling was sufficient to characterise the site, which included considering height of stockpiles, depth of test pits, dispersion of sampling points and the number of sample strata required for each testing location.

4.2 Field Survey

During fieldwork, the following was surveyed and recorded:

- observable signs of contamination, e.g. staining, odours, unusual vegetation death, and/or evidence of remedial activities;
- construction and demolition waste such as concrete, asbestos containing materials, etc;
- presence of imported fills versus natural soils;
- soils were logged in accordance with the Unified Soil Classification System (USCS) (American Society for Testing and Materials, 2003); and
- any other potentially relevant field observations.

4.3 Sampling

In-situ soil samples were collected from each test pit, from 300mm BGL, then at increments of approximately 500mm, or where notable changes in soil strata were observed. Due to the differing depths of fill to be excavated for the project, this led to multiple locations having different sampling depths, with the area on the northern side of the site where the stormwater drain is to be installed being excavated to 3,000mm BGL at the deepest location.

A new pair of clean, disposable nitrile gloves were donned between each sample and between locations. Samples were collected by hand from the centre of the excavator bucket. No reusable equipment was utilised during the collection of the soil samples. However, when needed reusable equipment such as an auger, hand trowel, etc. is decontaminated between samples by removing soil, washing with a solution of Liquinox©, rinsing with potable water and then rinsing with laboratory grade demineralised and deionised water.

The samples were collected, contained and transported in accordance with Australian Standard AS 5667.1:2015 (Standards Australia, 2015). To ensure quality control, chain of custody (CoC) documentation was utilised at all times and can be found in Appendix C. The samples were sent to Envirolab who are approved by the National Association of Testing Authorities (NATA), and they are accredited for the analyses that were conducted. The samples were analysed for relevant CoPC as specified in Section 3.4.1 and compared to guidelines as specified in Section 3.5. The full analysis suite can be seen in the laboratory reports.

4.4 Quality assurance and quality control (QA/QC)

Trakondy undertook a review of the QA steps and QC results for the current works, with reference to the following documents:

- ASC NEPM (National Environment Protection Council, 2013); and
- AS 4482.1:2005 (Standards Australia, 2005).

The QA/QC measures for this investigation included:

- Ensuring sampling methods were free from adulterating risks;
- appropriate sample labelling, storage, and transport under chain of custody protocols/procedures;
- the use of laboratories that hold NATA accreditation for the analyses undertaken;
- laboratory duplicates and triplicates; and
- blind field duplicates and triplicates.

4.4.1 Internal laboratory QA/QC

The results of the internal quality assurance programs of the laboratory are presented with the NATA test certificates at the end of this report.

4.4.2 Laboratory duplicates/triplicates

Laboratory duplicates and triplicates are carried out by the testing laboratory in accordance with their NATA accredited procedures where required.

4.4.3 Field duplicates/triplicates

Field duplicates were collected at a ratio of 1:20 (5%) for hydrocarbons and metals as per the ASC NEPM (National Environment Protection Council, 2013). Blind duplicates were analysed in the same laboratory and the blind triplicates were analysed in an independent laboratory.

The relative percent difference (RPD) between replicate results, was used to check the precision between primary, duplicate and triplicate samples. Due to the high likelihood for heterogeneous analyte distribution within samples, there is no universally accepted method for comparing results. Therefore, the ASC NEPM acceptance value of 30% was used when reviewing the results of the RPD calculations.

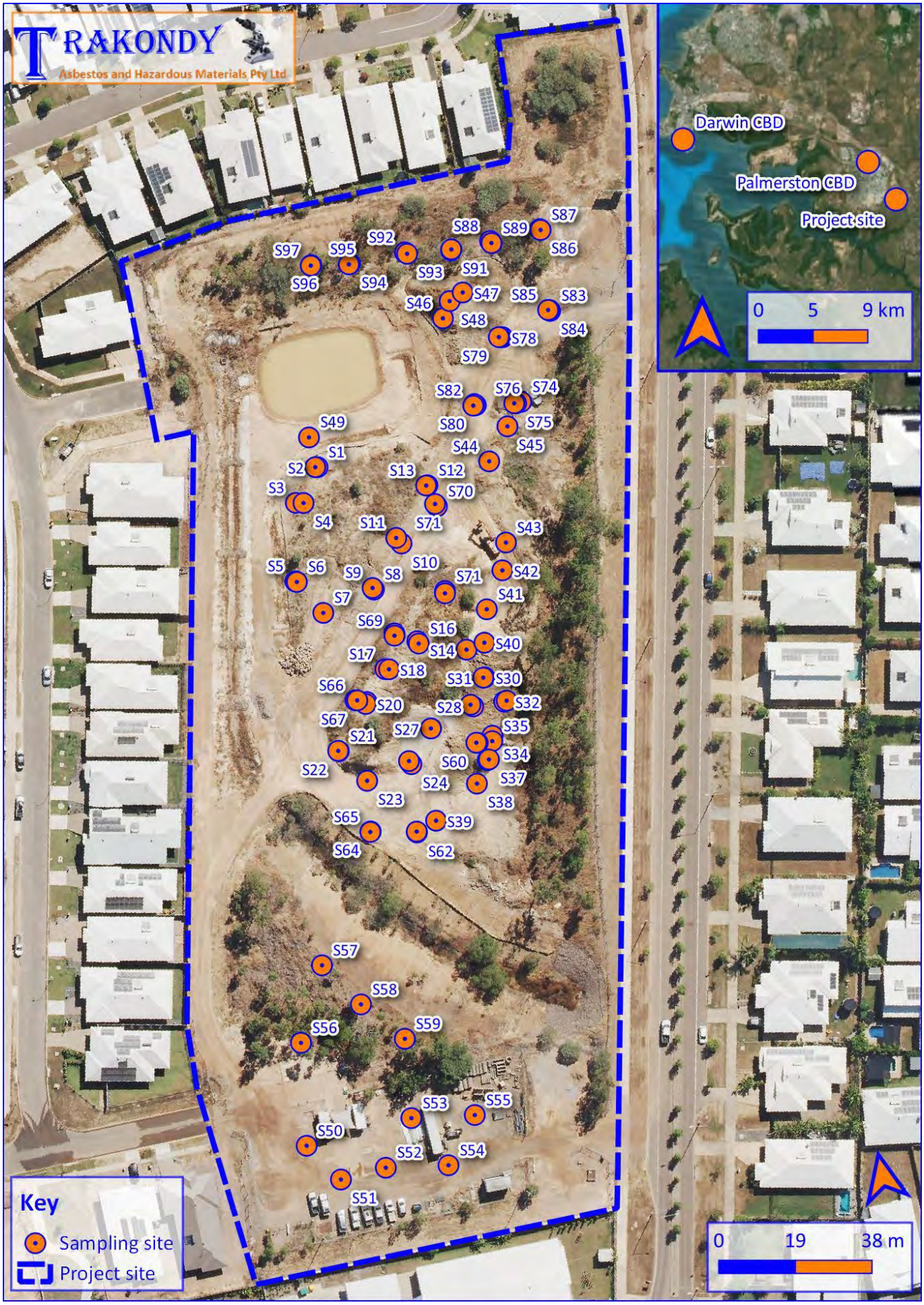
4.4.4 Blank samples

Trip blanks or rinsate samples are not applicable to soil sampling.

4.4.5 Data quality conclusions

The above QA/QC procedures are in accordance with applicable guidelines and are considered appropriate for the purposes of this assessment.

Figure 2. Site image Sample Locations -Mitchell Creek Green Stage 2K - Zuccoli Parade, Zuccoli,



5.0 Results

Trakondy attended the site from the 04 – 06 March 2024 to undertake a field survey, test-pitting and sampling. The findings of these investigations are given below.

5.1 Field survey

At the time of the survey some vegetation had returned since the time the area was cleared of natural bushland, and apart from the evidence (hardstand and gravel) of the civil construction compound and soil stockpiles, along with the open swale drain and retention pond, there was no indication of any significant prior land usage. There was no evidence at the site of asbestos containing materials, other observable indicators of contamination such as staining, odours, unusual vegetation death or evidence of remedial activities. There was some concrete rubble noted along with geofabric, both of which can easily be removed.

5.1.1 Test-pits

Trakondy observed the excavation of the test-pits and surveyed the excavated material, walls and floors of each test-pit. There was no evidence in any below ground test-pit of fill material, construction or demolition waste, asbestos containing materials, or other observable indicators of contamination such as staining, odours or evidence of remedial activities. Similarly, Trakondy observed the excavation of the test-pits excavated into the soil stockpiles and surveyed the excavated material, walls and floors in each location. There was no evidence in any soil assessed of, construction or demolition waste, asbestos containing materials, or other observable indicators of contamination such as staining, odours or evidence of remedial activities, with the exception of dedicated areas where concrete rubble, deleterious material and geotextile cloth been placed.

Soils encountered in all test-pits were undisturbed *in situ* kandosols typical and common throughout the upland areas of the Darwin region. Detailed observations for each test-pit are provided in the test-pit logs in Appendix E.

5.2 Soil samples

Sample results were received from the laboratory by email in digital format. Results were reviewed and where required, additional analysis such as additional fluoride sampling was requested from the laboratory. All reports were checked for data integrity, and field duplicates and triplicates checked for conformity. The results were then compared to the guidelines as specified in Section 3.5. The full laboratory reports are included in Appendix B.

5.2.1 Metals

All metals were below the NTEPA threshold for clean fill with the exception of arsenic. Within the in-situ test pits arsenic concentrations only exceeded the NT EPA clean fill threshold in a small number of locations and at shallow depths with the arsenic being identified in the southern section of the site to a depth of 1,000 mm BGL, and in the central and northern sections only on three occasions and only to a depth of 300mm BGL. All concentrations were less than twice the NTEPA Clean Fill threshold, and many times lower than the most conservative thresholds as detailed within the NEPM which is HIL-A (low density residential housing).

Within the soil stockpiles the arsenic concentrations exceeded the NT EPA clean fill threshold in approximately half the samples analysed. All concentrations were approximately less than twice the NTEPA Clean Fill threshold, and many times lower than the most conservative thresholds as detailed within the NEPM which is HIL-A (low density residential housing).

5.2.2 Hydrocarbons

Total recoverable hydrocarbons, benzene, toluene, ethylbenzene, and xylene were detected at trace levels in less than 5% of the samples, with the remainder of the results being less than the laboratory's limit of detection and all samples being well under the most conservative threshold being the NTEPA Clean Fill Criteria.

5.2.3 Fluoride

Fluoride was found to be just under the threshold for clean fill in approx. 50% of the samples and in the remaining 50% was found to be in the range of up to twice the threshold for the clean fill criteria and was found in both the soil stockpile and in the in-situ samples taken from the test pits. The NEPM does not provide a threshold for fluoride in soil concentrations, however the levels of fluoride are not considered excessive for the proposed disposal at SBWMF.

5.2.4 Screening Suites

Screening suite as detailed below returned results all below the NTEPA threshold for clean fill:

- Organochlorine (OCP);
- Organophosphorus (OPP);
- Hexavalent Chromium;
- Speciated Phenols;
- Total Cyanides;
- Polychlorinated Biphenyl's (PCB's);
- Polycyclic Aromatic Hydrocarbons (PAH's); and
- Volatile Organic Compounds (VOC's).

Figure 3 Site Image Arsenic Results Stockpiled Materials
Mitchell Creek Green Stage 2K - Zuccoli Parade, Zuccoli, NT 0832

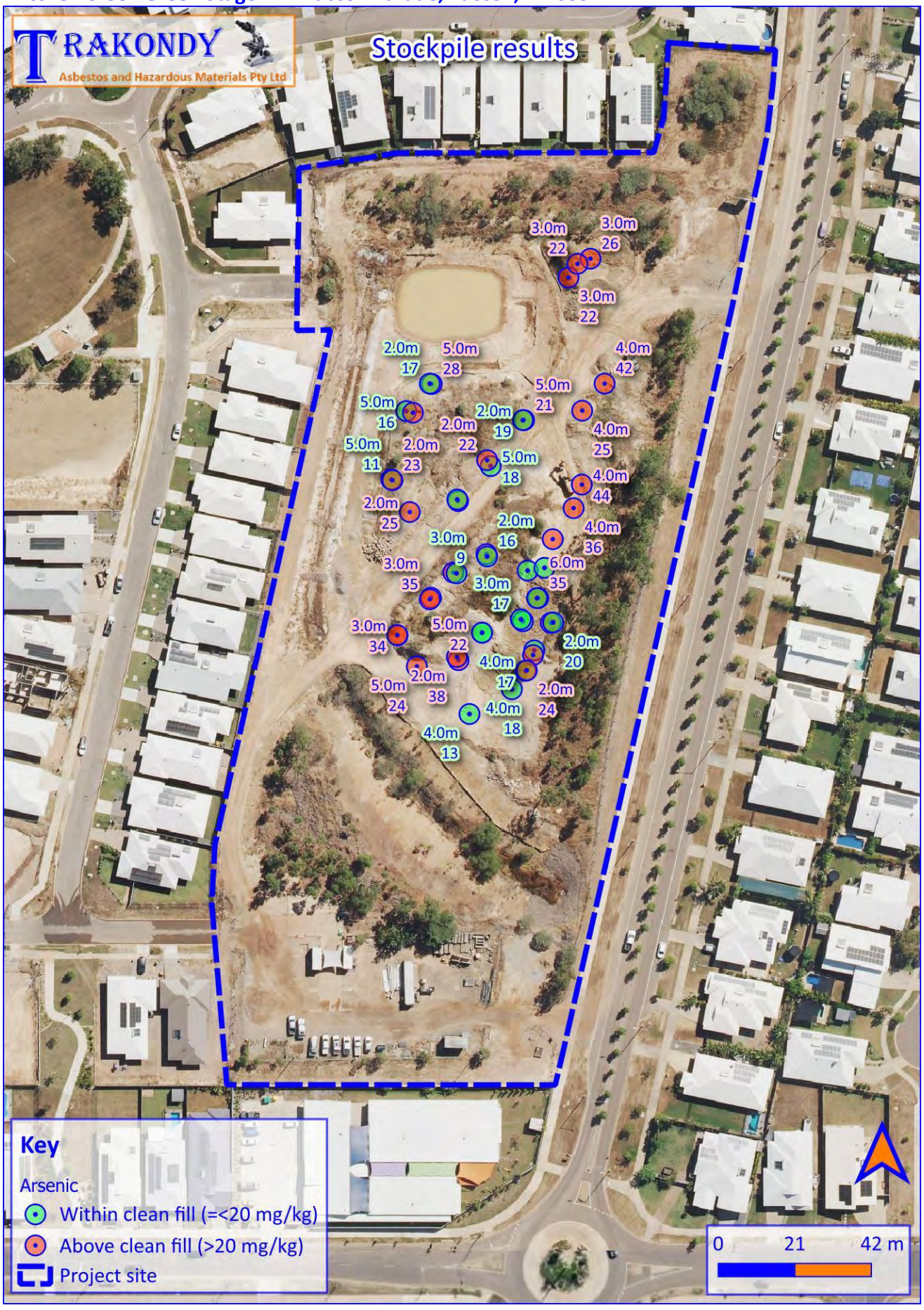


Figure 4 Site Image Fluoride Results Stockpiled Materials
Mitchell Creek Green Stage 2K - Zuccoli Parade, Zuccoli, NT 0832

Figure 5 Site Image Arsenic Results In-Situ Materials
Mitchell Creek Green Stage 2K - Zuccoli Parade, Zuccoli, NT 0832

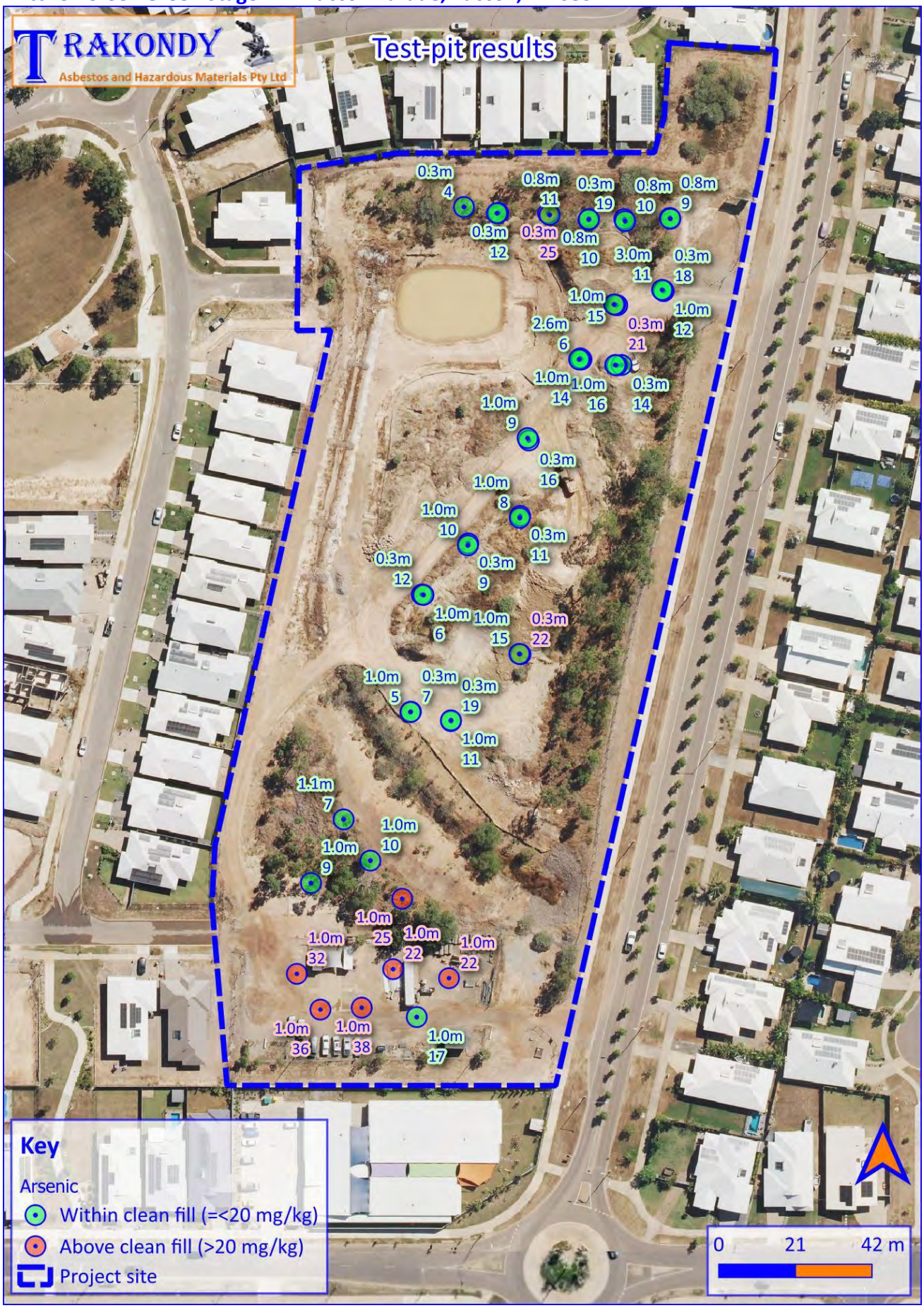


Figure 6 Site Image Fluoride Results In-Situ Materials
Mitchell Creek Green Stage 2K - Zuccoli Parade, Zuccoli, NT 0832

Conclusion

The conceptual site model, highlighted a number of potential contaminants of the soil; with the primarily containment identified as likely to be natural metals.

A field survey and sampling program were carried out to assess the site. The field survey confirmed the observations identified during the site history which was the site (MCG 2K) was found to contain various soil stockpiles, which could be described as top soil, general fill rock and small amounts of rubbish and deleterious material. With the remainder of the site appearing to have been largely cleared of natural vegetation a few years ago and the remnants of the site civil construction compound on the southern end of the site.

Apart from the planned clearance of the natural bushland, the location of the soil stockpiles, etc there was no evidence at the site of any observable indicators of other contamination such as staining, odours, dead vegetation, or evidence of fly tipping.

As part of this investigation 48 samples were collected from the soil stockpiles taken at various depths from within the stockpiles, whilst 49 samples were collected from test pits taken from the areas where cutting is required across the site ranging from less than 1,000 mm BGL on the southern end of the site, to as much as 3,000 mm BGL in is some areas on the northern section of the site. it must be noted that in addition to the cutting, there is also a significant requirement for fill across other portions of the site, which much of the stockpiled and/or cut material will be used for. Along with the quality control and quality assurance samples, a total of 107 samples were collected and submitted for NATA accredited analysis, with 95 samples being analysed for total recoverable hydrocarbons, benzene, toluene, ethylbenzene, and xylene and eight metals (arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, silver, tin and zinc), and eight screening samples were analysed for a wide variety of analytes as detailed within the Victorian EPA 1828.2 – Fill suite criteria (previously IWRG621). This screening activity identified levels of fluoride approaching or exceeding the most conservative thresholds being the NT EPA Clean Fill Criteria, as such an additional sixteen samples were analysed for Fluoride (in total 25% of the samples were analysed for fluoride).

The sampling density achieved was considered suitable for the site and the works undertaken. The samples were sent to a NATA accredited laboratory for analysis. Of the samples analysed:

- All metals were below the NTEPA threshold for clean fill with the exception of arsenic;
- Within the in-situ test pits arsenic concentrations only exceeded the NT EPA clean fill threshold in a small number of locations and at shallow depths with the arsenic being identified in the southern section of the site to a depth of 1,000 mm BGL, and in the central and northern sections only on three occasions and only to a depth of 300mm BGL. All concentrations were less than twice the NTEPA Clean Fill threshold, and many times lower than the most conservative thresholds as detailed within the NEPM which is HIL-A (low density residential housing);
- Within the soil stockpiles the arsenic concentrations exceeded the NT EPA clean fill threshold in approximately half the samples analysed. All concentrations were approximately less than twice the NTEPA Clean Fill threshold, and many times lower than the most conservative thresholds as detailed within the NEPM which is HIL-A (low density residential housing);
- Total recoverable hydrocarbons, benzene, toluene, ethylbenzene, and xylene were detected at trace levels in less than 5% of the samples, with the remainder of the results being less than the laboratory's limit of detection and all samples being well under the most conservative threshold being the NTEPA Clean Fill Criteria;
- Fluoride was found to be just under the threshold for clean fill in approx. 50% of the samples and in the remaining 50% was found to be in the range of up to twice the threshold for the clean fill criteria

and was found in both the soil stockpile and in the in-situ samples taken from the test pits. The NEPM does not provide a threshold for fluoride in soil concentrations, however the levels of fluoride are not considered excessive for the proposed disposal at SBWMF;

- Screening suite as detailed below returned results all below the NTEPA threshold for clean fill:
  - Organochlorine (OCP);
  - Organophosphorus (OPP);
  - Hexavalent Chromium;
  - Speciated Phenols;
  - Total Cyanides;
  - Polychlorinated Biphenyl's (PCB's);
  - Polycyclic Aromatic Hydrocarbons (PAH's); and
  - Volatile Organic Compounds (VOC's).

Results were assessed against the relevant guidelines, being:

- *Shoal Bay Waste Management Facility: Waste acceptance criteria* (NT EPA, 2021);
- *National Environment Protection Council. (2013). National Environment Protection (Assessment of Site Contamination) Measure 1999. Canberra: National Environment Protection Council.*
- *Northern Territory Environment Protection Authority. (*2015). Fact sheet: How to avoid the dangers of accepting illegal fill onto your land. Darwin: NT EPA.

All metals and hydrocarbon results which were extensity tested across the site were within the most stringent guidelines specified, with the exception of arsenic. The screening samples with the exception of fluoride were within the most stringent guidelines specified.
Arsenic and fluoride were identified in samples up to twice the threshold stated as being the NTEPA clean fill criteria, however the arsenic concentration was found to be many times lower than the most conservative thresholds as detailed within the NEPM which is HIL-A (low density residential housing); and indeed, if assessed against the HIL-C (Public Open Space) criteria would be approximately 15% of the allowable threshold. Whilst the NEPM does not provide HIL thresholds for fluoride individually, there is evidence that fluoride can occur naturally in clay soils and is bound to soils and doesn't easily dissolve.

The levels or arsenic and fluoride are considered to be of natural origin, and noting the fill is being disposed of at SBWMF, believe this material would not pose any significant risk being disposed of at the facility as clean fill.

6.0 Limitations

This report has been prepared in accordance with the client requirements submitted to Trakondy.

Within the limitations of the agreed upon scope of services, this work has been performed in accordance with generally accepted practices, using a degree of skill and care ordinarily exercised by members of its profession and consulting practice. No other warranty, expressed or implied, is made.

This report is solely for the use of the client, any reliance on this report by third parties shall be at such party's sole risk and may not contain sufficient information for purposes of other parties or for other uses. This report shall only be presented in full and may not be used to support any other objective than those set out in the report, except where written approval with comments are provided by Trakondy.

7.0 References

National Environment Protection Council. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999.* Canberra: National Environment Protection Council.

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Appendix A: Photographic Log

Photo 1 – Soil Stockpile

Photo 2 – Soil Stockpile

Photo 3 – Soil Stockpile

Photo 4 – Soil Stockpile

Photo 5 – Soil Stockpile

Photo 6 – Soil Stockpile

Appendix A: Photographic Log (Cont.)

Photo 7 – Test Pits Southern Section of Site – Excavation to 1.0m BGL

Photo 8 – Test Pits Southern Section of Site – Excavation to 1.0m BGL

Photo 9 – Test Pits Southern Section of Site – Excavation to 1.0m BGL

Photo 10 – Test Pits Southern Section of Site – Excavation to 1.0m BGL

Photo 11 – Test Pits Southern Section of Site – Excavation to 1.0m BGL

Photo 12 – Test Pits Southern Section of Site – Excavation to 1.0m BGL

Appendix A: Photographic Log (Cont.)

Photo 13 – Test Pits Southern Section of Site – Excavation to 1.0m BGL

Photo 14 – Test Pits Southern Section of Site – Excavation to 1.0m BGL

Photo 15 – Test Pits Southern Section of Site – Excavation to 1.0m BGL

Photo 16 – Test Pits Southern Section of Site – Excavation to 1.0m BGL

Photo 17 – Test Pits Southern Section of Site – Excavation to 1.0m BGL

Photo 18 – Test Pits Southern Section of Site – Excavation to 1.0m BGL

Appendix A: Photographic Log (Cont.)

Photo 19 – Test Pits Northern Section of Site – Excavation to >1.0m BGL

Photo 20 – Test Pits Northern Section of Site – Excavation to >1.0m BGL

Photo 21 – Test Pits Northern Section of Site – Excavation to >1.0m BGL

Photo 22 – Test Pits Northern Section of Site – Excavation to >1.0m BGL

Photo 23 – Test Pits Northern Section of Site – Excavation to >1.0m BGL

Photo 24 – Test Pits Northern Section of Site – Excavation to >1.0m BGL

Appendix B: Certificates of Analysis

Envirolab Services Pty Ltd
ABN 37 112 535 645 - 002
25 Research Drive Croydon South VIC 3136
ph 03 9763 2500 fax 03 9763 2633
melbourne@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 42406

Client Details

Client	Trakondy Asbestos and Hazardous Materials Pty Ltd
Attention	Mark Kondakov
Address	120 James Circuit, WOODRoffe, NT, 0830

Sample Details

Your Reference	**P724-Waste Classification**
Number of Samples	2 Soil
Date samples received	06/03/2024
Date completed instructions received	06/03/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	13/03/2024
Date of Issue	08/03/2024

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Results Approved By
Chris De Luca, Assistant Lab Manager
Tara White, Metals Supervisor

Authorised By
Pamela Adams, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil			
Our Reference		42406-1	42406-2
Your Reference	UNITS	QC200	QC201
Date Sampled		04/03/2024	04/03/2024
Type of sample		Soil	Soil
Date extracted	-	07/03/2024	07/03/2024
Date analysed	-	07/03/2024	07/03/2024
vTRH C_6 - C_9	mg/kg	<25	<25
vTRH C_6 - C_{10}	mg/kg	<25	<25
TRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
Naphthalene	mg/kg	<1	<1
Total BTEX	mg/kg	<1	<1
Total +ve Xylenes	mg/kg	<1	<1
Surrogate aaa-Trifluorotoluene	%	108	102

TRH Soil C10-C40 NEPM			
Our Reference		42406-1	42406-2
Your Reference	UNITS	QC200	QC201
Date Sampled		04/03/2024	04/03/2024
Type of sample		Soil	Soil
Date extracted	-	07/03/2024	07/03/2024
Date analysed	-	07/03/2024	07/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50
Surrogate o-Terphenyl	%	85	85

Acid Extractable metals in soil			
Our Reference		42406-1	42406-2
Your Reference	UNITS	QC200	QC201
Date Sampled		04/03/2024	04/03/2024
Type of sample		Soil	Soil
Date digested	-	08/03/2024	08/03/2024
Date analysed	-	08/03/2024	08/03/2024
Arsenic	mg/kg	24	12
Cadmium	mg/kg	0.4	<0.4
Chromium	mg/kg	19	22
Copper	mg/kg	38	29
Lead	mg/kg	<1	2
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	7	7
Zinc	mg/kg	15	16

Moisture			
Our Reference		42406-1	42406-2
Your Reference	UNITS	QC200	QC201
Date Sampled		04/03/2024	04/03/2024
Type of sample		Soil	Soil
Date prepared	-	7/03/2024	7/03/2024
Date analysed	-	8/03/2024	8/03/2024
Moisture	%	15	17

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105°C for a minimum of 12 hours.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			07/03/2024	[NT]	[NT]	[NT]	[NT]	07/03/2024	[NT]
Date analysed	-			07/03/2024	[NT]	[NT]	[NT]	[NT]	07/03/2024	[NT]
vTRH C_6 - C_9	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	104	[NT]
vTRH C_6 - C_{10}	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	104	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	[NT]	[NT]	[NT]	[NT]	94	[NT]
Toluene	mg/kg	0.5	Org-023	<0.5	[NT]	[NT]	[NT]	[NT]	102	[NT]
Ethylbenzene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
m+p-xylene	mg/kg	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	111	[NT]
o-Xylene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Naphthalene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	113	[NT]	[NT]	[NT]	[NT]	108	[NT]

QUALITY CONTROL: TRH Soil C10-C40 NEPM						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			07/03/2024	[NT]	[NT]	[NT]	[NT]	07/03/2024	[NT]
Date analysed	-			07/03/2024	[NT]	[NT]	[NT]	[NT]	07/03/2024	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	93	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	98	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	93	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	93	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	98	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	93	[NT]
Surrogate o-Terphenyl	%		Org-020	88	[NT]	[NT]	[NT]	[NT]	92	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date digested	-			08/03/2024	[NT]	[NT]	[NT]	[NT]	08/03/2024	[NT]
Date analysed	-			08/03/2024	[NT]	[NT]	[NT]	[NT]	08/03/2024	[NT]
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	[NT]	[NT]	99	[NT]
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	[NT]	[NT]	102	[NT]
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 345571

Client Details

Client	Trakondy Asbestos & Hazardous Materials Pty Ltd
Attention	Mark Kondakov
Address	120 James Circuit, WOODROFFE, NT, 0830

Sample Details

Your Reference	**P724-Waste Classification Zuccoli**
Number of Samples	51 Soil
Date samples received	05/03/2024
Date completed instructions received	05/03/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	12/03/2024
Date of Issue	12/03/2024

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Results Approved By
Diego Bigolin, Inorganics Supervisor
Dragana Tomas, Senior Chemist
Loren Bardwell, Development Chemist
Priya Samarawickrama, Senior Chemist
Steven Luong, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

VOCs in soil					
Our Reference		345571-8	345571-18	345571-34	345571-42
Your Reference	UNITS	S8	S18	S34	S42
Depth		5.0m	3.0m	5.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date Extracted	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024
Date Analysed	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Vinyl Chloride	mg/kg	<0.1	<0.1	<0.1	<0.1
1,1-Dichloroethene	mg/kg	<0.1	<0.1	<0.1	<0.1
methylene chloride	mg/kg	<0.2	<0.2	<0.2	<0.2
trans-1,2-dichloroethene	mg/kg	<0.1	<0.1	<0.1	<0.1
cis-1,2-dichloroethene	mg/kg	<0.1	<0.1	<0.1	<0.1
chloroform	mg/kg	<0.1	<0.1	<0.1	<0.1
1,1,1-trichloroethane	mg/kg	<0.1	<0.1	<0.1	<0.1
carbon tetrachloride	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,2-dichloroethane	mg/kg	<0.1	<0.1	<0.1	<0.1
trichloroethene	mg/kg	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,1,2-trichloroethane	mg/kg	<0.1	<0.1	<0.1	<0.1
tetrachloroethene	mg/kg	<0.1	<0.1	<0.1	<0.1
chlorobenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,1,1,2-tetrachloroethane	mg/kg	<0.1	<0.1	<0.1	<0.1
m+p-xylene	mg/kg	<0.2	<0.2	<0.2	<0.2
o-Xylene	mg/kg	<0.1	<0.1	<0.1	<0.1
styrene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,1,2,2-tetrachloroethane	mg/kg	<0.1	<0.1	<0.1	<0.1
1,4-dichlorobenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,2-dichlorobenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,2,4-trichlorobenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
hexachlorobutadiene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,2,3-trichlorobenzene	mg/kg	<0.5	<0.5	<0.5	<0.5
Total +ve MAHs	mg/kg	<7	<7	<7	<7
Total +ve Chlorinated Hydrocarbons	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve Other Chlorinated Hydrocarbons	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Bromofluorobenzene	%	94	93	93	93
Surrogate Dibromofluoromethane	%	98	96	95	95
Surrogate Toluene-d_8	%	100	100	99	100
Surrogate aaa-Trifluorotoluene	%	96	103	97	91

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345571-1	345571-2	345571-3	345571-4	345571-5
Your Reference	UNITS	S1	S2	S3	S4	S5
Depth		5.0m	2.0m	5.0m	2.0m	5.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	85	83	92	84	85

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345571-6	345571-7	345571-8	345571-9	345571-10
Your Reference	UNITS	S6	S7	S8	S9	S10
Depth		2.0m	2.0m	5.0m	2.0m	5.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	11/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	12/03/2024	08/03/2024	08/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	94	95	96	91	96

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345571-11	345571-12	345571-13	345571-14	345571-15
Your Reference	UNITS	S11	S12	S13	S14	S15
Depth		2.0m	5.0m	2.0m	3.0m	6.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	86	88	85	92	85

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345571-16	345571-17	345571-18	345571-19	345571-20
Your Reference	UNITS	S16	S17	S18	S19	S20
Depth		2.0m	6.0m	3.0m	6.0m	3.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	11/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	12/03/2024	08/03/2024	08/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	86	84	103	86	82

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345571-21	345571-22	345571-23	345571-24	345571-25
Your Reference	UNITS	S21	S22	S23	S24	S25
Depth		6.0m	3.0m	5.0m	5.0m	2.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	85	89	87	86	84

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345571-26	345571-27	345571-28	345571-29	345571-30
Your Reference	UNITS	S26	S27	S28	S29	S30
Depth		5.0m	2.0m	6.0m	3.0m	6.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	83	87	87	83	83

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345571-31	345571-32	345571-33	345571-34	345571-35
Your Reference	UNITS	S31	S32	S33	S34	S35
Depth		3.0m	4.0m	2.0m	5.0m	2.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	11/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	12/03/2024	08/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	81	84	79	97	89

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345571-36	345571-37	345571-38	345571-39	345571-40
Your Reference	UNITS	S36	S37	S38	S39	S40
Depth		4.0m	2.0m	4.0m	4.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	89	82	83	82	83

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345571-41	345571-42	345571-43	345571-44	345571-45
Your Reference	UNITS	S41	S42	S43	S44	S45
Depth		4.0m	4.0m	4.0m	4.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	11/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	12/03/2024	11/03/2024	11/03/2024	11/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	85	91	87	85	88

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345571-46	345571-47	345571-48	345571-49	345571-50
Your Reference	UNITS	S46	S47	S48	S49 - Pond	QC100
Depth		3.0m	3.0m	3.0m	-	-
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	90	89	85	87	92

vTRH(C6-C10)/MBTEXN in Soil		
Our Reference		345571-51
Your Reference	UNITS	QC101
Depth		-
Date Sampled		04/03/2024
Type of sample		Soil
Date extracted	-	06/03/2024
Date analysed	-	11/03/2024
TRH C_6 - C_9	mg/kg	<25
TRH C_6 - C_{10}	mg/kg	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25
MTBE	mg/kg	<0.5
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
Naphthalene	mg/kg	<1
Total +ve Xylenes	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	88

svTRH (C10-C40) in Soil						
Our Reference		345571-1	345571-2	345571-3	345571-4	345571-5
Your Reference	UNITS	S1	S2	S3	S4	S5
Depth		5.0m	2.0m	5.0m	2.0m	5.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	76	77	77	79	76

svTRH (C10-C40) in Soil						
Our Reference		345571-6	345571-7	345571-8	345571-9	345571-10
Your Reference	UNITS	S6	S7	S8	S9	S10
Depth		2.0m	2.0m	5.0m	2.0m	5.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	75	75	76	75	81

svTRH (C10-C40) in Soil						
Our Reference		345571-11	345571-12	345571-13	345571-14	345571-15
Your Reference	UNITS	S11	S12	S13	S14	S15
Depth		2.0m	5.0m	2.0m	3.0m	6.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	110	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	110	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	120	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	120	<50	<50
Surrogate o-Terphenyl	%	84	81	82	79	79

svTRH (C10-C40) in Soil						
Our Reference		345571-16	345571-17	345571-18	345571-19	345571-20
Your Reference	UNITS	S16	S17	S18	S19	S20
Depth		2.0m	6.0m	3.0m	6.0m	3.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	09/03/2024	09/03/2024	09/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	76	81	84	96	82

svTRH (C10-C40) in Soil						
Our Reference		345571-21	345571-22	345571-23	345571-24	345571-25
Your Reference	UNITS	S21	S22	S23	S24	S25
Depth		6.0m	3.0m	5.0m	5.0m	2.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	09/03/2024	09/03/2024	09/03/2024	09/03/2024	09/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	74	76	74	75	79

svTRH (C10-C40) in Soil						
Our Reference		345571-26	345571-27	345571-28	345571-29	345571-30
Your Reference	UNITS	S26	S27	S28	S29	S30
Depth		5.0m	2.0m	6.0m	3.0m	6.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	09/03/2024	09/03/2024	09/03/2024	09/03/2024	09/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	75	75	76	82	75

svTRH (C10-C40) in Soil						
Our Reference		345571-31	345571-32	345571-33	345571-34	345571-35
Your Reference	UNITS	S31	S32	S33	S34	S35
Depth		3.0m	4.0m	2.0m	5.0m	2.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	09/03/2024	09/03/2024	09/03/2024	09/03/2024	09/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	78	76	74	75	74

svTRH (C10-C40) in Soil						
Our Reference		345571-36	345571-37	345571-38	345571-39	345571-40
Your Reference	UNITS	S36	S37	S38	S39	S40
Depth		4.0m	2.0m	4.0m	4.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	09/03/2024	09/03/2024	09/03/2024	09/03/2024	09/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	75	75	75	75	74

svTRH (C10-C40) in Soil						
Our Reference		345571-41	345571-42	345571-43	345571-44	345571-45
Your Reference	UNITS	S41	S42	S43	S44	S45
Depth		4.0m	4.0m	4.0m	4.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	09/03/2024	09/03/2024	09/03/2024	09/03/2024	09/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	74	78	76	76	76

svTRH (C10-C40) in Soil						
Our Reference		345571-46	345571-47	345571-48	345571-49	345571-50
Your Reference	UNITS	S46	S47	S48	S49 - Pond	QC100
Depth		3.0m	3.0m	3.0m	-	-
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	09/03/2024	09/03/2024	09/03/2024	09/03/2024	09/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	110
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	110
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	120
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	120
Surrogate o-Terphenyl	%	76	76	79	78	81

svTRH (C10-C40) in Soil		
Our Reference		345571-51
Your Reference	UNITS	QC101
Depth		-
Date Sampled		04/03/2024
Type of sample		Soil
Date extracted	-	06/03/2024
Date analysed	-	09/03/2024
TRH C_{10} - C_{14}	mg/kg	<50
TRH C_{15} - C_{28}	mg/kg	<100
TRH C_{29} - C_{36}	mg/kg	<100
Total +ve TRH (C10-C36)	mg/kg	<50
TRH >C_{10} -C_{16}	mg/kg	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50
TRH >C_{16} -C_{34}	mg/kg	<100
TRH >C_{34} -C_{40}	mg/kg	<100
Total +ve TRH (>C10-C40)	mg/kg	<50
Surrogate o-Terphenyl	%	82

PAHs in Soil					
Our Reference		345571-8	345571-18	345571-34	345571-42
Your Reference	UNITS	S8	S18	S34	S42
Depth		5.0m	3.0m	5.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	6/03/2024	6/03/2024	6/03/2024	6/03/2024
Date analysed	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	105	104	106	108

Organochlorine Pesticides in soil					
Our Reference		345571-8	345571-18	345571-34	345571-42
Your Reference	UNITS	S8	S18	S34	S42
Depth		5.0m	3.0m	5.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	6/03/2024	6/03/2024	6/03/2024	6/03/2024
Date analysed	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	94	93	96	94

Organophosphorus Pesticides in Soil					
Our Reference		345571-8	345571-18	345571-34	345571-42
Your Reference	UNITS	S8	S18	S34	S42
Depth		5.0m	3.0m	5.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	6/03/2024	6/03/2024	6/03/2024	6/03/2024
Date analysed	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	94	93	96	94

PCBs in Soil					
Our Reference		345571-8	345571-18	345571-34	345571-42
Your Reference	UNITS	S8	S18	S34	S42
Depth		5.0m	3.0m	5.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	6/03/2024	6/03/2024	6/03/2024	6/03/2024
Date analysed	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	89	90	91	92

Speciated Phenols in Soil					
Our Reference		345571-8	345571-18	345571-34	345571-42
Your Reference	UNITS	S8	S18	S34	S42
Depth		5.0m	3.0m	5.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Phenol	mg/kg	<0.2	<0.2	<0.2	<0.2
2-Chlorophenol	mg/kg	<0.2	<0.2	<0.2	<0.2
2-Methylphenol (o-cresol)	mg/kg	<0.2	<0.2	<0.2	<0.2
3/4-Methylphenol (m/p-cresol)	mg/kg	<0.4	<0.4	<0.4	<0.4
2-Nitrophenol	mg/kg	<0.2	<0.2	<0.2	<0.2
2,4 -Dimethylphenol	mg/kg	<0.2	<0.2	<0.2	<0.2
2,4-Dichlorophenol	mg/kg	<0.05	<0.05	<0.05	<0.05
2,6-Dichlorophenol	mg/kg	<0.05	<0.05	<0.05	<0.05
2,4,5-Trichlorophenol	mg/kg	<0.05	<0.05	<0.05	<0.05
2,4,6-Trichlorophenol	mg/kg	<0.05	<0.05	<0.05	<0.05
2,4-Dinitrophenol	mg/kg	<4	<4	<4	<4
4-Nitrophenol	mg/kg	<4	<4	<4	<4
2346-Tetrachlorophenol	mg/kg	<0.1	<0.1	<0.1	<0.1
2-methyl-4,6-Dinitrophenol	mg/kg	<2	<2	<2	<2
Pentachlorophenol	mg/kg	<0.1	<0.1	<0.1	<0.1
4-Chloro-3-methylphenol	mg/kg	<1	<1	<1	<1
2345-Tetrachlorophenol	mg/kg	<0.1	<0.1	<0.1	<0.1
2356-Tetrachlorophenol	mg/kg	<0.1	<0.1	<0.1	<0.1
2-Cyclohexyl-4,6-Dinitrophenol	mg/kg	<20	<20	<20	<20
Dinoseb	mg/kg	<20	<20	<20	<20
Total +ve Phenols(Halogenated)	mg/kg	<1	<1	<1	<1
Total +ve Phenols Non-Halogenated	mg/kg	<60	<60	<60	<60
Surrogate Phenol-d_6	%	95	93	85	90

Acid Extractable metals in soil						
Our Reference		345571-1	345571-2	345571-3	345571-4	345571-5
Your Reference	UNITS	S1	S2	S3	S4	S5
Depth		5.0m	2.0m	5.0m	2.0m	5.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
Arsenic	mg/kg	28	17	16	28	11
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	25	42	33	20	35
Copper	mg/kg	36	25	18	24	13
Lead	mg/kg	38	16	19	19	12
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	10	7	5	6	3
Zinc	mg/kg	19	12	6	11	5

Acid Extractable metals in soil						
Our Reference		345571-6	345571-7	345571-8	345571-9	345571-10
Your Reference	UNITS	S6	S7	S8	S9	S10
Depth		2.0m	2.0m	5.0m	2.0m	5.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
Arsenic	mg/kg	23	25	23	12	18
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	38	45	32	20	29
Copper	mg/kg	26	29	20	21	28
Lead	mg/kg	25	21	28	11	20
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	[NA]	[NA]	2	[NA]	[NA]
Nickel	mg/kg	10	7	5	5	6
Selenium	mg/kg	[NA]	[NA]	<2	[NA]	[NA]
Silver	mg/kg	[NA]	[NA]	<1	[NA]	[NA]
Tin	mg/kg	[NA]	[NA]	<2	[NA]	[NA]
Zinc	mg/kg	13	12	11	9	11

Acid Extractable metals in soil						
Our Reference		345571-11	345571-12	345571-13	345571-14	345571-15
Your Reference	UNITS	S11	S12	S13	S14	S15
Depth		2.0m	5.0m	2.0m	3.0m	6.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
Arsenic	mg/kg	22	21	19	19	25
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	64	87	61	19	11
Copper	mg/kg	15	13	14	20	31
Lead	mg/kg	21	21	18	13	14
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	3	4	3	8
Zinc	mg/kg	8	5	9	8	16

Acid Extractable metals in soil						
Our Reference		345571-16	345571-17	345571-18	345571-19	345571-20
Your Reference	UNITS	S16	S17	S18	S19	S20
Depth		2.0m	6.0m	3.0m	6.0m	3.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
Arsenic	mg/kg	16	38	9	21	35
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	28	16	58	16	53
Copper	mg/kg	28	37	22	34	40
Lead	mg/kg	15	31	12	21	23
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	[NA]	[NA]	<1	[NA]	[NA]
Nickel	mg/kg	7	10	6	9	7
Selenium	mg/kg	[NA]	[NA]	<2	[NA]	[NA]
Silver	mg/kg	[NA]	[NA]	<1	[NA]	[NA]
Tin	mg/kg	[NA]	[NA]	<2	[NA]	[NA]
Zinc	mg/kg	13	19	12	21	13

Acid Extractable metals in soil						
Our Reference		345571-21	345571-22	345571-23	345571-24	345571-25
Your Reference	UNITS	S21	S22	S23	S24	S25
Depth		6.0m	3.0m	5.0m	5.0m	2.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
Arsenic	mg/kg	31	34	24	22	38
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	28	45	23	28	26
Copper	mg/kg	28	37	29	34	24
Lead	mg/kg	15	17	17	35	11
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	9	15	6	2	5
Zinc	mg/kg	14	18	11	5	9

Acid Extractable metals in soil						
Our Reference		345571-26	345571-27	345571-28	345571-29	345571-30
Your Reference	UNITS	S26	S27	S28	S29	S30
Depth		5.0m	2.0m	6.0m	3.0m	6.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
Arsenic	mg/kg	18	12	17	17	35
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	36	31	30	21	15
Copper	mg/kg	25	21	23	24	39
Lead	mg/kg	25	14	16	11	42
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	9	5	6	6	8
Zinc	mg/kg	13	10	11	14	15

Acid Extractable metals in soil						
Our Reference		345571-31	345571-32	345571-33	345571-34	345571-35
Your Reference	UNITS	S31	S32	S33	S34	S35
Depth		3.0m	4.0m	2.0m	5.0m	2.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
Arsenic	mg/kg	11	21	20	15	23
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	15	44	28	33	37
Copper	mg/kg	28	14	14	11	11
Lead	mg/kg	16	20	26	19	19
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	[NA]	[NA]	[NA]	1	[NA]
Nickel	mg/kg	6	5	5	5	6
Selenium	mg/kg	[NA]	[NA]	[NA]	<2	[NA]
Silver	mg/kg	[NA]	[NA]	[NA]	<1	[NA]
Tin	mg/kg	[NA]	[NA]	[NA]	<2	[NA]
Zinc	mg/kg	15	5	6	4	6

Acid Extractable metals in soil						
Our Reference		345571-36	345571-37	345571-38	345571-39	345571-40
Your Reference	UNITS	S36	S37	S38	S39	S40
Depth		4.0m	2.0m	4.0m	4.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
Arsenic	mg/kg	17	24	18	13	9
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	48	51	67	20	13
Copper	mg/kg	12	13	19	18	25
Lead	mg/kg	17	16	20	13	14
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	5	5	5	8
Zinc	mg/kg	4	4	5	8	17

Acid Extractable metals in soil						
Our Reference		345571-41	345571-42	345571-43	345571-44	345571-45
Your Reference	UNITS	S41	S42	S43	S44	S45
Depth		4.0m	4.0m	4.0m	4.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
Arsenic	mg/kg	23	36	44	25	42
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	57	46	71	28	38
Copper	mg/kg	24	31	43	47	45
Lead	mg/kg	26	24	33	15	43
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	[NA]	2	[NA]	[NA]	[NA]
Nickel	mg/kg	11	8	9	21	12
Selenium	mg/kg	[NA]	<3	[NA]	[NA]	[NA]
Silver	mg/kg	[NA]	<1	[NA]	[NA]	[NA]
Tin	mg/kg	[NA]	<2	[NA]	[NA]	[NA]
Zinc	mg/kg	13	12	13	23	21

Acid Extractable metals in soil						
Our Reference		345571-46	345571-47	345571-48	345571-49	345571-50
Your Reference	UNITS	S46	S47	S48	S49 - Pond	QC100
Depth		3.0m	3.0m	3.0m	-	-
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
Arsenic	mg/kg	22	26	22	<4	25
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	46	110	45	4	14
Copper	mg/kg	19	28	20	6	47
Lead	mg/kg	28	24	18	4	24
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	8	11	7	2	8
Zinc	mg/kg	11	10	11	4	20

Acid Extractable metals in soil						
Our Reference		345571-51	345571-52	345571-53	345571-54	345571-55
Your Reference	UNITS	QC101	S8 - [TRIPLICATE]	S17 - [TRIPLICATE]	S27 - [TRIPLICATE]	S36 - [TRIPLICATE]
Depth		-	5.0m	6.0m	2.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
Arsenic	mg/kg	9	21	33	39	19
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	14	94	15	21	50
Copper	mg/kg	23	16	35	21	27
Lead	mg/kg	11	19	21	15	27
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	[NA]	2	[NA]	[NA]	[NA]
Nickel	mg/kg	8	5	8	6	4
Selenium	mg/kg	[NA]	<2	[NA]	[NA]	[NA]
Silver	mg/kg	[NA]	<1	[NA]	[NA]	[NA]
Tin	mg/kg	[NA]	<2	[NA]	[NA]	[NA]
Zinc	mg/kg	16	9	17	13	3

Misc Soil - Inorg					
Our Reference		345571-8	345571-18	345571-34	345571-42
Your Reference	UNITS	S8	S18	S34	S42
Depth		5.0m	3.0m	5.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024
Hexavalent Chromium, Cr^{6+}	mg/kg	<1	<1	<1	<1

Misc Inorg - Soil					
Our Reference		345571-8	345571-18	345571-34	345571-42
Your Reference	UNITS	S8	S18	S34	S42
Depth		5.0m	3.0m	5.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024
pH 1:5 soil:water	pH Units	7.2	4.8	5.2	5.8
Total Fluoride	mg/kg	370	570	170	420

Misc Soil - Inorg					
Our Reference		345571-8	345571-18	345571-34	345571-42
Your Reference	UNITS	S8	S18	S34	S42
Depth		5.0m	3.0m	5.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Total Cyanide	mg/kg	<0.5	<0.5	<0.5	<0.5

Moisture						
Our Reference		345571-1	345571-2	345571-3	345571-4	345571-5
Your Reference	UNITS	S1	S2	S3	S4	S5
Depth		5.0m	2.0m	5.0m	2.0m	5.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Moisture	%	15	16	15	14	14

Moisture						
Our Reference		345571-6	345571-7	345571-8	345571-9	345571-10
Your Reference	UNITS	S6	S7	S8	S9	S10
Depth		2.0m	2.0m	5.0m	2.0m	5.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Moisture	%	16	13	15	14	15

Moisture						
Our Reference		345571-11	345571-12	345571-13	345571-14	345571-15
Your Reference	UNITS	S11	S12	S13	S14	S15
Depth		2.0m	5.0m	2.0m	3.0m	6.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Moisture	%	16	16	17	14	20

Moisture						
Our Reference		345571-16	345571-17	345571-18	345571-19	345571-20
Your Reference	UNITS	S16	S17	S18	S19	S20
Depth		2.0m	6.0m	3.0m	6.0m	3.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Moisture	%	16	13	19	18	15

Moisture						
Our Reference		345571-21	345571-22	345571-23	345571-24	345571-25
Your Reference	UNITS	S21	S22	S23	S24	S25
Depth		6.0m	3.0m	5.0m	5.0m	2.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Moisture	%	14	15	14	16	16

Moisture						
Our Reference		345571-26	345571-27	345571-28	345571-29	345571-30
Your Reference	UNITS	S26	S27	S28	S29	S30
Depth		5.0m	2.0m	6.0m	3.0m	6.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Moisture	%	16	16	14	14	14

Moisture						
Our Reference		345571-31	345571-32	345571-33	345571-34	345571-35
Your Reference	UNITS	S31	S32	S33	S34	S35
Depth		3.0m	4.0m	2.0m	5.0m	2.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Moisture	%	17	12	12	11	9.8

Moisture						
Our Reference		345571-36	345571-37	345571-38	345571-39	345571-40
Your Reference	UNITS	S36	S37	S38	S39	S40
Depth		4.0m	2.0m	4.0m	4.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Moisture	%	11	11	11	13	15

Moisture						
Our Reference		345571-41	345571-42	345571-43	345571-44	345571-45
Your Reference	UNITS	S41	S42	S43	S44	S45
Depth		4.0m	4.0m	4.0m	4.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Moisture	%	16	12	16	15	12

Moisture						
Our Reference		345571-46	345571-47	345571-48	345571-49	345571-50
Your Reference	UNITS	S46	S47	S48	S49 - Pond	QC100
Depth		3.0m	3.0m	3.0m	-	-
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Moisture	%	11	18	18	19	15

Moisture		
Our Reference		345571-51
Your Reference	UNITS	QC101
Depth		-
Date Sampled		04/03/2024
Type of sample		Soil
Date prepared	-	06/03/2024
Date analysed	-	07/03/2024
Moisture	%	15

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-014	Cyanide - free, total, weak acid dissociable by segmented flow analyser (in line dialysis with colourimetric finish). Solids/Filters and sorbents are extracted in a caustic media prior to analysis. Impingers are pH adjusted as required prior to analysis. Cyanides amenable to Chlorination - samples are analysed untreated and treated with hypochlorite to assess the potential for chlorination of cyanide forms. Based on APHA latest edition, 4500-CN_G,H.
Inorg-026/53	Fluoride by caustic fusion and determined by ion selective electrode (ISE) analysis.
Inorg-118	Hexavalent Chromium (Cr6+) - determined firstly by separation using ion chromatography followed by the colourimetric analytical finish. Water samples are ideally field filtered into alkali preserved containers prior to receipt for dissolved Cr6+ analysis. Unfiltered water samples into alkali preserved containers (or pH adjusted to pH 8-9 on receipt) can be classified as Total (unfiltered) Cr6+. Please note, for 'Total/Unfiltered' Trivalent Chromium in waters [calculated], these results may be exaggerated due to the digestive limitation of 'Total/Unfiltered' Hexavalent Chromium in NaOH at pH 8-9 compared to more comprehensive digestion for Total Chromium using the mineral acids HNO3 and HCl. Solid (includes soils, filters, paints, swabs for example) samples are extracted in a buffered catalysed solution prior to the analytical finish above. Water extractable options are available (e.g. as an option for filters) on request. Impingers may need pH adjusting to pH 8-9 prior to IC-colourimetric analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.

Method ID	Methodology Summary
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve Cresols or Phenols PQL is reflective of the lowest individual PQL and is therefore" Total +ve Cresols or Phenols" is simply a sum of the positive individual Cresols or Phenols.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

Method ID	Methodology Summary
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: VOCs in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	345571-18
Date Extracted	-			11/03/2024	8	08/03/2024	08/03/2024		11/03/2024	11/03/2024
Date Analysed	-			12/03/2024	8	12/03/2024	12/03/2024		12/03/2024	12/03/2024
Vinyl Chloride	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
1,1-Dichloroethene	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
methylene chloride	mg/kg	0.2	Org-023	<0.2	8	<0.2	<0.2	0	[NT]	[NT]
trans-1,2-dichloroethene	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
cis-1,2-dichloroethene	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
chloroform	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	105	105
1,1,1-trichloroethane	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	103	102
carbon tetrachloride	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Benzene	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	103	103
1,2-dichloroethane	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	109	107
trichloroethene	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	100	99
Toluene	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	107	106
1,1,2-trichloroethane	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
tetrachloroethene	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	104	102
chlorobenzene	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Ethylbenzene	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	112	111
1,1,1,2-tetrachloroethane	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
m+p-xylene	mg/kg	0.2	Org-023	<0.2	8	<0.2	<0.2	0	107	106
o-Xylene	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	110	110
styrene	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
1,1,2,2-tetrachloroethane	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
1,4-dichlorobenzene	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
1,2-dichlorobenzene	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
1,2,4-trichlorobenzene	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
hexachlorobutadiene	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
1,2,3-trichlorobenzene	mg/kg	0.5	Org-023	<0.5	8	<0.5	<0.5	0	[NT]	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	93	8	94	94	0	99	98
Surrogate Dibromofluoromethane	%		Org-023	95	8	98	98	0	99	98
Surrogate Toluene-d_8	%		Org-023	101	8	100	101	1	102	101
Surrogate aaa-Trifluorotoluene	%		Org-023	99	8	96	93	3	93	98

QUALITY CONTROL: vTRH(C6-C10)/MBTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	345571-18
Date extracted	-			06/03/2024	8	11/03/2024	11/03/2024		06/03/2024	11/03/2024
Date analysed	-			08/03/2024	8	12/03/2024	12/03/2024		08/03/2024	12/03/2024
TRH C_6 - C_9	mg/kg	25	Org-023	<25	8	<25	<25	0	107	106
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	8	<25	<25	0	107	106
MTBE	mg/kg	0.5	Org-023	<0.5	8	<0.5	<0.5	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	8	<0.2	<0.2	0	103	103
Toluene	mg/kg	0.5	Org-023	<0.5	8	<0.5	<0.5	0	107	106
Ethylbenzene	mg/kg	1	Org-023	<1	8	<1	<1	0	112	111
m+p-xylene	mg/kg	2	Org-023	<2	8	<2	<2	0	107	106
o-Xylene	mg/kg	1	Org-023	<1	8	<1	<1	0	110	110
Naphthalene	mg/kg	1	Org-023	<1	8	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	99	8	96	93	3	93	98

QUALITY CONTROL: vTRH(C6-C10)/MBTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	345571-37
Date extracted	-			[NT]	17	06/03/2024	06/03/2024		06/03/2024	06/03/2024
Date analysed	-			[NT]	17	08/03/2024	08/03/2024		08/03/2024	08/03/2024
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	17	<25	<25	0	108	96
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	17	<25	<25	0	108	96
MTBE	mg/kg	0.5	Org-023	[NT]	17	<0.5	<0.5	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	17	<0.2	<0.2	0	104	90
Toluene	mg/kg	0.5	Org-023	[NT]	17	<0.5	<0.5	0	113	95
Ethylbenzene	mg/kg	1	Org-023	[NT]	17	<1	<1	0	112	101
m+p-xylene	mg/kg	2	Org-023	[NT]	17	<2	<2	0	105	98
o-Xylene	mg/kg	1	Org-023	[NT]	17	<1	<1	0	110	101
Naphthalene	mg/kg	1	Org-023	[NT]	17	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	17	84	84	0	95	84

QUALITY CONTROL: vTRH(C6-C10)/MBTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	345571-49
Date extracted	-			[NT]	27	06/03/2024	06/03/2024		[NT]	06/03/2024
Date analysed	-			[NT]	27	08/03/2024	08/03/2024		[NT]	12/03/2024
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	27	<25	<25	0	[NT]	83
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	27	<25	<25	0	[NT]	83
MTBE	mg/kg	0.5	Org-023	[NT]	27	<0.5	<0.5	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	27	<0.2	<0.2	0	[NT]	78
Toluene	mg/kg	0.5	Org-023	[NT]	27	<0.5	<0.5	0	[NT]	83
Ethylbenzene	mg/kg	1	Org-023	[NT]	27	<1	<1	0	[NT]	85
m+p-xylene	mg/kg	2	Org-023	[NT]	27	<2	<2	0	[NT]	85
o-Xylene	mg/kg	1	Org-023	[NT]	27	<1	<1	0	[NT]	85
Naphthalene	mg/kg	1	Org-023	[NT]	27	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	27	87	83	5	[NT]	81

QUALITY CONTROL: vTRH(C6-C10)/MBTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	36	06/03/2024	06/03/2024		[NT]	[NT]
Date analysed	-			[NT]	36	08/03/2024	08/03/2024		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	36	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	36	<25	<25	0	[NT]	[NT]
MTBE	mg/kg	0.5	Org-023	[NT]	36	<0.5	<0.5	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	36	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	36	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	36	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	36	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	36	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	36	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	36	89	85	5	[NT]	[NT]

QUALITY CONTROL: vTRH(C6-C10)/MBTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	46	06/03/2024	06/03/2024		[NT]	[NT]
Date analysed	-			[NT]	46	11/03/2024	11/03/2024		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	46	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	46	<25	<25	0	[NT]	[NT]
MTBE	mg/kg	0.5	Org-023	[NT]	46	<0.5	<0.5	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	46	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	46	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	46	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	46	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	46	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	46	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	46	90	88	2	[NT]	[NT]

QUALITY CONTROL: vTRH(C6-C10)/MBTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	51	06/03/2024	06/03/2024		[NT]	[NT]
Date analysed	-			[NT]	51	11/03/2024	11/03/2024		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	51	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	51	<25	<25	0	[NT]	[NT]
MTBE	mg/kg	0.5	Org-023	[NT]	51	<0.5	<0.5	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	51	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	51	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	51	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	51	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	51	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	51	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	51	88	90	2	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	345571-18
Date extracted	-			06/03/2024	8	06/03/2024	06/03/2024		06/03/2024	06/03/2024
Date analysed	-			09/03/2024	8	08/03/2024	08/03/2024		09/03/2024	09/03/2024
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	8	<50	<50	0	130	102
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	8	<100	<100	0	113	96
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	8	<100	<100	0	129	106
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	8	<50	<50	0	130	102
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	8	<100	<100	0	113	96
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	8	<100	<100	0	129	106
Surrogate o-Terphenyl	%		Org-020	81	8	76	76	0	123	84

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	345571-37
Date extracted	-			[NT]	17	06/03/2024	06/03/2024		06/03/2024	06/03/2024
Date analysed	-			[NT]	17	08/03/2024	09/03/2024		09/03/2024	09/03/2024
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	17	<50	<50	0	120	108
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	17	<100	<100	0	112	96
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	17	<100	<100	0	86	94
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	17	<50	<50	0	120	108
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	17	<100	<100	0	112	96
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	17	<100	<100	0	86	94
Surrogate o-Terphenyl	%		Org-020	[NT]	17	81	81	0	99	75

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	345571-49
Date extracted	-			[NT]	27	06/03/2024	06/03/2024		06/03/2024	06/03/2024
Date analysed	-			[NT]	27	09/03/2024	09/03/2024		09/03/2024	12/03/2024
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	27	<50	<50	0	128	111
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	27	<100	<100	0	110	100
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	27	<100	<100	0	114	92
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	27	<50	<50	0	128	111
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	27	<100	<100	0	110	100
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	27	<100	<100	0	114	92
Surrogate o-Terphenyl	%		Org-020	[NT]	27	75	76	1	120	86

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	36	06/03/2024	06/03/2024		[NT]	[NT]
Date analysed	-			[NT]	36	09/03/2024	09/03/2024		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	36	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	36	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	36	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	36	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	36	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	36	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	36	75	75	0	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	46	06/03/2024	06/03/2024		[NT]	[NT]
Date analysed	-			[NT]	46	09/03/2024	09/03/2024		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	46	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	46	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	46	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	46	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	46	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	46	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	46	76	77	1	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	51	06/03/2024	06/03/2024		[NT]	[NT]
Date analysed	-			[NT]	51	09/03/2024	09/03/2024		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	51	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	51	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	51	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	51	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	51	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	51	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	51	82	76	8	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	345571-18
Date extracted	-			6/03/2024	8	6/03/2024	6/03/2024		6/03/2024	6/03/2024
Date analysed	-			11/03/2024	8	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	92	84
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	92	82
Fluorene	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	88	86
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	94	90
Anthracene	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	94	92
Pyrene	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	94	90
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	86	78
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	8	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	8	<0.05	<0.05	0	94	88
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	108	8	105	102	3	96	95

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	345571-18
Date extracted	-			6/03/2024	8	6/03/2024	6/03/2024		6/03/2024	6/03/2024
Date analysed	-			11/03/2024	8	11/03/2024	11/03/2024		11/03/2024	11/03/2024
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	124	112
HCB	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	128	114
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	124	112
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	132	118
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	140	130
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	132	126
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	134	130
Endrin	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	122	114
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	122	116
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	116	110
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	96	8	94	87	8	89	84

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	345571-18
Date extracted	-			6/03/2024	8	6/03/2024	6/03/2024		6/03/2024	6/03/2024
Date analysed	-			11/03/2024	8	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	114	102
Mevinphos	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	90	84
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	98	88
Malathion	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	88	84
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	90	96
Fenthion	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	94	92
Bromophos-ethyl	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	98	92
Phosalone	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	96	8	94	87	8	89	84

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	345571-18
Date extracted	-			6/03/2024	8	6/03/2024	6/03/2024		6/03/2024	6/03/2024
Date analysed	-			11/03/2024	8	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Aroclor 1016	mg/kg	0.1	Org-021/022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	<0.1	8	<0.1	<0.1	0	94	80
Aroclor 1260	mg/kg	0.1	Org-021/022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	97	8	89	91	2	96	91

QUALITY CONTROL: Speciated Phenols in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	345571-18
Date extracted	-			06/03/2024	8	06/03/2024	06/03/2024		06/03/2024	06/03/2024
Date analysed	-			12/03/2024	8	12/03/2024	12/03/2024		12/03/2024	12/03/2024
Phenol	mg/kg	0.2	Org-022/025	<0.2	8	<0.2	<0.2	0	88	78
2-Chlorophenol	mg/kg	0.2	Org-022/025	<0.2	8	<0.2	<0.2	0	106	84
2-Methylphenol (o-cresol)	mg/kg	0.2	Org-022/025	<0.2	8	<0.2	<0.2	0	94	84
3/4-Methylphenol (m/p-cresol)	mg/kg	0.4	Org-022/025	<0.4	8	<0.4	<0.4	0	[NT]	[NT]
2-Nitrophenol	mg/kg	0.2	Org-022/025	<0.2	8	<0.2	<0.2	0	[NT]	[NT]
2,4 -Dimethylphenol	mg/kg	0.2	Org-022/025	<0.2	8	<0.2	<0.2	0	[NT]	[NT]
2,4-Dichlorophenol	mg/kg	0.05	Org-022/025	<0.05	8	<0.05	<0.05	0	[NT]	[NT]
2,6-Dichlorophenol	mg/kg	0.05	Org-022/025	<0.05	8	<0.05	<0.05	0	92	76
2,4,5-Trichlorophenol	mg/kg	0.05	Org-022/025	<0.05	8	<0.05	<0.05	0	[NT]	[NT]
2,4,6-Trichlorophenol	mg/kg	0.05	Org-022/025	<0.05	8	<0.05	<0.05	0	[NT]	[NT]
2,4-Dinitrophenol	mg/kg	4	Org-022/025	<4	8	<4	<4	0	[NT]	[NT]
4-Nitrophenol	mg/kg	4	Org-022/025	<4	8	<4	<4	0	82	84
2346-Tetrachlorophenol	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
2-methyl-4,6-Dinitrophenol	mg/kg	2	Org-022/025	<2	8	<2	<2	0	[NT]	[NT]
Pentachlorophenol	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	96	82
4-Chloro-3-methylphenol	mg/kg	1	Org-022/025	<1	8	<1	<1	0	[NT]	[NT]
2345-Tetrachlorophenol	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
2356-Tetrachlorophenol	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
2-Cyclohexyl-4,6-Dinitrophenol	mg/kg	20	Org-022/025	<20	8	<20	<20	0	[NT]	[NT]
Dinoseb	mg/kg	20	Org-022/025	<20	8	<20	<20	0	[NT]	[NT]
Surrogate Phenol-d_6	%		Org-022/025	105	8	95	97	2	96	88

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	345571-2
Date prepared	-			06/03/2024	8	06/03/2024	06/03/2024		06/03/2024	06/03/2024
Date analysed	-			08/03/2024	8	08/03/2024	08/03/2024		08/03/2024	08/03/2024
Arsenic	mg/kg	4	Metals-020	<4	8	23	32	33	121	113
Cadmium	mg/kg	0.4	Metals-020	<0.4	8	<0.4	<0.4	0	117	102
Chromium	mg/kg	1	Metals-020	<1	8	32	70	75	118	89
Copper	mg/kg	1	Metals-020	<1	8	20	21	5	110	117
Lead	mg/kg	1	Metals-020	<1	8	28	22	24	120	103
Mercury	mg/kg	0.1	Metals-021	<0.1	8	<0.1	<0.1	0	100	107
Molybdenum	mg/kg	1	Metals-020	<1	8	2	2	0	117	[NT]
Nickel	mg/kg	1	Metals-020	<1	8	5	5	0	115	109
Selenium	mg/kg	2	Metals-020	<2	8	<2	<2	0	115	[NT]
Silver	mg/kg	1	Metals-020	<1	8	<1	<1	0	111	[NT]
Tin	mg/kg	2	Metals-020	<2	8	<2	<2	0	115	[NT]
Zinc	mg/kg	1	Metals-020	<1	8	11	9	20	119	108

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	345571-18
Date prepared	-			[NT]	17	06/03/2024	06/03/2024		06/03/2024	06/03/2024
Date analysed	-			[NT]	17	08/03/2024	08/03/2024		08/03/2024	08/03/2024
Arsenic	mg/kg	4	Metals-020	[NT]	17	38	30	24	127	115
Cadmium	mg/kg	0.4	Metals-020	[NT]	17	<0.4	<0.4	0	121	108
Chromium	mg/kg	1	Metals-020	[NT]	17	16	18	12	124	82
Copper	mg/kg	1	Metals-020	[NT]	17	37	30	21	114	128
Lead	mg/kg	1	Metals-020	[NT]	17	31	13	82	129	110
Mercury	mg/kg	0.1	Metals-021	[NT]	17	<0.1	<0.1	0	107	105
Nickel	mg/kg	1	Metals-020	[NT]	17	10	7	35	119	112
Zinc	mg/kg	1	Metals-020	[NT]	17	19	14	30	125	114
Molybdenum	mg/kg	1	Metals-020	[NT]	[NT]	[NT]	[NT]	[NT]	123	94
Selenium	mg/kg	2	Metals-020	[NT]	[NT]	[NT]	[NT]	[NT]	119	107
Silver	mg/kg	1	Metals-020	[NT]	[NT]	[NT]	[NT]	[NT]	115	115
Tin	mg/kg	2	Metals-020	[NT]	[NT]	[NT]	[NT]	[NT]	119	109

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	345571-37
Date prepared	-			[NT]	27	06/03/2024	06/03/2024		06/03/2024	06/03/2024
Date analysed	-			[NT]	27	08/03/2024	08/03/2024		08/03/2024	08/03/2024
Arsenic	mg/kg	4	Metals-020	[NT]	27	12	16	29	121	106
Cadmium	mg/kg	0.4	Metals-020	[NT]	27	<0.4	<0.4	0	118	94
Chromium	mg/kg	1	Metals-020	[NT]	27	31	20	43	118	114
Copper	mg/kg	1	Metals-020	[NT]	27	21	23	9	109	121
Lead	mg/kg	1	Metals-020	[NT]	27	14	15	7	121	109
Mercury	mg/kg	0.1	Metals-021	[NT]	27	<0.1	<0.1	0	103	105
Nickel	mg/kg	1	Metals-020	[NT]	27	5	7	33	115	103
Zinc	mg/kg	1	Metals-020	[NT]	27	10	16	46	119	100
Selenium	mg/kg	2	Metals-020	[NT]	[NT]	[NT]	[NT]	[NT]	109	[NT]
Silver	mg/kg	1	Metals-020	[NT]	[NT]	[NT]	[NT]	[NT]	108	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	36	06/03/2024	06/03/2024		[NT]	[NT]
Date analysed	-			[NT]	36	08/03/2024	08/03/2024		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	36	17	13	27	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	36	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	36	48	25	63	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	36	12	13	8	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	36	17	17	0	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	36	5	5	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	36	4	5	22	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	46	06/03/2024	06/03/2024		[NT]	[NT]
Date analysed	-			[NT]	46	08/03/2024	08/03/2024		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	46	22	26	17	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	46	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	46	46	61	28	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	46	19	21	10	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	46	28	24	15	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	46	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	46	8	8	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	46	11	12	9	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	51	06/03/2024	06/03/2024		[NT]	[NT]
Date analysed	-			[NT]	51	08/03/2024	08/03/2024		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	51	9	13	36	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	51	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	51	14	20	35	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	51	23	28	20	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	51	11	14	24	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	51	8	9	12	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	51	16	19	17	[NT]	[NT]

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	345571-18
Date prepared	-			08/03/2024	8	08/03/2024	08/03/2024		08/03/2024	08/03/2024
Date analysed	-			08/03/2024	8	08/03/2024	08/03/2024		08/03/2024	08/03/2024
Hexavalent Chromium, Cr^{6+}	mg/kg	1	Inorg-118	<1	8	<1	<1	0	99	102

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	345571-18
Date prepared	-			06/03/2024	8	06/03/2024	06/03/2024		06/03/2024	06/03/2024
Date analysed	-			06/03/2024	8	06/03/2024	06/03/2024		06/03/2024	06/03/2024
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	8	7.2	[NT]		100	[NT]
Total Fluoride	mg/kg	50	Inorg-026/53	<50	8	370	380	3	81	80

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	345571-18
Date prepared	-			06/03/2024	8	06/03/2024	06/03/2024		06/03/2024	06/03/2024
Date analysed	-			06/03/2024	8	06/03/2024	06/03/2024		06/03/2024	06/03/2024
Total Cyanide	mg/kg	0.5	Inorg-014	<0.5	8	<0.5	<0.5	0	95	88

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

Acid Extractable Metals in Soil:
- The laboratory RPD acceptance criteria has been exceeded for 345571-8 for Cr. Therefore a triplicate result has been issued as laboratory sample number 345571-52.
- The laboratory RPD acceptance criteria has been exceeded for 345571-17 for Pb. Therefore a triplicate result has been issued as laboratory sample number 345571-53.
- The laboratory RPD acceptance criteria has been exceeded for 345571-27 for Cr and Zn. Therefore a triplicate result has been issued as laboratory sample number 345571-54.
- The laboratory RPD acceptance criteria has been exceeded for 345571-36 for Cr. Therefore a triplicate result has been issued as laboratory sample number 345571-55.
- The PQL has been raised for Se due to interferences from analytes (other than those being tested) in sample 345571-42.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 345571-A

Client Details

Client	Trakondy Asbestos & Hazardous Materials Pty Ltd
Attention	Mark Kondakov
Address	120 James Circuit, WOODROFFE, NT, 0830

Sample Details

Your Reference	**P724-Waste Classification Zuccoli**
Number of Samples	Additional analysis
Date samples received	05/03/2024
Date completed instructions received	26/03/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	28/03/2024
Date of Issue	28/03/2024

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Results Approved By
Priya Samarawickrama, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

Misc Inorg - Soil						
Our Reference		345571-A-1	345571-A-9	345571-A-15	345571-A-25	345571-A-37
Your Reference	UNITS	S1	S9	S15	S25	S37
Depth		5.0m	2.0m	6.0m	2.0m	2.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	27/03/2024	27/03/2024	27/03/2024	27/03/2024	27/03/2024
Date analysed	-	28/03/2024	28/03/2024	28/03/2024	28/03/2024	28/03/2024
Total Fluoride	mg/kg	750	690	600	690	250

Misc Inorg - Soil		
Our Reference		345571-A-45
Your Reference	UNITS	S45
Depth		4.0m
Date Sampled		04/03/2024
Type of sample		Soil
Date prepared	-	27/03/2024
Date analysed	-	28/03/2024
Total Fluoride	mg/kg	550

Method ID	Methodology Summary
Inorg-026/53	Fluoride by caustic fusion and determined by ion selective electrode (ISE) analysis.

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	345571-A-9
Date prepared	-			27/03/2024	1	27/03/2024	27/03/2024		27/03/2024	27/03/2024
Date analysed	-			28/03/2024	1	28/03/2024	28/03/2024		28/03/2024	28/03/2024
Total Fluoride	mg/kg	50	Inorg-026/53	<50	1	750	600	22	89	85

Result Definitions

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NA	Test not required
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PQL	Practical Quantitation Limit
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>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
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Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 345945

Client Details

Client	Trakondy Asbestos & Hazardous Materials Pty Ltd
Attention	Mark Kondakov
Address	120 James Circuit, WOODROFFE, NT, 0830

Sample Details

Your Reference	**P724-Part 2-Waste Classification Zuccoli**
Number of Samples	50 Soil
Date samples received	08/03/2024
Date completed instructions received	08/03/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	15/03/2024
Date of Issue	15/03/2024

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Results Approved By
Diego Bigolin, Inorganics Supervisor
Dragana Tomas, Senior Chemist
Hannah Nguyen, Metals Supervisor
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

VOCs in soil					
Our Reference		345945-1	345945-7	345945-13	345945-34
Your Reference	UNITS	S50	S56	S62	S83
Depth		1.0m	1.0m	0.3m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date Extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date Analysed	-	13/03/2024	13/03/2024	13/03/2024	13/03/2024
Vinyl Chloride	mg/kg	<0.1	<0.1	<0.1	<0.1
1,1-Dichloroethene	mg/kg	<0.1	<0.1	<0.1	<0.1
methylene chloride	mg/kg	<0.2	<0.2	<0.2	<0.2
trans-1,2-dichloroethene	mg/kg	<0.1	<0.1	<0.1	<0.1
cis-1,2-dichloroethene	mg/kg	<0.1	<0.1	<0.1	<0.1
chloroform	mg/kg	<0.1	<0.1	<0.1	<0.1
1,1,1-trichloroethane	mg/kg	<0.1	<0.1	<0.1	<0.1
carbon tetrachloride	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,2-dichloroethane	mg/kg	<0.1	<0.1	<0.1	<0.1
trichloroethene	mg/kg	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,1,2-trichloroethane	mg/kg	<0.1	<0.1	<0.1	<0.1
tetrachloroethene	mg/kg	<0.1	<0.1	<0.1	<0.1
chlorobenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,1,1,2-tetrachloroethane	mg/kg	<0.1	<0.1	<0.1	<0.1
m+p-xylene	mg/kg	<0.2	<0.2	<0.2	<0.2
o-Xylene	mg/kg	<0.1	<0.1	<0.1	<0.1
styrene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,1,2,2-tetrachloroethane	mg/kg	<0.1	<0.1	<0.1	<0.1
1,4-dichlorobenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,2-dichlorobenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,2,4-trichlorobenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
hexachlorobutadiene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,2,3-trichlorobenzene	mg/kg	<0.5	<0.5	<0.5	<0.5
Total +ve MAHs	mg/kg	<7	<7	<7	<7
Total +ve Chlorinated Hydrocarbons	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve Other Chlorinated Hydrocarbons	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Bromofluorobenzene	%	95	94	95	94
Surrogate Dibromofluoromethane	%	97	97	98	98
Surrogate Toluene-d_8	%	101	100	101	99
Surrogate aaa-Trifluorotoluene	%	93	92	90	85

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345945-1	345945-2	345945-3	345945-4	345945-5
Your Reference	UNITS	S50	S51	S52	S53	S54
Depth		1.0m	1.0m	1.0m	1.0m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	13/03/2024	15/03/2024	15/03/2024	15/03/2024	15/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	93	107	98	101	79

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345945-6	345945-7	345945-8	345945-9	345945-10
Your Reference	UNITS	S55	S56	S57	S58	S59
Depth		1.0m	1.0m	1.1m	1.0m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	15/03/2024	13/03/2024	15/03/2024	15/03/2024	15/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	103	92	90	111	94

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345945-11	345945-12	345945-13	345945-14	345945-15
Your Reference	UNITS	S60	S61	S62	S63	S64
Depth		0.3m	1.0m	0.3m	1.0m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	15/03/2024	15/03/2024	13/03/2024	15/03/2024	15/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	101	97	90	101	107

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345945-16	345945-17	345945-18	345945-19	345945-20
Your Reference	UNITS	S65	S66	S67	S68	S69
Depth		1.0m	0.3m	1.0m	0.3m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	15/03/2024	15/03/2024	15/03/2024	15/03/2024	15/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	115	101	97	100	111

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345945-21	345945-22	345945-23	345945-24	345945-25
Your Reference	UNITS	S70	S71	S72	S73	S74
Depth		0.3m	1.0m	0.3m	1.0m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	15/03/2024	15/03/2024	15/03/2024	15/03/2024	15/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	108	109	109	110	101

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345945-26	345945-27	345945-28	345945-29	345945-30
Your Reference	UNITS	S75	S76	S77	S78	S79
Depth		1.0m	3.0m	0.3m	1.0m	2.5m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	15/03/2024	15/03/2024	15/03/2024	15/03/2024	15/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	103	101	102	102	81

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345945-31	345945-32	345945-33	345945-34	345945-35
Your Reference	UNITS	S80	S81	S82	S83	S84
Depth		0.3m	1.0m	2.6m	0.3m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	15/03/2024	15/03/2024	15/03/2024	13/03/2024	15/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	81	85	70	85	83

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345945-36	345945-37	345945-38	345945-39	345945-40
Your Reference	UNITS	S85	S86	S87	S88	S89
Depth		3.0m	0.3m	0.8m	0.3m	0.8m
Date Sampled		5/03/2024	6/03/2024	6/03/2024	6/03/2024	6/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	15/03/2024	15/03/2024	15/03/2024	15/03/2024	15/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	85	80	81	104	107

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345945-41	345945-42	345945-43	345945-44	345945-45
Your Reference	UNITS	S90	S91	S92	S93	S94
Depth		0.3m	0.8m	0.3m	0.8m	0.3m
Date Sampled		6/03/2024	6/03/2024	6/03/2024	6/03/2024	6/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	15/03/2024	15/03/2024	15/03/2024	15/03/2024	15/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	86	86	84	84	84

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345945-46	345945-47	345945-48	345945-49	345945-50
Your Reference	UNITS	S95	S96	S97	QC102	QC103
Depth		0.8m	0.3m	0.8m	-	-
Date Sampled		6/03/2024	6/03/2024	6/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	15/03/2024	15/03/2024	15/03/2024	15/03/2024	15/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	90	88	91	88	85

svTRH (C10-C40) in Soil						
Our Reference		345945-1	345945-2	345945-3	345945-4	345945-5
Your Reference	UNITS	S50	S51	S52	S53	S54
Depth		1.0m	1.0m	1.0m	1.0m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	13/03/2024	13/03/2024	13/03/2024	13/03/2024	13/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	92	73	74	74	73

svTRH (C10-C40) in Soil						
Our Reference		345945-6	345945-7	345945-8	345945-9	345945-10
Your Reference	UNITS	S55	S56	S57	S58	S59
Depth		1.0m	1.0m	1.1m	1.0m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	13/03/2024	13/03/2024	13/03/2024	13/03/2024	13/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	73	91	84	77	86

svTRH (C10-C40) in Soil						
Our Reference		345945-11	345945-12	345945-13	345945-14	345945-15
Your Reference	UNITS	S60	S61	S62	S63	S64
Depth		0.3m	1.0m	0.3m	1.0m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	13/03/2024	13/03/2024	13/03/2024	13/03/2024	14/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	77	83	92	76	77

svTRH (C10-C40) in Soil						
Our Reference		345945-16	345945-17	345945-18	345945-19	345945-20
Your Reference	UNITS	S65	S66	S67	S68	S69
Depth		1.0m	0.3m	1.0m	0.3m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024	14/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	76	77	77	77	76

svTRH (C10-C40) in Soil						
Our Reference		345945-21	345945-22	345945-23	345945-24	345945-25
Your Reference	UNITS	S70	S71	S72	S73	S74
Depth		0.3m	1.0m	0.3m	1.0m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024	14/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	77	78	79	75	77

svTRH (C10-C40) in Soil						
Our Reference		345945-26	345945-27	345945-28	345945-29	345945-30
Your Reference	UNITS	S75	S76	S77	S78	S79
Depth		1.0m	3.0m	0.3m	1.0m	2.5m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024	14/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	78	85	76	77	78

svTRH (C10-C40) in Soil						
Our Reference		345945-31	345945-32	345945-33	345945-34	345945-35
Your Reference	UNITS	S80	S81	S82	S83	S84
Depth		0.3m	1.0m	2.6m	0.3m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024	14/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	83	77	75	104	76

svTRH (C10-C40) in Soil						
Our Reference		345945-36	345945-37	345945-38	345945-39	345945-40
Your Reference	UNITS	S85	S86	S87	S88	S89
Depth		3.0m	0.3m	0.8m	0.3m	0.8m
Date Sampled		5/03/2024	6/03/2024	6/03/2024	6/03/2024	6/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024	14/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	76	76	77	77	76

svTRH (C10-C40) in Soil						
Our Reference		345945-41	345945-42	345945-43	345945-44	345945-45
Your Reference	UNITS	S90	S91	S92	S93	S94
Depth		0.3m	0.8m	0.3m	0.8m	0.3m
Date Sampled		6/03/2024	6/03/2024	6/03/2024	6/03/2024	6/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	14/03/2024	14/03/2024	13/03/2024	13/03/2024	13/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	77	77	78	81	78

svTRH (C10-C40) in Soil						
Our Reference		345945-46	345945-47	345945-48	345945-49	345945-50
Your Reference	UNITS	S95	S96	S97	QC102	QC103
Depth		0.8m	0.3m	0.8m	-	-
Date Sampled		6/03/2024	6/03/2024	6/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	13/03/2024	13/03/2024	13/03/2024	13/03/2024	13/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	81	81	80	99	97

PAHs in Soil					
Our Reference		345945-1	345945-7	345945-13	345945-34
Your Reference	UNITS	S50	S56	S62	S83
Depth		1.0m	1.0m	0.3m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	94	100	102	100

Organochlorine Pesticides in soil					
Our Reference		345945-1	345945-7	345945-13	345945-34
Your Reference	UNITS	S50	S56	S62	S83
Depth		1.0m	1.0m	0.3m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	93	95	98	95

Organophosphorus Pesticides in Soil					
Our Reference		345945-1	345945-7	345945-13	345945-34
Your Reference	UNITS	S50	S56	S62	S83
Depth		1.0m	1.0m	0.3m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	93	95	98	95

PCBs in Soil					
Our Reference		345945-1	345945-7	345945-13	345945-34
Your Reference	UNITS	S50	S56	S62	S83
Depth		1.0m	1.0m	0.3m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	103	106	103	103

Speciated Phenols in Soil					
Our Reference		345945-1	345945-7	345945-13	345945-34
Your Reference	UNITS	S50	S56	S62	S83
Depth		1.0m	1.0m	0.3m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024
Phenol	mg/kg	<0.2	<0.2	<0.2	<0.2
2-Chlorophenol	mg/kg	<0.2	<0.2	<0.2	<0.2
2-Methylphenol (o-cresol)	mg/kg	<0.2	<0.2	<0.2	<0.2
3/4-Methylphenol (m/p-cresol)	mg/kg	<0.4	<0.4	<0.4	<0.4
2-Nitrophenol	mg/kg	<0.2	<0.2	<0.2	<0.2
2,4 -Dimethylphenol	mg/kg	<0.2	<0.2	<0.2	<0.2
2,4-Dichlorophenol	mg/kg	<0.05	<0.05	<0.05	<0.05
2,6-Dichlorophenol	mg/kg	<0.05	<0.05	<0.05	<0.05
2,4,5-Trichlorophenol	mg/kg	<0.05	<0.05	<0.05	<0.05
2,4,6-Trichlorophenol	mg/kg	<0.05	<0.05	<0.05	<0.05
2,4-Dinitrophenol	mg/kg	<4	<4	<4	<4
4-Nitrophenol	mg/kg	<4	<4	<4	<4
2346-Tetrachlorophenol	mg/kg	<0.1	<0.1	<0.1	<0.1
2-methyl-4,6-Dinitrophenol	mg/kg	<2	<2	<2	<2
Pentachlorophenol	mg/kg	<0.1	<0.1	<0.1	<0.1
4-Chloro-3-methylphenol	mg/kg	<1	<1	<1	<1
2345-Tetrachlorophenol	mg/kg	<0.1	<0.1	<0.1	<0.1
2356-Tetrachlorophenol	mg/kg	<0.1	<0.1	<0.1	<0.1
2-Cyclohexyl-4,6-Dinitrophenol	mg/kg	<20	<20	<20	<20
Dinoseb	mg/kg	<20	<20	<20	<20
Total +ve Phenols(Halogenated)	mg/kg	<1	<1	<1	<1
Total +ve Phenols Non-Halogenated	mg/kg	<60	<60	<60	<60
Surrogate Phenol-d_6	%	90	97	90	87

Acid Extractable metals in soil						
Our Reference		345945-1	345945-2	345945-3	345945-4	345945-5
Your Reference	UNITS	S50	S51	S52	S53	S54
Depth		1.0m	1.0m	1.0m	1.0m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024	14/03/2024
Arsenic	mg/kg	32	36	38	22	17
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	79	85	110	96	32
Copper	mg/kg	25	20	15	10	17
Lead	mg/kg	110	80	40	29	18
Mercury	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	2	2	2	2	2
Nickel	mg/kg	6	6	6	4	4
Selenium	mg/kg	<2	<4	<4	<2	<2
Silver	mg/kg	<1	<1	<1	<1	<1
Tin	mg/kg	<2	<2	<2	<2	<2
Zinc	mg/kg	4	9	6	2	5

Acid Extractable metals in soil						
Our Reference		345945-6	345945-7	345945-8	345945-9	345945-10
Your Reference	UNITS	S55	S56	S57	S58	S59
Depth		1.0m	1.0m	1.1m	1.0m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024	14/03/2024
Arsenic	mg/kg	22	9	7	10	25
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	40	24	12	44	78
Copper	mg/kg	33	18	23	32	11
Lead	mg/kg	190	13	23	20	22
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	2	1	<1	<1	2
Nickel	mg/kg	5	2	2	2	2
Selenium	mg/kg	<4	<2	<2	<2	<2
Silver	mg/kg	<1	<1	<1	<1	<1
Tin	mg/kg	<2	<2	<2	<2	<2
Zinc	mg/kg	16	3	4	8	<1

Acid Extractable metals in soil						
Our Reference		345945-11	345945-12	345945-13	345945-14	345945-15
Your Reference	UNITS	S60	S61	S62	S63	S64
Depth		0.3m	1.0m	0.3m	1.0m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024	14/03/2024
Arsenic	mg/kg	22	15	19	11	7
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	52	75	27	30	14
Copper	mg/kg	22	15	26	19	11
Lead	mg/kg	25	33	20	22	14
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	2	2	2	1	<1
Nickel	mg/kg	6	1	6	1	<1
Selenium	mg/kg	<2	<2	<2	<2	<2
Silver	mg/kg	<1	<1	<1	<1	<1
Tin	mg/kg	<2	<2	<2	<2	<2
Zinc	mg/kg	7	<1	11	<1	<1

Acid Extractable metals in soil						
Our Reference		345945-16	345945-17	345945-18	345945-19	345945-20
Your Reference	UNITS	S65	S66	S67	S68	S69
Depth		1.0m	0.3m	1.0m	0.3m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024	14/03/2024
Arsenic	mg/kg	5	12	6	9	10
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	9	30	9	27	16
Copper	mg/kg	8	15	9	30	19
Lead	mg/kg	11	14	10	14	13
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	<1	1	<1	<1	<1
Nickel	mg/kg	<1	1	<1	5	2
Selenium	mg/kg	<2	<4	<2	<2	<2
Silver	mg/kg	<1	<1	<1	<1	<1
Tin	mg/kg	<2	<2	<2	<2	<2
Zinc	mg/kg	<1	1	<1	10	4

Acid Extractable metals in soil						
Our Reference		345945-21	345945-22	345945-23	345945-24	345945-25
Your Reference	UNITS	S70	S71	S72	S73	S74
Depth		0.3m	1.0m	0.3m	1.0m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024	14/03/2024
Arsenic	mg/kg	16	9	11	8	14
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	74	14	23	13	91
Copper	mg/kg	20	18	33	35	7
Lead	mg/kg	20	8	22	19	16
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	2	<1	1	<1	2
Nickel	mg/kg	2	2	1	<1	3
Selenium	mg/kg	<2	<2	<2	<2	<4
Silver	mg/kg	<1	<1	<1	<1	<1
Tin	mg/kg	<2	<2	<2	<2	<2
Zinc	mg/kg	<1	4	1	<1	2

Acid Extractable metals in soil						
Our Reference		345945-26	345945-27	345945-28	345945-29	345945-30
Your Reference	UNITS	S75	S76	S77	S78	S79
Depth		1.0m	3.0m	0.3m	1.0m	2.5m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024	14/03/2024
Arsenic	mg/kg	16	10	21	15	12
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	70	29	110	43	43
Copper	mg/kg	29	12	11	16	14
Lead	mg/kg	27	22	23	25	16
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	2	1	2	1	1
Nickel	mg/kg	1	<1	2	<1	3
Selenium	mg/kg	<2	<2	<2	<2	<2
Silver	mg/kg	<1	<1	<1	<1	<1
Tin	mg/kg	<2	<2	<2	<2	<2
Zinc	mg/kg	1	<1	<1	<1	6

Acid Extractable metals in soil						
Our Reference		345945-31	345945-32	345945-33	345945-34	345945-35
Your Reference	UNITS	S80	S81	S82	S83	S84
Depth		0.3m	1.0m	2.6m	0.3m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024	14/03/2024
Arsenic	mg/kg	15	14	6	18	12
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	34	31	15	92	64
Copper	mg/kg	17	16	8	11	10
Lead	mg/kg	16	16	9	18	19
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	1	1	<1	2	1
Nickel	mg/kg	<1	<1	<1	<1	<1
Selenium	mg/kg	<2	<2	<2	<2	<2
Silver	mg/kg	<1	<1	<1	<1	<1
Tin	mg/kg	2	<2	<2	<2	<2
Zinc	mg/kg	<1	<1	<1	<1	<1

Acid Extractable metals in soil						
Our Reference		345945-36	345945-37	345945-38	345945-39	345945-40
Your Reference	UNITS	S85	S86	S87	S88	S89
Depth		3.0m	0.3m	0.8m	0.3m	0.8m
Date Sampled		5/03/2024	6/03/2024	6/03/2024	6/03/2024	6/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024	14/03/2024
Arsenic	mg/kg	11	17	9	19	10
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	33	81	17	49	35
Copper	mg/kg	9	15	6	19	7
Lead	mg/kg	12	18	11	20	16
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	1	2	<1	2	<1
Nickel	mg/kg	<1	1	<1	2	<1
Selenium	mg/kg	<2	<2	<2	<4	<4
Silver	mg/kg	<1	<1	<1	<1	<1
Tin	mg/kg	<2	<2	<2	2	<2
Zinc	mg/kg	1	<1	<1	2	<1

Acid Extractable metals in soil						
Our Reference		345945-41	345945-42	345945-43	345945-44	345945-45
Your Reference	UNITS	S90	S91	S92	S93	S94
Depth		0.3m	0.8m	0.3m	0.8m	0.3m
Date Sampled		6/03/2024	6/03/2024	6/03/2024	6/03/2024	6/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024	14/03/2024
Arsenic	mg/kg	19	10	25	11	12
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	68	24	130	24	32
Copper	mg/kg	15	7	14	6	14
Lead	mg/kg	21	11	26	11	14
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	2	1	1	<1	<1
Nickel	mg/kg	1	<1	<1	<1	<1
Selenium	mg/kg	<4	<2	<4	<2	<4
Silver	mg/kg	<1	<1	<1	<1	<1
Tin	mg/kg	<2	<2	<2	<2	<2
Zinc	mg/kg	<1	<1	<1	<1	<1

Acid Extractable metals in soil						
Our Reference		345945-46	345945-47	345945-48	345945-49	345945-50
Your Reference	UNITS	S95	S96	S97	QC102	QC103
Depth		0.8m	0.3m	0.8m	-	-
Date Sampled		6/03/2024	6/03/2024	6/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024	14/03/2024
Arsenic	mg/kg	6	4	<4	21	17
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	10	10	5	59	77
Copper	mg/kg	5	14	6	18	17
Lead	mg/kg	8	7	4	20	19
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	<1	<1	<1	2	2
Nickel	mg/kg	<1	5	1	5	1
Selenium	mg/kg	<2	<2	<2	<2	<4
Silver	mg/kg	<1	<1	<1	<1	<1
Tin	mg/kg	<2	<2	<2	<2	<2
Zinc	mg/kg	<1	9	2	7	<1

Acid Extractable metals in soil				
Our Reference		345945-51	345945-52	345945-54
Your Reference	UNITS	S56 - [TRIPLICATE]	S62 - [TRIPLICATE]	S97 - [TRIPLICATE]
Depth		1.0m	0.3m	0.8m
Date Sampled		5/03/2024	5/03/2024	6/03/2024
Type of sample		Soil	Soil	Soil
Date prepared	-	12/03/2024	12/03/2024	12/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024
Arsenic	mg/kg	9	26	4
Cadmium	mg/kg	<0.4	<0.4	<0.4
Chromium	mg/kg	29	23	13
Copper	mg/kg	19	28	11
Lead	mg/kg	15	16	9
Mercury	mg/kg	<0.1	<0.1	<0.1
Molybdenum	mg/kg	1	1	<1
Nickel	mg/kg	2	6	2
Selenium	mg/kg	<2	<2	<2
Silver	mg/kg	<1	<1	<1
Tin	mg/kg	<2	<2	<2
Zinc	mg/kg	3	15	5

Misc Soil - Inorg					
Our Reference		345945-1	345945-7	345945-13	345945-34
Your Reference	UNITS	S50	S56	S62	S83
Depth		1.0m	1.0m	0.3m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Date analysed	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Hexavalent Chromium, Cr^{6+}	mg/kg	<1	<1	<1	<1

Misc Inorg - Soil					
Our Reference		345945-1	345945-7	345945-13	345945-34
Your Reference	UNITS	S50	S56	S62	S83
Depth		1.0m	1.0m	0.3m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	15/03/2024	15/03/2024	15/03/2024	15/03/2024
Date analysed	-	15/03/2024	15/03/2024	15/03/2024	15/03/2024
pH 1:5 soil:water	pH Units	5.0	5.0	5.5	4.9
Total Fluoride	mg/kg	300	350	730	420

Misc Soil - Inorg					
Our Reference		345945-1	345945-7	345945-13	345945-34
Your Reference	UNITS	S50	S56	S62	S83
Depth		1.0m	1.0m	0.3m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Total Cyanide	mg/kg	<0.5	<0.5	<0.5	<0.5

Moisture						
Our Reference		345945-1	345945-2	345945-3	345945-4	345945-5
Your Reference	UNITS	S50	S51	S52	S53	S54
Depth		1.0m	1.0m	1.0m	1.0m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Moisture	%	14	15	17	16	16

Moisture						
Our Reference		345945-6	345945-7	345945-8	345945-9	345945-10
Your Reference	UNITS	S55	S56	S57	S58	S59
Depth		1.0m	1.0m	1.1m	1.0m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Moisture	%	15	9.9	11	13	17

Moisture						
Our Reference		345945-11	345945-12	345945-13	345945-14	345945-15
Your Reference	UNITS	S60	S61	S62	S63	S64
Depth		0.3m	1.0m	0.3m	1.0m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Moisture	%	9.8	13	12	14	14

Moisture						
Our Reference		345945-16	345945-17	345945-18	345945-19	345945-20
Your Reference	UNITS	S65	S66	S67	S68	S69
Depth		1.0m	0.3m	1.0m	0.3m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Moisture	%	13	15	19	13	12

Moisture						
Our Reference		345945-21	345945-22	345945-23	345945-24	345945-25
Your Reference	UNITS	S70	S71	S72	S73	S74
Depth		0.3m	1.0m	0.3m	1.0m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Moisture	%	13	17	11	12	12

Moisture						
Our Reference		345945-26	345945-27	345945-28	345945-29	345945-30
Your Reference	UNITS	S75	S76	S77	S78	S79
Depth		1.0m	3.0m	0.3m	1.0m	2.5m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Moisture	%	18	20	13	22	16

Moisture						
Our Reference		345945-31	345945-32	345945-33	345945-34	345945-35
Your Reference	UNITS	S80	S81	S82	S83	S84
Depth		0.3m	1.0m	2.6m	0.3m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Moisture	%	17	18	11	14	13

Moisture						
Our Reference		345945-36	345945-37	345945-38	345945-39	345945-40
Your Reference	UNITS	S85	S86	S87	S88	S89
Depth		3.0m	0.3m	0.8m	0.3m	0.8m
Date Sampled		5/03/2024	6/03/2024	6/03/2024	6/03/2024	6/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Moisture	%	15	19	23	22	16

Moisture						
Our Reference		345945-41	345945-42	345945-43	345945-44	345945-45
Your Reference	UNITS	S90	S91	S92	S93	S94
Depth		0.3m	0.8m	0.3m	0.8m	0.3m
Date Sampled		6/03/2024	6/03/2024	6/03/2024	6/03/2024	6/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Moisture	%	19	13	15	19	15

Moisture						
Our Reference		345945-46	345945-47	345945-48	345945-49	345945-50
Your Reference	UNITS	S95	S96	S97	QC102	QC103
Depth		0.8m	0.3m	0.8m	-	-
Date Sampled		6/03/2024	6/03/2024	6/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Moisture	%	16	14	11	10	16

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-014	Cyanide - free, total, weak acid dissociable by segmented flow analyser (in line dialysis with colourimetric finish). Solids/Filters and sorbents are extracted in a caustic media prior to analysis. Impingers are pH adjusted as required prior to analysis. Cyanides amenable to Chlorination - samples are analysed untreated and treated with hypochlorite to assess the potential for chlorination of cyanide forms. Based on APHA latest edition, 4500-CN_G,H.
Inorg-026/53	Fluoride by caustic fusion and determined by ion selective electrode (ISE) analysis.
Inorg-118	Hexavalent Chromium (Cr6+) - determined firstly by separation using ion chromatography followed by the colourimetric analytical finish. Water samples are ideally field filtered into alkali preserved containers prior to receipt for dissolved Cr6+ analysis. Unfiltered water samples into alkali preserved containers (or pH adjusted to pH 8-9 on receipt) can be classified as Total (unfiltered) Cr6+. Please note, for 'Total/Unfiltered' Trivalent Chromium in waters [calculated], these results may be exaggerated due to the digestive limitation of 'Total/Unfiltered' Hexavalent Chromium in NaOH at pH 8-9 compared to more comprehensive digestion for Total Chromium using the mineral acids HNO3 and HCl. Solid (includes soils, filters, paints, swabs for example) samples are extracted in a buffered catalysed solution prior to the analytical finish above. Water extractable options are available (e.g. as an option for filters) on request. Impingers may need pH adjusting to pH 8-9 prior to IC-colourimetric analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.

Method ID	Methodology Summary
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve Cresols or Phenols PQL is reflective of the lowest individual PQL and is therefore" Total +ve Cresols or Phenols" is simply a sum of the positive individual Cresols or Phenols.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

Method ID	Methodology Summary
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: VOCs in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	345945-1
Date Extracted	-			11/03/2024	7	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Date Analysed	-			13/03/2024	7	13/03/2024	13/03/2024		13/03/2024	15/03/2024
Vinyl Chloride	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
1,1-Dichloroethene	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
methylene chloride	mg/kg	0.2	Org-023	<0.2	7	<0.2	<0.2	0	[NT]	[NT]
trans-1,2-dichloroethene	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
cis-1,2-dichloroethene	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
chloroform	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	108	91
1,1,1-trichloroethane	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	82	89
carbon tetrachloride	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Benzene	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	87	88
1,2-dichloroethane	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	97	90
trichloroethene	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	77	88
Toluene	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	95	92
1,1,2-trichloroethane	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
tetrachloroethene	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	97	92
chlorobenzene	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Ethylbenzene	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	92	96
1,1,1,2-tetrachloroethane	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
m+p-xylene	mg/kg	0.2	Org-023	<0.2	7	<0.2	<0.2	0	93	104
o-Xylene	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	93	109
styrene	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
1,1,2,2-tetrachloroethane	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
1,4-dichlorobenzene	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
1,2-dichlorobenzene	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
1,2,4-trichlorobenzene	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
hexachlorobutadiene	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
1,2,3-trichlorobenzene	mg/kg	0.5	Org-023	<0.5	7	<0.5	<0.5	0	[NT]	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	92	7	94	95	1	98	98
Surrogate Dibromofluoromethane	%		Org-023	101	7	97	98	1	97	97
Surrogate Toluene-d_8	%		Org-023	102	7	100	98	2	97	101
Surrogate aaa-Trifluorotoluene	%		Org-023	89	7	92	81	13	92	87

QUALITY CONTROL: VOCs in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	345945-34
Date Extracted	-			[NT]	13	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Date Analysed	-			[NT]	13	13/03/2024	13/03/2024		13/03/2024	15/03/2024
Vinyl Chloride	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
1,1-Dichloroethene	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
methylene chloride	mg/kg	0.2	Org-023	[NT]	13	<0.2	<0.2	0	[NT]	[NT]
trans-1,2-dichloroethene	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
cis-1,2-dichloroethene	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
chloroform	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	110	98
1,1,1-trichloroethane	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	97	95
carbon tetrachloride	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Benzene	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	95	95
1,2-dichloroethane	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	104	96
trichloroethene	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	91	92
Toluene	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	98	99
1,1,2-trichloroethane	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
tetrachloroethene	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	90	94
chlorobenzene	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Ethylbenzene	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	99	108
1,1,1,2-tetrachloroethane	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
m+p-xylene	mg/kg	0.2	Org-023	[NT]	13	<0.2	<0.2	0	97	110
o-Xylene	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	100	111
styrene	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
1,1,2,2-tetrachloroethane	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
1,4-dichlorobenzene	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
1,2-dichlorobenzene	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
1,2,4-trichlorobenzene	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
hexachlorobutadiene	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
1,2,3-trichlorobenzene	mg/kg	0.5	Org-023	[NT]	13	<0.5	<0.5	0	[NT]	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	[NT]	13	95	95	0	96	98
Surrogate Dibromofluoromethane	%		Org-023	[NT]	13	98	97	1	101	97
Surrogate Toluene-d_8	%		Org-023	[NT]	13	101	100	1	101	100
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	13	90	99	10	87	89

QUALITY CONTROL: vTRH(C6-C10)/MBTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	345945-1
Date extracted	-			11/03/2024	7	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Date analysed	-			13/03/2024	7	13/03/2024	13/03/2024		13/03/2024	15/03/2024
TRH C_6 - C_9	mg/kg	25	Org-023	<25	7	<25	<25	0	79	97
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	7	<25	<25	0	79	97
MTBE	mg/kg	0.5	Org-023	<0.5	7	<0.5	<0.5	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	7	<0.2	<0.2	0	75	88
Toluene	mg/kg	0.5	Org-023	<0.5	7	<0.5	<0.5	0	85	92
Ethylbenzene	mg/kg	1	Org-023	<1	7	<1	<1	0	78	96
m+p-xylene	mg/kg	2	Org-023	<2	7	<2	<2	0	79	104
o-Xylene	mg/kg	1	Org-023	<1	7	<1	<1	0	79	109
Naphthalene	mg/kg	1	Org-023	<1	7	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	89	7	92	81	13	86	87

QUALITY CONTROL: vTRH(C6-C10)/MBTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	345945-25
Date extracted	-			[NT]	13	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Date analysed	-			[NT]	13	13/03/2024	13/03/2024		13/03/2024	15/03/2024
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	13	<25	<25	0	92	93
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	13	<25	<25	0	92	93
MTBE	mg/kg	0.5	Org-023	[NT]	13	<0.5	<0.5	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	13	<0.2	<0.2	0	87	88
Toluene	mg/kg	0.5	Org-023	[NT]	13	<0.5	<0.5	0	95	97
Ethylbenzene	mg/kg	1	Org-023	[NT]	13	<1	<1	0	92	92
m+p-xylene	mg/kg	2	Org-023	[NT]	13	<2	<2	0	93	94
o-Xylene	mg/kg	1	Org-023	[NT]	13	<1	<1	0	93	94
Naphthalene	mg/kg	1	Org-023	[NT]	13	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	13	90	99	10	92	92

QUALITY CONTROL: vTRH(C6-C10)/MBTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	345945-34
Date extracted	-			[NT]	24	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Date analysed	-			[NT]	24	15/03/2024	15/03/2024		13/03/2024	15/03/2024
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	24	<25	<25	0	97	104
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	24	<25	<25	0	97	104
MTBE	mg/kg	0.5	Org-023	[NT]	24	<0.5	<0.5	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	24	<0.2	<0.2	0	95	95
Toluene	mg/kg	0.5	Org-023	[NT]	24	<0.5	<0.5	0	98	99
Ethylbenzene	mg/kg	1	Org-023	[NT]	24	<1	<1	0	99	108
m+p-xylene	mg/kg	2	Org-023	[NT]	24	<2	<2	0	97	110
o-Xylene	mg/kg	1	Org-023	[NT]	24	<1	<1	0	100	111
Naphthalene	mg/kg	1	Org-023	[NT]	24	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	24	110	104	6	87	89

QUALITY CONTROL: vTRH(C6-C10)/MBTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	39	11/03/2024	11/03/2024		[NT]	[NT]
Date analysed	-			[NT]	39	15/03/2024	15/03/2024		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	39	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	39	<25	<25	0	[NT]	[NT]
MTBE	mg/kg	0.5	Org-023	[NT]	39	<0.5	<0.5	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	39	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	39	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	39	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	39	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	39	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	39	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	39	104	103	1	[NT]	[NT]

QUALITY CONTROL: vTRH(C6-C10)/MBTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	48	11/03/2024	11/03/2024		[NT]	[NT]
Date analysed	-			[NT]	48	15/03/2024	15/03/2024		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	48	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	48	<25	<25	0	[NT]	[NT]
MTBE	mg/kg	0.5	Org-023	[NT]	48	<0.5	<0.5	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	48	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	48	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	48	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	48	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	48	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	48	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	48	91	87	4	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	345945-1
Date extracted	-			11/03/2024	7	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Date analysed	-			14/03/2024	7	13/03/2024	13/03/2024		13/03/2024	13/03/2024
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	7	<50	<50	0	127	113
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	7	<100	<100	0	123	121
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	7	<100	<100	0	129	109
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	7	<50	<50	0	127	113
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	7	<100	<100	0	123	121
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	7	<100	<100	0	129	109
Surrogate o-Terphenyl	%		Org-020	94	7	91	93	2	103	101

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	345945-25
Date extracted	-			[NT]	13	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Date analysed	-			[NT]	13	13/03/2024	13/03/2024		14/03/2024	14/03/2024
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	13	<50	<50	0	117	109
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	13	<100	<100	0	111	118
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	13	<100	<100	0	100	100
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	13	<50	<50	0	117	109
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	13	<100	<100	0	111	118
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	13	<100	<100	0	100	100
Surrogate o-Terphenyl	%		Org-020	[NT]	13	92	101	9	95	88

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	345945-34
Date extracted	-			[NT]	24	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Date analysed	-			[NT]	24	14/03/2024	14/03/2024		13/03/2024	14/03/2024
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	24	<50	<50	0	114	117
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	24	<100	<100	0	110	124
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	24	<100	<100	0	129	130
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	24	<50	<50	0	114	117
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	24	<100	<100	0	110	124
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	24	<100	<100	0	129	130
Surrogate o-Terphenyl	%		Org-020	[NT]	24	75	76	1	103	105

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	39	11/03/2024	11/03/2024		[NT]	[NT]
Date analysed	-			[NT]	39	14/03/2024	14/03/2024		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	39	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	39	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	39	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	39	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	39	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	39	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	39	77	77	0	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	48	11/03/2024	11/03/2024		[NT]	[NT]
Date analysed	-			[NT]	48	13/03/2024	13/03/2024		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	48	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	48	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	48	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	48	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	48	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	48	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	48	80	82	2	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	345945-1
Date extracted	-			11/03/2024	7	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Date analysed	-			14/03/2024	7	14/03/2024	14/03/2024		14/03/2024	14/03/2024
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	90	80
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	100	86
Fluorene	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	96	84
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	96	82
Anthracene	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	100	88
Pyrene	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	94	84
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	84	76
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	7	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	7	<0.05	<0.05	0	92	82
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	103	7	100	100	0	100	95

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	13	11/03/2024	11/03/2024		[NT]	[NT]
Date analysed	-			[NT]	13	14/03/2024	14/03/2024		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	13	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	13	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	13	102	97	5	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	345945-1
Date extracted	-			11/03/2024	7	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Date analysed	-			14/03/2024	7	14/03/2024	14/03/2024		14/03/2024	14/03/2024
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	116	106
HCB	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	126	112
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	104	98
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	124	110
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	128	112
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	126	114
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	126	118
Endrin	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	134	104
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	126	114
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	76	74
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	96	7	95	96	1	101	94

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	13	11/03/2024	11/03/2024		[NT]	[NT]
Date analysed	-			[NT]	13	14/03/2024	14/03/2024		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	13	98	93	5	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	345945-1
Date extracted	-			11/03/2024	7	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Date analysed	-			14/03/2024	7	14/03/2024	14/03/2024		14/03/2024	14/03/2024
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	106	92
Mevinphos	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	86	78
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	74	64
Malathion	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	72	68
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	90	80
Fenthion	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	84	68
Bromophos-ethyl	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	86	78
Phosalone	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	96	7	95	96	1	101	94

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	13	11/03/2024	11/03/2024		[NT]	[NT]
Date analysed	-			[NT]	13	14/03/2024	14/03/2024		[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Mevinphos	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Fenthion	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Phosalone	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	13	98	93	5	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	345945-1
Date extracted	-			11/03/2024	7	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Date analysed	-			14/03/2024	7	14/03/2024	14/03/2024		14/03/2024	14/03/2024
Aroclor 1016	mg/kg	0.1	Org-021/022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	<0.1	7	<0.1	<0.1	0	115	80
Aroclor 1260	mg/kg	0.1	Org-021/022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	94	7	106	105	1	97	100

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	13	11/03/2024	11/03/2024		[NT]	[NT]
Date analysed	-			[NT]	13	14/03/2024	14/03/2024		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021/022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021/022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	[NT]	13	103	106	3	[NT]	[NT]

QUALITY CONTROL: Speciated Phenols in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	345945-34
Date extracted	-			11/03/2024	7	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Date analysed	-			14/03/2024	7	14/03/2024	14/03/2024		14/03/2024	14/03/2024
Phenol	mg/kg	0.2	Org-022/025	<0.2	7	<0.2	<0.2	0	86	76
2-Chlorophenol	mg/kg	0.2	Org-022/025	<0.2	7	<0.2	<0.2	0	99	82
2-Methylphenol (o-cresol)	mg/kg	0.2	Org-022/025	<0.2	7	<0.2	<0.2	0	89	76
3/4-Methylphenol (m/p-cresol)	mg/kg	0.4	Org-022/025	<0.4	7	<0.4	<0.4	0	[NT]	[NT]
2-Nitrophenol	mg/kg	0.2	Org-022/025	<0.2	7	<0.2	<0.2	0	[NT]	[NT]
2,4 -Dimethylphenol	mg/kg	0.2	Org-022/025	<0.2	7	<0.2	<0.2	0	[NT]	[NT]
2,4-Dichlorophenol	mg/kg	0.05	Org-022/025	<0.05	7	<0.05	<0.05	0	[NT]	[NT]
2,6-Dichlorophenol	mg/kg	0.05	Org-022/025	<0.05	7	<0.05	<0.05	0	88	76
2,4,5-Trichlorophenol	mg/kg	0.05	Org-022/025	<0.05	7	<0.05	<0.05	0	[NT]	[NT]
2,4,6-Trichlorophenol	mg/kg	0.05	Org-022/025	<0.05	7	<0.05	<0.05	0	[NT]	[NT]
2,4-Dinitrophenol	mg/kg	4	Org-022/025	<4	7	<4	<4	0	[NT]	[NT]
4-Nitrophenol	mg/kg	4	Org-022/025	<4	7	<4	<4	0	84	70
2346-Tetrachlorophenol	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
2-methyl-4,6-Dinitrophenol	mg/kg	2	Org-022/025	<2	7	<2	<2	0	[NT]	[NT]
Pentachlorophenol	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	87	74
4-Chloro-3-methylphenol	mg/kg	1	Org-022/025	<1	7	<1	<1	0	[NT]	[NT]
2345-Tetrachlorophenol	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
2356-Tetrachlorophenol	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
2-Cyclohexyl-4,6-Dinitrophenol	mg/kg	20	Org-022/025	<20	7	<20	<20	0	[NT]	[NT]
Dinoseb	mg/kg	20	Org-022/025	<20	7	<20	<20	0	[NT]	[NT]
Surrogate Phenol-d_6	%		Org-022/025	95	7	97	87	11	100	85

QUALITY CONTROL: Speciated Phenols in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	13	11/03/2024	11/03/2024		[NT]	[NT]
Date analysed	-			[NT]	13	14/03/2024	14/03/2024		[NT]	[NT]
Phenol	mg/kg	0.2	Org-022/025	[NT]	13	<0.2	<0.2	0	[NT]	[NT]
2-Chlorophenol	mg/kg	0.2	Org-022/025	[NT]	13	<0.2	<0.2	0	[NT]	[NT]
2-Methylphenol (o-cresol)	mg/kg	0.2	Org-022/025	[NT]	13	<0.2	<0.2	0	[NT]	[NT]
3/4-Methylphenol (m/p-cresol)	mg/kg	0.4	Org-022/025	[NT]	13	<0.4	<0.4	0	[NT]	[NT]
2-Nitrophenol	mg/kg	0.2	Org-022/025	[NT]	13	<0.2	<0.2	0	[NT]	[NT]
2,4 -Dimethylphenol	mg/kg	0.2	Org-022/025	[NT]	13	<0.2	<0.2	0	[NT]	[NT]
2,4-Dichlorophenol	mg/kg	0.05	Org-022/025	[NT]	13	<0.05	<0.05	0	[NT]	[NT]
2,6-Dichlorophenol	mg/kg	0.05	Org-022/025	[NT]	13	<0.05	<0.05	0	[NT]	[NT]
2,4,5-Trichlorophenol	mg/kg	0.05	Org-022/025	[NT]	13	<0.05	<0.05	0	[NT]	[NT]
2,4,6-Trichlorophenol	mg/kg	0.05	Org-022/025	[NT]	13	<0.05	<0.05	0	[NT]	[NT]
2,4-Dinitrophenol	mg/kg	4	Org-022/025	[NT]	13	<4	<4	0	[NT]	[NT]
4-Nitrophenol	mg/kg	4	Org-022/025	[NT]	13	<4	<4	0	[NT]	[NT]
2346-Tetrachlorophenol	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
2-methyl-4,6-Dinitrophenol	mg/kg	2	Org-022/025	[NT]	13	<2	<2	0	[NT]	[NT]
Pentachlorophenol	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
4-Chloro-3-methylphenol	mg/kg	1	Org-022/025	[NT]	13	<1	<1	0	[NT]	[NT]
2345-Tetrachlorophenol	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
2356-Tetrachlorophenol	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
2-Cyclohexyl-4,6-Dinitrophenol	mg/kg	20	Org-022/025	[NT]	13	<20	<20	0	[NT]	[NT]
Dinoseb	mg/kg	20	Org-022/025	[NT]	13	<20	<20	0	[NT]	[NT]
Surrogate Phenol-d_6	%		Org-022/025	[NT]	13	90	88	2	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	345945-1
Date prepared	-			12/03/2024	7	12/03/2024	12/03/2024		12/03/2024	12/03/2024
Date analysed	-			14/03/2024	7	14/03/2024	14/03/2024		14/03/2024	14/03/2024
Arsenic	mg/kg	4	Metals-020	<4	7	9	10	11	105	90
Cadmium	mg/kg	0.4	Metals-020	<0.4	7	<0.4	<0.4	0	105	89
Chromium	mg/kg	1	Metals-020	<1	7	24	41	52	103	116
Copper	mg/kg	1	Metals-020	<1	7	18	17	6	97	101
Lead	mg/kg	1	Metals-020	<1	7	13	14	7	105	#
Mercury	mg/kg	0.1	Metals-021	<0.1	7	<0.1	<0.1	0	102	113
Molybdenum	mg/kg	1	Metals-020	<1	7	1	2	67	104	#
Nickel	mg/kg	1	Metals-020	<1	7	2	2	0	101	96
Selenium	mg/kg	2	Metals-020	<2	7	<2	<2	0	101	70
Silver	mg/kg	1	Metals-020	<1	7	<1	<1	0	100	95
Tin	mg/kg	2	Metals-020	<2	7	<2	<2	0	103	86
Zinc	mg/kg	1	Metals-020	<1	7	3	2	40	106	88

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	345945-25
Date prepared	-			[NT]	13	12/03/2024	12/03/2024		12/03/2024	12/03/2024
Date analysed	-			[NT]	13	14/03/2024	14/03/2024		14/03/2024	14/03/2024
Arsenic	mg/kg	4	Metals-020	[NT]	13	19	21	10	106	88
Cadmium	mg/kg	0.4	Metals-020	[NT]	13	<0.4	<0.4	0	106	87
Chromium	mg/kg	1	Metals-020	[NT]	13	27	24	12	104	119
Copper	mg/kg	1	Metals-020	[NT]	13	26	25	4	97	101
Lead	mg/kg	1	Metals-020	[NT]	13	20	31	43	106	93
Mercury	mg/kg	0.1	Metals-021	[NT]	13	<0.1	<0.1	0	101	123
Molybdenum	mg/kg	1	Metals-020	[NT]	13	2	1	67	105	#
Nickel	mg/kg	1	Metals-020	[NT]	13	6	7	15	102	90
Selenium	mg/kg	2	Metals-020	[NT]	13	<2	<2	0	101	##
Silver	mg/kg	1	Metals-020	[NT]	13	<1	<1	0	93	114
Tin	mg/kg	2	Metals-020	[NT]	13	<2	<2	0	104	85
Zinc	mg/kg	1	Metals-020	[NT]	13	11	12	9	106	86

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	345945-34
Date prepared	-			[NT]	24	12/03/2024	12/03/2024		12/03/2024	12/03/2024
Date analysed	-			[NT]	24	14/03/2024	14/03/2024		14/03/2024	14/03/2024
Arsenic	mg/kg	4	Metals-020	[NT]	24	8	7	13	112	89
Cadmium	mg/kg	0.4	Metals-020	[NT]	24	<0.4	<0.4	0	113	90
Chromium	mg/kg	1	Metals-020	[NT]	24	13	19	38	111	126
Copper	mg/kg	1	Metals-020	[NT]	24	35	46	27	103	110
Lead	mg/kg	1	Metals-020	[NT]	24	19	16	17	115	93
Mercury	mg/kg	0.1	Metals-021	[NT]	24	<0.1	<0.1	0	97	102
Molybdenum	mg/kg	1	Metals-020	[NT]	24	<1	<1	0	112	#
Nickel	mg/kg	1	Metals-020	[NT]	24	<1	<1	0	109	91
Selenium	mg/kg	2	Metals-020	[NT]	24	<2	<2	0	107	70
Silver	mg/kg	1	Metals-020	[NT]	24	<1	<1	0	106	111
Tin	mg/kg	2	Metals-020	[NT]	24	<2	<2	0	111	88
Zinc	mg/kg	1	Metals-020	[NT]	24	<1	2	67	114	89

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	39	12/03/2024	12/03/2024		[NT]	[NT]
Date analysed	-			[NT]	39	14/03/2024	14/03/2024		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	39	19	20	5	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	39	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	39	49	51	4	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	39	19	16	17	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	39	20	19	5	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Molybdenum	mg/kg	1	Metals-020	[NT]	39	2	2	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	39	2	2	0	[NT]	[NT]
Selenium	mg/kg	2	Metals-020	[NT]	39	<4	<4	0	[NT]	[NT]
Silver	mg/kg	1	Metals-020	[NT]	39	<1	<1	0	[NT]	[NT]
Tin	mg/kg	2	Metals-020	[NT]	39	2	<2	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	39	2	1	67	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	48	12/03/2024	12/03/2024		[NT]	[NT]
Date analysed	-			[NT]	48	14/03/2024	14/03/2024		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	48	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	48	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	48	5	9	57	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	48	6	9	40	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	48	4	7	55	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	48	<0.1	<0.1	0	[NT]	[NT]
Molybdenum	mg/kg	1	Metals-020	[NT]	48	<1	<1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	48	1	2	67	[NT]	[NT]
Selenium	mg/kg	2	Metals-020	[NT]	48	<2	<2	0	[NT]	[NT]
Silver	mg/kg	1	Metals-020	[NT]	48	<1	<1	0	[NT]	[NT]
Tin	mg/kg	2	Metals-020	[NT]	48	<2	<2	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	48	2	4	67	[NT]	[NT]

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	[NT]
Date prepared	-			12/03/2024	7	12/03/2024	12/03/2024		12/03/2024	[NT]
Date analysed	-			12/03/2024	7	12/03/2024	12/03/2024		12/03/2024	[NT]
Hexavalent Chromium, Cr^{6+}	mg/kg	1	Inorg-118	<1	7	<1	<1	0	97	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	345945-7
Date prepared	-			08/03/2024	1	15/03/2024	08/03/2024		08/03/2024	08/03/2024
Date analysed	-			15/03/2024	1	15/03/2024	15/03/2024		15/03/2024	15/03/2024
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	1	5.0	[NT]		100	[NT]
Total Fluoride	mg/kg	50	Inorg-026/53	<50	1	300	240	22	85	66

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	345945-7
Date prepared	-			11/03/2024	1	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Date analysed	-			12/03/2024	1	12/03/2024	12/03/2024		12/03/2024	12/03/2024
Total Cyanide	mg/kg	0.5	Inorg-014	<0.5	1	<0.5	<0.5	0	90	91

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

Acid Extractable Metals in Soil:
- The laboratory RPD acceptance criteria has been exceeded for 345945-7 for Cr. Therefore a triplicate result has been issued as laboratory sample number 345945-51.
- The laboratory RPD acceptance criteria has been exceeded for 345945-13 for Pb. Therefore a triplicate result has been issued as laboratory sample number 345945-52.
- The laboratory RPD acceptance criteria has been exceeded for 345945-48 for Cr and Cu. Therefore a triplicate result has been issued as laboratory sample number 345945-54.
- The PQL has been raised for Se due to interferences from analytes (other than those being tested) in samples.
- # Percent recovery is not possible to report due to the inhomogeneous nature of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.
- ## Low spike recovery was obtained for this sample. Sample matrix interference is suspected. However, an acceptable recovery was obtained for the LCS.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 345945-A

Client Details

Client	Trakondy Asbestos & Hazardous Materials Pty Ltd
Attention	Mark Kondakov
Address	120 James Circuit, WOODROFFE, NT, 0830

Sample Details

Your Reference	**P724-Part 2-Waste Classification Zuccoli**
Number of Samples	50 Soil
Date samples received	08/03/2024
Date completed instructions received	26/03/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	28/03/2024
Date of Issue	28/03/2024

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Results Approved By
Priya Samarawickrama, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

Misc Inorg - Soil						
Our Reference		345945-A-5	345945-A-11	345945-A-18	345945-A-28	345945-A-38
Your Reference	UNITS	S54	S60	S67	S77	S87
Depth		1.0m	0.3m	1.0m	0.3m	0.8m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	6/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	27/03/2024	27/03/2024	27/03/2024	27/03/2024	27/03/2024
Date analysed	-	28/03/2024	28/03/2024	28/03/2024	28/03/2024	28/03/2024
Total Fluoride	mg/kg	440	390	730	390	590

Misc Inorg - Soil		
Our Reference		345945-A-44
Your Reference	UNITS	S93
Depth		0.8m
Date Sampled		6/03/2024
Type of sample		Soil
Date prepared	-	27/03/2024
Date analysed	-	28/03/2024
Total Fluoride	mg/kg	650

Method ID	Methodology Summary
Inorg-026/53	Fluoride by caustic fusion and determined by ion selective electrode (ISE) analysis.

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			27/03/2024	5	27/03/2024	27/03/2024		27/03/2024	[NT]
Date analysed	-			28/03/2024	5	28/03/2024	28/03/2024		28/03/2024	[NT]
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Appendix C: Chain of Custody

CHAIN OF CUSTODY FORM - Client

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National phone number 1300 424 344

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T 08 9317 2505 | E lab@mpl.com.au

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Darwin Office - Envirolab Services
Unit 20/119 Reichardt Road, Winnellie, NT 0820
T 08 8987 1201 | E darwin@envirolab.com.au

Company:	Trakondy Asbestos And Hazardous Materials Pty Ltd	Client Project Name/Number/Site etc (ie report title):	P724 - Waste Classification Zuccoli
Contact Person:	Mark Kondakov		
Project Mgr:	Mark Kondakov	PO No. (if applicable):	P724
Sampler:	Mark Kondakov	Envirolab Quote No. :	
Address:	120 James Circuit, Woodroffe NT 0830	Data results required: Or choose:	Standard / Same Day / 1 day / 2 day / 3 day
Phone:	Mob: 0400 260 483	Note: Inform lab in advance if urgent turnaround is required - surcharges apply	
Email Results to:	mark.kondakov@outlook.com	Additional report format:	Esdat / Equis
Email Invoice to:	mark.kondakov@outlook.com	Lab Comments:	

Envirolab Sample ID (Lab use only)	Client Sample ID or Information	Depth	Date Sampled	Type of Sample	8 Metals	SS220 Vic EPA 1828.2 - Fill	Comments
1	S1	5.0m	04/03/2024	Soil	X		
2 3	S2	2.0m	04/03/2024	Soil	X		
	S2	5.0m	04/03/2024	Soil	X		
4	S4	2.0m	04/03/2024	Soil	X		
5	S5	5.0m	04/03/2024	Soil	X		
6	S6	2.0m	04/03/2024	Soil	X		
7	S7	2.0m	04/03/2024	Soil	X		
8	S8	5.0m	04/03/2024	Soil		X	
9	S9	2.0m	04/03/2024	Soil	X		
10	S10	5.0m	04/03/2024	Soil	X		
11	S11	2.0m	04/03/2024	Soil	X		
12 13	S12	5.0m	04/03/2024	Soil	X		
	S13	2.0m	04/03/2024	Soil	X		
14	S14	3.0m	04/03/2024	Soil	X		
15	S15	6.0m	04/03/2024	Soil	X		
16 17	S16	2.0m	04/03/2024	Soil	X		
	S17	6.0m	04/03/2024	Soil	X		
18	S18	3.0m	04/03/2024	Soil		X	
19 20	S19	6.0m	04/03/2024	Soil	X		
	S20	3.0m	04/03/2024	Soil	X		
21	S21	6.0m	04/03/2024	Soil	X		
22	S22	3.0m	04/03/2024	Soil	X		
23	S23	5.0m	04/03/2024	Soil	X		
24 25	S24	5.0m	04/03/2024	Soil	X		
	S25	2.0m	04/03/2024	Soil	X		
26 27	S26	5.0m	04/03/2024	Soil	X		
	S27	2.0m	04/03/2024	Soil	X		
28 29	S28	6.0m	04/03/2024	Soil	X		
	S29	3.0m	04/03/2024	Soil	X		
30 31	S30	6.0m	04/03/2024	Soil	X		
	S31	3.0m	04/03/2024	Soil	X		
32 33	S32	4.0m	04/03/2024	Soil	X		
	S33	2.0m	04/03/2024	Soil	X		
34 35	S34	5.0m	04/03/2024	Soil		X	
	S35	2.0m	04/03/2024	Soil	X		
36 37	S36	4.0m	04/03/2024	Soil	X		
	S37	2.0m	04/03/2024	Soil	X		
38 39	S38	4.0m	04/03/2024	Soil	X		
	S39	4.0m	04/03/2024	Soil	X		
40 41	S40	4.0m	04/03/2024	Soil	X		
	S41	4.0m	04/03/2024	Soil	X		
42 43	S42	4.0m	04/03/2024	Soil		X	
	S43	4.0m	04/03/2024	Soil	X		
44 45	S44	4.0m	04/03/2024	Soil	X		
	S45	4.0m	04/03/2024	Soil	X		
46 47	S46	3.0m	04/03/2024	Soil	X		
	S47	3.0m	04/03/2024	Soil	X		
48 49	S48	3.0m	04/03/2024	Soil	X		
	S49 - Pond		04/03/2024	Soil	X		
50 51	QC100		04/03/2024	Soil	X		
	QC101		04/03/2024	Soil	X		
1	QC200		04/03/2024	Soil	X		Secondary Lab
2	QC201		04/03/2024	Soil	X		Secondary Lab

Envirolab Services
25 Research Drive
Croydon South VIC 3136
Ph: (03) 9763 2500

Job No: 424106
Date Received: 5/3/24
Time Received: 12:30pm 18.7°C
Received By: AG
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Please tick the box if observed settled sediment present in water samples is to be included in the extraction and/or analysis

Relinquished by	Client	Interstate Office	Laboratory	Lab Use Only
Print Name:	Mark Kondakov	Darwin - Gwenda Hayes	OLIVIA WILLIAMS	Job number: 345571
Date & Time:	04/03/2024		5/3/24 0000	Temp Office: Temp Lab: 10°C
Signature:			OW	TAT: SAME day / 1 / 2 / 3 / 4 / STD
				Office Cooling: Ice / Icepack / None
				Lab Cooling: Ice / Ice pack / None 10°C
				Security seal: Intact / Broken / None

Relinquished by: ELSSAN
Jenna Nguyen
5/3/24, 1325

Anna Bui

From: Stuart Chen
Sent: Tuesday, 26 March 2024 5:30 PM
To: Mark Kondakov; Gwenda Hayes; Customer Service
Subject: RE: Results for Registration 345571 P724-Waste Classification Zuccoli

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Mark,

EW REF: 345571-A

Doing great thanks ☺

TAT: 2 DAY

No problems, we will arrange this and 345945 for you.

DUE: 28/3/24

@Customer Service A-job please

AB-

Kind Regards,

Stuart Chen | Reporting Coordinator | Envirolab Services

Great Science. Great Service.

12 Ashley Street Chatswood NSW 2067
T 612 9910 6200
E SChen2@envirolab.com.au | **W** www.envirolab.com.au

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Samples will be analysed per our T&C's.

From: Mark Kondakov <mark.kondakov@outlook.com>
Sent: Tuesday, March 26, 2024 4:36 PM
To: Stuart Chen <SChen2@envirolab.com.au>; Gwenda Hayes <GHayes@envirolab.com.au>
Subject: RE: Results for Registration 345571 P724-Waste Classification Zuccoli

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G'day Stuart,

Hoping you are well?

Is there any chance I could get some fluoride tests ran on the following samples with a TAT to have results back by COB this Thursday please:

1
9
15
25
37
45

Please do not hesitate to contact me if you wish to discuss further.

Regards and thanks

Mark Kondakov
Managing Director
Principal Hazardous Materials Consultant
Licensed Asbestos Assessor No NTWS-AA-456703
Trakondy Asbestos and Hazardous Materials Pty Ltd
M: 0400 260 483

TRAKONDY
Asbestos and Hazardous Materials Pty Ltd

TERRITORY PROUD
Australia's Northern Territory

From: Stuart Chen <SChen2@envirolab.com.au>
Sent: Tuesday, 12 March 2024 5:04 PM
To: Gwenda Hayes <GHayes@envirolab.com.au>; mark.kondakov@outlook.com
Subject: Results for Registration 345571 P724-Waste Classification Zuccoli

Please refer to attached for:
a copy of the Certificate of Analysis
a copy of the COC/paperwork received from you
an Excel or .csv file containing the results
a copy of the Invoice

Please note that a hard copy will not be posted.

Enquiries should be made directly to:
customerservice@envirolab.com.au

How did we do? Send Feedback

Kind Regards,

Stuart Chen | Reporting Coordinator | Envirolab Services

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Methamphetamines & Other Drug Residue • Acid Sulphate S
Emerging Contaminants • Forer

JAS-ANZ

ISO 14001:2015 ISO 45001:2018

ISO 17

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Latest Update: **Melbourne lab is now NATA accredited for Asbestos.**

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Darwin Office - Envirolab Services
Unit 20/119 Reichardt Road, Winnellie, NT 0820
T 08 8987 1201 | E darwin@envirolab.com.au

Company:	Trakondy Asbestos And Hazardous Materials Pty Ltd			Client Project Name/Number/Site etc (to report title):	P724 - Waste Classification Zuccoli
Contact Person:	Mark Kondakov				
Project Mgr:	Mark Kondakov			PO No. (if applicable):	P724
Sampler:	Mark Kondakov			Envirolab Quote No.:	
Address:	120 James Circuit, Woodroffe NT 0830			Date results required: Or choose: Standard / Same Day / 1 day / 2 day / 3 day	
Phone:		Mob:	0400 260 483	Note: Inform lab in advance if urgent turnaround is required - surcharges apply	
Email Results to:	mark.kondakov@outlook.com			Additional report format: Esdat / Equis	
Email Invoice to:	mark.kondakov@outlook.com			Lab Comments:	

Sample Information					Tests Required																		Comments
Envirolab Sample ID (Lab use only)	Client Sample ID or Information	Depth	Date Sampled	Type of Sample	CS001_M Combo 1 8 Metals	SS226 Vic EPA 1828.2 - Fill																	Provide as much information about the sample as you can
1	S1	5.0m	04/03/2024	Soil	X																		
2	S2	2.0m	04/03/2024	Soil	X																		
3	S3	5.0m	04/03/2024	Soil	X																		
4	S4	2.0m	04/03/2024	Soil	X																		
5	S5	5.0m	04/03/2024	Soil	X																		
6	S6	2.0m	04/03/2024	Soil	X																		
7	S7	2.0m	04/03/2024	Soil	X																		
8	S8	5.0m	04/03/2024	Soil		X																	
9	S9	2.0m	04/03/2024	Soil	X																		
10	S10	5.0m	04/03/2024	Soil	X																		
11	S11	2.0m	04/03/2024	Soil	X																		
12	S12	5.0m	04/03/2024	Soil	X																		
13	S13	2.0m	04/03/2024	Soil	X																		
14	S14	3.0m	04/03/2024	Soil	X																		
15	S15	6.0m	04/03/2024	Soil	X																		
16	S16	2.0m	04/03/2024	Soil	X																		
17	S17	6.0m	04/03/2024	Soil	X																		
18	S18	3.0m	04/03/2024	Soil		X																	
19	S19	6.0m	04/03/2024	Soil	X																		
20	S20	3.0m	04/03/2024	Soil	X																		
21	S21	6.0m	04/03/2024	Soil	X																		
22	S22	3.0m	04/03/2024	Soil	X																		
23	S23	5.0m	04/03/2024	Soil	X																		
24	S24	5.0m	04/03/2024	Soil	X																		
25	S25	2.0m	04/03/2024	Soil	X																		
26	S26	5.0m	04/03/2024	Soil	X																		
27	S27	2.0m	04/03/2024	Soil	X																		
28	S28	6.0m	04/03/2024	Soil	X																		
29	S29	3.0m	04/03/2024	Soil	X																		
30	S30	6.0m	04/03/2024	Soil	X																		
31	S31	3.0m	04/03/2024	Soil	X																		
32	S32	4.0m	04/03/2024	Soil	X																		
33	S33	2.0m	04/03/2024	Soil	X																		
34	S34	5.0m	04/03/2024	Soil		X																	
35	S35	2.0m	04/03/2024	Soil	X																		
36	S36	4.0m	04/03/2024	Soil	X																		
37	S37	2.0m	04/03/2024	Soil	X																		
38	S38	4.0m	04/03/2024	Soil	X																		
39	S39	4.0m	04/03/2024	Soil	X																		
40	S40	4.0m	04/03/2024	Soil	X																		
41	S41	4.0m	04/03/2024	Soil	X																		
42	S42	4.0m	04/03/2024	Soil		X																	
43	S43	4.0m	04/03/2024	Soil	X																		
44	S44	4.0m	04/03/2024	Soil	X																		
45	S45	4.0m	04/03/2024	Soil	X																		
46	S46	3.0m	04/03/2024	Soil	X																		
47	S47	3.0m	04/03/2024	Soil	X																		
48	S48	3.0m	04/03/2024	Soil	X																		
49	S49 - Pond		04/03/2024	Soil	X																		
50	QC100		04/03/2024	Soil	X																		
51	QC101		04/03/2024	Soil	X																		
	QC200		04/03/2024	Soil	X																		Secondary Lab
	QC201		04/03/2024	Soil	X																		Secondary Lab

☐ *Please tick the box if observed settled sediment present in water samples is to be included in the extraction and/or analysis*

Relinquished by	Client	Interstate Office	Laboratory	Lab Use Only	
Print Name:	Mark Kondakov	Darwin - Gwenda Hayes	OLIVIA WILLIAMS	Job number: 345571	Office Cooling: Ice / Icepack / None
Date & Time:	04/03/2024		5/3/24 0900	Temp Office: Temp Lab: 10°C	Lab Cooling: Ice / Ice pack / None 10°C
Signature:			OW	TAT: SAME day / 1 / 2 / 3 / 4 / STD	Security seal: Intact / Broken / None

CoC:

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Darwin Office - Envirolab Services

Company: Trakenley
Contact Person:
Project Mgr:
Sampler:
Address:
Phone: Mob:
Email Results to:
Email Invoice to:

Client Project Name/Number/Site etc (ie report title): P724
PO No. (if applicable):
Envirolab Quote No.:
Date results required:
Or choose: ☐ Standard ☐ Same Day ☐ 1 day ☐ 2 day ☐ 3 day
Note: Inform lab in advance if urgent turnaround is required - surcharges apply
Additional report format: ☐ Esdat ☐ Equis
Lab Comments: Draft COC.

Sample Information					Volume Data							Tests Required							Comments
Envirolab Sample ID *(Lab use only)*	Client Sample ID or Information	Filter ID	Type of Sample	Date Sampled	Time On	Time Off	Total Time (mins)	Flow Rate On (L/min)	Flow Rate Off (L/min)	Av. Flow rate (L/min)	Total Air Volume (L)								Provide as much information about the sample as you can
	49 Soils 4 QC		4/3/24																

Relinquished by (Company):	Received by (Company): Envirolab Darwin	Lab Use Only	
Print Name:	Print Name: Gwenda Hoy.	Job number:	Cooling: Ice / Ice pack / None
Date & Time:	Date & Time: 4/3/24	Temperature: 31°C	Security seal: Intact / Broken / None
Signature:	Signature:	TAT Req - SAME day / 1 / 2 / 3 / 4 / STD	

T120

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Melbourne Lab - Envirolab Services
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Adelaide Office - Envirolab Services
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① 08 7087 6800 | ✉ adelaide@envirolab.com.au

Brisbane Office - Envirolab Services
20a, 10-20 Depot St, Banyo, QLD 4014
① 07 3266 9532 | ✉ brisbane@envirolab.com.au

Darwin Office - Envirolab Services

Company: Trakenly	Client Project Name/Number/Site etc (ie report title): P724
Contact Person:	PO No. (if applicable):
Project Mgr:	Envirolab Quote No. :
Sampler:	Date results required:
Address:	Or choose: ☐ Standard ☐ Same Day ☐ 1 day ☐ 2 day ☐ 3 day
Phone: Mob:	*Note: Inform lab in advance if urgent turnaround is required - surcharges apply*
Email Results to:	Additional report format: ☐ Esdat ☐ Equis
Email Invoice to:	Lab Comments: Draft COC.

Sample information					Volume Data							Tests Required							Comments
Envirolab Sample ID *(Lab use only)*	Client Sample ID or Information	Filter ID	Type of Sample	Date Sampled	Time On	Time Off	Total Time (mins)	Flow Rate On (L/min)	Flow Rate Off (L/min)	Av. Flow rete (L/min)	Total Air Volume (L)								Provide as much information about the sample as you can
	49 Soils 4 QC.		4/3/24																

Relinquished by (Company):	Received by (Company): Envirolab Darwin	*Lab Use Only*	
Print Name:	Print Name: Gwenda Hoy.	Job number:	Cooling: Ice / Ice pack / None
Date & Time:	Date & Time: 4/3/24	Temperature: 31°C	Security seal: Intact / Broken / None
Signature:	Signature: GHoy.	TAT Req - SAME day / 1 / 2 / 3 / 4 / STD	

T120

FW: Results for Registration 345945 P724-Part 2-Waste Classification Zuccoli

Stuart Chen <SChen2@envirolab.com.au>
Tue 3/26/2024 5:30 PM
To:Customer Service <CustomerService@envirolab.com.au>
A-Job please.

From: Mark Kondakov <mark.kondakov@outlook.com>
Sent: Tuesday, March 26, 2024 4:24 PM
To: Stuart Chen <SChen2@envirolab.com.au>; Gwenda Hayes <GHayes@envirolab.com.au>
Subject: RE: Results for Registration 345945 P724-Part 2-Waste Classification Zuccoli

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G'day Stuart,

Hoping you are well?

Is there any chance I could get some fluoride tests ran on the following samples with a TAT to have results back by COB this Thursday please:

54
60
67
77
87
93

345945-A
2 day TAT due 28/03/24

Please do not hesitate to contact me if you wish to discuss further.

Regards and thanks

Mark Kondakov
Managing Director
Principal Hazardous Materials Consultant
Licensed Asbestos Assessor No NTWS-AA-4S6703
Trakondy Asbestos and Hazardous Materials Pty Ltd
M: 0400 260 483

TRAKONDY Asbestos and Hazardous Materials Pty Ltd

TERRITORY PROUD

From: Stuart Chen <SChen2@envirolab.com.au>
Sent: Friday, 15 March 2024 3:15 PM
To: Gwenda Hayes <GHayes@envirolab.com.au>; mark.kondakov@outlook.com
Subject: Results for Registration 345945 P724-Part 2-Waste Classification Zuccoli

Please refer to attached for:
a copy of the Certificate of Analysis
a copy of the COC/paperwork received from you
an Excel or .csv file containing the results
a copy of the Invoice

Please note that a hard copy will not be posted.

Enquiries should be made directly to:
customerservice@envirolab.com.au

How did we do? Send Feedback

Kind Regards,

Stuart Chen | Reporting Coordinator | Envirolab Services

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E SChen2@envirolab.com.au | W www.envirolab.com.au

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Unit 20/119 Reichardt Road, Winnellie, NT 0820
✆ 08 8967 1201 | ✉ darwin@envirolab.com.au

Company:	Trakondy Asbestos And Hazardous Materials Pty Ltd	Client Project Name/Number/Site etc (ie report title):	P724 - Part 2 - Waste Classification Zuccoli
Contact Person:	Mark Kondakov		
Project Mgr:	Mark Kondakov	PO No. (if applicable):	P724
Sampler:	Mark Kondakov	Envirolab Quote No. :	
Address:	120 James Circuit, Woodroffe NT 0830	Date results required:	
		Or choose:	☑ Standard ☐ Same Day ☐ 1 day ☐ 2 day ☐ 3 day
Phone:	Mob: 0400 260 483	*Note: Inform lab in advance if urgent turnaround is required - surcharges apply*	
Email Results to:	mark.kondakov@outlook.com	Additional report format:	☐ Esdat ☐ Equis
Email Invoice to:	mark.kondakov@outlook.com	Lab Comments:	

Sample Information					Tests Required																Comments
Envirolab Sample ID (Lab use only)	Client Sample ID or Information	Depth	Date Sampled	Type of Sample	CS001_M Combo 1 8 Metals	SS220 Vic EPA 1828.2 - Fill															Provide as much information about the sample as you can
1	S50	1.0m	5/03/2024	Soil		X															
2	S51	1.0m	5/03/2024	Soil	X																
3	S52	1.0m	5/03/2024	Soil	X																
4	S53	1.0m	5/03/2024	Soil	X																
5	S54	1.0m	5/03/2024	Soil	X																
6	S55	1.0m	5/03/2024	Soil	X																
7	S56	~~0.8m~~ 1.0m	5/03/2024	Soil		X															
8	S57	1.1m	5/03/2024	Soil	X																
9	S58	1.0m	5/03/2024	Soil	X																
10	S59	1.0m	5/03/2024	Soil	X																
11	S60	0.3m	5/03/2024	Soil	X																
12	S61	1.0m	5/03/2024	Soil	X																
13	S62	0.3m	5/03/2024	Soil		X															
14	S63	1.0m	5/03/2024	Soil	X																
15	S64	0.3m	5/03/2024	Soil	X																
16	S65	1.0m	5/03/2024	Soil	X																

ENVIROLAB GROUP
Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 343945
Date Received: 8/3/24
Time Received: 0930
Received By: C
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

17	S66	0.3m	5/03/2024	Soil	X																		
18	S67	1.0m	5/03/2024	Soil	X																		
19	S68	0.3m	5/03/2024	Soil	X																		
20	S69	1.0m	5/03/2024	Soil	X																		
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23	S72	0.3m	5/03/2024	Soil	X																		
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25	S74	0.3m	5/03/2024	Soil	X																		
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33	S82	2.6m	5/03/2024	Soil	X																		
34	S83	0.3m	5/03/2024	Soil		X																	
35	S84	1.0m	5/03/2024	Soil	X																		
36	S85	3.0m	5/03/2024	Soil	X																		
37	S86	0.3m	6/03/2024	Soil	X																		
38	S87	0.8m	6/03/2024	Soil	X																		
39	S88	0.3m	6/03/2024	Soil	X																		
40	S89	0.8m	6/03/2024	Soil	X																		
41	S90	0.3m	6/03/2024	Soil	X																		
42	S91	0.8m	6/03/2024	Soil	X																		
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49	QC102		5/03/2024	Soil	X																		
50	QC103		5/03/2024	Soil	X																		
50	QC202		5/03/2024	Soil	X																		Secondary Lab
50	QC203		5/03/2024	Soil	X																		Secondary Lab

ENVIROLAB

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 345495

Date Received: 8/3/24
Time Received: 0930
Received By: CL
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

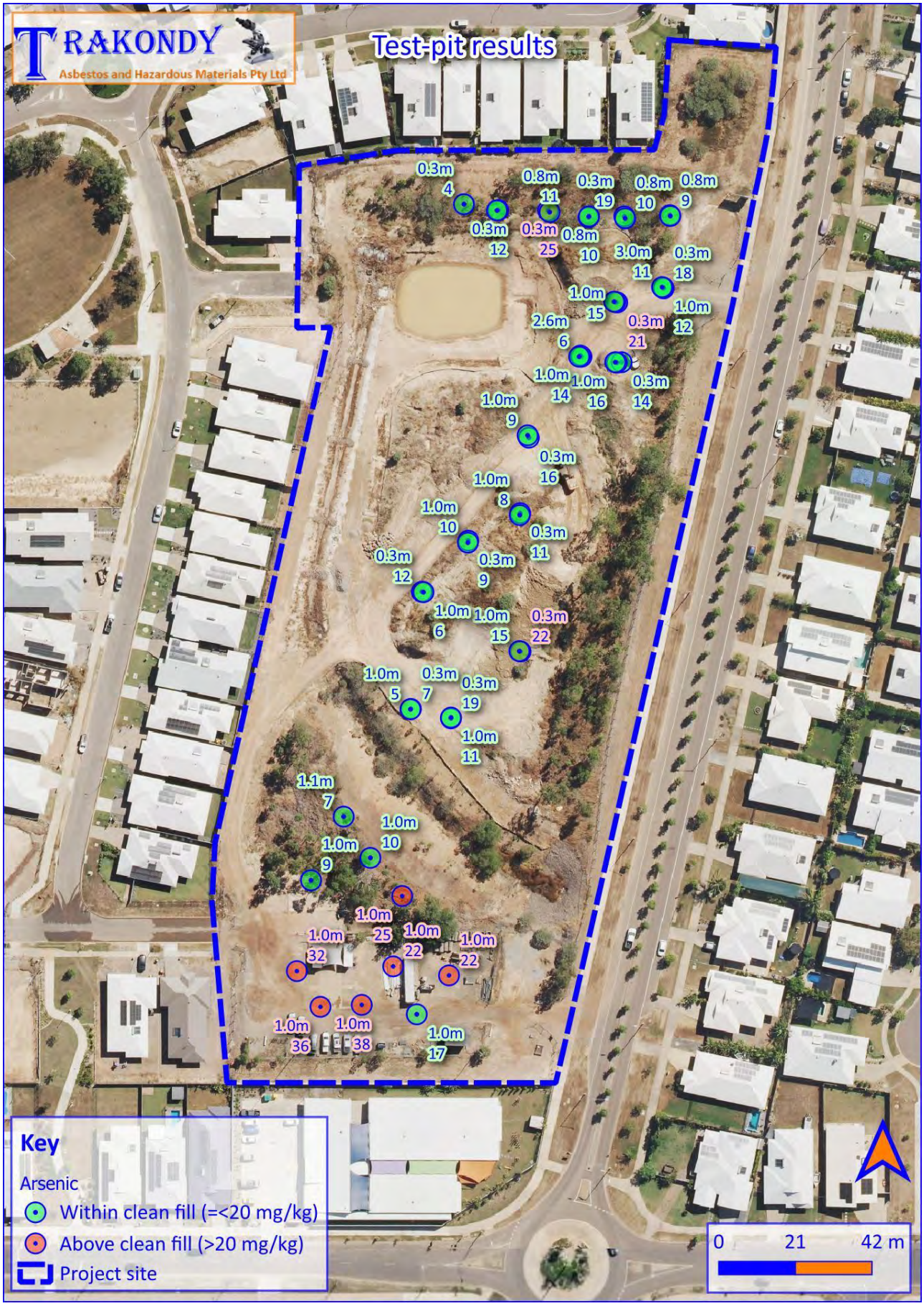
☐ *Please tick the box if observed settled sediment present in water samples is to be included in the extraction and/or analysis*

Relinquished by	Client	Interstate Office	Laboratory	*Lab Use Only*	
Print Name:	Mark Kondakov	Darwin - Gwenda Hayes	CH KTS C	Job number: 345945	Office Cooling: Ice / Ice pack / None
Date & Time:	6/03/2024 0:00	6/3/24 KMG 1245	8/3/24 0930 T120.	Temp Office: 11°C Temp Lab: 15°	Lab Cooling: Ice / Ice pack / None
Signature:				TAT: SAME day / 1 / 2 / 3 / 4 / STD	Security seal: Intact / Broken / None

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

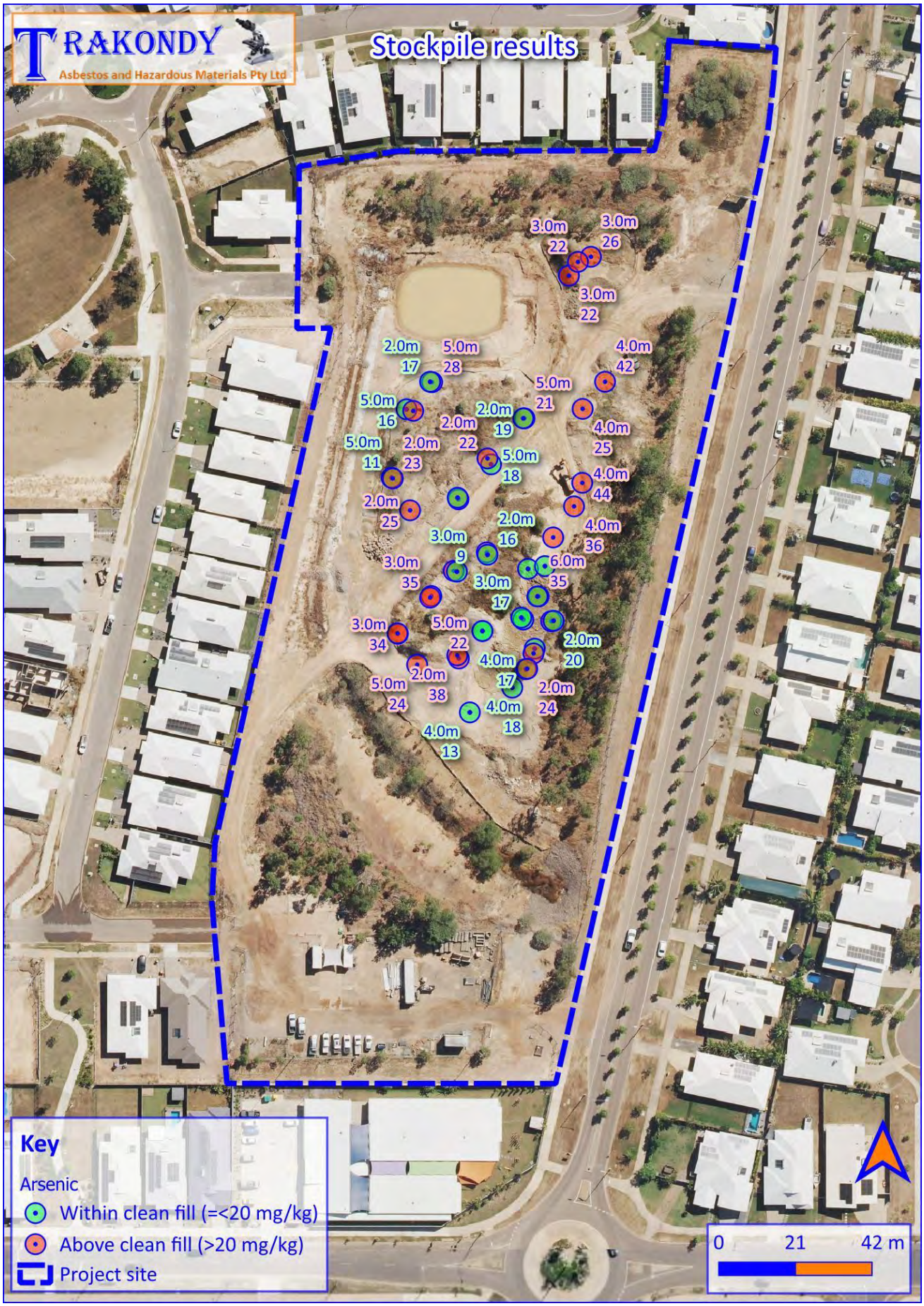
Job No: 345945
Date Received: 8/3/24
Time Received: 0930
Received By: CE
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Appendix D: Test Pit Sampling Locations - Arsenic



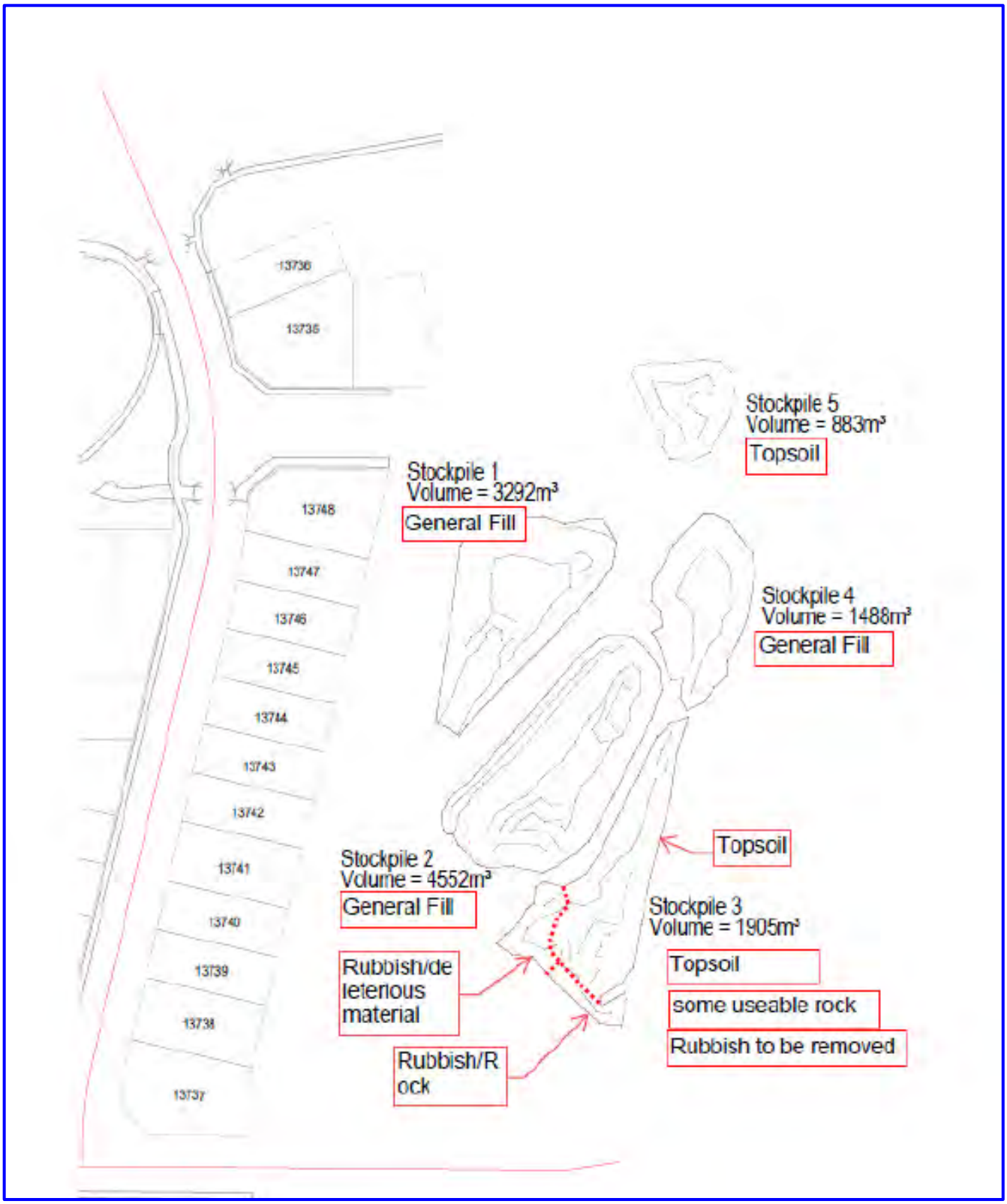
Appendix D: Test Pit Sampling Locations – Fluoride (Cont.)

Appendix E: Stockpile Sampling Locations – Arsenic

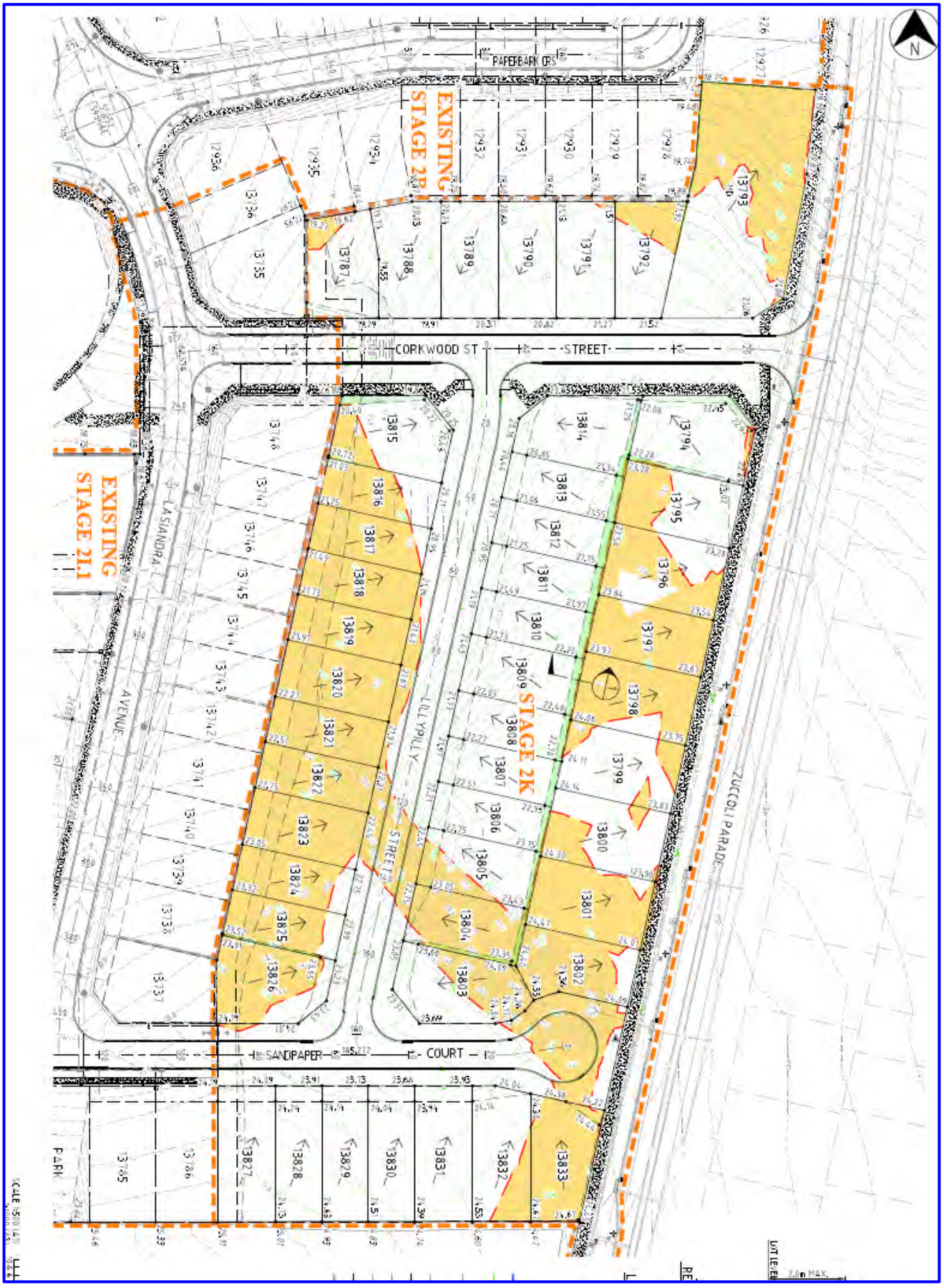


Appendix E: Stockpile Sampling Locations – Fluoride (Cont.)

Appendix F: Soil Stockpile Locations and Volumes



Appendix G: Cut and Fill Locations



Appendix G: Test Pit Logs

Trakondy email dated 22 February 2026

9:04 44%

letter for planning - 175 Brooking Cct Inbox

John Glynatsis 22 Feb

Hi Kris. Further to my email here is a screenshot of what the planning

Kris Zechef 8:40 am

to me, glynatsis12@...

Hey John,

This is all we receive from our environmental inspection to clear the material taken from site.

I cannot supply a certificate but you can use this email as confirmation we delivered spoil from our MCG site to 175 Brooking Cct Virginia for you.

Cheers Kris

Land Suitability Assessment
For Property Subdivision
175 Brooking Circuit, Virginia

Prepared for:	John Glynatsis
Prepared by:	Stephen Flux, BSc MSc CGeol AffillEAust & Mary Flux BSc Hons On-site Wastewater Management Certificate
Telephone:	0499 996 659 (Stephen Flux); 0427 350 980 (Mary Flux)
Email:	steve@wantgeotechnics.com.au; mary@wantgeotechnics.com.au
Address:	10/17 Willes Road, Berrimah, NT 0828

5/02/2026

1. Introduction

WANT Geotechnics Pty Ltd has been engaged by John Glynatsis to undertake a Land Suitability Assessment (LSA) for an approximately sized 4.09-hectare land parcel (herein referred to as 'the Block') at 175 Brooking Circuit, Virginia. The aim of the assessment is to establish the degree of suitability of the Block for subdivision in accordance with the *NT Planning Scheme 2020*, Clause 6.3 (Subdivision of Rural and Unzoned Land)[A]. The Block is subject to the assessment of its suitability for subdivision given its situation in a Rural Living (RL) Zone. The Block is to be subdivided into two lots – Lot A (the already-developed ~2-hectare land parcel to the north) and Lot B (the yet to be developed ~2 hectare land parcel to the south) – find the Site Plan in the appended data for an aerial representation of the two lots.

Informed by the *Northern Territory Land Suitability Guidelines*[B], this report serves to outline the Block's overall Suitability Class, as well as detailing the individual Suitability Class of the seven categories that determine the overall fitness of the Block (Drainage; Onsite Wastewater Management; Erosion Risk; Soil Salinity; Acid Sulphate Soils; Storm Tide Flooding; and Riverine Flooding).

2. Categories of Assessment

As mentioned above, overall land suitability is a function of land performance across seven categories[B]:

- **Drainage** – the expected wetness condition of the Block's soils throughout the year, dependent on local soil conditions as well as broader topographical considerations
- **Onsite Wastewater Management** – the capacity of the Block's soils for amelioration of pathogenic greywater / blackwater (given the Block has no connection to reticulated sewerage)
- **Erosion Risk** – the intrinsic susceptibility of the Block's soils to prevailing agents of erosion
- **Soil Salinity** – the degree of accumulation of water-soluble salts in the soil
- **Acid Sulphate Soils** – the presence of soils containing iron sulphides which, when exposed to oxygen through disturbance or drainage, have the potential to oxidise and create sulfuric acid
- **Storm Tide Flooding** – susceptibility to temporary sea level rises associated with storm surges
- **Riverine Flooding** – susceptibility to localised river flooding

The abovementioned categories were assessed both at the desktop level (through online government resources) and during an onsite evaluation of the Block (conducted on 14 January 2026). A subsequent visit to the Block was undertaken on 28 January 2026 to collect aerial drone imagery. While these categories equally contribute to the overall Suitability Class of the assessment, they were not all assessed with equal weighting. Categories such as Drainage and Onsite Wastewater Management were more heavily scrutinised given Council emphasis on the heightened need to control these two factors. While Soil Salinity and Acid Sulphate Soils were not assessed at all onsite (justification for the non-assessment of these two categories is detailed in their respective sections).

Each category was assessed as an individual phenomenon and will be discussed in such a way in the following seven sections. However, in the overall context of the Block's subdivision, these phenomena are strongly interconnected, and an overall suitability score for the Block will be determined in the conclusion of this report. Additionally in the conclusion, comments will be provided regarding methods for improvement/sustainment of the performance of these categories.

3. Remedial Requirements for Subdivision Application

Technical Assessment PA2025/0344, issued by the Northern Territory Government Development Assessment Services in response to the proposal for subdivision of the Block into two Lots (*Gly052*) discerned numerous non-compliances. Five of the non-compliances are capable of remediation via the provision of an LSA. Table 1 outlines these five non-compliances, and their remedial requirements.

Table 1: LSA-related non-compliances issued within PA2025/0344

Clause in question	Comment from PA2025/0344	Remedial requirement
4.7.9 + 4.7.10	"The proposal for a 2 Lot subdivision does not adequately address the requirements of the zone in particular the above clauses, 4.7.9 and 4.7.10."	This non-compliance can be remediated through provision of an LSA addressing all seven categories of suitability
6.3.2	"A Land Capability Assessment lodged with the application has not been prepared or endorsed by suitably qualified professional who would need to confirm that each lot has at least one 1 Ha of land unconstrained by storm tide, riverine or localised stormwater flooding."	To be addressed in Sections 4.6, 4.7, and 4.1 of this LSA respectively
	In relation to the placement of the ~1,000m^3 of fill on Lot A in resolving drainage constraints – "A Geotechnical Report prepared by a suitably qualified Geotechnical engineer would be required to determine if the land is suitable for development."	To be addressed in Section 4.1 of this LSA
6.3.3 (5.a)	"Whilst the application includes a land suitability assessment it does not adequately address the NT Land Suitability Guidelines, and it does not identify the suitability class or discuss in any detail the type of soil, drainage, onsite wastewater management, erosion risk, soil salinity, acid sulphate soils, or riverine flooding."	This non-compliance can be remediated through provision of an LSA addressing all seven categories of suitability
6.3.4	"The application has provided a Site and soil plan but no evaluation has been provided which demonstrates that onsite wastewater management systems can be installed on the second lot, Lot B, in accordance with the requirements of the Code of Practice for Wastewater Management. The unconstrained nature of Lot B would indicate that this is not possible."	To be addressed in Section 4.2 of this LSA

4. Assessment

4.1 Drainage

The Northern Territory Land Suitability Guidelines define land potentially constrained by drainage as: "Areas that are wet or (saturated) either at, above or close to the land surface for a period of weeks to months typically during the wet season but potentially extending into the dry season as a result of rainfall, landscape function and/or position or soil hydrology factors."[B]

Under this working definition, the onsite evaluation of the Block endeavoured to survey all regions of the Block (via on foot traversal and drone reconnaissance) in which surface water was seen to be present or having recently flowed. This was undertaken in January 2026, i.e. Wet season.

Lot A

Lot A has seen the formation of a raised fill platform. The fill has been placed to the east of the house and has raised general ground levels to that of the landscaping around the house. Provided the fill has been graded to divert runoff away from the house then drainage will not adversely impact Lot A.

While recent documentation claims an area of only 1.34 hectares of Land on Lot A is unconstrained by drainage, the onsite evaluation of the Block figures this number to in fact be greater. Through the onsite evaluation, the only areas of the Block deemed potentially constrained appeared to be a drainage channel on Lot A's southern boundary, as well as the 0.13-hectare portion at the back (eastern boundary) of Lot A which abuts Wells Creek. In total, this area amounts to an overall size of 0.26 hectares, thus providing 1.74 hectares of unconstrained land. Find the approximate depiction of this area in Figure 1.

Figure 1: Drone imagery of Lot A's drainage

It is not known what segments of Lot A that the original figure of 1.34 hectares took into account, but it may be the case that the placement of the 1000m^3 of fill has appropriately channelled drainage to the rear of the Lot where Wells Creek subsumes it.

Lot B

Aerial reconnaissance and on-foot traversal of Lot B identified it to be predominantly well-drained. There was, however, a section of surface pooling occurring in the central portion of the lot, having run-off the central southern boundary of Lot A. The remaining areas identified as potentially constrained by drainage (as evident in Figure 2 below) are the regions downstream (south) of the pooling water and those regions of the lot that abut Wells Creek.

Figure 2: Drone imagery of Lot B's drainage

In total, the entire area potentially constrained by poor drainage on Lot B amounts to ~0.30 hectares, thus providing ~1.70 hectares of unconstrained land.

Other factors influencing drainage

While assessing the Block's drainage by accounting for the extent of surface water coverage in the wettest period of the year is a useful tool it is not the only effective means of assessing drainage. Drainage is influenced not only by surface topography but also by soil permeability, stratigraphy, groundwater conditions, rainfall intensity, vegetation, and previous earthworks. The following provides an assessment of the drainage characteristics on both Lot A and Lot B.

The Block slopes west to east, see Figure 3 below (taken from Google Earth) which provides an approximate topographic profile based on Google Earth ground levels (mapped from the western to the eastern boundary of the Block). Both Lot A and Lot B will drain in an easterly direction to the toe of the slope, situated approximately 150m from the western boundary of the Block. Beyond the toe of the slope, the ground level is indicated to fall only very gently, but again towards the east and into Wells Creek which flows to the south.

Figure 3: Google Earth depiction of the Block's slope

Further evidence to support the conclusion that the soils of both lots are moderately well drained and predominantly free of constraint is the hydraulic quality of the soil type that underlies the Block. Reference to *The Land Resources of the Elizabeth, Darwin and Blackmore Rivers* Land Unit Map suggests that the front of the Lots (greater than 1ha portion each) are located on the 1c and 2b1 Land Units. These land units are both known to be gravelly loamy well-drained soils. Upon excavation of Lot B for the Site & Soil Evaluation (wastewater management component of the assessment) the permeability and soil type were confirmed to be of a moderate capacity.

WANT Geotechnics has developed an extensive understanding of the differing capacities for onsite drainage in all of Darwin's peri-urban suburbs as a consequence of providing numerous Site and Soil Evaluations within these suburbs. In relation to the expected ground conditions for a block evaluated in the peak of the wet season, the conditions realised at 175 Brooking Circuit speak to a block that is moderately well-drained. As such, a **Class S2** (moderate suitability) categorization is fitting.

4.2 Onsite Wastewater Management

In addition to this report, WANT geotechnics has compiled a Site & Soil Evaluation (SSE) of the conditions present on Lot B, to enable the placement of a Wastewater Management System (WMS) on the Lot (find separately attached a copy of this SSE in full). This testing was not carried out for Lot A as it is already serviced by a well-functioning WMS.

In summary of the prepared report, it was found that Lot B's soils are of sufficient quality to support either a primary-treated WMS or a secondary-treated WMS. The WMS has been prescribed to be designed in accordance with one of the following modes of effluent disposal:

- **Irrigation of secondary treated effluent** – a DIR of 4mm/day (drip or spray irrigation) or 3.5mm/day (LPED irrigation)
- **Shallow trench or bed (300 - 400mm deep)** – a DLR of 15mm/day for a primary treated system, or 30mm/day for a secondary treated system
- **Deep trench or bed (400 – 600mm deep)** – a DLR of 5mm/day for a primary treated system, or 10mm/day for a secondary treated system

So long as the WMS is designed to one of these specifications, and given it is placed in a location commensurate with the *NT Code of Practice for Wastewater Management* setbacks, then onsite disposal of wastewater on Lot B will be of a low-risk nature, warranting a **Class S1** categorization.

4.3 Erosion Risk

To better understand the erodible potential of the Block's soils, a sample from 0.2mbgl (metres below ground level) and 0.5mbgl was sent for Emerson Class determination at a NATA accredited soils laboratory (Lab #13121). The samples were collected from Test Hole 1 (TH1) on Lot B (find reference to TH1s location within the appended data, as well as the Material Test Reports for both depths analysed).

With regards to erosion potential the subsoils are typically clayey sands and clayey gravels and samples of each were sent for Emerson Class determination at a NATA accredited soils laboratory.

Emerson Class testing measures the tendency of the clay fraction of a soil to go into colloidal suspension in water, forming a cloud around the soil particle. Dispersive soils are those which by the nature of their minerology, and the chemistry of the water in the soil, are susceptible to separation of their individual clay particles - subsequent erosion of these very small clay particles through fine fissures or cracks in the soil occurs under seepage flows.

The sample collected from 0.2mbgl returned an Emerson Class of 3 and was attributed a soil description (based on its Particle Size Distribution - PSD) of a clayey sand. Soils with an Emerson Class Number 3 have a tendency to slake or swell but are generally not readily dispersive, i.e. erosion through inundation is not an issue, but as with any soil where runoff is uncontrolled and of sufficient volume then erosion by scouring can occur.

The sample collected from 0.5mbgl returned an Emerson Class of 6 and was also attributed a soil description of a clayey sand. Soils with an Emerson Class Number 6 are highly stable soils with a low potential for dispersive behaviour. Some swelling or slaking may occur but generally such soils are not readily dispersive, i.e. erosion through porewater flow is not an issue, but as with any soil where runoff is uncontrolled and of sufficient volume then erosion by scouring can occur.

Considering the above, the subsoils are considered stable and at a low risk of erosion – any such erosion would predominantly be attributable to uncontrolled runoff. Assuming the lots are developed for housing, then runoff will be managed through appropriately designed drainage.

This finding qualifies a **Class S1** Rating for Erosion Risk.

4.4 Soil Salinity

Soil salinity was not assessed, as per the statement on the Northern Territory Government Website regarding Land Suitability Assessments – "If your subdivision is in the Top End, in the area north of Tennant Creek – you don't need to address soil salinity."

Hence, this category was not assessed for and does not contribute to the overall suitability rating of the Block.

4.5 Acid Sulphate Soils

Acid sulphate soils (ASS) commonly form in low-energy intertidal settings or areas that are subject to periodic tidal flooding. Such environments may contain sufficient organic matter to promote the formation of iron sulphide through sulphate reduction. Most acid sulphate soils occur in coastal areas (below 5 metres above sea level) where sea levels rise and inundate terrestrial sediments. The sulphate in the seawater reacts with the sedimentary iron oxides and organic matter producing large quantities of iron sulphides in waterlogged environments.

Table 2 lists criteria that are likely to determine whether ASS are likely to be present on the Block, with comments on each criteria based on actual onsite conditions.

Table 2: Acid Sulphate Soil (ASS) risk screening criteria

Criteria indicating potential for ASS	175 Brooking Circuit
Land with an elevation less than 5m Australian Height Datum (m AHD)	Google Earth indicates the Block's ground levels are between 15m and 20m AHD
Soil and sediment of recent geological age (Holocene)	Soils are older (Tertiary age)
Marine or estuarine sediments and tidal lakes, low-lying coastal wetlands or back swamp areas, waterlogged, or scalded areas, stranded beach ridges and adjacent swales or coastal sand dunes, coastal alluvial valleys	Situated outside of these areas
Areas where the dominant vegetation is tolerant of salt, acid and/or waterlogging conditions, e.g., mangroves, saltcouch, swamp-tolerant reeds, rushes, paperbarks and swamp oak	Situated outside of these areas
Areas identified in geological descriptions or in maps as bearing sulphide minerals, coal deposits or marine shales/older estuarine sediments below ground surface of either Holocene or pre-Holocene age	Situated outside of these areas

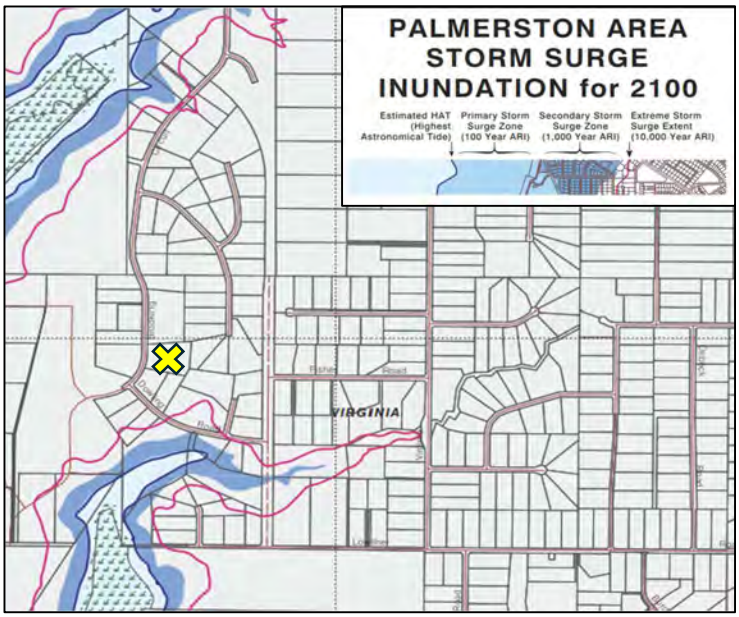
Furthermore, reference to the NT Government NR Maps website indicates the land system on which the site is located (Bustard Land System) has no known occurrence of ASS.

Considering the foregoing and the Block's location and setting, presence of acid sulphate soils was not deemed a risk necessary to test for. This finding qualifies a **Class S1** Rating for ASS.

4.6 Storm Tide Flooding

Land that is deemed constrained by storm tide flooding is defined as a coastal area at an elevation below the Primary (100-year Annual Recurrence Interval (ARI)) Storm Tide Inundation Extent[B]. Data regarding the extent of the 100-year ARI can be sourced from the *Palmerston Area Storm Surge Inundation for 2100* Map. Find, in Figure 4 below, an inset of this map, highlighting the location of 175 Brooking Circuit with a yellow 'X'. Find the map in its entirety within the appended data.

Figure 4: Virginia Inset of Palmerston Area Storm Surge Inundation Map



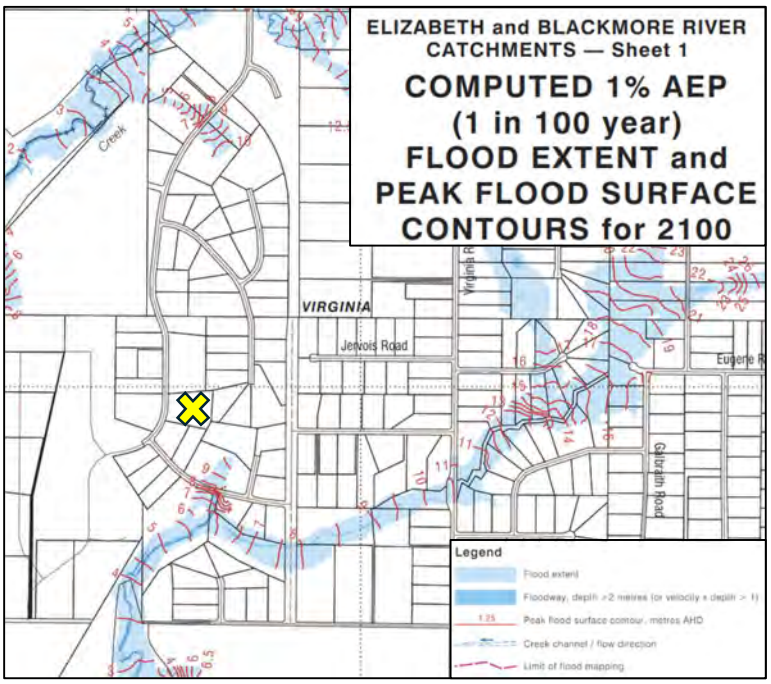
As evidenced by Figure 4, the entirety of the Block is outside of the 10,000-year ARI.

This finding qualifies a **Class S1** Rating for Storm Tide Flooding.

4.7 Riverine Flooding

Land that is deemed constrained by risk of Riverine Flooding is defined as land that is below the 1% Annual Exceedance Probability (AEP) flood level[B]. Data regarding the extent of the 1% AEP can be sourced from the *Elizabeth and Blackmore River Catchments Computed 1% AEP* Map. Find, in Figure 5 below, an inset of this map, highlighting the location of 175 Brooking Circuit with a yellow 'X'. Find the map in its entirety within the appended data.

Figure 5: Virginia Inset of Elizabeth and Blackmore River 1% AEP Map



As evidenced by Figure 5, the entirety of the Block is outside of the 1% AEP flood extent.

This finding qualifies a **Class S2** Rating for Storm Tide Flooding (a map depicting the <0.5% AEP flood extent could not be found, hence Class S2 is the highest rating possible).

5. Summary of Results

Table 3 (drawn from the Northern Territory Land Suitability Guidelines[B]) summarises the suitability class ratings for each of the six assessed categories.

Table 3: Assessment Findings

Suitability Classes	Description	Drainage*	On-site Wastewater Management		Erosion Risk	Soil Salinity	Acid Sulfate Soils	Storm Tide Flooding	Riverine Flooding
			Risk Category**	Equivalent Criteria**					
Class S1 Highly Suitable	Land having no significant limitations to sustained application of a given land use, or only minor limitations. Nil to minor negative economic, environmental, health and/or social outcomes	Rapidly to Well	Low	Well drained soils with >35% clay at depth, deep soils >1.0 m, surface gravel <10%, slopes < 5%	No runoff occurs	<2 ECe dS/m or no potential to be >4dS/m	Not Present	Secondary Storm Tide (1000 year ARI) inundation risk for entire land parcel – Nil Risk not applicable	<0.5% AEP risk of river floodplain flooding for entire land parcel – Risk not applicable
Class S2 Moderately Suitable	Land having limitations which in aggregate are moderately severe for sustained application of a given land use. Appreciably inferior to S1 land. Potential negative economic, environmental, health and/or social outcomes if not adequately managed.	Moderately Well	Medium	Moderately well drained soils with >20% clay at depth, moderately deep soils 0.5-1.0 m, surface gravel 25-50%, slopes 5-10%	<0.75% slope	2-4 ECe dS/m or no potential to be >4dS/m	Oxidisable Sulfur >0.02% but very low and <50 tonnes to be disturbed*	Primary Storm Tide (100 year ARI) inundation risk for entire land parcel – Nil No Risk	<1% AEP risk of river floodplain flooding for entire land parcel – No Risk
Class S3 Marginally Suitable	Land having limitations which in aggregate are severe for sustained application of a given use. Moderate to high risk of negative economic, environmental, health and/or social outcomes if not adequately managed.	Imperfectly	High	Imperfectly drained soils with >15% clay at depth, shallow soils 0.25 -0.5 m, surface gravel >50%, slopes >10%	0.75-5% slope, Development will require practice erosion and sediment control involving engineered works. On-going land management required	Soil salinity >4dS/m or potential to be >4dS/m	Oxidisable Sulfur >0.02%, <100 tonnes to be disturbed*	Primary Storm Tide (100 year ARI) inundation risk for part of land parcel – Low Risk	≥1% AEP risk of river floodplain flooding on part of the land parcel other than floodway – Low risk and mitigated.
Class S4 Not Suitable	Land having limitations which may be insurmountable. Limitations are so severe as to preclude successful sustained use of the land in the given manner. Very high risk of negative economic, environmental and/or social outcomes if not managed.	Poor –to Very Poor	High	Poor to very poorly drained or inundated. On-site wastewater systems will not operate during periods of inundation	>5% slope, Development will require considerable best practice erosion and sediment control involving a significant level of engineered works. High level of on-going land management essential	Soil salinity >8dS/m or potential to be >8dS/m	Oxidisable Sulfur >0.02%, >200 tonnes to be disturbed*	Primary Storm Tide (100 year ARI) inundation risk for entire land parcel including occupied area and emergency exit route - Medium Risk and mitigated	≥1% AEP risk of river floodplain flooding for entire land parcel other than floodway – Medium risk and mitigated.
Class S5 Not Suitable#	Land having limitations which appear so severe as to preclude any possibilities of successful sustained use of the land in the given manner. Almost certain risk of significant negative economic, environmental and/or social outcomes.	To be determined on assessment of specific cases	Not Suitable for on-site wastewater management		To be determined on assessment of specific cases. Environmental, social, health or economic risks are considered too high.	To be determined on assessment of specific cases. Environmental, social, health or economic risks are considered too high.	To be determined on assessment of specific cases. Environmental, social, health or economic risks are considered too high.	Primary Storm Tide (100 year ARI) inundation risk for entire land parcel and the storm tide level is 2m or more above ground level – Very high risk and mitigation not feasible.	≥1% AEP risk of river floodplain flooding on entire land parcel and is covered by floodway extent – Very high risk and mitigation not feasible.

6. Conclusion

In summary of the findings of this report for 175 Brooking Circuit, Virginia, the seven categories that compose a Land Suitability Assessment were evaluated as the following:

- **Drainage** – Class S2
- **Onsite Wastewater Management** – Class S1
- **Erosion Risk** – Class S1
- **Soil Salinity** – Not applicable given the location of the block
- **Acid Sulphate Soils** – Class S1
- **Storm Tide Flooding** – Class S1
- **Riverine Flooding** – Class S2

Given that all seven categories exhibited the requisite characteristics to warrant a classification as unconstrained land, no remedial recommendations are necessary for the Block.

Overall, WANT Geotechnics deems both Lot A and Lot B to contain in excess of 1ha of unconstrained land, making it suitable for subdivision in accordance with the requirements of a Land Suitability Assessment.

WANT Geotechnics

Mary Flux

Mary Flux BSc Hons
Engineering Geologist

Stephen Flux BSc MSc CGeol AffillEAust
Director / Engineering Geologist

7. References

A) **Northern Territory Government** (2020). *Northern Territory Planning Scheme 2020 – Part 6: Subdivision and Consolidation Requirements*, Department of Infrastructure, Planning and Logistics, Darwin, NT.

B) **Northern Territory Government** *(2020). Northern Territory Land Suitability Guidelines. Department of Infrastructure, Planning and Logistics, Darwin, NT.* Available from the NT Government Planning Scheme referenced documents list.

C) **Conservation Commission of the Northern Territory.** (1984). *The Land Resource of the Elizabeth, Darwin and Blackmore Rivers (Report No. 15).* Conservation Commission of the Northern Territory.

Limitations

WANT Geotechnics provides this geotechnical report to the client strictly subject to the terms in this clause. By accepting and/or relying on this report the client agrees to be bound by the terms in this clause.

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This geotechnical report has been prepared in accordance with the scope of services set out in the agreement between WANT Geotechnics and the client and is subject to any qualifications and assumptions set out in the report. In some circumstances the scope of services may have been limited by a range of factors such as time, budget, access and/or site disturbance constraints. This report is provided for the exclusive use of WANT Geotechnics's client for this project only and for the purposes as described in this report. It should not be used by or relied upon for other projects or purposes on the same or another site, or by a third party. Any party relying on this report beyond its exclusive use and purpose stated above, and without the express written consent of WANT Geotechnics, does so entirely at its own risk and without recourse to WANT Geotechnics for any loss or damage.

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In preparing the report, WANT Geotechnics has relied upon data, surveys, and plans provided by the client and/or Third parties. WANT Geotechnics has not verified the accuracy or completeness of the data, to the extent that the any statements, opinions, facts, conclusions and/or recommendations in the report (conclusions) are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. WANT Geotechnics will not be liable for any errors, omissions, inaccuracies, or other defects in the report that are based on inaccurate or incomplete client or third-party data.

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LIMITATIONS OF SITE INVESTIGATION

The findings contained within this report are the result of limited investigations conducted in accordance with normal practices and standards. To the best of our knowledge, they represent a reasonable interpretation of the general conditions of the site. Under no circumstances, however, can it be considered that these findings represent the actual state of the site at all points. In assessing a structure from a limited number of exploratory locations there is the possibility that variations may occur that were not encountered. Site exploration identifies specific subsurface conditions only at those points from which samples have been taken. The data derived from the investigation and subsequent laboratory testing have been extrapolated to form an inferred model and an engineering opinion is rendered about overall subsurface conditions and their likely behaviour regarding the structure. Actual conditions at the site might differ from those inferred to exist, since no subsurface exploration program, no matter how comprehensive, can reveal all subsurface details and anomalies. The exploratory test records are the subjective interpretation of subsurface conditions at a particular location, made by trained personnel. The interpretation may be limited by the method of investigation and cannot always be definitive. For example, inspection of an excavation or test pit allows a greater area of the subsurface profile to be inspected than borehole investigation; however, such methods are limited by depth and site disturbance restrictions. In borehole investigation, the actual interface between materials may be more gradual or abrupt than a report indicates.

SUBSURFACE CONDITIONS ARE TIME DEPENDENT

Subsurface conditions may be modified by changing natural forces or man-made influences. A geotechnical engineering report is based on conditions which existed at the time of subsurface exploration. Construction operations, at or adjacent to the site, and natural events, such as floods or groundwater fluctuations may also affect subsurface conditions and thus the continuing adequacy of a geotechnical report. WANT Geotechnics should be kept appraised of any such events and should be consulted to determine if additional tests are necessary.

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Final exploratory logs are developed by geotechnical engineers / engineering geologists based upon their interpretation of field logs and laboratory evaluation of field samples. Customarily, only the final exploratory logs are included in geotechnical engineering reports. These logs should not under any circumstances be redrawn for inclusion in architectural or other design drawings. To minimise the likelihood of exploratory log misinterpretation, contractors should be given access to the complete geotechnical engineering report prepared or authorised for their use. Providing the best available information to contractors helps prevent costly construction problems. For further information on this matter reference should be made to 'Guidelines for the Provision of Geotechnical Information in Construction Contracts' published by the Institution of Engineers Australia, National Headquarters, Canberra 1987.

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To the extent permissible under Australian Consumer Law and any other applicable laws, WANT Geotechnics's total liability in contract, tort (including negligence), breach of statutory duty or otherwise for any loss, damage, or injury arising from or in connection with the report provided will be limited to the lesser of: (a) the amount paid by the client for the particular service causing the loss, damage, or injury; or (b) the actual direct damages suffered by the client.

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In accordance with the principles set forth in the Australian Consumer Law regarding unfair contract terms, this limitation of liability clause aims to distribute risks between WANT Geotechnics and the client fairly and equitably. The limitations in this clause are set with the consideration that WANT Geotechnics cannot control various factors that may contribute to any potential damages, including but not limited to, third-party actions, subsurface conditions, and other unforeseeable events.

EXCEPTIONS FOR GROSS NEGLIGENCE AND STATUTORY RIGHTS

Notwithstanding the above, this limitation of liability will not apply to the extent that WANT Geotechnics has been found to be grossly negligent, fraudulent, or in breach of fundamental contractual obligations essential for the proper execution of the contract. For clarity, this clause does not limit any rights or remedies the client may have under the consumer guarantees provided by the Australian Consumer Law.

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Any claims must be initiated within a period of 12 months from the occurrence of the event giving rise to the claim, unless otherwise provided for under Australian law, as a means to encourage prompt resolution of any disputes and to prevent protracted legal uncertainty for both parties.

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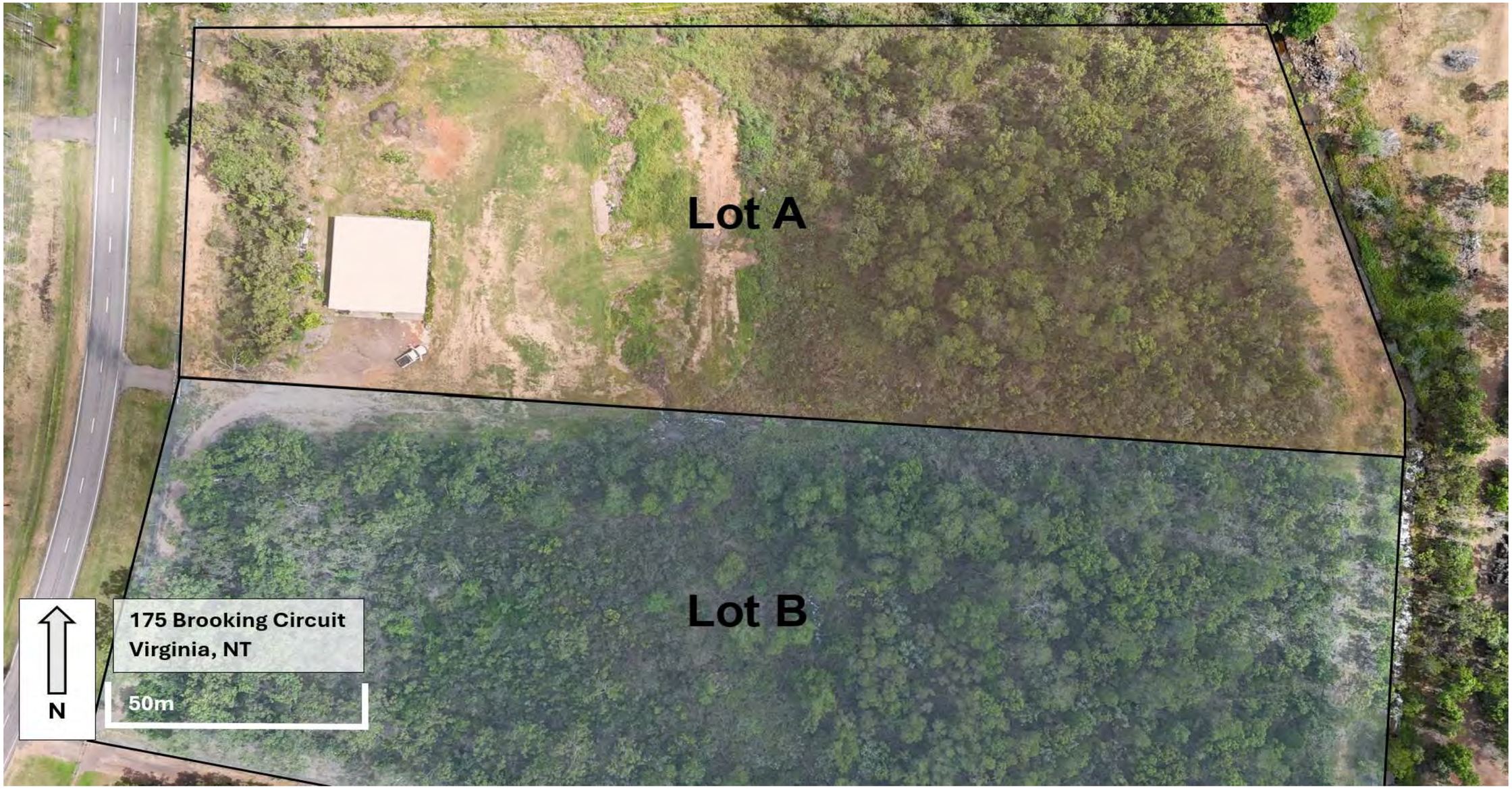
WANT Geotechnics Pty Ltd

"Unfortunately, soils are made by nature and not by man, and the products of nature are always complex. As soon as we pass from steel and concrete to earth, the omnipotence of theory ceases to exist. Natural soil is never uniform. Its properties change from point to point while our knowledge of its' properties is limited to those few spots at which the samples have been collected. In soil mechanics the accuracy of the computed results never exceeds that of a crude estimate and the principal function of theory consists in teaching us what and how to observe in the field"

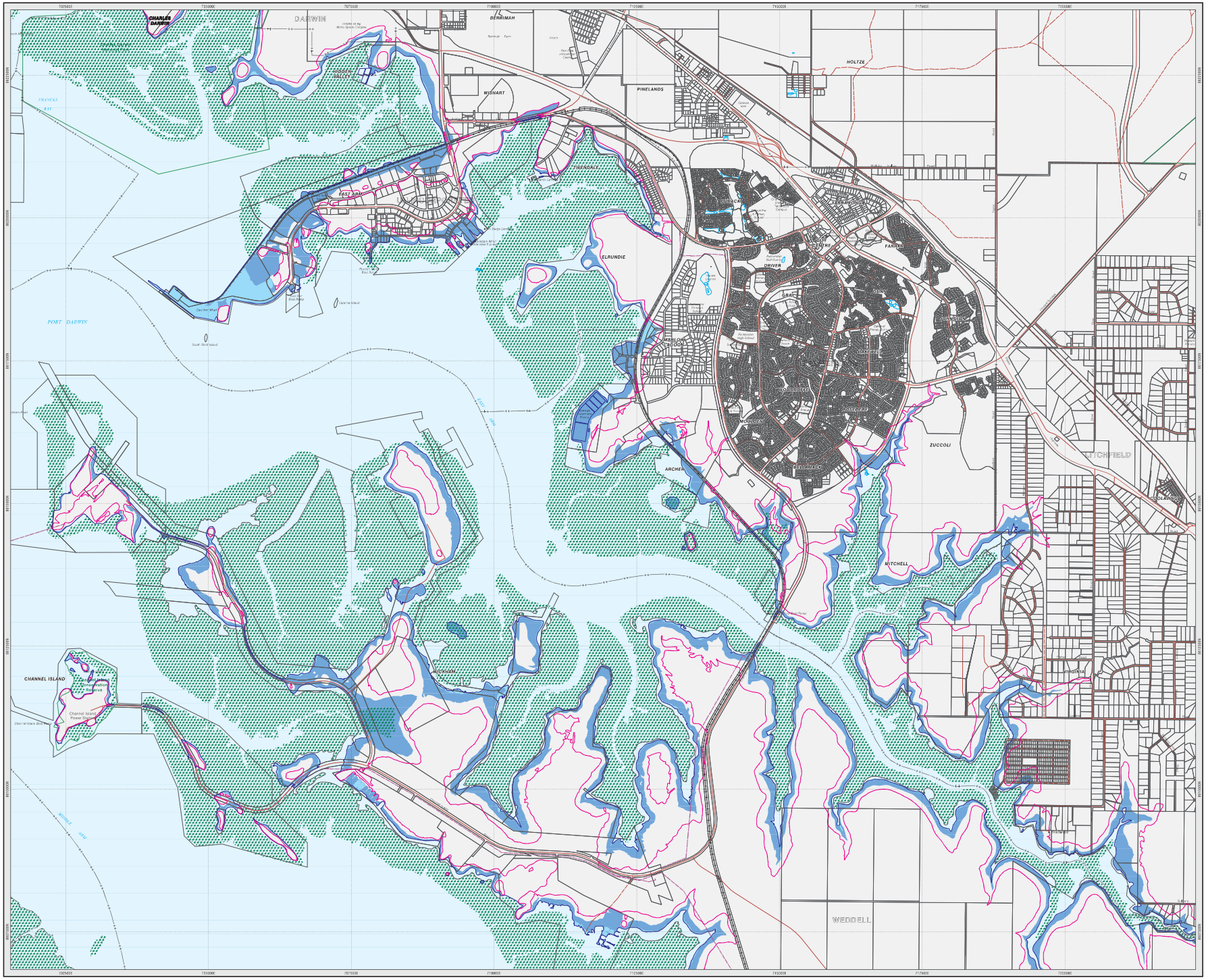
Karl Terzaghi – Founder of Modern Geotechnology

Site Plan



WANT Geotechnics Geotechnical Engineering Solutions	Client: John Glynatsis		Land Suitability Assessment	Project: NTG20265212
		Drawn by: SF	Lots A and B 175 Brooking Circuit	Drawing No. 1
	Scale: NTS	Date: 5 Feb 2026	Virginia, Northern Territory	Revision: 0

Storm Tide Flooding Plan



Northern Territory Government

GHD

SEA

NORTHERN TERRITORY STORM SURGE MAPPING

PALMERSTON AREA STORM SURGE INUNDATION for 2100

Estimated HAT (Highest Astronomical Tide)	Primary Storm Surge Zone (100 Year ARI)	Secondary Storm Surge Zone (1,000 Year ARI)	Extreme Storm Surge Extent (10,000 Year ARI)

The technical information forming the basis of this storm surge inundation mapping is contained in the following reports prepared for the NT Government by Systems Engineering Australia Pty Ltd (SEA):

1. Darwin Storm Tide Mapping Study - 2006
2. High Resolution Storm Tide and Climate Change Impacts Study - 2010

Using the storm surge levels and estimates of Highest Astronomical Tide (HAT) from the above studies, the inundation and HAT extents for the projected mean sea level in 2100 were developed by GHD Pty Ltd in 2014 based on the latest topographic information (2009 and 2011). This map is produced by the NT Government for the Palmerston area based on the storm surge inundation and HAT extents.

The maps shows the total storm surge (technical terminology is storm tide) hazard risk due to tropical cyclones in terms of the ocean water level comprising the combined effects of astronomical tide plus storm surge plus wave setup for two statistical Average Recurrence Intervals (ARI). It also shows the estimated HAT extent. The "Primary Storm Surge Zone" shown on the map refers to the extent of inundation for a storm tide event of 100 year ARI (with approximately a 40% chance of exceedance within any 50 year period). The "Secondary Storm Surge Zone" shown on the map refers to the further extent of inundation for a storm tide event of 1000 year ARI (with approximately a 5% chance of exceedance within any 50 year period). The extents do not include the possible effects of very localised wave-run-up.

Average Recurrence Interval (ARI) is also called Return Period of the Risk and is defined as the 'average' number of years between successive events of the same or greater magnitude. The ARI of a storm tide event gives no indication of when a storm tide of that magnitude may occur.

Highest Astronomical Tide (HAT) is the highest ocean level expected due to any combination of astronomical conditions alone and has an equivalent ARI of approximately 18.6 years. The HAT extent is used in this map as the reference for storm surge inundation. It is based on estimates of HAT levels derived from numerical hydrodynamic modelling that has not been verified by long term insitu measurements.

For detailed interpretation of this map and further information contact:
Water Resources NT, Department of Land Resource Management
4th Floor Goyder Centre, 25 Chung Wah Terrace,
Palmerston, Northern Territory,
T: (08) 8999 4456 **Email:** waterresources@nt.gov.au
PO Box 496, Palmerston, NT, 0831

Storm surge reports and maps are available on **www.nt.gov.au/floods**
This map produced **November 2014**, supercedes all previous versions.

GENERAL FEATURES

- Local Government Area
- Property / Road Boundaries
- Suburbs / Localities — STUART PARK
- Major Road
- Minor Road
- Park / Reserve
- Railway
- Gas pipeline
- Watercourse, Lake or Lagoon
- Mangroves

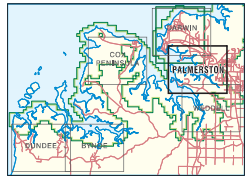
Data Source:
Cadastre, road centrelines and administrative information
Northern Territory Department of Lands, Planning and the Environment.

Map prepared by:
Spatial Data and Mapping, Water Resources NT,
Department of Land Resource Management
Goyder Centre, Chung Wah Terrace, Palmerston,
Northern Territory of Australia.

Grids numbered false are 2500 metre intervals of the Map Grid of Australia (MGA) Zone 52 Transverse Mercator Projection. Horizontal Datum: GDA 94

This map was produced on the Geocentric Datum of Australia 1994 (GDA 94)

INDEX TO DARWIN REGION STORM SURGE MAPS



Extent of topographic information: 2009 | 2011

MAP LOCATION

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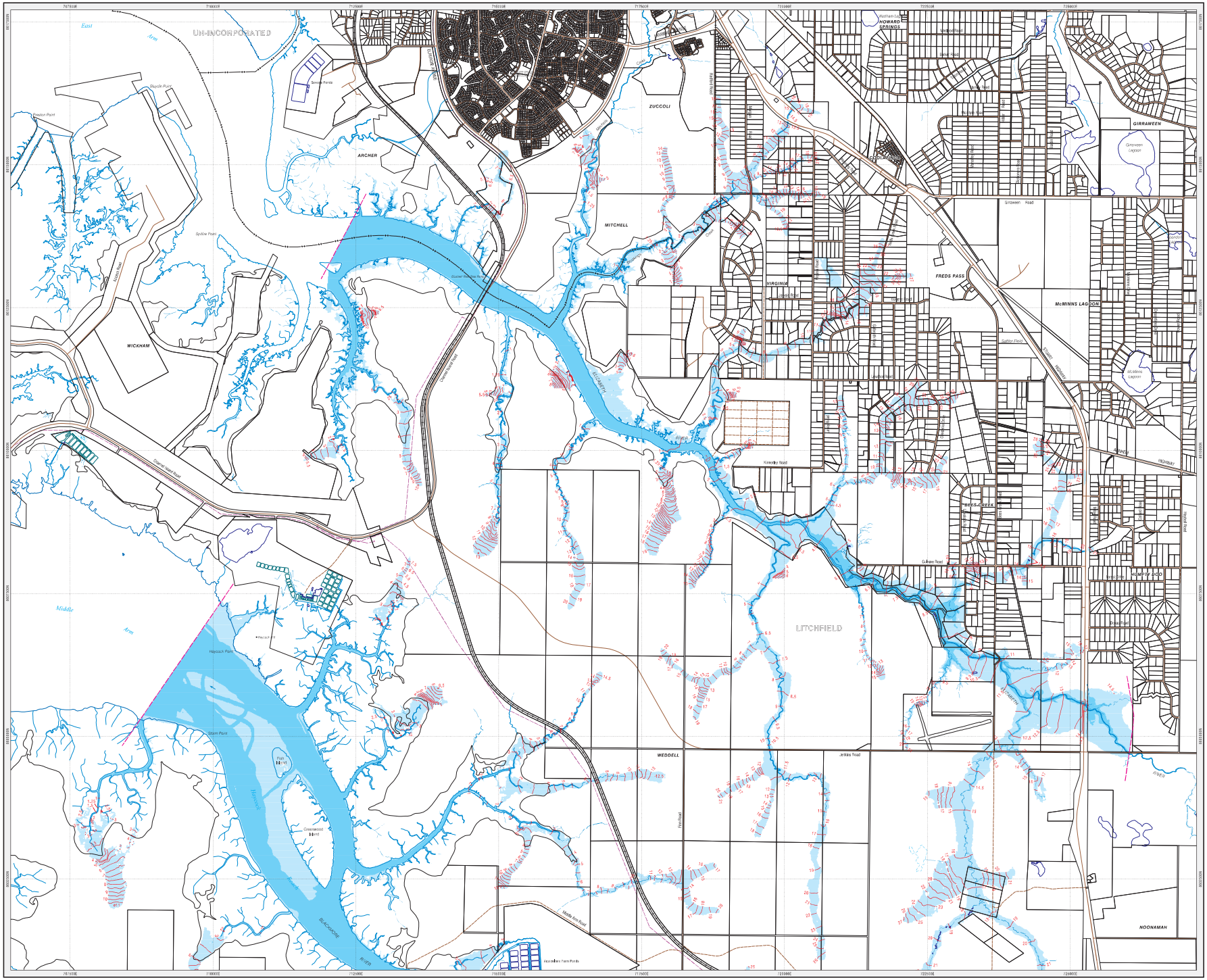
Riverine Flooding Plan



Northern Territory Government

Cardno

ELIZABETH and BLACKMORE RIVER CATCHMENTS — Sheet 1

COMPUTED 1% AEP (1 in 100 year) FLOOD EXTENT and PEAK FLOOD SURFACE CONTOURS for 2100

This map shows the Q100 flood and floodway extents caused by a 1% Annual Exceedance Probability (AEP) flood event over the Elizabeth and Blackmore River Catchments. The extent of flooding shown on this map is indicative only hence, approximate. This map is available for sale from:

Land Information Centre,
Department of Lands, Planning and the Environment
3rd Floor NAB House, 71 Smith Street, Darwin, Northern Territory, 0800
T: (08) 8995 5300 **Email:** landinfo@nt.gov.au
GPO Box 1680, Darwin, Northern Territory, 0801.

This map is also available online at:
www.nt.gov.au/lands http://nrmaps.nt.gov.au

Legend

- Flood extent
- Floodway, depth >2 metres (or velocity x depth > 1)
- 1.25 Peak flood surface contour, metres AHD
- Creek channel / flow direction
- Limit of flood mapping

General Features

- Local Government Area
- Property boundary
- WEDDELL Suburb / Localities
- Road centreline
- Reserve boundary
- Railway
- Gas Pipeline
- Watercourse Perennial
- Watercourse Non Perennial
- Lakes Perennial
- Lakes Non Perennial
- Swamp

Data Sources:
Cadastre, road centrelines and administrative information - Northern Territory Department of Lands, Planning and the Environment.

Notes:

This map shows the 1% AEP (1 in 100 year) floodway and flood extents based on the modelled results from the **Elizabeth and Blackmore River Catchments Flood Study (Report April 2014)** by Cardno.

The Flood Study was based on sea level equivalent to the mean sea level for 2100 plus the highest astronomical tide (HAT).

HAT is the highest ocean level expected due to any combination of astronomical conditions alone and has an equivalent average recurrence interval of approximately 18.6 years.

Floodway is defined as the area where the depth of floodwater exceeds 2.0 metres or the velocity x depth exceeds 1.

This map is intended to be used at a scale of 1:10,000 and any enlargement beyond this scale does not increase the accuracy of the data appearing on the map and is not recommended. The peak flood contour interval varies from 0.25, 0.5 and 1 metre.

An accurate flood extent at any location can only be obtained by a survey traverse from a known level.

For further information contact:

Water Resources NT, Department of Land Resource Management
4th Floor Goyder Centre, 25 Chung Wah Tce,
Palmerston, Northern Territory.
T: (08) 8999 4455 **Email:** waterresources@nt.gov.au
PO Box 496, Palmerston, NT 0831.

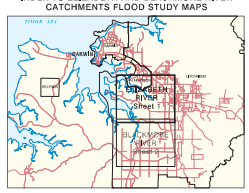
Map prepared: **April 2014**
Spatial Data & Mapping Unit, Water Resources NT,
Department of Land Resource Management,
Goyder Centre, Chung Wah Terrace, Palmerston,
Northern Territory of Australia.

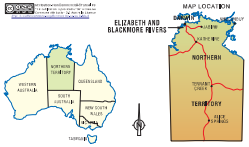
metres 200 0 500 1000 1500 2000 metres 5,000

Black numbered lines are 2000 metre intervals of the Map Grid of Australia (MGA) Zone 53
Transverse Mercator Projection Horizontal Datum: GDA 94

GDA This map was produced on the Geocentric Datum of Australia 1994 (GDA 94)

INDEX TO ELIZABETH AND BLACKMORE RIVER CATCHMENTS FLOOD STUDY MAPS





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Laboratory Test Results

Material Test Report

Report Number: **D23562-93**
Issue Number: 1
Date Issued: 02/02/2026
Client: WANT Geotechnics (NT Geotechnics)
12/9 Aristos Place, Winnellie NT 0822
Contact: Mary Flux
Project Number: D23562
Project Name: Process Testing
Project Location: Project: LSA - 175 Brooking Circuit, Virginia
Client Reference: NTG20255212
Work Request: 11105
Sample Number: D26-11105A
Date Sampled: 16/01/2026
Dates Tested: 16/01/2026 - 29/01/2026
Sampling Method: Sampled by Client
The results apply to the sample as received
Site Selection: NTCP 103.1
Sample Location: **TH1, Depth: 0.20m**

HiQa Geotechnical
Darwin Laboratory
1/6 Wedding Road Tivendale NT 822
Phone: (08) 8947 4802
Email: darwin@hiqa.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

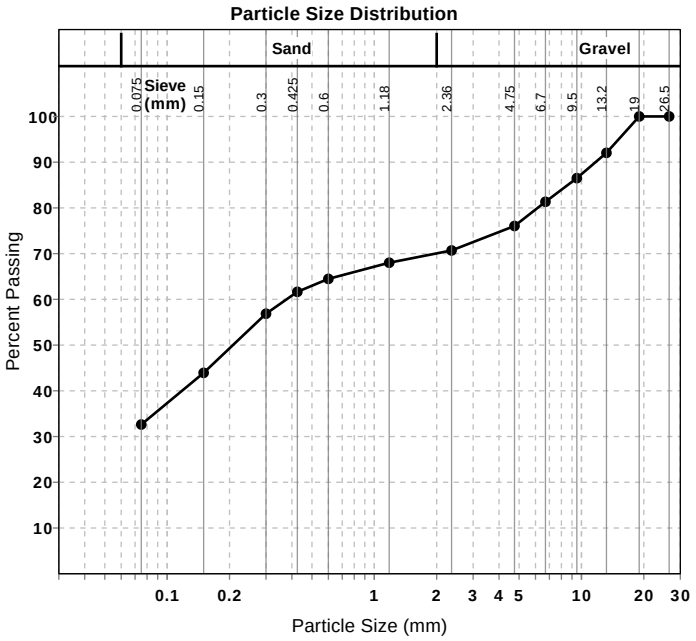
Approved Signatory: Nicholous DeBeer
Darwin Laboratory Branch Leader

Laboratory Number: 13121

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
26.5 mm	**100**		
19 mm	**100**		
13.2 mm	**92**		
9.5 mm	**87**		
6.7 mm	**81**		
4.75 mm	**76**		
2.36 mm	**71**		
1.18 mm	**68**		
0.6 mm	**64**		
0.425 mm	**62**		
0.3 mm	**57**		
0.15 mm	**44**		
0.075 mm	**33**		

Moisture Content (AS1289.2.1.1)		Min	Max
Moisture Content (%)	13.6		

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**3**		
Soil Description	Clay Sand		
Nature of Water	Distilled		



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Results relate only to the items tested/sampled.

Material Test Report

Report Number: **D23562-93**
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Client: WANT Geotechnics (NT Geotechnics)
12/9 Aristos Place, Winnellie NT 0822
Contact: Mary Flux
Project Number: D23562
Project Name: Process Testing
Project Location: Project: LSA - 175 Brooking Circuit, Virginia
Client Reference: NTG20255212
Work Request: 11105
Sample Number: D26-11105B
Date Sampled: 16/01/2026
Dates Tested: 16/01/2026 - 20/01/2026
Sampling Method: Sampled by Client
The results apply to the sample as received
Site Selection: NTCP 103.1
Sample Location: **TH1, Depth: 0.50m**

HiQa Geotechnical
Darwin Laboratory
1/6 Wedding Road Tivendale NT 822
Phone: (08) 8947 4802
Email: darwin@hiqa.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

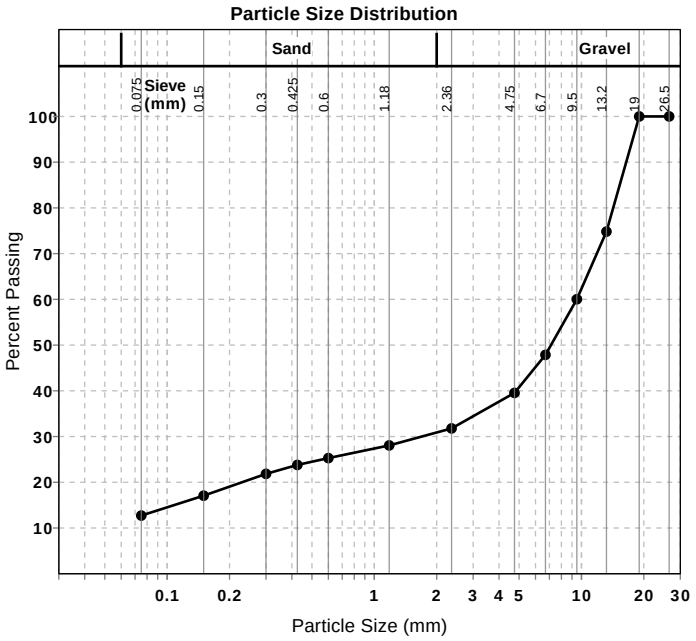
Approved Signatory: Nicholous DeBeer
Darwin Laboratory Branch Leader

Laboratory Number: 13121

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
26.5 mm	**100**		
19 mm	**100**		
13.2 mm	**75**		
9.5 mm	**60**		
6.7 mm	**48**		
4.75 mm	**40**		
2.36 mm	**32**		
1.18 mm	**28**		
0.6 mm	**25**		
0.425 mm	**24**		
0.3 mm	**22**		
0.15 mm	**17**		
0.075 mm	**13**		

Moisture Content (AS1289.2.1.1)		Min	Max
Moisture Content (%)	13.4		

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**6**		
Soil Description	Orange clayey SAND		
Nature of Water	Distilled		



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Results relate only to the items tested/sampled.

Site and Soil Evaluation Report

Site & Soil Evaluation
For Onsite Wastewater Management
175 Brooking Circuit, Virginia

Prepared for:	John Glynatsis
Prepared by:	Stephen Flux, BSc MSc CGeol AffillEAust & Mary Flux BSc Hons On-site Wastewater Management Certificate
Telephone:	0499 996 659 (Stephen Flux); 0427 350 980 (Mary Flux)
Email:	steve@wantgeotechnics.com.au; mary@wantgeotechnics.com.au
Address:	10/17 Willes Road, Berrimah, NT 0828

5/02/2026

1. Executive Summary

WANT Geotechnics Pty Ltd has been engaged by John Glynatsis to undertake a Site and Soil Evaluation (SSE) for an approximately sized 2.00-hectare land parcel (herein referred to as 'Lot B') at 175 Brooking Circuit, Virginia. A testing area (herein referred to as 'the Site') was identified in the western portion of Lot B, approximately 50m from its western boundary. The aim of the assessment is to establish the degree of suitability of the soils on the Site for the installation of a Wastewater Management System (WMS). The result of the assessment concludes that Lot B can support either a primary or secondary treated WMS – so long as it is designed to the specifications outlined in the conclusion of this report and so long as the system is placed in a location commensurate to the setbacks required.

2. Introduction

This report details the findings of the SSE undertaken at the Site in accordance with Section 5 of *Australian/New Zealand Standard: Onsite Domestic Wastewater Management (AS / NZS1547*[A]*)* with guidance on its application to the NT by the *Code of Practice for Wastewater Management*[B].

The findings of this report can be broken down into two distinct parts – a prior desktop study of Lot B, and an Onsite Evaluation. The Prior Desktop Study of Lot B serves to determine the initial feasibility of construction of the WMS by assessing the presence of constraints and/or contravening features (anthropogenic and natural) in the surrounding landscape. The Onsite Evaluation of the SSE was completed by WANT Geotechnics employees who mobilised to Lot B on January 14, 2026. This component involved conducting an onsite analysis of the soils in which the WMS will be constructed within (subsequent soil sample testing was undertaken to further understand the potential hydraulic capacity of the present soils).

The purpose of this report is to detail the findings of both the Prior Desktop Study and the Onsite Evaluation in order to make a qualitative and quantitative determination of the Design Loading Rate (DLR) and Design Irrigation Rate (DIR) of the Site. The scope of the works conducted included:

- A Prior Desktop Study of the Block and its surrounding geography and hydrology
- Excavation of 2 x Test Pits (TP1 and TP2) intended to cover the approximate footprint of the proposed WMS disposal area
- In-situ permeability testing in TP1 and TP2
- Logging of both Test Pits' soil profiles in accordance with *AS / NZS1547*
- Laboratory analysis of samples collected from 0.2mbgl (metres below ground) and 0.5mbgl in TP1
- Drone photography of Lot B

3. Prior Desktop Study

Table 1 summarises the key findings and associated implications of the factors considered in the Prior Desktop Study of Lot B. In reference to these descriptions, find attached site locality plans in the appended data.

Table 1: Findings of the Initial Desktop Study

Site Factor	Findings	Implications on design[1]
Site boundaries	A fenced block of approximately 20,000m^2, the Site is bordered in all directions by developed residential land parcels	Lot B is of appropriate size to support a primary or secondary treated WMS, and is not bordered by any sensitive receptors
Climate	Mean rainfall = 1,882.8mm (McMinns Lagoon BOM Station[C]) Annual evaporation = 2,000 – 2,400mm per year[D] Predominant wind direction = East in dry season and west in wet season	Lot B is in an appropriate climatic region given yearly evaporation exceeds average yearly rainfall
Land unit[E]	The Site is located on the 1c land unit	This land unit possesses the following characteristics: low scarps and short steep slopes; gravelly shallow lithosols; and rapidly-drained. Rapid drainage can inhibit sufficient pathogenic attenuation before reaching groundwater – insitu testing will determine if this is a likely occurrence
Soil Water Regime	Over the past 5 years, the closest government water bore (RN020244 – located 2,420m to the southeast of Lot B)[F] recorded a shallowest groundwater observation of 2.07 metres below ground level (mbgl) in March of 2024	Encountering groundwater at a depth less than 1.5mbgl is detrimental as the WMS could become inundated in surge events, this finding suggests such an occurrence is unlikely
Nearest watercourse	The closest water source to the Site is Wells Creek located ~180m to the west	The Site is >60m from any waterway and >200m from the nearest above ground domestic potable water source
Nearest water bore[G]	There are no water bores within 400m of the Site	The Site is an appropriate distance (>100m) from the nearest bore to support either a primary or secondary treated system
Historical land use	Not ascertained	There is no historical land use information to suggest the Site could be unsuitable for development of a WMS
1 in 100-year flood risk[H]	The Site is located outside of the 1 in 100-year flood extent area for both the Elizabeth and Blackmore Rivers	There is no apparent flood risk identified for the Site

Table notes:

1) A green colour coding suggests no identified constraint to construction, an orange colour coding suggests a potential constraint, and a red colour coding suggests a definite constraint

4. Onsite Evaluation

4.1 Field investigation procedure

The fieldwork undertaken comprised of 2 Test Pits, both excavated to depths of 600mm (assessment of the deep soil horizon). Both Test Pits were dug by a 2 tonne Mini Excavator. At each Test Pit, the following recordings were taken:

- Orientation photographs facing north, east, south, and west (find in Photo Log)
- Photographs of the Test Pit and the excavated spoil (find in Photo Log)
- GPS locations
- Soil lithology findings
- An in-situ permeability test at 600mm deep

At TP1 only, soil samples were taken from 200mm and 500mm to understand particle size distribution of the soil at these depths. Interpreting this aspect of the soil's macro composition allows for a greater understanding of the potential hydraulic capacity of the Site.

4.2 Compliance with setback distances

Table 2 outlines the Site's compliance with the setback distances stipulated in the *Code of Practice for Wastewater Management*[B].

Table 2: Site compliance with required setback distances

Feature*	Required setback distance	Compliance
Allotment boundary	2m (absorption trench or bed), 0.5m / 3.0m (secondary: subsurface / surface irrigation)	✓
Any other WMS application area	2m (both primary and secondary)	✓
Buildings & stormwater drains	3m downslope, 6m upslope (absorption trench or bed), 2m / 3m (secondary: subsurface / surface irrigation)	✓
Swimming pool	3m downslope, 6m upslope (absorption trench or bed), 3m (secondary: subsurface / surface irrigation)	✓
Potable waterway	200m (primary), 100m (secondary)	✓
Non-potable waterways	60m (primary), 30m (secondary)	✓
Domestic potable bore	100m (primary), 50m (secondary)	✓

Table notes:
*Testing was undertaken prior to construction of the settlement, these setback distances should be applied to the positioning of the WMS prior to its placement

4.3 Onsite evaluation findings

Table 3 summarises the key findings and associated implications of the factors considered in the onsite evaluation of Lot B.

Table 3: Findings of the Onsite Evaluation

Site Factor	Findings	Implications on design[1]
Onsite weather conditions	33.0°C and 72% humidity at 11:33am on 14/01/26, with 119.4mm rainfall in the last 7 days (McMinns Lagoon – BOM data)	Weather conditions unlikely to have impacted upon site assessment and soil permeability recordings
Slope and shape	The Site is located on a ~3.0% slope from west to east	The ground in the vicinity of the Site will likely not be prone to severe run-off events or erosion
Exposure	The Site at present receives ~40% solar exposure	Exposure of the WMS will be increased given the need for localised clearing of vegetation, hence, the low exposure at present should not be an issue
Vegetation	The vegetation of the Site consists mainly of immature and mature eucalypts and shrubbery	Tree root invasion of the WMS will be an issue if localised vegetative clearing is not undertaken. It is recommended that clearing produce a conservative 3m buffer between the WMS and any vegetation
Topographical features	A low velocity stream runs in a southeasterly direction, 50m to the east of the Site	No inhibitive implication
Anthropogenic features	No remarkable anthropogenic features observed within the vicinity of the Site	No inhibitive anthropogenic features
Signs of erosion / land slip	Nothing observed	No inhibitive implication
Presence of boulders / rocky outcrops	Sporadic Coffee Rock outcrops	No likely inhibitive implication for the Site
Soil surface condition	The surface soils are a moist gravelly loam across the entirety of the Site	The soil surface is in good condition to construct the WMS. Shrinkage / swelling (cracking) is not likely due to the <35% clay content
Signs of salination	No signs observed	No inhibitive implication
Presence of fill	Not assumed in the Test Pits	No inhibitive implication
Signs of run-off / flooding (controls)	The stream to the east of the Site is potentially a benefit of the 1,000m^3 of fill placed on Lot A of 175 Brooking Circuit (to the north)	Drainage has been diverted to the rear of lot B, 50m distant from where the Site is situated
Embankment	Nothing observed	No inhibitive implication

Table notes:

1) A green colour coding suggests no identified constraint to construction, an orange colour coding suggests a potential constraint, and a red colour coding suggests a definite constraint

4.4 Soil lithology findings and sample sieve analysis

The soil lithology findings have been informed by the laboratory testing results in order to obtain a clear picture of the composition of the differing strata horizons existent in the Test Pits. These Particle Size Distribution (PSD) results are presented in Table 4 with the associated soil description for each of the Test Holes. Refer to the appended data for photographs of the Test Holes and their adjacent surrounding environment.

Table 4: Sieve results and inferred soil categorisation

	TH1	TH2
GPS location	*12°32'42.46"S* *131° 0'56.73"E*	*12°32'41.87"S* *131° 0'56.69"E*
Lab-analysed composition at 200mm	**Well graded:** Gravel = 29% Sand = 38% Fines (clay and silt) = 33%	
Lab-analysed composition at 500mm	**Poorly graded:** Gravel = 68% Sand = 19% Fines (clay and silt) = 13%	
Soil description	0 – 0.30m: Gravelly Clayey SAND, loose to medium dense, fine to medium-grained, fine to medium gravel, dark grey, moist 0.30 – 0.50m: Clayey GRAVEL, medium dense, fine to medium, with fine to coarse-grained sand, dark red brown, moist 0.50 – 0.60m: Cemented laterite	
Soil type	**At 200mm:** Category 3b (massively structured Loam) **At 500mm:** Category 4c (massively structured Clay Loam)	
Indicative permeability (according to Table L1 of *AS / NZS1547*)	**Surface – 400mm** 0.5 – 1.5m/day **300mm – 600mm** 0.06 – 0.12m/day	

A coarse fragment (>2mm in size) abundance of 29% was recorded at the 200mm sample depth, and 68% at the 500mm sample depth. A coarse fragment percentage greater than 20% can be inhibitive of WMS design when the coarse fragments are classed as cobbles or larger (>60mm in size), however, the coarse fragments in the Test Pits were deemed to be medium-sized or smaller (<20mm). Hence, the abundance of coarse fragments at the sample depths poses no additional risk to WMS design.

The coarse fragment percentage measured at 500mm was technically high enough to classify the soils as Category 1 (Gravels and Sands). However, characteristics more directly related to permeability, such as areal porosity, show that the soil's hydraulic performance is better determined by its field texture (percentage composition minus gravel) than by its gravel content.

As well as being tested for their Particle Size Distribution, both samples were also tested for their Emerson Aggregate Class (EAC). EAC measures a clay's potential for dispersal when immersed in solution – this occurs as a result of positively charged sodium molecules mobilising negatively charged clay particles. Assessment of this condition is relevant to the performance potential of WMS beds and

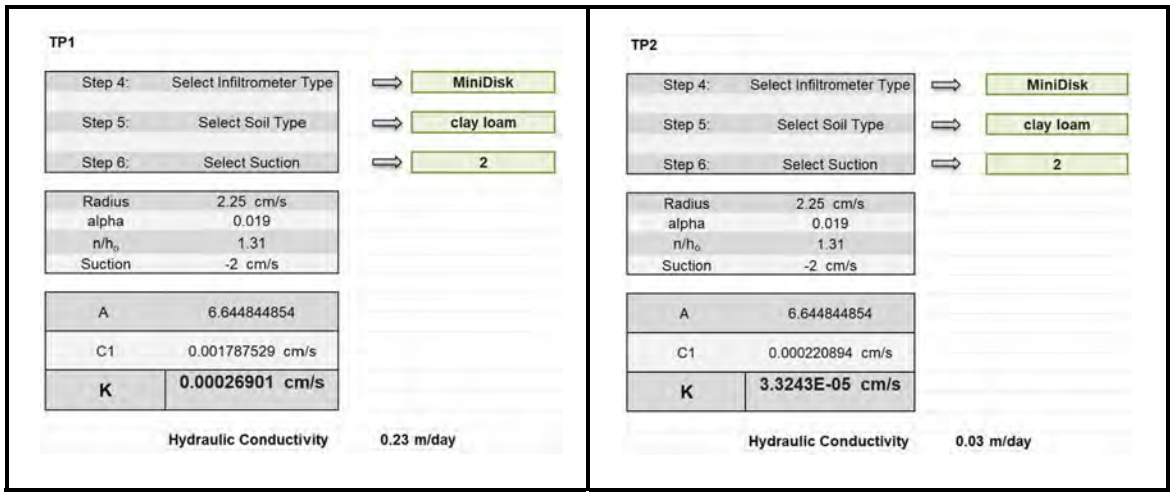
trenches, as the high sodium absorption ratio (SAR) of WMS effluent readily disperses some clays, forming a clogging layer that is largely impermeable. The following Emerson Classes were recorded at the two sample depths:

- 200mm depth – Emerson Class 3 (tendency to slake or swell but generally not readily dispersive)
- 500mm depth – Emerson Class 6 (highly stable soils with a low potential for dispersive behaviour)

Given the findings of the Emerson Tests, there is low chance of clay dispersivity at both the sample depths. Hence, the permeability of the soils underlying the WMS will likely not be further degraded over time due to clay dispersivity from sodium accumulation. Therefore, design of the WMS can be reliably informed by the in-situ permeability recordings as well as the encountered soil types

4.5 Permeability test

To further understand the hydraulic conductivity of the soils an in-situ permeability test was undertaken. This test involves deploying a Mini Disk Infiltrometer at the base of both Test Pits (600mm deep) and measuring the hydraulic displacement over time. The soil is soaked with 100mL of water, prior to undertaking the test, to simulate saturated soil conditions (conditions better representative of the year-round state of the soil given its constant subjection to septic effluent inundation). The results for both Test Pits are presented below.



TP1 recorded an insitu permeability of 0.23 m/day (slightly above that of a Category 4c soil: 0.06 – 0.12 m/day) and TP2 recorded an insitu permeability of 0.03 m/day (slightly below that of a Category 4c soil).

While, individually, the results display a 0.20 m/day range of possible permeability, an averaging of the results between the two locations produces an insitu permeability approximately in accordance with the indicative range for a Category 4c soil.

Given no other features which could further constrain soil permeability were identified on the Site, a fitting soil classification, based on both the in-situ permeability and the encountered soil types, would be of a Category 3b soil at shallow depths (surface – 400mm) and a Category 4c soil at deeper depths (400-600mm).

5. Conclusion

Between the initial desktop study and the onsite evaluation, WANT Geotechnics has determined that the Site on Lot B of 175 Brooking Circuit, Virginia appears suitable to support the following:

- A primary or secondary treated onsite wastewater management system so long as it is constructed in close proximity to the Site (area of testing), and ensuring all aspects of the WMS are placed at distances commensurate with the *NT Code of Practice for Wastewater Management* setbacks (on page 4 of this report). Based on the findings of this evaluation the disposal system should be designed with the following DLR/DIR, depending on what mode of effluent disposal is opted for:
    - **Irrigation of secondary treated effluent** – a DIR of 4mm/day (drip or spray irrigation) or 3.5mm/day (LPED irrigation) (light blue box below)
    - **Shallow trench or bed (300 - 400mm deep)** – a DLR of 15mm/day for a primary treated system, or 30mm/day for a secondary treated system (red box below)
    - **Deep trench or bed (400 – 600mm deep)** – a DLR of 5mm/day for a primary treated system, or 10mm/day for a secondary treated system (dark green box below)

The maximum rate (as opposed to the conservative rate) of the DLR values for primary treated effluent is provided above given the Site/Block is free of any limiting factors which would warrant a more conservative approach to design.

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TABLE M1
RECOMMENDED DESIGN IRRIGATION RATE (DIR) FOR IRRIGATION SYSTEMS

Soil Category (see Note 1)	Soil texture	Structure	Indicative permeability (K_{sat}) (m/d)	Design irrigation rate (DIR) (mm/day)		
				Drip irrigation	Spray irrigation	LPED irrigation
1	Gravels and sands	Structureless (massive)	> 3.0	5 (see Note 2)	5	(see Note 3)
2	Sandy loams	Weakly structured	> 3.0			4
		massive	1.4 – 3.0			
3	Loams	High/ moderate structured	1.5 – 3.0	4 (see Note 1)	4	3.5
		Weakly structured or massive	0.5 – 1.5			
4	Clay loams	High/ moderate structured	0.5 – 1.5	3.5 (see Note 1)	3.5	3
		Weakly structured	0.12 – 0.5			
		Massive	0.06 – 0.12			
5	Light clays	Strongly structured	0.12 – 0.5	3 (see Note 1)	3	2.5 (see Note 4)
		Moderately structured	0.06 – 0.12			
		Weakly structured or massive	< 0.06			
6	Medium to heavy clays	Strongly structured	0.06 – 0.5	2 (see Note 2)	2	(see Note 3)
		Moderately structured	< 0.06			
		Weakly structured or massive	< 0.06			

NOTES:
1 For Category 3 to 5 soils (loams to light clays), the drip irrigation system needs to be installed in an adequate depth of topsoil (in the order of 150 – 250 mm of *in situ* or imported good quality topsoil) to slow the soakage and assist with nutrient reduction.

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TABLE L1
RECOMMENDED DESIGN LOADING RATES FOR TRENCHES AND BEDS

Soil category	Soil texture	Structure	Indicative permeability (K_{sat})(m/d)	Design loading rate (DLR) (mm/d)			
				Trenches and beds			ETA/ETS beds and trenches
				Primary treated effluent		Secondary treated effluent	
				Conservative rate	Maximum rate		
1	Gravels and sands	Structureless (massive)	> 3.0	20 (see Note 1)	35 (see Note 1)	50 (see Note 1)	(see Note 4)
2	Sandy loams	Weakly structured	> 3.0	20 (see Note 1)	30 (see Note 1)	50 (see Note 1)	
		Massive	1.4 – 3.0	15	25	50	
3	Loams	High/ moderate structured	1.5 – 3.0	15	25	50	
		Weakly structured or massive	0.5 – 1.5	10	15	30	
4	Clay loams	High/ moderate structured	0.5 – 1.5	10	15	30	12
		Weakly structured	0.12 – 0.5	6	10	20	8
		Massive	0.06 – 0.12	4	5	10	5
5	Light clays	Strongly structured	0.12 – 0.5	5	8	12	8
		Moderately structured	0.06 – 0.12		5	10	
		Weakly structured or massive	< 0.06			8	
6	Medium to heavy clays	Strongly structured	0.06 – 0.5	(see Notes 2 & 3)			5 (see Notes 2, 3, & 5)
		Moderately structured	< 0.06				
		Weakly structured or massive	< 0.06				

WANT Geotechnics

Mary Flux

Mary Flux BSc Hons
Engineering Geologist

Stephen Flux BSc MSc CGeol AffillEAust
Director / Engineering Geologist

6. References

A) **Joint Technical Committee WS-013** (2012). *Australia/New Zealand Standard: On-site domestic wastewater management*. SAI Global Limited.

B) **Department of Health** (2020). *Code of Practice for Wastewater Management*. Northern Territory Government.

C) **Bureau of Meteorology** (2025). *Climate Data Online*. [Online]. Available at: Climate Data Online - Map search

D) **Bureau of Meteorology** (2006). *Average annual, monthly and seasonal evaporation*. [Online]. Available at: Average annual, monthly and seasonal evaporation maps, Bureau of Meteorology

E) **Conservation Commission of the Northern Territory.** (1984). The Land Resource of the Elizabeth, Darwin and Blackmore Rivers (Report No. 15). Conservation Commission of the Northern Territory.

F) **The Department of Environment, Parks and Water Security** (2025). *Darwin Rural Groundwater Watch*. [Online]. Available at: Darwin Rural Groundwater Watch

G) **NT Government – Department of Lands, Planning and Environment** (2025). *NR Maps*. [Online]. Available at: NR Maps

H) **Floodplain maps | nt.gov.au** Available at: https://nt.gov.au/environment/water/water-in-the-nt/flooding-and-storm-surge/floodplain

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The findings contained within this report are the result of limited investigations conducted in accordance with normal practices and standards. To the best of our knowledge, they represent a reasonable interpretation of the general conditions of the site. Under no circumstances, however, can it be considered that these findings represent the actual state of the site at all points. In assessing a structure from a limited number of exploratory locations there is the possibility that variations may occur that were not encountered. Site exploration identifies specific subsurface conditions only at those points from which samples have been taken. The data derived from the investigation and subsequent laboratory testing have been extrapolated to form an inferred model and an engineering opinion is rendered about overall subsurface conditions and their likely behaviour regarding the structure. Actual conditions at the site might differ from those inferred to exist, since no subsurface exploration program, no matter how comprehensive, can reveal all subsurface details and anomalies. The exploratory test records are the subjective interpretation of subsurface conditions at a particular location, made by trained personnel. The interpretation may be limited by the method of investigation and cannot always be definitive. For example, inspection of an excavation or test pit allows a greater area of the subsurface profile to be inspected than borehole investigation; however, such methods are limited by depth and site disturbance restrictions. In borehole investigation, the actual interface between materials may be more gradual or abrupt than a report indicates.

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WANT Geotechnics Pty Ltd

"Unfortunately, soils are made by nature and not by man, and the products of nature are always complex. As soon as we pass from steel and concrete to earth, the omnipotence of theory ceases to exist. Natural soil is never uniform. Its properties change from point to point while our knowledge of its' properties is limited to those few spots at which the samples have been collected. In soil mechanics the accuracy of the computed results never exceeds that of a crude estimate and the principal function of theory consists in teaching us what and how to observe in the field"

Karl Terzaghi – Founder of Modern Geotechnology

WANT Geotechnics Geotechnical Engineering Solutions	Client: John Glynatsis		Site and Soil Evaluation	Project: NTG20265212
		Drawn by: SF	Lot B 175 Brooking Circuit	Drawing No. 1
	Scale: NTS	Date: 5 Feb 2026	Virginia, Northern Territory	Revision: 0

Photos 1-4: Test Pit 1 – North, East, South, West orientation (left to right)

Photos 5-6: Test Pit 1 – indicative of excavated spoil (T) and Test Pit condition (B)

Photos 7-10: Test Pit 2 – North, East, South, West orientation (left to right)

Photos 11-12: Test Pit 2 – indicative of excavated spoil (T) and Test Pit condition (B)

Centre for Environmental Training

Certificate of Completion

On-site Wastewater Management

This is to verify that

Mary Flux

has successfully completed the above course
held Online
on 30th November & 1st December

the detailed content of which is outlined overleaf

On-site Wastewater Management

The person named overleaf has attended the On-site Wastewater Management training course held:

Online on 30th November & 1st December 2021

The course comprises a two-day (13 teaching hours) program covering the topics listed below:

- The Regulatory Environment
- On-site Wastewater; Generation, Quantification and Characterisation
- Primary Treatment; Septic Systems
- Other Primary Treatment Systems and Greywater Options
- Secondary Treatment; Sand Filters, Media Filters and Mound Systems
- Secondary Treatment; Treatment Wetlands and Reed Beds
- Secondary Treatment; Aerated Wastewater Treatment Systems
- Soil Assessment for On-site Wastewater Management
- Land Capability; Desktop Study
- Soil Absorption Systems; Trenches and Beds
- Passive Dosing Systems; Siphons and Flouts, LPED Systems
- Evapotranspiration Systems; Sizing by Water Balance Analysis
- Nutrients and Land Application Areas
- Irrigation Systems; Componentry and Design
- Failing Systems; Auditing and Troubleshooting

Further information on the On-site Wastewater Management training course may be obtained from:

cet Centre for Environmental Training

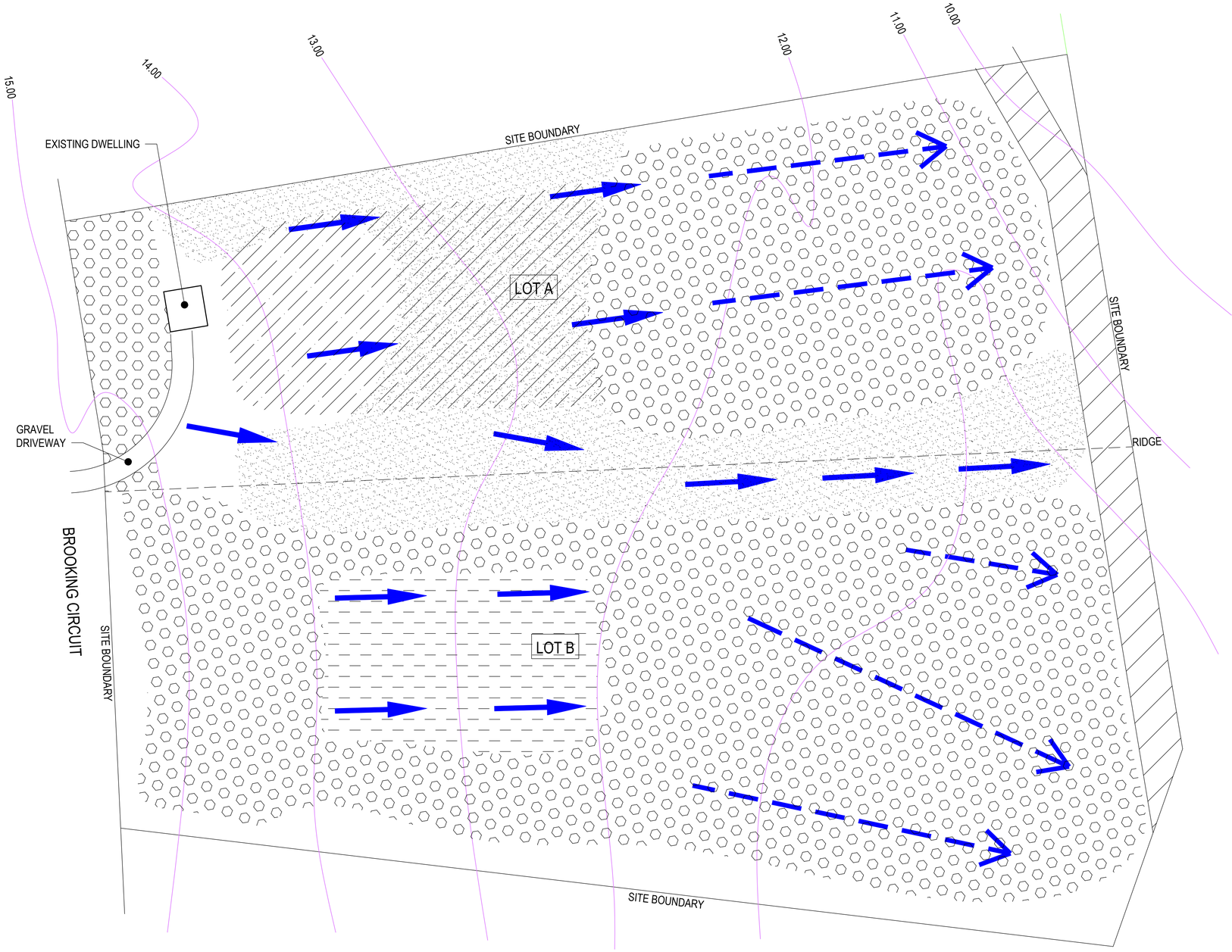
197 Main Road Cardiff NSW 2285 Australia Telephone + 61 2 4954 4997
Email mail@environmentaltraining.com.au Website www.environmentaltraining.com.au

SITE PLAN

NTS

LEGEND

- 15.00 — EXISTING CONTOUR
- DRAINAGE EASEMENT
- DENSE VEGETATION (SHRUBS AND SMALL TREES) WITH GRASS UNDERGROWTH
- GRASSED AREA
- FILL AREA / HEAVY MACHINERY COMPACTED FLUSH WITH EXISTING NATURAL SURFACE
- NATURAL LOW SCRUB AND GRASS UNDERGROWTH
- DIRECTION OF STORMWATER FLOW AT APPROX. 1:5 GRADIENT
- DIRECTION OF FILTERED WATER RUNOFF IN VEGETATED SOAKAGE AREA



NOTE: THE APPLIED FILL IS CONIGUOUS WITH THE EXISTING GROUND LEVEL TO PREVENT PONDING AND TO PREVENT THE BREEDING OF BITING INSECTS

SOIL & EROSION PLAN

NTS

300mm 200 100 50 0 10mm

No.	Description	Date	By	No	Description	Date	By
A	ISSUE FOR APPROVAL	19/03/26	SAW				

Associated Consultant: -

Designed: SAW | Drawn: SAW | Verified: AWP | Approved: AWP | Date: 19/03/2026

PRECISION
CIVIL AND HYDRAULIC
ENGINEERING
Ph: 0439 399 835
e: tony.parsons@pche.com.au
ABN: 76635213820

North: NORTH

Scale:

Client: YANTER INVESTMENTS

Project: LOT 3987 BROOKING CIRCUIT VIRGINIA

Title: SOIL AND EROSION PLAN

Orig. Drg. Size	Job No.	Drawing No.	Revision:
A1	PH26061	C01	A

APPROVAL

Original Sheet Size A1 [841x594]

WANT Geotechnics Pty Ltd

10/17 Willes Road

Berrimah NT 0828

ABN 57 631 699 673

John Glynatsis

NTG20265395
29 April 2026

Dear John

Project: Dynamic Cone Penetrometer Testing: 175 Brooking Circuit, Virginia. Northern Territory

Introduction

This report by WANT Geotechnics assesses the allowable bearing capacity of the fill placed to form part of the 1 hectare of unconstrained land at the above property. In addition to the bearing capacity assessment

The investigation comprised Dynamic Cone Penetration testing at 5 locations, the four corners and centre of the pad, as illustrated in the photographs below.

DCP1 | General View | DCP2 | DCP3

DCP4 | DCP5 | North Batter of Pad | South Batter of Pad

Photographs 1 to 8: DCP Test locations

Fieldwork Findings

Fieldwork comprised DCP testing, the test results and inferred allowable bearing pressures are given in the following table (based on a Factor of Safety of 2 as the pad will never actually be built on), and approximate locations indicated in Figure 1 (the Google Image dates from 2025, around the time of the filling and illustrate how the DCP target the area of fill).

Figure 1: Approximate DCP Locations

Depth (m)	DCP1 Blows	ABP kPa	DCP2 Blows	ABP kPa	DCP3 Blows	ABP kPa	DCP4 Blows	ABP kPa	DCP5 Blows	ABP kPa
0.00-0.10	15	480	11	390	8	315	5	225	13	435
0.10-0.20	20	585	10	375	6	265	5	225	20	585
0.20-0.30			20	585	8	315	3	150		
0.30-0.40					11	390	2	105		
0.40-0.50					8	315	3	150		
0.50-0.60					5	225	2	105		
0.60-0.70					4	195	3	150		
0.70-0.80					4	195	3	150		

Table 1: Results for DCP Testing

Assessment

The DCP test results indicate the fill pad has a minimum bearing capacity of 105kPa. A bearing capacity of 100kPa is typically taken as competent ground on which a house could be built indicating the fill has been placed and compacted to achieve a stable landform.

In addition, the batters of the pad were inspected following the 2025/2026 record wet season. The batters showed no signs of erosion or loss of shape confirming the material used is not susceptible to erosion.

Yours faithfully
WANT Geotechnics

Stephen Flux BSc MSc CGeol AffiIlEAust
Director

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WANT Geotechnics Pty Ltd

"Unfortunately, soils are made by nature and not by man, and the products of nature are always complex. As soon as we pass from steel and concrete to earth, the omnipotence of theory ceases to exist. Natural soil is never uniform. Its properties change from point to point while our knowledge of its' properties is limited to those few spots at which the samples have been collected. In soil mechanics the accuracy of the computed results never exceeds that of a crude estimate and the principal function of theory consists in teaching us what and how to observe in the field"

Karl Terzaghi – Founder of Modern Geotechnology

Land Suitability Assessment
For Property Subdivision
175 Brooking Circuit, Virginia

Prepared for:	John Glynatsis
Prepared by:	Stephen Flux, BSc MSc CGeol AffillEAust & Mary Flux BSc Hons On-site Wastewater Management Certificate
Telephone:	0499 996 659 (Stephen Flux); 0427 350 980 (Mary Flux)
Email:	steve@wantgeotechnics.com.au; mary@wantgeotechnics.com.au
Address:	10/17 Willes Road, Berrimah, NT 0828

5/02/2026

1. Introduction

WANT Geotechnics Pty Ltd has been engaged by John Glynatsis to undertake a Land Suitability Assessment (LSA) for an approximately sized 4.09-hectare land parcel (herein referred to as 'the Block') at 175 Brooking Circuit, Virginia. The aim of the assessment is to establish the degree of suitability of the Block for subdivision in accordance with the *NT Planning Scheme 2020*, Clause 6.3 (Subdivision of Rural and Unzoned Land)[A]. The Block is subject to the assessment of its suitability for subdivision given its situation in a Rural Living (RL) Zone. The Block is to be subdivided into two lots – Lot A (the already-developed ~2-hectare land parcel to the north) and Lot B (the yet to be developed ~2 hectare land parcel to the south) – find the Site Plan in the appended data for an aerial representation of the two lots.

Informed by the *Northern Territory Land Suitability Guidelines*[B], this report serves to outline the Block's overall Suitability Class, as well as detailing the individual Suitability Class of the seven categories that determine the overall fitness of the Block (Drainage; Onsite Wastewater Management; Erosion Risk; Soil Salinity; Acid Sulphate Soils; Storm Tide Flooding; and Riverine Flooding).

2. Categories of Assessment

As mentioned above, overall land suitability is a function of land performance across seven categories[B]:

- **Drainage** – the expected wetness condition of the Block's soils throughout the year, dependent on local soil conditions as well as broader topographical considerations
- **Onsite Wastewater Management** – the capacity of the Block's soils for amelioration of pathogenic greywater / blackwater (given the Block has no connection to reticulated sewerage)
- **Erosion Risk** – the intrinsic susceptibility of the Block's soils to prevailing agents of erosion
- **Soil Salinity** – the degree of accumulation of water-soluble salts in the soil
- **Acid Sulphate Soils** – the presence of soils containing iron sulphides which, when exposed to oxygen through disturbance or drainage, have the potential to oxidise and create sulfuric acid
- **Storm Tide Flooding** – susceptibility to temporary sea level rises associated with storm surges
- **Riverine Flooding** – susceptibility to localised river flooding

The abovementioned categories were assessed both at the desktop level (through online government resources) and during an onsite evaluation of the Block (conducted on 14 January 2026). A subsequent visit to the Block was undertaken on 28 January 2026 to collect aerial drone imagery. While these categories equally contribute to the overall Suitability Class of the assessment, they were not all assessed with equal weighting. Categories such as Drainage and Onsite Wastewater Management were more heavily scrutinised given Council emphasis on the heightened need to control these two factors. While Soil Salinity and Acid Sulphate Soils were not assessed at all onsite (justification for the non-assessment of these two categories is detailed in their respective sections).

Each category was assessed as an individual phenomenon and will be discussed in such a way in the following seven sections. However, in the overall context of the Block's subdivision, these phenomena are strongly interconnected, and an overall suitability score for the Block will be determined in the conclusion of this report. Additionally in the conclusion, comments will be provided regarding methods for improvement/sustainment of the performance of these categories.

3. Remedial Requirements for Subdivision Application

Technical Assessment PA2025/0344, issued by the Northern Territory Government Development Assessment Services in response to the proposal for subdivision of the Block into two Lots (*Gly052*) discerned numerous non-compliances. Five of the non-compliances are capable of remediation via the provision of an LSA. Table 1 outlines these five non-compliances, and their remedial requirements.

Table 1: LSA-related non-compliances issued within PA2025/0344

Clause in question	Comment from PA2025/0344	Remedial requirement
4.7.9 + 4.7.10	"The proposal for a 2 Lot subdivision does not adequately address the requirements of the zone in particular the above clauses, 4.7.9 and 4.7.10."	This non-compliance can be remediated through provision of an LSA addressing all seven categories of suitability
6.3.2	"A Land Capability Assessment lodged with the application has not been prepared or endorsed by suitably qualified professional who would need to confirm that each lot has at least one 1 Ha of land unconstrained by storm tide, riverine or localised stormwater flooding."	To be addressed in Sections 4.6, 4.7, and 4.1 of this LSA respectively
	In relation to the placement of the ~1,000m^3 of fill on Lot A in resolving drainage constraints – "A Geotechnical Report prepared by a suitably qualified Geotechnical engineer would be required to determine if the land is suitable for development."	To be addressed in Section 4.1 of this LSA
6.3.3 (5.a)	"Whilst the application includes a land suitability assessment it does not adequately address the NT Land Suitability Guidelines, and it does not identify the suitability class or discuss in any detail the type of soil, drainage, onsite wastewater management, erosion risk, soil salinity, acid sulphate soils, or riverine flooding."	This non-compliance can be remediated through provision of an LSA addressing all seven categories of suitability
6.3.4	"The application has provided a Site and soil plan but no evaluation has been provided which demonstrates that onsite wastewater management systems can be installed on the second lot, Lot B, in accordance with the requirements of the Code of Practice for Wastewater Management. The unconstrained nature of Lot B would indicate that this is not possible."	To be addressed in Section 4.2 of this LSA

4. Assessment

4.1 Drainage

The Northern Territory Land Suitability Guidelines define land potentially constrained by drainage as: "Areas that are wet or (saturated) either at, above or close to the land surface for a period of weeks to months typically during the wet season but potentially extending into the dry season as a result of rainfall, landscape function and/or position or soil hydrology factors."[B]

Under this working definition, the onsite evaluation of the Block endeavoured to survey all regions of the Block (via on foot traversal and drone reconnaissance) in which surface water was seen to be present or having recently flowed. This was undertaken in January 2026, i.e. Wet season.

Lot A

Lot A has seen the formation of a raised fill platform. The fill has been placed to the east of the house and has raised general ground levels to that of the landscaping around the house. Provided the fill has been graded to divert runoff away from the house then drainage will not adversely impact Lot A.

While recent documentation claims an area of only 1.34 hectares of Land on Lot A is unconstrained by drainage, the onsite evaluation of the Block figures this number to in fact be greater. Through the onsite evaluation, the only areas of the Block deemed potentially constrained appeared to be a drainage channel on Lot A's southern boundary, as well as the 0.13-hectare portion at the back (eastern boundary) of Lot A which abuts Wells Creek. In total, this area amounts to an overall size of 0.26 hectares, thus providing 1.74 hectares of unconstrained land. Find the approximate depiction of this area in Figure 1.

Figure 1: Drone imagery of Lot A's drainage

It is not known what segments of Lot A that the original figure of 1.34 hectares took into account, but it may be the case that the placement of the 1000m^3 of fill has appropriately channelled drainage to the rear of the Lot where Wells Creek subsumes it.

Lot B

Aerial reconnaissance and on-foot traversal of Lot B identified it to be predominantly well-drained. There was, however, a section of surface pooling occurring in the central portion of the lot, having run-off the central southern boundary of Lot A. The remaining areas identified as potentially constrained by drainage (as evident in Figure 2 below) are the regions downstream (south) of the pooling water and those regions of the lot that abut Wells Creek.

Figure 2: Drone imagery of Lot B's drainage

In total, the entire area potentially constrained by poor drainage on Lot B amounts to ~0.30 hectares, thus providing ~1.70 hectares of unconstrained land.

Other factors influencing drainage

While assessing the Block's drainage by accounting for the extent of surface water coverage in the wettest period of the year is a useful tool it is not the only effective means of assessing drainage. Drainage is influenced not only by surface topography but also by soil permeability, stratigraphy, groundwater conditions, rainfall intensity, vegetation, and previous earthworks. The following provides an assessment of the drainage characteristics on both Lot A and Lot B.

The Block slopes west to east, see Figure 3 below (taken from Google Earth) which provides an approximate topographic profile based on Google Earth ground levels (mapped from the western to the eastern boundary of the Block). Both Lot A and Lot B will drain in an easterly direction to the toe of the slope, situated approximately 150m from the western boundary of the Block. Beyond the toe of the slope, the ground level is indicated to fall only very gently, but again towards the east and into Wells Creek which flows to the south.

Figure 3: Google Earth depiction of the Block's slope

Further evidence to support the conclusion that the soils of both lots are moderately well drained and predominantly free of constraint is the hydraulic quality of the soil type that underlies the Block. Reference to *The Land Resources of the Elizabeth, Darwin and Blackmore Rivers* Land Unit Map suggests that the front of the Lots (greater than 1ha portion each) are located on the 1c and 2b1 Land Units. These land units are both known to be gravelly loamy well-drained soils. Upon excavation of Lot B for the Site & Soil Evaluation (wastewater management component of the assessment) the permeability and soil type were confirmed to be of a moderate capacity.

WANT Geotechnics has developed an extensive understanding of the differing capacities for onsite drainage in all of Darwin's peri-urban suburbs as a consequence of providing numerous Site and Soil Evaluations within these suburbs. In relation to the expected ground conditions for a block evaluated in the peak of the wet season, the conditions realised at 175 Brooking Circuit speak to a block that is moderately well-drained. As such, a **Class S2** (moderate suitability) categorization is fitting.

4.2 Onsite Wastewater Management

In addition to this report, WANT geotechnics has compiled a Site & Soil Evaluation (SSE) of the conditions present on Lot B, to enable the placement of a Wastewater Management System (WMS) on the Lot (find separately attached a copy of this SSE in full). This testing was not carried out for Lot A as it is already serviced by a well-functioning WMS.

In summary of the prepared report, it was found that Lot B's soils are of sufficient quality to support either a primary-treated WMS or a secondary-treated WMS. The WMS has been prescribed to be designed in accordance with one of the following modes of effluent disposal:

- **Irrigation of secondary treated effluent** – a DIR of 4mm/day (drip or spray irrigation) or 3.5mm/day (LPED irrigation)
- **Shallow trench or bed (300 - 400mm deep)** – a DLR of 15mm/day for a primary treated system, or 30mm/day for a secondary treated system
- **Deep trench or bed (400 – 600mm deep)** – a DLR of 5mm/day for a primary treated system, or 10mm/day for a secondary treated system

So long as the WMS is designed to one of these specifications, and given it is placed in a location commensurate with the *NT Code of Practice for Wastewater Management* setbacks, then onsite disposal of wastewater on Lot B will be of a low-risk nature, warranting a **Class S1** categorization.

4.3 Erosion Risk

To better understand the erodible potential of the Block's soils, a sample from 0.2mbgl (metres below ground level) and 0.5mbgl was sent for Emerson Class determination at a NATA accredited soils laboratory (Lab #13121). The samples were collected from Test Hole 1 (TH1) on Lot B (find reference to TH1s location within the appended data, as well as the Material Test Reports for both depths analysed).

With regards to erosion potential the subsoils are typically clayey sands and clayey gravels and samples of each were sent for Emerson Class determination at a NATA accredited soils laboratory.

Emerson Class testing measures the tendency of the clay fraction of a soil to go into colloidal suspension in water, forming a cloud around the soil particle. Dispersive soils are those which by the nature of their minerology, and the chemistry of the water in the soil, are susceptible to separation of their individual clay particles - subsequent erosion of these very small clay particles through fine fissures or cracks in the soil occurs under seepage flows.

The sample collected from 0.2mbgl returned an Emerson Class of 3 and was attributed a soil description (based on its Particle Size Distribution - PSD) of a clayey sand. Soils with an Emerson Class Number 3 have a tendency to slake or swell but are generally not readily dispersive, i.e. erosion through inundation is not an issue, but as with any soil where runoff is uncontrolled and of sufficient volume then erosion by scouring can occur.

The sample collected from 0.5mbgl returned an Emerson Class of 6 and was also attributed a soil description of a clayey sand. Soils with an Emerson Class Number 6 are highly stable soils with a low potential for dispersive behaviour. Some swelling or slaking may occur but generally such soils are not readily dispersive, i.e. erosion through porewater flow is not an issue, but as with any soil where runoff is uncontrolled and of sufficient volume then erosion by scouring can occur.

Considering the above, the subsoils are considered stable and at a low risk of erosion – any such erosion would predominantly be attributable to uncontrolled runoff. Assuming the lots are developed for housing, then runoff will be managed through appropriately designed drainage.

This finding qualifies a **Class S1** Rating for Erosion Risk.

4.4 Soil Salinity

Soil salinity was not assessed, as per the statement on the Northern Territory Government Website regarding Land Suitability Assessments – "If your subdivision is in the Top End, in the area north of Tennant Creek – you don't need to address soil salinity."

Hence, this category was not assessed for and does not contribute to the overall suitability rating of the Block.

4.5 Acid Sulphate Soils

Acid sulphate soils (ASS) commonly form in low-energy intertidal settings or areas that are subject to periodic tidal flooding. Such environments may contain sufficient organic matter to promote the formation of iron sulphide through sulphate reduction. Most acid sulphate soils occur in coastal areas (below 5 metres above sea level) where sea levels rise and inundate terrestrial sediments. The sulphate in the seawater reacts with the sedimentary iron oxides and organic matter producing large quantities of iron sulphides in waterlogged environments.

Table 2 lists criteria that are likely to determine whether ASS are likely to be present on the Block, with comments on each criteria based on actual onsite conditions.

Table 2: Acid Sulphate Soil (ASS) risk screening criteria

Criteria indicating potential for ASS	175 Brooking Circuit
Land with an elevation less than 5m Australian Height Datum (m AHD)	Google Earth indicates the Block's ground levels are between 15m and 20m AHD
Soil and sediment of recent geological age (Holocene)	Soils are older (Tertiary age)
Marine or estuarine sediments and tidal lakes, low-lying coastal wetlands or back swamp areas, waterlogged, or scalded areas, stranded beach ridges and adjacent swales or coastal sand dunes, coastal alluvial valleys	Situated outside of these areas
Areas where the dominant vegetation is tolerant of salt, acid and/or waterlogging conditions, e.g., mangroves, saltcouch, swamp-tolerant reeds, rushes, paperbarks and swamp oak	Situated outside of these areas
Areas identified in geological descriptions or in maps as bearing sulphide minerals, coal deposits or marine shales/older estuarine sediments below ground surface of either Holocene or pre-Holocene age	Situated outside of these areas

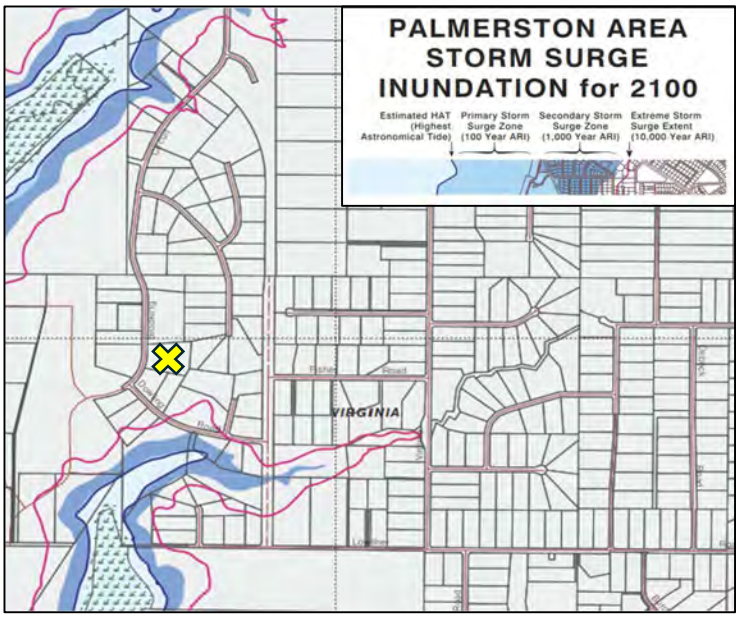
Furthermore, reference to the NT Government NR Maps website indicates the land system on which the site is located (Bustard Land System) has no known occurrence of ASS.

Considering the foregoing and the Block's location and setting, presence of acid sulphate soils was not deemed a risk necessary to test for. This finding qualifies a **Class S1** Rating for ASS.

4.6 Storm Tide Flooding

Land that is deemed constrained by storm tide flooding is defined as a coastal area at an elevation below the Primary (100-year Annual Recurrence Interval (ARI)) Storm Tide Inundation Extent[B]. Data regarding the extent of the 100-year ARI can be sourced from the *Palmerston Area Storm Surge Inundation for 2100* Map. Find, in Figure 4 below, an inset of this map, highlighting the location of 175 Brooking Circuit with a yellow 'X'. Find the map in its entirety within the appended data.

Figure 4: Virginia Inset of Palmerston Area Storm Surge Inundation Map



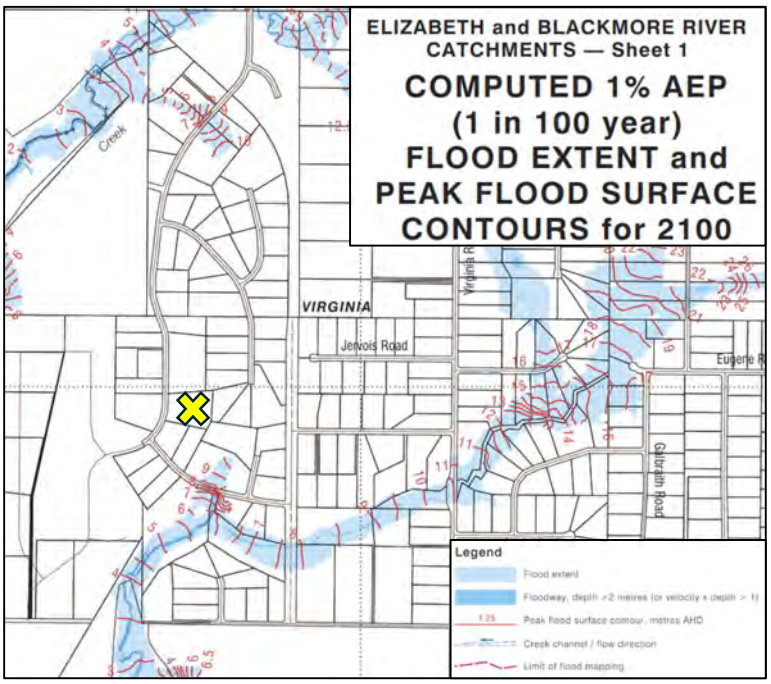
As evidenced by Figure 4, the entirety of the Block is outside of the 10,000-year ARI.

This finding qualifies a **Class S1** Rating for Storm Tide Flooding.

4.7 Riverine Flooding

Land that is deemed constrained by risk of Riverine Flooding is defined as land that is below the 1% Annual Exceedance Probability (AEP) flood level[B]. Data regarding the extent of the 1% AEP can be sourced from the *Elizabeth and Blackmore River Catchments Computed 1% AEP* Map. Find, in Figure 5 below, an inset of this map, highlighting the location of 175 Brooking Circuit with a yellow 'X'. Find the map in its entirety within the appended data.

Figure 5: Virginia Inset of Elizabeth and Blackmore River 1% AEP Map



As evidenced by Figure 5, the entirety of the Block is outside of the 1% AEP flood extent.

This finding qualifies a **Class S2** Rating for Storm Tide Flooding (a map depicting the <0.5% AEP flood extent could not be found, hence Class S2 is the highest rating possible).

5. Summary of Results

Table 3 (drawn from the Northern Territory Land Suitability Guidelines[B]) summarises the suitability class ratings for each of the six assessed categories.

Table 3: Assessment Findings

Suitability Classes	Description	Drainage*	On-site Wastewater Management		Erosion Risk	Soil Salinity	Acid Sulfate Soils	Storm Tide Flooding	Riverine Flooding
			Risk Category**	Equivalent Criteria**					
Class S1 Highly Suitable	Land having no significant limitations to sustained application of a given land use, or only minor limitations. Nil to minor negative economic, environmental, health and/or social outcomes	Rapidly to Well	Low	Well drained soils with >35% clay at depth, deep soils >1.0 m, surface gravel <10%, slopes < 5%	No runoff occurs	<2 ECe dS/m or no potential to be >4dS/m	Not Present	Secondary Storm Tide (1000 year ARI) inundation risk for entire land parcel – Nil Risk not applicable	<0.5% AEP risk of river floodplain flooding for entire land parcel – Risk not applicable
Class S2 Moderately Suitable	Land having limitations which in aggregate are moderately severe for sustained application of a given land use. Appreciably inferior to S1 land. Potential negative economic, environmental, health and/or social outcomes if not adequately managed.	Moderately Well	Medium	Moderately well drained soils with >20% clay at depth, moderately deep soils 0.5-1.0 m, surface gravel 25-50%, slopes 5-10%	<0.75% slope	2-4 ECe dS/m or no potential to be >4dS/m	Oxidisable Sulfur >0.02% but very low and <50 tonnes to be disturbed*	Primary Storm Tide (100 year ARI) inundation risk for entire land parcel – Nil No Risk	<1% AEP risk of river floodplain flooding for entire land parcel – No Risk
Class S3 Marginally Suitable	Land having limitations which in aggregate are severe for sustained application of a given use. Moderate to high risk of negative economic, environmental, health and/or social outcomes if not adequately managed.	Imperfectly	High	Imperfectly drained soils with >15% clay at depth, shallow soils 0.25 -0.5 m, surface gravel >50%, slopes >10%	0.75-5% slope, Development will require practice erosion and sediment control involving engineered works. On-going land management required	Soil salinity >4dS/m or potential to be >4dS/m	Oxidisable Sulfur >0.02%, <100 tonnes to be disturbed*	Primary Storm Tide (100 year ARI) inundation risk for part of land parcel – Low Risk	≥1% AEP risk of river floodplain flooding on part of the land parcel other than floodway – Low risk and mitigated.
Class S4 Not Suitable	Land having limitations which may be insurmountable. Limitations are so severe as to preclude successful sustained use of the land in the given manner. Very high risk of negative economic, environmental and/or social outcomes if not managed.	Poor –to Very Poor	High	Poor to very poorly drained or inundated. On-site wastewater systems will not operate during periods of inundation	>5% slope, Development will require considerable best practice erosion and sediment control involving a significant level of engineered works. High level of on-going land management essential	Soil salinity >8dS/m or potential to be >8dS/m	Oxidisable Sulfur >0.02%, >200 tonnes to be disturbed*	Primary Storm Tide (100 year ARI) inundation risk for entire land parcel including occupied area and emergency exit route - Medium Risk and mitigated	≥1% AEP risk of river floodplain flooding for entire land parcel other than floodway – Medium risk and mitigated.
Class S5 Not Suitable#	Land having limitations which appear so severe as to preclude any possibilities of successful sustained use of the land in the given manner. Almost certain risk of significant negative economic, environmental and/or social outcomes.	To be determined on assessment of specific cases	Not Suitable for on-site wastewater management		To be determined on assessment of specific cases. Environmental, social, health or economic risks are considered too high.	To be determined on assessment of specific cases. Environmental, social, health or economic risks are considered too high.	To be determined on assessment of specific cases. Environmental, social, health or economic risks are considered too high.	Primary Storm Tide (100 year ARI) inundation risk for entire land parcel and the storm tide level is 2m or more above ground level – Very high risk and mitigation not feasible.	≥1% AEP risk of river floodplain flooding on entire land parcel and is covered by floodway extent – Very high risk and mitigation not feasible.

6. Conclusion

In summary of the findings of this report for 175 Brooking Circuit, Virginia, the seven categories that compose a Land Suitability Assessment were evaluated as the following:

- **Drainage** – Class S2
- **Onsite Wastewater Management** – Class S1
- **Erosion Risk** – Class S1
- **Soil Salinity** – Not applicable given the location of the block
- **Acid Sulphate Soils** – Class S1
- **Storm Tide Flooding** – Class S1
- **Riverine Flooding** – Class S2

Given that all seven categories exhibited the requisite characteristics to warrant a classification as unconstrained land, no remedial recommendations are necessary for the Block.

Overall, WANT Geotechnics deems both Lot A and Lot B to contain in excess of 1ha of unconstrained land, making it suitable for subdivision in accordance with the requirements of a Land Suitability Assessment.

WANT Geotechnics

Mary Flux

Mary Flux BSc Hons
Engineering Geologist

Stephen Flux BSc MSc CGeol AffillEAust
Director / Engineering Geologist

7. References

A) **Northern Territory Government** (2020). *Northern Territory Planning Scheme 2020 – Part 6: Subdivision and Consolidation Requirements*, Department of Infrastructure, Planning and Logistics, Darwin, NT.

B) **Northern Territory Government** *(2020). Northern Territory Land Suitability Guidelines. Department of Infrastructure, Planning and Logistics, Darwin, NT.* Available from the NT Government Planning Scheme referenced documents list.

C) **Conservation Commission of the Northern Territory.** (1984). *The Land Resource of the Elizabeth, Darwin and Blackmore Rivers (Report No. 15).* Conservation Commission of the Northern Territory.

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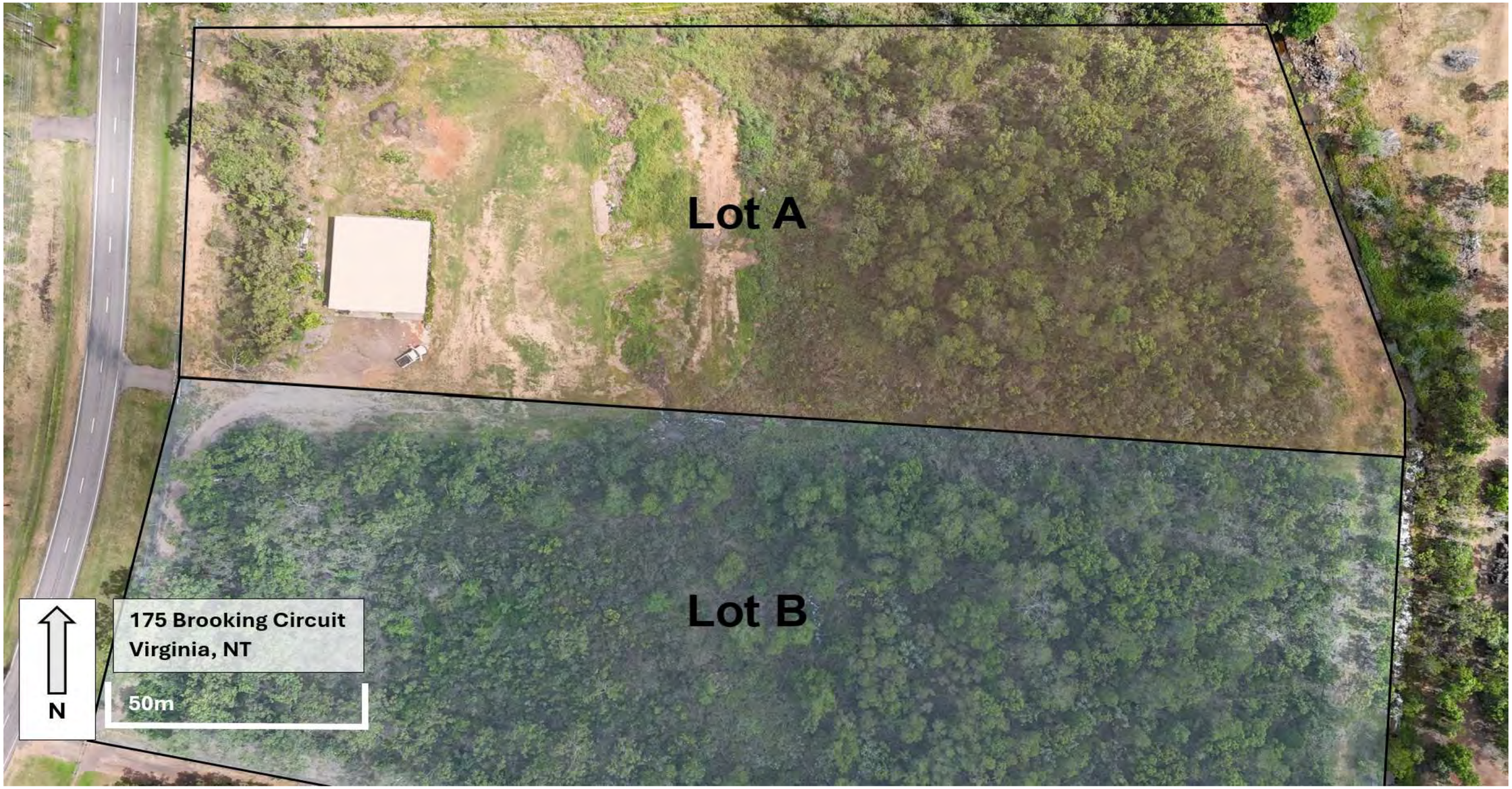
WANT Geotechnics Pty Ltd

"Unfortunately, soils are made by nature and not by man, and the products of nature are always complex. As soon as we pass from steel and concrete to earth, the omnipotence of theory ceases to exist. Natural soil is never uniform. Its properties change from point to point while our knowledge of its' properties is limited to those few spots at which the samples have been collected. In soil mechanics the accuracy of the computed results never exceeds that of a crude estimate and the principal function of theory consists in teaching us what and how to observe in the field"

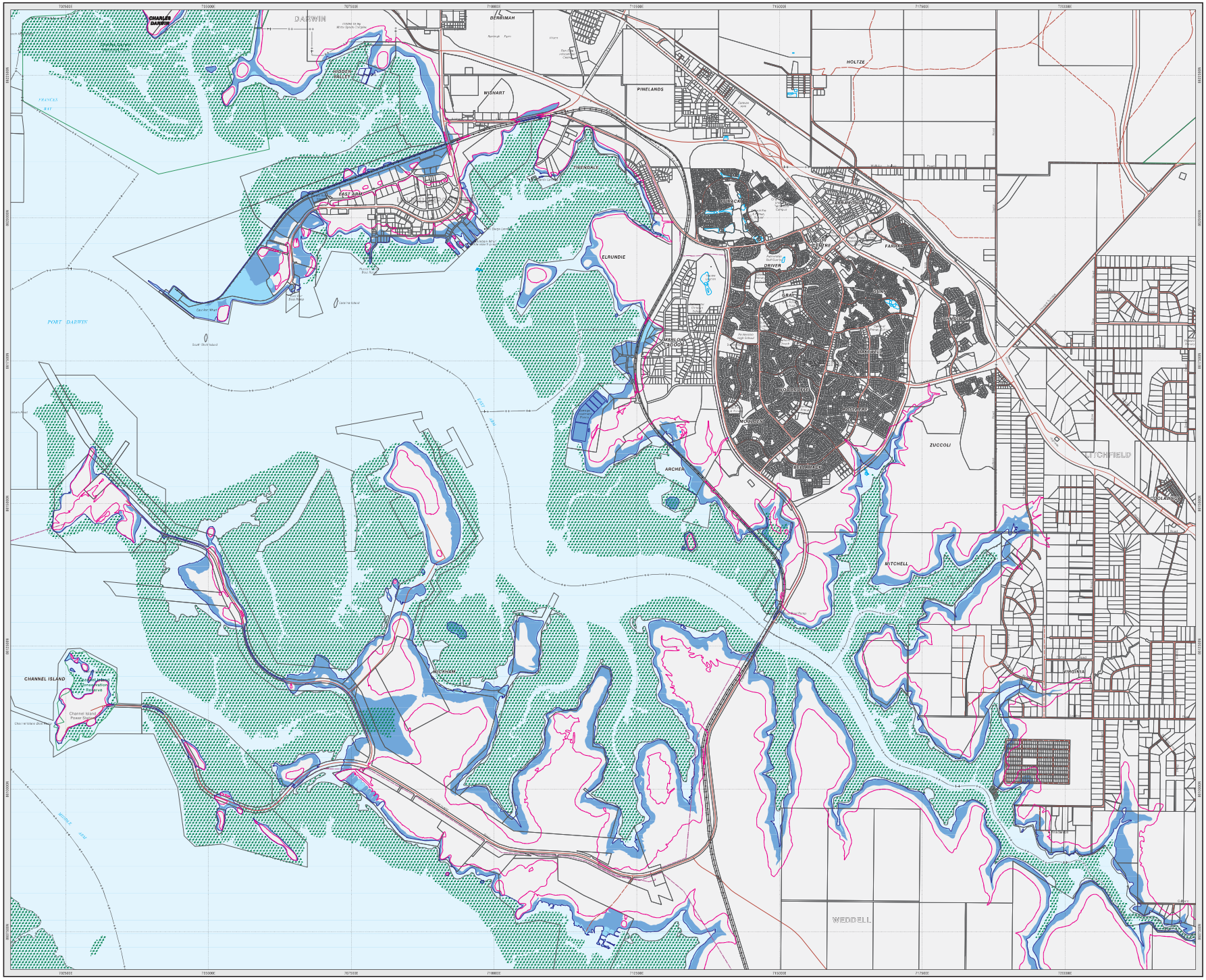
Karl Terzaghi – Founder of Modern Geotechnology

Site Plan



WANT Geotechnics Geotechnical Engineering Solutions	Client: John Glynatsis		Land Suitability Assessment	Project: NTG20265212
		Drawn by: SF	Lots A and B 175 Brooking Circuit	Drawing No. 1
	Scale: NTS	Date: 5 Feb 2026	Virginia, Northern Territory	Revision: 0

Storm Tide Flooding Plan



Northern Territory Government

GHD

SEA

NORTHERN TERRITORY STORM SURGE MAPPING

PALMERSTON AREA STORM SURGE INUNDATION for 2100

Estimated HAT (Highest Astronomical Tide)	Primary Storm Surge Zone (100 Year ARI)	Secondary Storm Surge Zone (1,000 Year ARI)	Extreme Storm Surge Extent (10,000 Year ARI)

The technical information forming the basis of this storm surge inundation mapping is contained in the following reports prepared for the NT Government by Systems Engineering Australia Pty Ltd (SEA):

1. Darwin Storm Tide Mapping Study - 2006
2. High Resolution Storm Tide and Climate Change Impacts Study - 2010

Using the storm surge levels and estimates of Highest Astronomical Tide (HAT) from the above studies, the inundation and HAT extents for the projected mean sea level in 2100 were developed by GHD Pty Ltd in 2014 based on the latest topographic information (2009 and 2011). This map is produced by the NT Government for the Palmerston area based on the storm surge inundation and HAT extents.

The maps shows the total storm surge (technical terminology is storm tide) hazard risk due to tropical cyclones in terms of the ocean water level comprising the combined effects of astronomical tide plus storm surge plus wave setup for two statistical Average Recurrence Intervals (ARI). It also shows the estimated HAT extent. The "Primary Storm Surge Zone" shown on the map refers to the extent of inundation for a storm tide event of 100 year ARI (with approximately a 40% chance of exceedance within any 50 year period). The "Secondary Storm Surge Zone" shown on the map refers to the further extent of inundation for a storm tide event of 1000 year ARI (with approximately a 5% chance of exceedance within any 50 year period). The extents do not include the possible effects of very localised wave-run-up.

Average Recurrence Interval (ARI) is also called Return Period of the Risk and is defined as the 'average' number of years between successive events of the same or greater magnitude. The ARI of a storm tide event gives no indication of when a storm tide of that magnitude may occur.

Highest Astronomical Tide (HAT) is the highest ocean level expected due to any combination of astronomical conditions alone and has an equivalent ARI of approximately 18.6 years. The HAT extent is used in this map as the reference for storm surge inundation. It is based on estimates of HAT levels derived from numerical hydrodynamic modelling that has not been verified by long term insitu measurements.

For detailed interpretation of this map and further information contact:
Water Resources NT, Department of Land Resource Management
4th Floor Goyder Centre, 25 Chung Wah Terrace,
Palmerston, Northern Territory,
T: (08) 8999 4456 **Email:** waterresources@nt.gov.au
PO Box 496, Palmerston, NT, 0831

Storm surge reports and maps are available on **www.nt.gov.au/floods**
This map produced **November 2014**, supercedes all previous versions.

GENERAL FEATURES

- Local Government Area
- Property / Road Boundaries
- Suburbs / Localities — STUART PARK
- Major Road
- Minor Road
- Park / Reserve
- Railway
- Gas pipeline
- Watercourse, Lake or Lagoon
- Mangroves

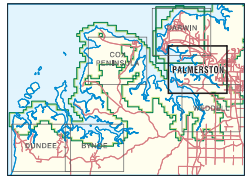
Data Source:
Cadastre, road centrelines and administrative information
Northern Territory Department of Lands, Planning and the Environment.

Map prepared by:
Spatial Data and Mapping, Water Resources NT,
Department of Land Resource Management
Goyder Centre, Chung Wah Terrace, Palmerston,
Northern Territory of Australia.

Grids numbered false are 2500 metre intervals of the Map Grid of Australia (MGA) Zone 52 Transverse Mercator Projection. Horizontal Datum: GDA 94

This map was produced on the Geocentric Datum of Australia 1994 (GDA 94)

INDEX TO DARWIN REGION STORM SURGE MAPS



Extent of topographic information: 2009 | 2011

MAP LOCATION

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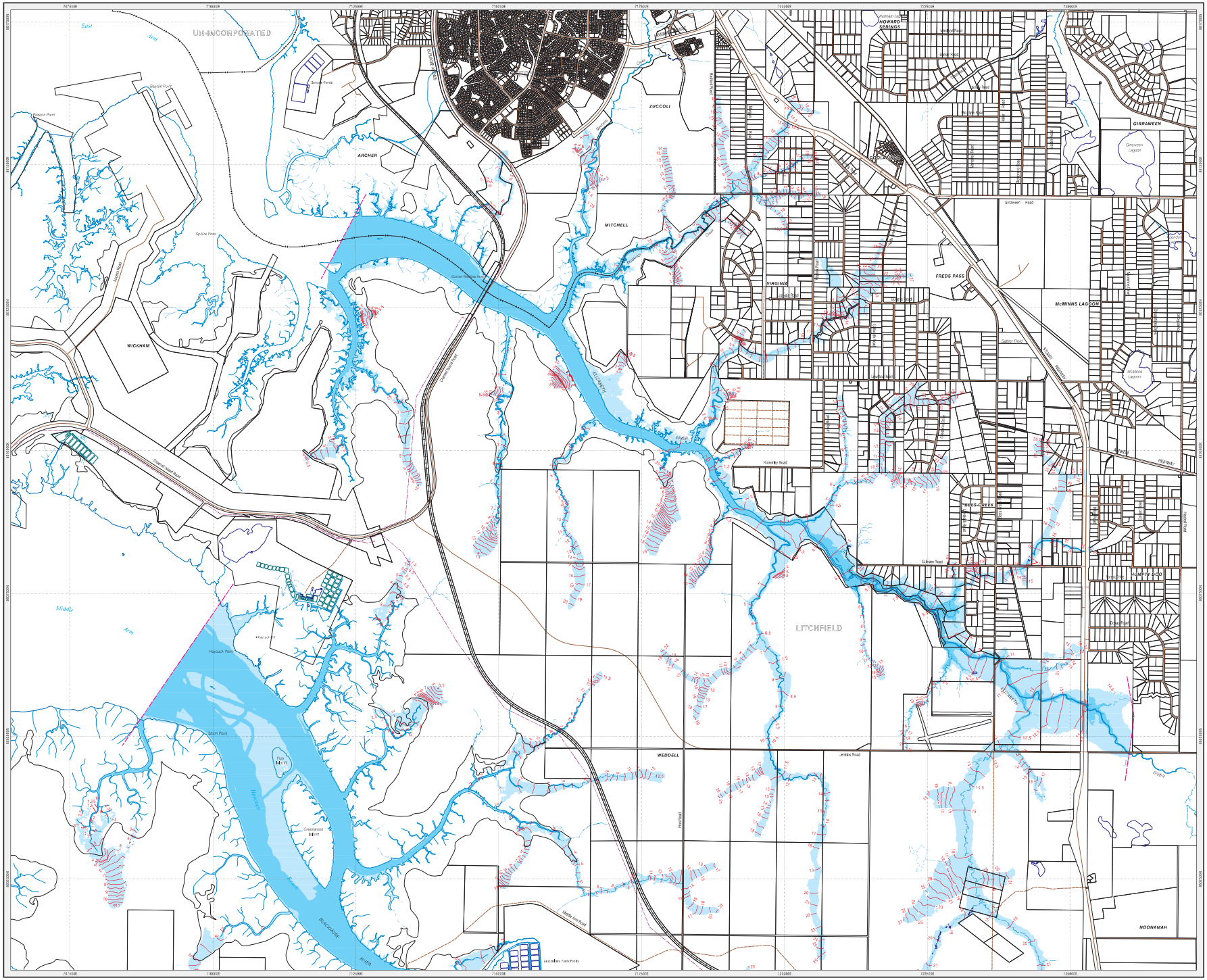
Riverine Flooding Plan



Northern Territory Government

Cardno

ELIZABETH and BLACKMORE RIVER CATCHMENTS — Sheet 1

COMPUTED 1% AEP (1 in 100 year) FLOOD EXTENT and PEAK FLOOD SURFACE CONTOURS for 2100

This map shows the Q100 flood and floodway extents caused by a 1% Annual Exceedance Probability (AEP) flood event over the Elizabeth and Blackmore River Catchments. The extent of flooding shown on this map is indicative only hence, approximate. This map is available for sale from:

Land Information Centre,
Department of Lands, Planning and the Environment
3rd Floor NAB House, 71 Smith Street, Darwin, Northern Territory, 0800
T: (08) 8995 5300 **Email:** landinfo@nt.gov.au
GPO Box 1680, Darwin, Northern Territory, 0801.

This map is also available online at:
www.nt.gov.au/lands http://nrmaps.nt.gov.au

Legend

- Flood extent
- Floodway, depth >2 metres (or velocity x depth > 1)
- 1.25 Peak flood surface contour, metres AHD
- Creek channel / flow direction
- Limit of flood mapping

General Features

- Local Government Area
- Property boundary
- WEDDELL Suburb / Localities
- Road centreline
- Reserve boundary
- Railway
- Gas Pipeline
- Watercourse Perennial
- Watercourse Non Perennial
- Lakes Perennial
- Lakes Non Perennial
- Swamp

Data Sources:
Cadastre, road centrelines and administrative information - Northern Territory Department of Lands, Planning and the Environment.

Notes:

This map shows the 1% AEP (1 in 100 year) floodway and flood extents based on the modelled results from the **Elizabeth and Blackmore River Catchments Flood Study (Report April 2014)** by Cardno.

The Flood Study was based on sea level equivalent to the mean sea level for 2100 plus the highest astronomical tide (HAT).

HAT is the highest ocean level expected due to any combination of astronomical conditions alone and has an equivalent average recurrence interval of approximately 18.6 years.

Floodway is defined as the area where the depth of floodwater exceeds 2.0 metres or the velocity x depth exceeds 1.

This map is intended to be used at a scale of 1:10,000 and any enlargement beyond this scale does not increase the accuracy of the data appearing on the map and is not recommended. The peak flood contour interval varies from 0.25, 0.5 and 1 metre.

An accurate flood extent at any location can only be obtained by a survey traverse from a known level.

For further information contact:

Water Resources NT, Department of Land Resource Management
4th Floor Goyder Centre, 25 Chung Wah Tce,
Palmerston, Northern Territory.
T: (08) 8999 4455 **Email:** waterresources@nt.gov.au
PO Box 496, Palmerston, NT 0831.

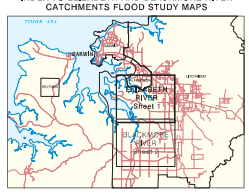
Map prepared: **April 2014**
Spatial Data & Mapping Unit, Water Resources NT,
Department of Land Resource Management,
Goyder Centre, Chung Wah Terrace, Palmerston,
Northern Territory of Australia.

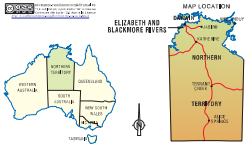
metres 200 0 500 1000 1500 2000 metres 5,000

Black numbered lines are 2000 metre intervals of the Map Grid of Australia (MGA) Zone 53
Transverse Mercator Projection Horizontal Datum: GDA 94

GDA This map was produced on the Geocentric Datum of Australia 1994 (GDA 94)

INDEX TO ELIZABETH AND BLACKMORE RIVER CATCHMENTS FLOOD STUDY MAPS





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Laboratory Test Results

Material Test Report

Report Number: **D23562-93**
Issue Number: 1
Date Issued: 02/02/2026
Client: WANT Geotechnics (NT Geotechnics)
12/9 Aristos Place, Winnellie NT 0822
Contact: Mary Flux
Project Number: D23562
Project Name: Process Testing
Project Location: Project: LSA - 175 Brooking Circuit, Virginia
Client Reference: NTG20255212
Work Request: 11105
Sample Number: D26-11105A
Date Sampled: 16/01/2026
Dates Tested: 16/01/2026 - 29/01/2026
Sampling Method: Sampled by Client
The results apply to the sample as received
Site Selection: NTCP 103.1
Sample Location: **TH1, Depth: 0.20m**

HiQa Geotechnical
Darwin Laboratory
1/6 Wedding Road Tivendale NT 822
Phone: (08) 8947 4802
Email: darwin@hiqa.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

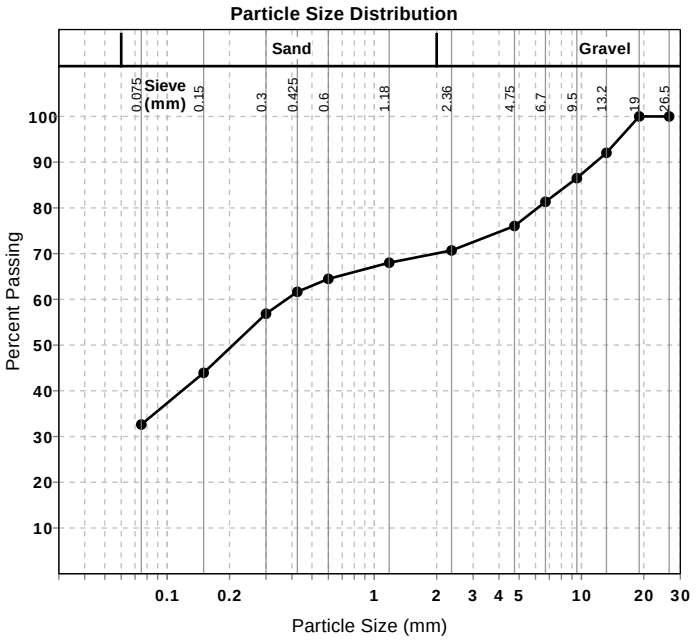
Approved Signatory: Nicholous DeBeer
Darwin Laboratory Branch Leader

Laboratory Number: 13121

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
26.5 mm	**100**		
19 mm	**100**		
13.2 mm	**92**		
9.5 mm	**87**		
6.7 mm	**81**		
4.75 mm	**76**		
2.36 mm	**71**		
1.18 mm	**68**		
0.6 mm	**64**		
0.425 mm	**62**		
0.3 mm	**57**		
0.15 mm	**44**		
0.075 mm	**33**		

Moisture Content (AS1289.2.1.1)		Min	Max
Moisture Content (%)	13.6		

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**3**		
Soil Description	Clay Sand		
Nature of Water	Distilled		



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Results relate only to the items tested/sampled.

Material Test Report

Report Number: **D23562-93**
Issue Number: 1
Date Issued: 02/02/2026
Client: WANT Geotechnics (NT Geotechnics)
12/9 Aristos Place, Winnellie NT 0822
Contact: Mary Flux
Project Number: D23562
Project Name: Process Testing
Project Location: Project: LSA - 175 Brooking Circuit, Virginia
Client Reference: NTG20255212
Work Request: 11105
Sample Number: D26-11105B
Date Sampled: 16/01/2026
Dates Tested: 16/01/2026 - 20/01/2026
Sampling Method: Sampled by Client
The results apply to the sample as received
Site Selection: NTCP 103.1
Sample Location: **TH1, Depth: 0.50m**

HiQa Geotechnical
Darwin Laboratory
1/6 Wedding Road Tivendale NT 822
Phone: (08) 8947 4802
Email: darwin@hiqa.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

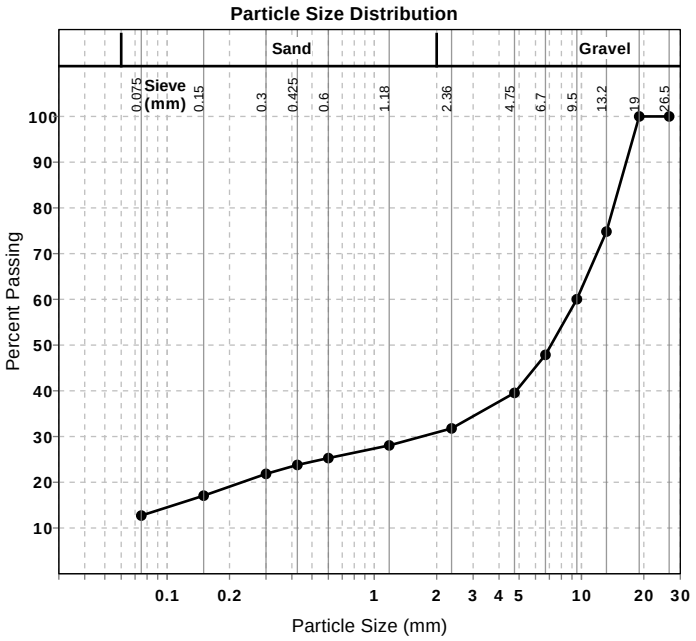
Approved Signatory: Nicholous DeBeer
Darwin Laboratory Branch Leader

Laboratory Number: 13121

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
26.5 mm	**100**		
19 mm	**100**		
13.2 mm	**75**		
9.5 mm	**60**		
6.7 mm	**48**		
4.75 mm	**40**		
2.36 mm	**32**		
1.18 mm	**28**		
0.6 mm	**25**		
0.425 mm	**24**		
0.3 mm	**22**		
0.15 mm	**17**		
0.075 mm	**13**		

Moisture Content (AS1289.2.1.1)		Min	Max
Moisture Content (%)	13.4		

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**6**		
Soil Description	Orange clayey SAND		
Nature of Water	Distilled		



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Results relate only to the items tested/sampled.

Site and Soil Evaluation Report

Site & Soil Evaluation
For Onsite Wastewater Management
175 Brooking Circuit, Virginia

Prepared for:	John Glynatsis
Prepared by:	Stephen Flux, BSc MSc CGeol AffillEAust & Mary Flux BSc Hons On-site Wastewater Management Certificate
Telephone:	0499 996 659 (Stephen Flux); 0427 350 980 (Mary Flux)
Email:	steve@wantgeotechnics.com.au; mary@wantgeotechnics.com.au
Address:	10/17 Willes Road, Berrimah, NT 0828

5/02/2026

1. Executive Summary

WANT Geotechnics Pty Ltd has been engaged by John Glynatsis to undertake a Site and Soil Evaluation (SSE) for an approximately sized 2.00-hectare land parcel (herein referred to as 'Lot B') at 175 Brooking Circuit, Virginia. A testing area (herein referred to as 'the Site') was identified in the western portion of Lot B, approximately 50m from its western boundary. The aim of the assessment is to establish the degree of suitability of the soils on the Site for the installation of a Wastewater Management System (WMS). The result of the assessment concludes that Lot B can support either a primary or secondary treated WMS – so long as it is designed to the specifications outlined in the conclusion of this report and so long as the system is placed in a location commensurate to the setbacks required.

2. Introduction

This report details the findings of the SSE undertaken at the Site in accordance with Section 5 of *Australian/New Zealand Standard: Onsite Domestic Wastewater Management (AS / NZS1547*[A]*)* with guidance on its application to the NT by the *Code of Practice for Wastewater Management*[B].

The findings of this report can be broken down into two distinct parts – a prior desktop study of Lot B, and an Onsite Evaluation. The Prior Desktop Study of Lot B serves to determine the initial feasibility of construction of the WMS by assessing the presence of constraints and/or contravening features (anthropogenic and natural) in the surrounding landscape. The Onsite Evaluation of the SSE was completed by WANT Geotechnics employees who mobilised to Lot B on January 14, 2026. This component involved conducting an onsite analysis of the soils in which the WMS will be constructed within (subsequent soil sample testing was undertaken to further understand the potential hydraulic capacity of the present soils).

The purpose of this report is to detail the findings of both the Prior Desktop Study and the Onsite Evaluation in order to make a qualitative and quantitative determination of the Design Loading Rate (DLR) and Design Irrigation Rate (DIR) of the Site. The scope of the works conducted included:

- A Prior Desktop Study of the Block and its surrounding geography and hydrology
- Excavation of 2 x Test Pits (TP1 and TP2) intended to cover the approximate footprint of the proposed WMS disposal area
- In-situ permeability testing in TP1 and TP2
- Logging of both Test Pits' soil profiles in accordance with *AS / NZS1547*
- Laboratory analysis of samples collected from 0.2mbgl (metres below ground) and 0.5mbgl in TP1
- Drone photography of Lot B

3. Prior Desktop Study

Table 1 summarises the key findings and associated implications of the factors considered in the Prior Desktop Study of Lot B. In reference to these descriptions, find attached site locality plans in the appended data.

Table 1: Findings of the Initial Desktop Study

Site Factor	Findings	Implications on design[1]
Site boundaries	A fenced block of approximately 20,000m^2, the Site is bordered in all directions by developed residential land parcels	Lot B is of appropriate size to support a primary or secondary treated WMS, and is not bordered by any sensitive receptors
Climate	Mean rainfall = 1,882.8mm (McMinns Lagoon BOM Station[C]) Annual evaporation = 2,000 – 2,400mm per year[D] Predominant wind direction = East in dry season and west in wet season	Lot B is in an appropriate climatic region given yearly evaporation exceeds average yearly rainfall
Land unit[E]	The Site is located on the 1c land unit	This land unit possesses the following characteristics: low scarps and short steep slopes; gravelly shallow lithosols; and rapidly-drained. Rapid drainage can inhibit sufficient pathogenic attenuation before reaching groundwater – insitu testing will determine if this is a likely occurrence
Soil Water Regime	Over the past 5 years, the closest government water bore (RN020244 – located 2,420m to the southeast of Lot B)[F] recorded a shallowest groundwater observation of 2.07 metres below ground level (mbgl) in March of 2024	Encountering groundwater at a depth less than 1.5mbgl is detrimental as the WMS could become inundated in surge events, this finding suggests such an occurrence is unlikely
Nearest watercourse	The closest water source to the Site is Wells Creek located ~180m to the west	The Site is >60m from any waterway and >200m from the nearest above ground domestic potable water source
Nearest water bore[G]	There are no water bores within 400m of the Site	The Site is an appropriate distance (>100m) from the nearest bore to support either a primary or secondary treated system
Historical land use	Not ascertained	There is no historical land use information to suggest the Site could be unsuitable for development of a WMS
1 in 100-year flood risk[H]	The Site is located outside of the 1 in 100-year flood extent area for both the Elizabeth and Blackmore Rivers	There is no apparent flood risk identified for the Site

Table notes:

1) A green colour coding suggests no identified constraint to construction, an orange colour coding suggests a potential constraint, and a red colour coding suggests a definite constraint

4. Onsite Evaluation

4.1 Field investigation procedure

The fieldwork undertaken comprised of 2 Test Pits, both excavated to depths of 600mm (assessment of the deep soil horizon). Both Test Pits were dug by a 2 tonne Mini Excavator. At each Test Pit, the following recordings were taken:

- Orientation photographs facing north, east, south, and west (find in Photo Log)
- Photographs of the Test Pit and the excavated spoil (find in Photo Log)
- GPS locations
- Soil lithology findings
- An in-situ permeability test at 600mm deep

At TP1 only, soil samples were taken from 200mm and 500mm to understand particle size distribution of the soil at these depths. Interpreting this aspect of the soil's macro composition allows for a greater understanding of the potential hydraulic capacity of the Site.

4.2 Compliance with setback distances

Table 2 outlines the Site's compliance with the setback distances stipulated in the *Code of Practice for Wastewater Management*[B].

Table 2: Site compliance with required setback distances

Feature*	Required setback distance	Compliance
Allotment boundary	2m (absorption trench or bed), 0.5m / 3.0m (secondary: subsurface / surface irrigation)	✓
Any other WMS application area	2m (both primary and secondary)	✓
Buildings & stormwater drains	3m downslope, 6m upslope (absorption trench or bed), 2m / 3m (secondary: subsurface / surface irrigation)	✓
Swimming pool	3m downslope, 6m upslope (absorption trench or bed), 3m (secondary: subsurface / surface irrigation)	✓
Potable waterway	200m (primary), 100m (secondary)	✓
Non-potable waterways	60m (primary), 30m (secondary)	✓
Domestic potable bore	100m (primary), 50m (secondary)	✓

Table notes:
*Testing was undertaken prior to construction of the settlement, these setback distances should be applied to the positioning of the WMS prior to its placement

4.3 Onsite evaluation findings

Table 3 summarises the key findings and associated implications of the factors considered in the onsite evaluation of Lot B.

Table 3: Findings of the Onsite Evaluation

Site Factor	Findings	Implications on design[1]
Onsite weather conditions	33.0°C and 72% humidity at 11:33am on 14/01/26, with 119.4mm rainfall in the last 7 days (McMinns Lagoon – BOM data)	Weather conditions unlikely to have impacted upon site assessment and soil permeability recordings
Slope and shape	The Site is located on a ~3.0% slope from west to east	The ground in the vicinity of the Site will likely not be prone to severe run-off events or erosion
Exposure	The Site at present receives ~40% solar exposure	Exposure of the WMS will be increased given the need for localised clearing of vegetation, hence, the low exposure at present should not be an issue
Vegetation	The vegetation of the Site consists mainly of immature and mature eucalypts and shrubbery	Tree root invasion of the WMS will be an issue if localised vegetative clearing is not undertaken. It is recommended that clearing produce a conservative 3m buffer between the WMS and any vegetation
Topographical features	A low velocity stream runs in a southeasterly direction, 50m to the east of the Site	No inhibitive implication
Anthropogenic features	No remarkable anthropogenic features observed within the vicinity of the Site	No inhibitive anthropogenic features
Signs of erosion / land slip	Nothing observed	No inhibitive implication
Presence of boulders / rocky outcrops	Sporadic Coffee Rock outcrops	No likely inhibitive implication for the Site
Soil surface condition	The surface soils are a moist gravelly loam across the entirety of the Site	The soil surface is in good condition to construct the WMS. Shrinkage / swelling (cracking) is not likely due to the <35% clay content
Signs of salination	No signs observed	No inhibitive implication
Presence of fill	Not assumed in the Test Pits	No inhibitive implication
Signs of run-off / flooding (controls)	The stream to the east of the Site is potentially a benefit of the 1,000m^3 of fill placed on Lot A of 175 Brooking Circuit (to the north)	Drainage has been diverted to the rear of lot B, 50m distant from where the Site is situated
Embankment	Nothing observed	No inhibitive implication

Table notes:

1) A green colour coding suggests no identified constraint to construction, an orange colour coding suggests a potential constraint, and a red colour coding suggests a definite constraint

4.4 Soil lithology findings and sample sieve analysis

The soil lithology findings have been informed by the laboratory testing results in order to obtain a clear picture of the composition of the differing strata horizons existent in the Test Pits. These Particle Size Distribution (PSD) results are presented in Table 4 with the associated soil description for each of the Test Holes. Refer to the appended data for photographs of the Test Holes and their adjacent surrounding environment.

Table 4: Sieve results and inferred soil categorisation

	TH1	TH2
GPS location	*12°32'42.46"S* *131° 0'56.73"E*	*12°32'41.87"S* *131° 0'56.69"E*
Lab-analysed composition at 200mm	**Well graded:** Gravel = 29% Sand = 38% Fines (clay and silt) = 33%	
Lab-analysed composition at 500mm	**Poorly graded:** Gravel = 68% Sand = 19% Fines (clay and silt) = 13%	
Soil description	0 – 0.30m: Gravelly Clayey SAND, loose to medium dense, fine to medium-grained, fine to medium gravel, dark grey, moist 0.30 – 0.50m: Clayey GRAVEL, medium dense, fine to medium, with fine to coarse-grained sand, dark red brown, moist 0.50 – 0.60m: Cemented laterite	
Soil type	**At 200mm:** Category 3b (massively structured Loam) **At 500mm:** Category 4c (massively structured Clay Loam)	
Indicative permeability (according to Table L1 of *AS / NZS1547*)	**Surface – 400mm** 0.5 – 1.5m/day **300mm – 600mm** 0.06 – 0.12m/day	

A coarse fragment (>2mm in size) abundance of 29% was recorded at the 200mm sample depth, and 68% at the 500mm sample depth. A coarse fragment percentage greater than 20% can be inhibitive of WMS design when the coarse fragments are classed as cobbles or larger (>60mm in size), however, the coarse fragments in the Test Pits were deemed to be medium-sized or smaller (<20mm). Hence, the abundance of coarse fragments at the sample depths poses no additional risk to WMS design.

The coarse fragment percentage measured at 500mm was technically high enough to classify the soils as Category 1 (Gravels and Sands). However, characteristics more directly related to permeability, such as areal porosity, show that the soil's hydraulic performance is better determined by its field texture (percentage composition minus gravel) than by its gravel content.

As well as being tested for their Particle Size Distribution, both samples were also tested for their Emerson Aggregate Class (EAC). EAC measures a clay's potential for dispersal when immersed in solution – this occurs as a result of positively charged sodium molecules mobilising negatively charged clay particles. Assessment of this condition is relevant to the performance potential of WMS beds and

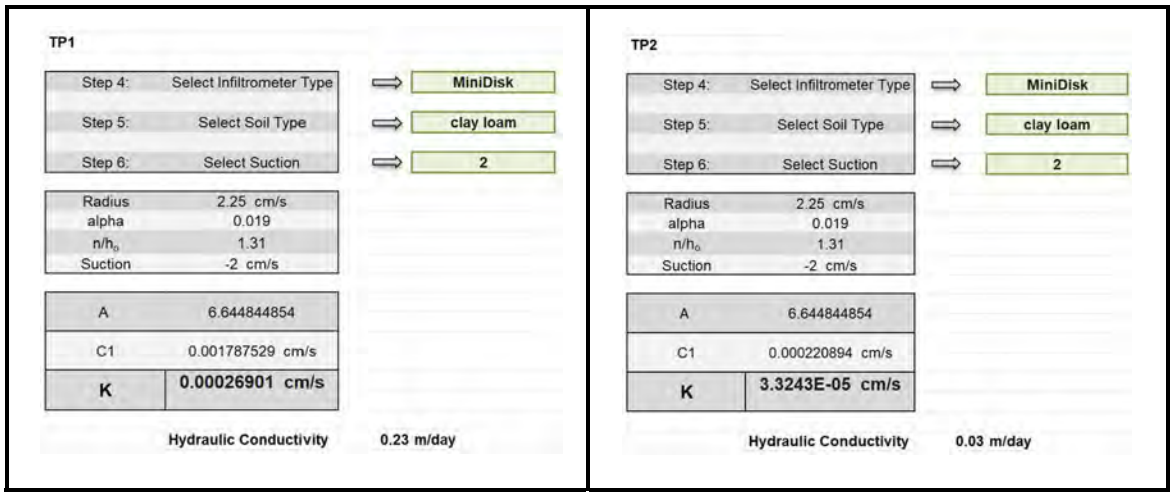
trenches, as the high sodium absorption ratio (SAR) of WMS effluent readily disperses some clays, forming a clogging layer that is largely impermeable. The following Emerson Classes were recorded at the two sample depths:

- 200mm depth – Emerson Class 3 (tendency to slake or swell but generally not readily dispersive)
- 500mm depth – Emerson Class 6 (highly stable soils with a low potential for dispersive behaviour)

Given the findings of the Emerson Tests, there is low chance of clay dispersivity at both the sample depths. Hence, the permeability of the soils underlying the WMS will likely not be further degraded over time due to clay dispersivity from sodium accumulation. Therefore, design of the WMS can be reliably informed by the in-situ permeability recordings as well as the encountered soil types

4.5 Permeability test

To further understand the hydraulic conductivity of the soils an in-situ permeability test was undertaken. This test involves deploying a Mini Disk Infiltrometer at the base of both Test Pits (600mm deep) and measuring the hydraulic displacement over time. The soil is soaked with 100mL of water, prior to undertaking the test, to simulate saturated soil conditions (conditions better representative of the year-round state of the soil given its constant subjection to septic effluent inundation). The results for both Test Pits are presented below.



TP1 recorded an insitu permeability of 0.23 m/day (slightly above that of a Category 4c soil: 0.06 – 0.12 m/day) and TP2 recorded an insitu permeability of 0.03 m/day (slightly below that of a Category 4c soil).

While, individually, the results display a 0.20 m/day range of possible permeability, an averaging of the results between the two locations produces an insitu permeability approximately in accordance with the indicative range for a Category 4c soil.

Given no other features which could further constrain soil permeability were identified on the Site, a fitting soil classification, based on both the in-situ permeability and the encountered soil types, would be of a Category 3b soil at shallow depths (surface – 400mm) and a Category 4c soil at deeper depths (400-600mm).

5. Conclusion

Between the initial desktop study and the onsite evaluation, WANT Geotechnics has determined that the Site on Lot B of 175 Brooking Circuit, Virginia appears suitable to support the following:

- A primary or secondary treated onsite wastewater management system so long as it is constructed in close proximity to the Site (area of testing), and ensuring all aspects of the WMS are placed at distances commensurate with the *NT Code of Practice for Wastewater Management* setbacks (on page 4 of this report). Based on the findings of this evaluation the disposal system should be designed with the following DLR/DIR, depending on what mode of effluent disposal is opted for:
    - **Irrigation of secondary treated effluent** – a DIR of 4mm/day (drip or spray irrigation) or 3.5mm/day (LPED irrigation) (light blue box below)
    - **Shallow trench or bed (300 - 400mm deep)** – a DLR of 15mm/day for a primary treated system, or 30mm/day for a secondary treated system (red box below)
    - **Deep trench or bed (400 – 600mm deep)** – a DLR of 5mm/day for a primary treated system, or 10mm/day for a secondary treated system (dark green box below)

The maximum rate (as opposed to the conservative rate) of the DLR values for primary treated effluent is provided above given the Site/Block is free of any limiting factors which would warrant a more conservative approach to design.

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TABLE M1
RECOMMENDED DESIGN IRRIGATION RATE (DIR) FOR IRRIGATION SYSTEMS

Soil Category (see Note 1)	Soil texture	Structure	Indicative permeability (K_{sat}) (m/d)	Design irrigation rate (DIR) (mm/day)		
				Drip irrigation	Spray irrigation	LPED irrigation
1	Gravels and sands	Structureless (massive)	> 3.0	5 (see Note 2)	5	(see Note 3)
2	Sandy loams	Weakly structured	> 3.0			4
		massive	1.4 – 3.0			
3	Loams	High/ moderate structured	1.5 – 3.0	4 (see Note 1)	4	3.5
		Weakly structured or massive	0.5 – 1.5			
4	Clay loams	High/ moderate structured	0.5 – 1.5	3.5 (see Note 1)	3.5	3
		Weakly structured	0.12 – 0.5			
		Massive	0.06 – 0.12			
5	Light clays	Strongly structured	0.12 – 0.5	3 (see Note 1)	3	2.5 (see Note 4)
		Moderately structured	0.06 – 0.12			
		Weakly structured or massive	< 0.06			
6	Medium to heavy clays	Strongly structured	0.06 – 0.5	2 (see Note 2)	2	(see Note 3)
		Moderately structured	< 0.06			
		Weakly structured or massive	< 0.06			

NOTES:
1 For Category 3 to 5 soils (loams to light clays), the drip irrigation system needs to be installed in an adequate depth of topsoil (in the order of 150 – 250 mm of *in situ* or imported good quality topsoil) to slow the soakage and assist with nutrient reduction.

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TABLE L1
RECOMMENDED DESIGN LOADING RATES FOR TRENCHES AND BEDS

Soil category	Soil texture	Structure	Indicative permeability (K_{sat})(m/d)	Design loading rate (DLR) (mm/d)			
				Trenches and beds			ETA/ETS beds and trenches
				Primary treated effluent		Secondary treated effluent	
				Conservative rate	Maximum rate		
1	Gravels and sands	Structureless (massive)	> 3.0	20 (see Note 1)	35 (see Note 1)	50 (see Note 1)	(see Note 4)
2	Sandy loams	Weakly structured	> 3.0	20 (see Note 1)	30 (see Note 1)	50 (see Note 1)	
		Massive	1.4 – 3.0	15	25	50	
3	Loams	High/ moderate structured	1.5 – 3.0	15	25	50	
		Weakly structured or massive	0.5 – 1.5	10	15	30	
4	Clay loams	High/ moderate structured	0.5 – 1.5	10	15	30	12
		Weakly structured	0.12 – 0.5	6	10	20	8
		Massive	0.06 – 0.12	4	5	10	5
5	Light clays	Strongly structured	0.12 – 0.5	5	8	12	8
		Moderately structured	0.06 – 0.12		5	10	
		Weakly structured or massive	< 0.06			8	
6	Medium to heavy clays	Strongly structured	0.06 – 0.5	(see Notes 2 & 3)			5 (see Notes 2, 3, & 5)
		Moderately structured	< 0.06				
		Weakly structured or massive	< 0.06				

WANT Geotechnics

Mary Flux

Mary Flux BSc Hons
Engineering Geologist

Stephen Flux BSc MSc CGeol AffillEAust
Director / Engineering Geologist

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WANT Geotechnics Pty Ltd

"Unfortunately, soils are made by nature and not by man, and the products of nature are always complex. As soon as we pass from steel and concrete to earth, the omnipotence of theory ceases to exist. Natural soil is never uniform. Its properties change from point to point while our knowledge of its' properties is limited to those few spots at which the samples have been collected. In soil mechanics the accuracy of the computed results never exceeds that of a crude estimate and the principal function of theory consists in teaching us what and how to observe in the field"

Karl Terzaghi – Founder of Modern Geotechnology

WANT Geotechnics Geotechnical Engineering Solutions	Client: John Glynatsis		Site and Soil Evaluation	Project: NTG20265212
		Drawn by: SF	Lot B 175 Brooking Circuit	Drawing No. 1
	Scale: NTS	Date: 5 Feb 2026	Virginia, Northern Territory	Revision: 0

Photos 1-4: Test Pit 1 – North, East, South, West orientation (left to right)

Photos 5-6: Test Pit 1 – indicative of excavated spoil (T) and Test Pit condition (B)

Photos 7-10: Test Pit 2 – North, East, South, West orientation (left to right)

Photos 11-12: Test Pit 2 – indicative of excavated spoil (T) and Test Pit condition (B)

Centre for Environmental Training

Certificate of Completion

On-site Wastewater Management

This is to verify that

Mary Flux

has successfully completed the above course
held Online
on 30th November & 1st December

the detailed content of which is outlined overleaf

On-site Wastewater Management

The person named overleaf has attended the On-site Wastewater Management training course held:

Online on 30th November & 1st December 2021

The course comprises a two-day (13 teaching hours) program covering the topics listed below:

- The Regulatory Environment
- On-site Wastewater; Generation, Quantification and Characterisation
- Primary Treatment; Septic Systems
- Other Primary Treatment Systems and Greywater Options
- Secondary Treatment; Sand Filters, Media Filters and Mound Systems
- Secondary Treatment; Treatment Wetlands and Reed Beds
- Secondary Treatment; Aerated Wastewater Treatment Systems
- Soil Assessment for On-site Wastewater Management
- Land Capability; Desktop Study
- Soil Absorption Systems; Trenches and Beds
- Passive Dosing Systems; Siphons and Flouts, LPED Systems
- Evapotranspiration Systems; Sizing by Water Balance Analysis
- Nutrients and Land Application Areas
- Irrigation Systems; Componentry and Design
- Failing Systems; Auditing and Troubleshooting

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cet Centre for Environmental Training

197 Main Road Cardiff NSW 2285 Australia Telephone + 61 2 4954 4997
Email mail@environmentaltraining.com.au Website www.environmentaltraining.com.au

TRAKONDY

Asbestos and Hazardous Materials Pty Ltd

In-Situ and Stockpile Soil Waste Classification

Mitchell Creek Green Stage 2K

Off Zuccoli Parade, Zuccoli, Northern Territory 0832

Site Works Conducted 04 – 06 March 2024

Prepared For: AKJ Services Pty Ltd

Approved By: Mark Kondakov of Trakondy

Reference Number: P724_v1.0

Trakondy Asbestos and Hazardous Materials Pty Ltd
120 James Circuit, Woodroffe, NT 0830
mark.kondakov@outlook.com
0400 260 483
ABN 53641441812

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Abbreviations

AS	Australian Standard
ASC NEPM	National Environment Protection (Assessment of Site Contamination) Measure
BGL	Below ground level
BTEXN	Benzene, toluene, ethylbenzene, xylene and naphthalene
CSM	Conceptual site model
EIL	Ecological investigation level (ASC NEPM)
ESL	Ecological screening level (ASC NEPM)
HIL	Health investigation level (ASC NEPM)
NATA	National Association of Testing Authorities
NSW	New South Wales
NT	Northern Territory
CoPC	Contaminants of potential concern
QA/QC	Quality assurance/ quality control
SBWMF	Shoal Bay Waste Management Facility
TRH	Total recoverable hydrocarbons
WAC	Waste acceptance criteria (SBWMF)
WMPC	Waste Management and Pollution Control Act (NT)

Executive Summary

AKJ Services Pty Ltd (AKJ, *the client*) engaged Trakondy Asbestos and Hazardous Materials Pty Ltd (Trakondy) to undertake an *in situ* waste classification and *soil stockpile* classification of soils at Stage 2K of Mitchell Creek Green Development off Zuccoli Road, Zuccoli, Northern Territory 0832(*the site*).

Trakondy was engaged by the client to assess the environmental risks posed by contaminants of potential concern in approximately 12,400 m^3 of stockpiled soil that needs to be relocated either onsite or for offsite disposal, along with the excavation (cut and fill) of in-situ soils from various locations across the site, with the total volume of the cut material estimated to be approx. 15,000 m^3, with fill of up 15,000 m^3, possibly able to be reused onsite, and the remaining spoil to be disposed of at Shoal Bay Waste Management Facility.

Trakondy has not been engaged to assess the site holistically, nor have we been engaged to undertake any works in relation to the development of the site, our engagement has solely been in relation to undertaking a soil waste classification report for the in-situ and stockpiled materials.

The site was reported as being a "greenfield" site prior to the progressive development of Mitchel Creek Green in Zuccoli in approx. 2012, when aerial imagery first identified the construction of Zuccoli Parade, although about 95% of this area was still greenfield. Whilst the area round the current Stage 2K was progressively developed since 2012, the key observations in relation to the current site is the construction of a swale drain in 2014 and the sue of the site as a stockpile area from 2021-2022, which is when most of the site was cleared of bushland and the sediment basin constructed.

It is unknown exactly which stage of the Mitchell Creek Green development the soil in the stockpile originated from, without undertaking further investigations, however it is likely that the material originated from works immediately prior to the stockpile being created.

The conceptual site model, highlighted a number of potential contaminants of the soil; with the primarily containment identified as likely to be natural metals.

A field survey and sampling program were carried out to assess the site. The field survey confirmed the observations identified during the site history which was the site (MCG 2K) was found to contain various soil stockpiles, which could be described as top soil, general fill rock and small amounts of rubbish and deleterious material. With the remainder of the site appearing to have been largely cleared of natural vegetation a few years ago and the remnants of the site civil construction compound on the southern end of the site.

Apart from the planned clearance of the natural bushland, the location of the soil stockpiles, etc there was no evidence at the site of any observable indicators of other contamination such as staining, odours, dead vegetation, or evidence of fly tipping.

As part of this investigation 48 samples were collected from the soil stockpiles taken at various depths from within the stockpiles, whilst 49 samples were collected from test pits taken from the areas where cutting is required across the site ranging from less than 1,000 mm BGL on the southern end of the site, to as much as 3,000 mm BGL in is some areas on the northern section of the site. it must be noted that in addition to the cutting, there is also a significant requirement for fill across other portions of the site, which much of the stockpiled and/or cut material will be used for. Along with the quality control and quality assurance samples, a total of 107 samples were collected and submitted for NATA accredited analysis, with 95 samples being analysed for total recoverable hydrocarbons, benzene, toluene, ethylbenzene, and xylene and eight metals (arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, silver, tin and zinc), and eight screening samples were analysed for a wide variety of analytes as detailed within the Victorian EPA 1828.2 – Fill suite criteria (previously IWRG621). This screening activity identified levels of fluoride

approaching or exceeding the most conservative thresholds being the NT EPA Clean Fill Criteria, as such an additional sixteen samples were analysed for Fluoride (in total 25% of the samples were analysed for fluoride).

The sampling density achieved was considered suitable for the site and the works undertaken. The samples were sent to a NATA accredited laboratory for analysis. Of the samples analysed:

- All metals were below the NTEPA threshold for clean fill with the exception of arsenic;
- Within the in-situ test pits arsenic concentrations only exceeded the NT EPA clean fill threshold in a small number of locations and at shallow depths with the arsenic being identified in the southern section of the site to a depth of 1,000 mm BGL, and in the central and northern sections only on three occasions and only to a depth of 300mm BGL. All concentrations were less than twice the NTEPA Clean Fill threshold, and many times lower than the most conservative thresholds as detailed within the NEPM which is HIL-A (low density residential housing);
- Within the soil stockpiles the arsenic concentrations exceeded the NT EPA clean fill threshold in approximately half the samples analysed. All concentrations were approximately less than twice the NTEPA Clean Fill threshold, and many times lower than the most conservative thresholds as detailed within the NEPM which is HIL-A (low density residential housing);
- Total recoverable hydrocarbons, benzene, toluene, ethylbenzene, and xylene were detected at trace levels in less than 5% of the samples, with the remainder of the results being less than the laboratory's limit of detection and all samples being well under the most conservative threshold being the NTEPA Clean Fill Criteria;
- Fluoride was found to be just under the threshold for clean fill in approx. 50% of the samples and in the remaining 50% was found to be in the range of up to twice the threshold for the clean fill criteria and was found in both the soil stockpile and in the in-situ samples taken from the test pits. The NEPM does not provide a threshold for fluoride in soil concentrations, however the levels of fluoride are not considered excessive for the proposed disposal at SBWMF;
- Screening suite as detailed below returned results all below the NTEPA threshold for clean fill:
  - Organochlorine (OCP);
  - Organophosphorus (OPP);
  - Hexavalent Chromium;
  - Speciated Phenols;
  - Total Cyanides;
  - Polychlorinated Biphenyl's (PCB's);
  - Polycyclic Aromatic Hydrocarbons (PAH's); and
  - Volatile Organic Compounds (VOC's).

Results were assessed against the relevant guidelines, being:

- *Shoal Bay Waste Management Facility: Waste acceptance criteria* (NT EPA, 2021);
- *National Environment Protection Council. (2013). National Environment Protection (Assessment of Site Contamination) Measure 1999. Canberra: National Environment Protection Council.*
- *Northern Territory Environment Protection Authority. (*2015). Fact sheet: How to avoid the dangers of accepting illegal fill onto your land. Darwin: NT EPA.

All metals and hydrocarbon results which were extensity tested across the site were within the most stringent guidelines specified, with the exception of arsenic. The screening samples with the exception of fluoride were within the most stringent guidelines specified.

Arsenic and fluoride were identified in samples up to twice the threshold stated as being the NTEPA clean fill criteria, however the arsenic concentration was found to be many times lower than the most conservative thresholds as detailed within the NEPM which is HIL-A (low density residential housing); and indeed, if assessed against the HIL-C (Public Open Space) criteria would be approximately 15% of the allowable threshold. Whilst the NEPM does not provide HIL thresholds for fluoride individually, there is evidence that fluoride can occur naturally in clay soils and is bound to soils and doesn't easily dissolve.

The levels or arsenic and fluoride are considered to be of natural origin, and noting the fill is being disposed of at SBWMF, believe this material would not pose any significant risk being disposed of at the facility as clean fill.

1.0 Introduction

AKJ Services Pty Ltd (AKJ, *the client*) engaged Trakondy Asbestos and Hazardous Materials Pty Ltd (Trakondy) to undertake an *in situ* waste classification and *soil stockpile* classification of soils at Stage 2K of Mitchell Creek Green Development off Zuccoli Road, Zuccoli, Northern Territory 0832(*the site*).

Trakondy was engaged by the client to assess the environmental risks posed by contaminants of potential concern in approximately 12,400 m^3 of stockpiled soil that needs to be relocated either onsite or for offsite disposal, along with the excavation (cut and fill) of in-situ soils from various locations across the site, with the total volume of the cut material estimated to be approx. 15,000 m^3, with fill of up 15,000 m^3, possibly able to be reused onsite, and the remaining spoil to be disposed of at Shoal Bay Waste Management Facility.

Trakondy has not been engaged to assess the site holistically, nor have we been engaged to undertake any works in relation to the development of the site, our engagement has solely been in relation to undertaking a soil waste classification report for the in-situ and stockpiled materials.

1.1 Background

The site was reported as being a "greenfield" site prior to the progressive development of Mitchel Creek Green in Zuccoli in approx. 2012, when aerial imagery first identified the construction of Zuccoli Parade, although about 95% of this area was still greenfield. Whilst the area round the current Stage 2K was progressively developed since 2012, the key observations in relation to the current site is the construction of a swale drain in 2014 and the sue of the site as a stockpile area from 2021-2022, which is when most of the site was cleared of bushland and the sediment basin constructed.

It is unknown exactly which stage of the Mitchell Creek Green development the soil in the stockpile originated from, without undertaking further investigations, however it is likely that the material originated from works immediately prior to the stockpile being created.

1.2 Site

As shown in Figure 1 the site was a "greenfield" site located on the western side of Zuccoli Parade, east of Lasiandra Avenue, north of Sandpaper Court and south of Sandpaper Court.

As part of our desktop review, Trakondy reviewed aerial imagery and based on the available imagery have made the following observations:

- 2004: Natural bush, some dirt tracks to the east, south and west, Lambrick Avenue to the north. Rural blocks upslope about 600 m away. Some mango orchards upslope. Based on drainage lines, runoff doesn't look like it drains through the site, so surface water impact unlikely, groundwater though?
- 2012: First appearance of development in the area. Zuccoli Parade construction civil works, contacts the northern end of the site. Site is still 95% bushland.
- 2013: Zuccoli Parade development continued, now runs past the eastern boundary of the site.
- 2014: large swale drain constructed on the site. Suburb development taken shape to the north, development commencing to the east. 80% of block is still bushland.
- 2015: Suburb development to the immediate east, west and north of the site. Civil construction compound established inside the southern end of the site. 70% of block is now cleared.
- 2016-2020: Site largely untouched. Extensive development of suburb on all immediate sides of the block. Vegetation regrowth now covers about 70% of the site.
- 2021-2022: Current use of the site as a stockpile area commenced. Most of site cleared, about 15% of vegetation remains. Stockpiles established, internal unloading tracks established, all draining to a sediment basin which then drains via new drain to the original swale drain from 2014.

- 2023: stockpiling continues. civil construction compound still present inside southern end.

In relation to the civil construction compound located on the southern portion of the site, the available evidence indicates that over its lifespan (2015 on) has:

- stored civil plant and equipment;
- held a machinery workshop with concrete pads;
- site offices;
- laydown yards for tyres, steel, concrete structures (e.g. pipes, culverts, etc.);
- 2018-2020: was abandoned (just a laydown yard)
- 2021: Activity at site recommended with stockpiling facility.

Figure 1. Site image, Mitchell Creek Green Stage 2K - Off Zuccoli Parade, Zuccoli, N 0832

1.3 Aim

To ensure any potential environmental and human health risks posed by the spoil are quantified, qualified and effectively managed in its handling and disposal.

1.4 Scope

All spoil within the proposed project work area (approximately 12,400 m^3 of stockpiled material and, up to 15,000 m^3 of in-situ material that is to be cut, with up to approx. 15,000 m^3 of fill also required) which is required to be excavated and reused or disposed of.

1.5 Objectives

To meet the aim the following objectives were required:

- Determine suitable sampling method, including:
  - sample density;
  - CoPC for analysis; and
  - applicable comparative guidelines.
- field observations for contamination, including observing the excavation of the test-pits;
- take relevant samples to assess CoPC within the soils of each test-pit;
- compare results with guidelines;
- analyse and interpret results; and
- make management recommendations to inform the disposal options of surplus soil.

1.6 Deliverables

The following have been delivered during this investigation:

- Desktop review;
- conceptual site model;
- analysis plan;
- field survey;
- sampling program;
- analysis and interpretation of results;
- management recommendations; and
- summary report (this report).

2.0 Regulatory framework
National

2.1 National Environment Protection (Assessment of Site Contamination) Measure 1999

The National Environment Protection (Assessment of Site Contamination) Measure 1999 (ASC NEPM) (National Environment Protection Council, 2013) provides a nationally consistent framework for identification and investigation of contaminated sites and is given effect by individual legislation and guidelines in each state and territory.

The NEPM sets out the approach to assessment of a site from desktop review, through to quantitative risk assessment. Guidance schedules cover standard sampling and analysis techniques, data interpretation and quality review, and exposure settings for assessment of risk to human health or ecology. Health and ecological investigation levels are provided for some contaminants, under specific land-use scenarios. A framework is described to support derivation of risk-based levels, where default investigation levels are not provided, or the exposure settings are not relevant.

2.1.1 Soil sampling

Specific screening criteria for soil has been nominated within the NEPM. The screening criteria from the NEPM applicable to health and ecological investigation and screening levels for commercial and industrial land-uses (HIL/HSL/EIL-D) has been directly compared to the results obtained and used to evaluate whether the soil has any contaminates which may affect handling and disposal.

2.1.2 Health investigation levels

The health risk assessment methodology that forms the basis for calculation of Health Investigation Levels (HILs) is provided in Schedule B4 of the NEPM. The derivation of HILs is presented in Schedule B7 of the NEPM. HILs are scientifically based, generic assessment criteria designed to be used in the first stage (Tier 1 or 'screening') of an assessment of potential risks to human health from chronic exposure to contaminants. They are intentionally conservative and are based on a reasonable worst-case scenario for specific land-use settings. The HILs are referred to by regulators, auditors, and consultants in the process of assessing site soil contamination HILs are not intended to be clean-up levels. The decision on whether clean-up is required, and to what extent, should be based on site-specific assessment triggered by an exceedance of the HIL.

2.1.3 Ecological investigation levels and ecological screening levels

The ecological investigation levels (EILs) and ecological screening levels (ESLs) are derived from the toxicity of specific contaminants and the sensitivity of receptors, such as plants, animals, and humans. They are used to determine the appropriate response actions and to guide the development of site-specific remediation objectives. By employing EILs in the NEPM framework, a standardized and systematic approach to the assessment and management of contaminated sites is ensured, thereby protecting the environment and public health.

2.2 Australian Standard 4482.1:2005

AS 4482.1: *Guide to the investigation and sampling of sites with potentially contaminated soil; Part 1: Non-volatile and semi-volatile compounds* (Standards Australia, 2005) provides guidance for the collection of sufficient and reliable information for the assessment of a site potentially contaminated by non-volatile and semi-volatile compounds. It includes the formulation of data quality objectives and design of a sampling plan to meet the objectives of the investigation.

This Standard does not establish any regulatory limits, remediation requirements or make any recommendations about the proposed land-use. Statistical methods and tools other than those described in this Standard may be used if they can be proven to be equivalent and can be justified.

2.2.1 Definition of soil

For the purposes of this Standard, the term 'soil' is taken to also include other solid materials, such as fill, rubble and waste material, which includes concrete.

Northern Territory

2.3 Waste Management and Pollution Control Act 1998

The Northern Territory Waste Management and Pollution Control Act 1998 (Northern Territory Government, 2015) is a legislative framework that regulates waste management, pollution control, and the prevention of environmental harm in the Northern Territory. The Act aims to minimize harm to human health and the environment by controlling the generation, storage, transport, treatment, and disposal of waste, as well as regulating activities that may result in pollution or environmental harm.

The Act provides the legal basis for the development of waste management plans, the licensing and auditing of waste management and pollution control facilities, and the enforcement of regulatory measures to protect public health and the environment. It also establishes penalties for non-compliance with its provisions, including fines and imprisonment, and provides mechanisms for the recovery of costs associated with the clean-up of contaminated sites. Additionally, the Act promotes waste reduction and recycling initiatives by encouraging the development of waste reduction and recycling programs and supporting the use of environmentally sound waste management technologies.

Overall, the Northern Territory Waste Management and Pollution Control Act is an essential regulatory framework that helps to protect public health and the environment from the potential harms of waste management, pollution, and environmental harm in the Northern Territory.

2.4 Fact Sheet: How to Avoid the Dangers of Accepting Illegal Fill onto Your Land

The NT EPA (2015) provides guidance to landowners and operators to avoid the risks and potential harm associated with disposing of, or accepting illegal fill onto their land, which may contain contaminants exceeding guideline thresholds. Illegal fill may contain hazardous waste, construction and demolition waste, asbestos, or other contaminants that can pose a threat to human health and the environment. The Fact Sheet emphasizes the importance of verifying the source and nature of the fill material and checking whether the transporter has a permit to transport and dispose of the waste.

The Fact Sheet provides practical tips on how to identify and avoid illegal fill, such as conducting visual inspections of the fill material, asking for relevant documentation and certifications, and using a reputable waste management service provider. The Fact Sheet also highlights the legal consequences and penalties associated with accepting illegal fill, including fines and imprisonment. By following the Fact Sheet's guidance, landowners and operators can ensure that the fill material they dispose of or accept onto their land meets the relevant guideline thresholds and does not pose a risk to human health and the environment.

2.5 Guidelines on Conceptual Site Models

The NT EPA (2013) released guidelines on the development of conceptual site models (CSMs) for contaminated sites. The purpose of the CSM is to provide a comprehensive understanding of the potential sources, pathways, and receptors of contamination at a site, to guide the development of a site assessment and remediation plan. The NT EPA guidelines provide a step-by-step approach to developing a CSM, including

identifying the site history, potential contaminant sources, potential pathways and receptors, and developing a conceptual model that integrates this information.

The guidelines emphasize the importance of involving stakeholders in the CSM development process to ensure that local knowledge and concerns are incorporated into the site assessment and remediation plan. The guidelines also highlight the need for ongoing review and refinement of the CSM as new information becomes available or as the site conditions change. The guidelines provide a valuable resource for practitioners involved in the assessment and remediation of contaminated sites, by providing a structured approach to developing a comprehensive understanding of the contamination at a site and guiding the development of an effective remediation plan.

2.6 Shoal Bay Waste Management Facility: Waste Acceptance Criteria

The municipal waste facility for the greater Darwin region stipulates waste soil acceptance criteria for non-asbestos contaminated soils (NT EPA, 2021). Two levels are given, either “clean fill” which is the same criteria as the fact sheet in the above section, or “commercial” which accepts higher levels of CoPC in soil disposed of in a cell with a composite liner. Both solid waste and leachate thresholds are given. Waste soil that meets these thresholds can be disposed of in this facility.

In addition, this facility also has a dedicated asbestos waste cell, where asbestos containing materials, including asbestos in soils, and asbestos contaminated waste can be disposed of.

Other

2.7 Contaminated Land Guidelines: Sampling Design Part 1 - Application (NSW)

The Contaminated land guidelines: Sampling design part 1 – application (NSW EPA, 2022) provides information relating to the most suitable patterns for sampling and the number of samples to be taken to ensure the appropriate hazard categorisation is applied to soils being moved off-site for reuse, treatment or disposal. This guidance forms part of the New South Wales suite of resources to be used by consultants, site auditors, regulators, planning authorities, landholders and developers to assist with management of contaminated land. As when following any guidance, this document also clearly states that users should justify the approaches they use and demonstrate that they are appropriate and fit for purpose.

2.8 Industrial Waste Resource Guidelines 702: Soil Sampling (Victoria)

The Industrial Waste Resource Guidelines 702: Soil Sampling (IWRG702) provides information relating to the most suitable patterns for sampling and the number of samples to be taken to ensure the appropriate hazard categorisation is applied to soils being moved off-site for reuse, treatment or disposal (EPA Victoria, 2009). This guidance forms part of the Industrial Waste Resource Guidelines, which offer guidance for wastes and resources regulated under the Environment Protection (Industrial Waste Resource) Regulations 2009 in Victoria. As when following any guidance, users should justify the approaches they use and demonstrate that they are appropriate and fit for purpose.

3.0 Desktop review

3.1 Site characteristics

As part of our desktop review, Trakondy reviewed aerial imagery and based on the available imagery have made the following observations:

- 2004: Natural bush, some dirt tracks to the east, south and west, Lambrick Avenue to the north. Rural blocks upslope about 600 m away. Some mango orchards upslope. Based on drainage lines, runoff doesn't look like it drains through the site, so surface water impact unlikely, groundwater though?
- 2012: First appearance of development in the area. Zuccoli Parade construction civil works, contacts the northern end of the site. Site is still 95% bushland.
- 2013: Zuccoli Parade development continued, now runs past the eastern boundary of the site.
- 2014: large swale drain constructed on the site. Suburb development taken shape to the north, development commencing to the east. 80% of block is still bushland.
- 2015: Suburb development to the immediate east, west and north of the site. Civil construction compound established inside the southern end of the site. 70% of block is now cleared.
- 2016-2020: Site largely untouched. Extensive development of suburb on all immediate sides of the block. Vegetation regrowth now covers about 70% of the site.
- 2021-2022: Current use of the site as a stockpile area commenced. Most of site cleared, about 15% of vegetation remains. Stockpiles established, internal unloading tracks established, all draining to a sediment basin which then drains via new drain to the original swale drain from 2014.
- 2023: stockpiling continues. civil construction compound still present inside southern end.

In relation to the civil construction compound located on the southern portion of the site, the available evidence indicates that over its lifespan (2015 on) has:

- stored civil plant and equipment;
- held a machinery workshop with concrete pads;
- site offices;
- laydown yards for tyres, steel, concrete structures (e.g. pipes, culverts, etc.);
- 2018-2020: was abandoned (just a laydown yard)
- 2021: Activity at site recommended with stockpiling facility.

3.2 Previous investigations

Trakondy is not aware of any previous soil or waste classification investigations or documentation for the site.

3.3 Conceptual site model

The conceptual site model (CSM) indicates that the soils on the site may be impacted by CoPC with the most probable being natural metals, as the Darwin region is known to have elevated levels of some metals due to the underlying geology of the region. The following CSM is detailed in accordance with the NT EPA's guidelines (2013).

3.3.1 Sources

The relevant sources of potential contamination that Trakondy considered as possible included:

- civil construction compound, particularly machinery maintenance;
- stockpile materials of unknown constituents and origin;
- potential Illegal dumping;
- runoff from surrounding suburb;
- air pollution from traffic;
- any historical incidents and spills on the site;

- groundwater movement from upslope; and
- natural sources (e.g. fluoride, possibly arsenic).

3.3.2 Contaminants of potential concern

Based on the above sources the relevant CoPC are:

- hydrocarbons;
- BTEX; and
- metals.

3.3.3 Pathways

Human and ecological receptors could potentially be exposed to contamination present by:

- coming in contact with contaminated spoil;
- coming in contact with contaminated surface and groundwater;
- eating contaminated flora and fauna; and
- coming in contact with dusts from contaminated soil.

3.3.4 Receptors

Contaminated spoil could have the potential to affect the following receptors:

- downstream watercourses receiving runoff from the area;
- groundwater that feeds surface waters;
- aquatic and terrestrial ecosystems in downstream watercourses;
- public health and recreational uses of the water in the downstream groundwater and watercourses;
- the health of contractors and the public who come in contacted with contaminated spoil, water, flora and fauna; and
- waste managers, public health and the environment impacted by dusts, the improper storage, handling and disposal of spoil.

3.4 Analysis plan

To address the potential contamination and risks identified in the conceptual site model, a comprehensive sampling program was required, see Appendix B for the complete lab results.

3.4.1 Analytes

Soil samples were assessed for the following analytes:

- metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc);
- total recoverable hydrocarbons, benzene, toluene, ethylbenzene, and xylene; and
- Screening suite as detailed below returned results all below the NTEPA threshold for clean fill:
  - Organochlorine (OCP);
  - Organophosphorus (OPP);
  - Hexavalent Chromium;
  - Speciated Phenols;
  - Fluoride;
  - Total Cyanides;
  - Polychlorinated Biphenyl's (PCB's);
  - Polycyclic Aromatic Hydrocarbons (PAH's); and
  - Volatile Organic Compounds (VOC's).

3.5 Guidelines

To assess the CoPC and inform proper disposal of spoil, the following standards were found to be applicable.

- *Shoal Bay Waste Management Facility: Waste acceptance criteria* (NT EPA, 2021); *Shoal Bay Waste Management Facility: Waste acceptance criteria* (NT EPA, 2021);
- *National Environment Protection Council. (2013). National Environment Protection (Assessment of Site Contamination) Measure 1999. Canberra: National Environment Protection Council.*
- *Northern Territory Environment Protection Authority. (*2015). Fact sheet: How to avoid the dangers of accepting illegal fill onto your land. Darwin: NT EPA.

4.0 Method

4.1 Test-pits

A stratified sampling design was used, which employed a combination of systematic (grid-based) and judgemental sampling, with some adjustments based on site conditions, observations.

As shown in Figure 2 a total of 48 samples were collected from various depths and locations within the stockpiles, and 49 samples were collected from test pits in-situ. The stockpile testing and in-situ testing was conducted using a 32 tonne excavator, and whilst onsite Trakondy recorded our observations in site logs, ensures sampling was sufficient to characterise the site, which included considering height of stockpiles, depth of test pits, dispersion of sampling points and the number of sample strata required for each testing location.

4.2 Field Survey

During fieldwork, the following was surveyed and recorded:

- observable signs of contamination, e.g. staining, odours, unusual vegetation death, and/or evidence of remedial activities;
- construction and demolition waste such as concrete, asbestos containing materials, etc;
- presence of imported fills versus natural soils;
- soils were logged in accordance with the Unified Soil Classification System (USCS) (American Society for Testing and Materials, 2003); and
- any other potentially relevant field observations.

4.3 Sampling

In-situ soil samples were collected from each test pit, from 300mm BGL, then at increments of approximately 500mm, or where notable changes in soil strata were observed. Due to the differing depths of fill to be excavated for the project, this led to multiple locations having different sampling depths, with the area on the northern side of the site where the stormwater drain is to be installed being excavated to 3,000mm BGL at the deepest location.

A new pair of clean, disposable nitrile gloves were donned between each sample and between locations. Samples were collected by hand from the centre of the excavator bucket. No reusable equipment was utilised during the collection of the soil samples. However, when needed reusable equipment such as an auger, hand trowel, etc. is decontaminated between samples by removing soil, washing with a solution of Liquinox©, rinsing with potable water and then rinsing with laboratory grade demineralised and deionised water.

The samples were collected, contained and transported in accordance with Australian Standard AS 5667.1:2015 (Standards Australia, 2015). To ensure quality control, chain of custody (CoC) documentation was utilised at all times and can be found in Appendix C. The samples were sent to Envirolab who are approved by the National Association of Testing Authorities (NATA), and they are accredited for the analyses that were conducted. The samples were analysed for relevant CoPC as specified in Section 3.4.1 and compared to guidelines as specified in Section 3.5. The full analysis suite can be seen in the laboratory reports.

4.4 Quality assurance and quality control (QA/QC)

Trakondy undertook a review of the QA steps and QC results for the current works, with reference to the following documents:

- ASC NEPM (National Environment Protection Council, 2013); and
- AS 4482.1:2005 (Standards Australia, 2005).

The QA/QC measures for this investigation included:

- Ensuring sampling methods were free from adulterating risks;
- appropriate sample labelling, storage, and transport under chain of custody protocols/procedures;
- the use of laboratories that hold NATA accreditation for the analyses undertaken;
- laboratory duplicates and triplicates; and
- blind field duplicates and triplicates.

4.4.1 Internal laboratory QA/QC

The results of the internal quality assurance programs of the laboratory are presented with the NATA test certificates at the end of this report.

4.4.2 Laboratory duplicates/triplicates

Laboratory duplicates and triplicates are carried out by the testing laboratory in accordance with their NATA accredited procedures where required.

4.4.3 Field duplicates/triplicates

Field duplicates were collected at a ratio of 1:20 (5%) for hydrocarbons and metals as per the ASC NEPM (National Environment Protection Council, 2013). Blind duplicates were analysed in the same laboratory and the blind triplicates were analysed in an independent laboratory.

The relative percent difference (RPD) between replicate results, was used to check the precision between primary, duplicate and triplicate samples. Due to the high likelihood for heterogeneous analyte distribution within samples, there is no universally accepted method for comparing results. Therefore, the ASC NEPM acceptance value of 30% was used when reviewing the results of the RPD calculations.

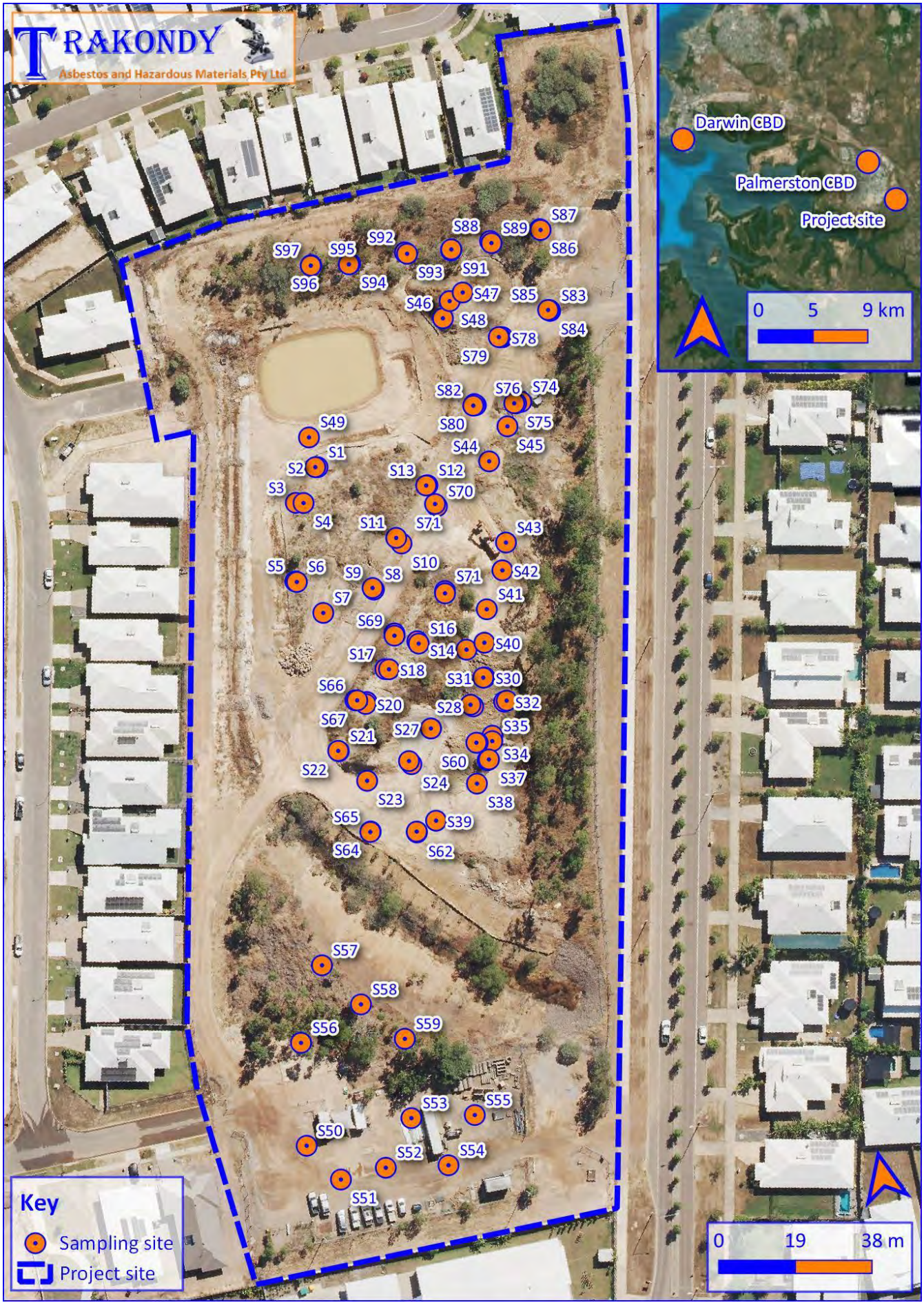
4.4.4 Blank samples

Trip blanks or rinsate samples are not applicable to soil sampling.

4.4.5 Data quality conclusions

The above QA/QC procedures are in accordance with applicable guidelines and are considered appropriate for the purposes of this assessment.

Figure 2. Site image Sample Locations -Mitchell Creek Green Stage 2K - Zuccoli Parade, Zuccoli,



5.0 Results

Trakondy attended the site from the 04 – 06 March 2024 to undertake a field survey, test-pitting and sampling. The findings of these investigations are given below.

5.1 Field survey

At the time of the survey some vegetation had returned since the time the area was cleared of natural bushland, and apart from the evidence (hardstand and gravel) of the civil construction compound and soil stockpiles, along with the open swale drain and retention pond, there was no indication of any significant prior land usage. There was no evidence at the site of asbestos containing materials, other observable indicators of contamination such as staining, odours, unusual vegetation death or evidence of remedial activities. There was some concrete rubble noted along with geofabric, both of which can easily be removed.

5.1.1 Test-pits

Trakondy observed the excavation of the test-pits and surveyed the excavated material, walls and floors of each test-pit. There was no evidence in any below ground test-pit of fill material, construction or demolition waste, asbestos containing materials, or other observable indicators of contamination such as staining, odours or evidence of remedial activities. Similarly, Trakondy observed the excavation of the test-pits excavated into the soil stockpiles and surveyed the excavated material, walls and floors in each location. There was no evidence in any soil assessed of, construction or demolition waste, asbestos containing materials, or other observable indicators of contamination such as staining, odours or evidence of remedial activities, with the exception of dedicated areas where concrete rubble, deleterious material and geotextile cloth been placed.

Soils encountered in all test-pits were undisturbed *in situ* kandosols typical and common throughout the upland areas of the Darwin region. Detailed observations for each test-pit are provided in the test-pit logs in Appendix E.

5.2 Soil samples

Sample results were received from the laboratory by email in digital format. Results were reviewed and where required, additional analysis such as additional fluoride sampling was requested from the laboratory. All reports were checked for data integrity, and field duplicates and triplicates checked for conformity. The results were then compared to the guidelines as specified in Section 3.5. The full laboratory reports are included in Appendix B.

5.2.1 Metals

All metals were below the NTEPA threshold for clean fill with the exception of arsenic. Within the in-situ test pits arsenic concentrations only exceeded the NT EPA clean fill threshold in a small number of locations and at shallow depths with the arsenic being identified in the southern section of the site to a depth of 1,000 mm BGL, and in the central and northern sections only on three occasions and only to a depth of 300mm BGL. All concentrations were less than twice the NTEPA Clean Fill threshold, and many times lower than the most conservative thresholds as detailed within the NEPM which is HIL-A (low density residential housing).

Within the soil stockpiles the arsenic concentrations exceeded the NT EPA clean fill threshold in approximately half the samples analysed. All concentrations were approximately less than twice the NTEPA Clean Fill threshold, and many times lower than the most conservative thresholds as detailed within the NEPM which is HIL-A (low density residential housing).

5.2.2 Hydrocarbons

Total recoverable hydrocarbons, benzene, toluene, ethylbenzene, and xylene were detected at trace levels in less than 5% of the samples, with the remainder of the results being less than the laboratory's limit of detection and all samples being well under the most conservative threshold being the NTEPA Clean Fill Criteria.

5.2.3 Fluoride

Fluoride was found to be just under the threshold for clean fill in approx. 50% of the samples and in the remaining 50% was found to be in the range of up to twice the threshold for the clean fill criteria and was found in both the soil stockpile and in the in-situ samples taken from the test pits. The NEPM does not provide a threshold for fluoride in soil concentrations, however the levels of fluoride are not considered excessive for the proposed disposal at SBWMF.

5.2.4 Screening Suites

Screening suite as detailed below returned results all below the NTEPA threshold for clean fill:

- Organochlorine (OCP);
- Organophosphorus (OPP);
- Hexavalent Chromium;
- Speciated Phenols;
- Total Cyanides;
- Polychlorinated Biphenyl's (PCB's);
- Polycyclic Aromatic Hydrocarbons (PAH's); and
- Volatile Organic Compounds (VOC's).

Figure 3 Site Image Arsenic Results Stockpiled Materials
Mitchell Creek Green Stage 2K - Zuccoli Parade, Zuccoli, NT 0832

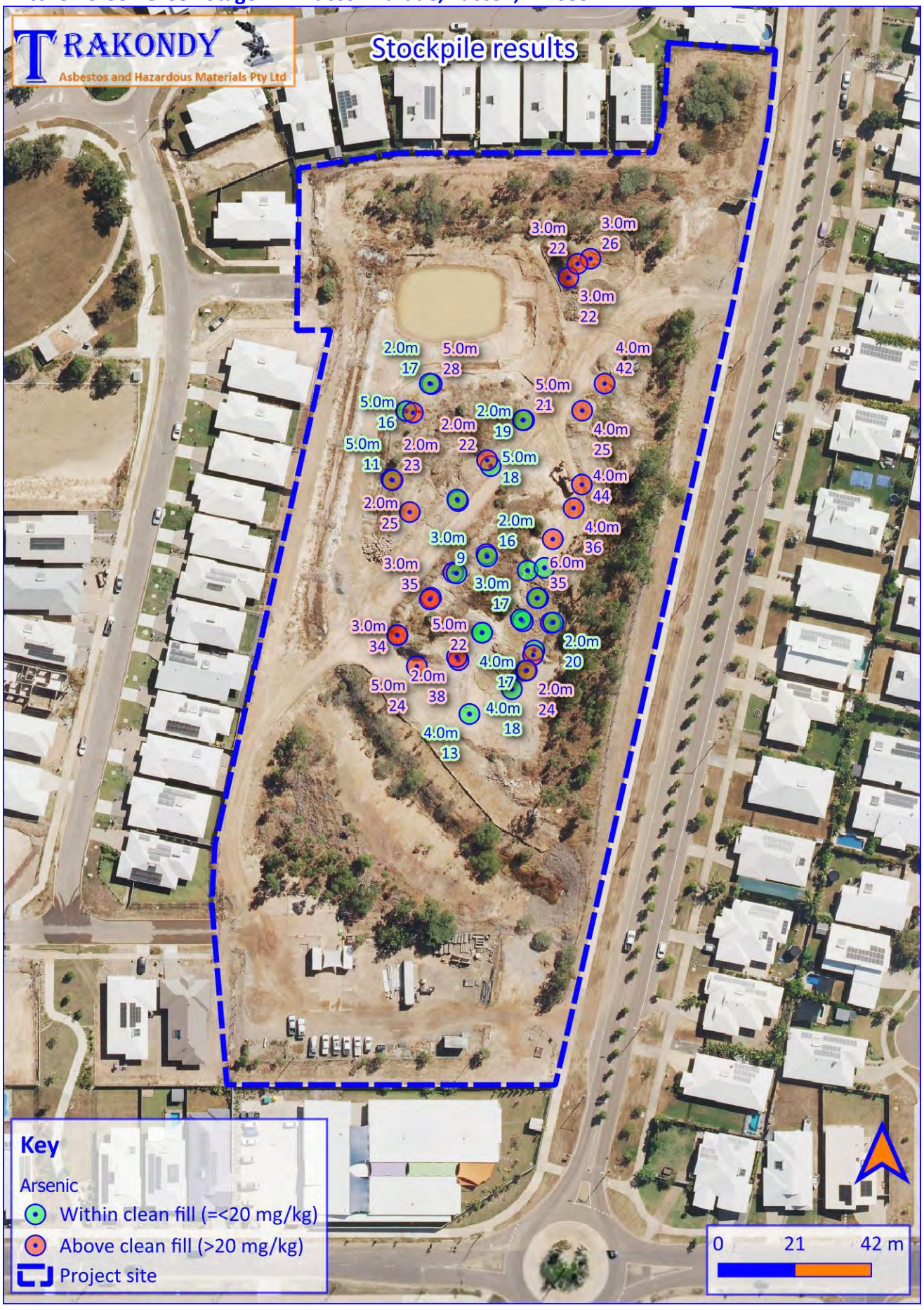


Figure 4 Site Image Fluoride Results Stockpiled Materials
Mitchell Creek Green Stage 2K - Zuccoli Parade, Zuccoli, NT 0832

Figure 5 Site Image Arsenic Results In-Situ Materials
Mitchell Creek Green Stage 2K - Zuccoli Parade, Zuccoli, NT 0832

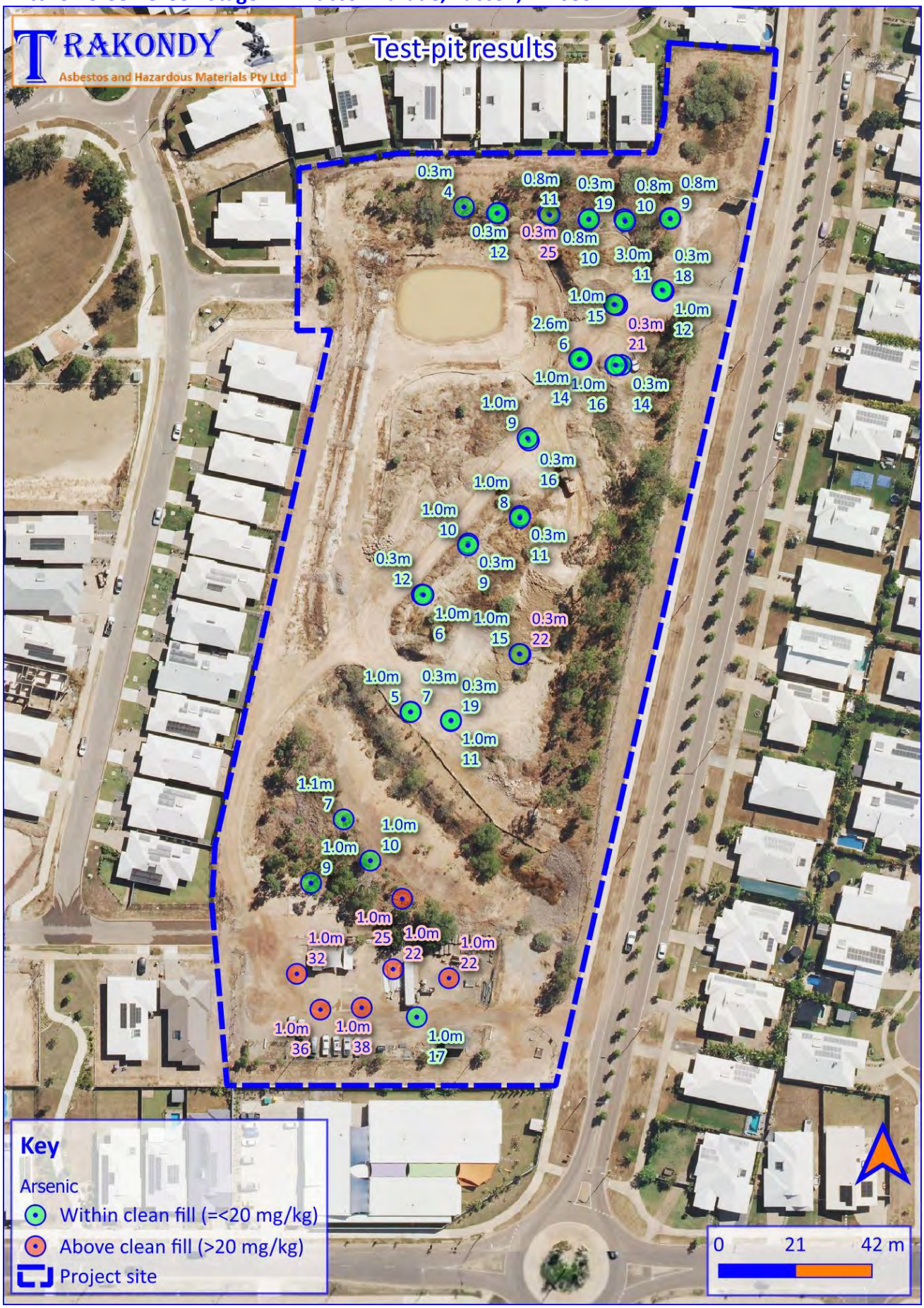


Figure 6 Site Image Fluoride Results In-Situ Materials
Mitchell Creek Green Stage 2K - Zuccoli Parade, Zuccoli, NT 0832

Conclusion

The conceptual site model, highlighted a number of potential contaminants of the soil; with the primarily containment identified as likely to be natural metals.

A field survey and sampling program were carried out to assess the site. The field survey confirmed the observations identified during the site history which was the site (MCG 2K) was found to contain various soil stockpiles, which could be described as top soil, general fill rock and small amounts of rubbish and deleterious material. With the remainder of the site appearing to have been largely cleared of natural vegetation a few years ago and the remnants of the site civil construction compound on the southern end of the site.

Apart from the planned clearance of the natural bushland, the location of the soil stockpiles, etc there was no evidence at the site of any observable indicators of other contamination such as staining, odours, dead vegetation, or evidence of fly tipping.

As part of this investigation 48 samples were collected from the soil stockpiles taken at various depths from within the stockpiles, whilst 49 samples were collected from test pits taken from the areas where cutting is required across the site ranging from less than 1,000 mm BGL on the southern end of the site, to as much as 3,000 mm BGL in is some areas on the northern section of the site. it must be noted that in addition to the cutting, there is also a significant requirement for fill across other portions of the site, which much of the stockpiled and/or cut material will be used for. Along with the quality control and quality assurance samples, a total of 107 samples were collected and submitted for NATA accredited analysis, with 95 samples being analysed for total recoverable hydrocarbons, benzene, toluene, ethylbenzene, and xylene and eight metals (arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, silver, tin and zinc), and eight screening samples were analysed for a wide variety of analytes as detailed within the Victorian EPA 1828.2 – Fill suite criteria (previously IWRG621). This screening activity identified levels of fluoride approaching or exceeding the most conservative thresholds being the NT EPA Clean Fill Criteria, as such an additional sixteen samples were analysed for Fluoride (in total 25% of the samples were analysed for fluoride).

The sampling density achieved was considered suitable for the site and the works undertaken. The samples were sent to a NATA accredited laboratory for analysis. Of the samples analysed:

- All metals were below the NTEPA threshold for clean fill with the exception of arsenic;
- Within the in-situ test pits arsenic concentrations only exceeded the NT EPA clean fill threshold in a small number of locations and at shallow depths with the arsenic being identified in the southern section of the site to a depth of 1,000 mm BGL, and in the central and northern sections only on three occasions and only to a depth of 300mm BGL. All concentrations were less than twice the NTEPA Clean Fill threshold, and many times lower than the most conservative thresholds as detailed within the NEPM which is HIL-A (low density residential housing);
- Within the soil stockpiles the arsenic concentrations exceeded the NT EPA clean fill threshold in approximately half the samples analysed. All concentrations were approximately less than twice the NTEPA Clean Fill threshold, and many times lower than the most conservative thresholds as detailed within the NEPM which is HIL-A (low density residential housing);
- Total recoverable hydrocarbons, benzene, toluene, ethylbenzene, and xylene were detected at trace levels in less than 5% of the samples, with the remainder of the results being less than the laboratory's limit of detection and all samples being well under the most conservative threshold being the NTEPA Clean Fill Criteria;
- Fluoride was found to be just under the threshold for clean fill in approx. 50% of the samples and in the remaining 50% was found to be in the range of up to twice the threshold for the clean fill criteria

and was found in both the soil stockpile and in the in-situ samples taken from the test pits. The NEPM does not provide a threshold for fluoride in soil concentrations, however the levels of fluoride are not considered excessive for the proposed disposal at SBWMF;

- Screening suite as detailed below returned results all below the NTEPA threshold for clean fill:
  - Organochlorine (OCP);
  - Organophosphorus (OPP);
  - Hexavalent Chromium;
  - Speciated Phenols;
  - Total Cyanides;
  - Polychlorinated Biphenyl's (PCB's);
  - Polycyclic Aromatic Hydrocarbons (PAH's); and
  - Volatile Organic Compounds (VOC's).

Results were assessed against the relevant guidelines, being:

- *Shoal Bay Waste Management Facility: Waste acceptance criteria* (NT EPA, 2021);
- *National Environment Protection Council. (2013). National Environment Protection (Assessment of Site Contamination) Measure 1999. Canberra: National Environment Protection Council.*
- *Northern Territory Environment Protection Authority. (*2015). Fact sheet: How to avoid the dangers of accepting illegal fill onto your land. Darwin: NT EPA.

All metals and hydrocarbon results which were extensity tested across the site were within the most stringent guidelines specified, with the exception of arsenic. The screening samples with the exception of fluoride were within the most stringent guidelines specified.
Arsenic and fluoride were identified in samples up to twice the threshold stated as being the NTEPA clean fill criteria, however the arsenic concentration was found to be many times lower than the most conservative thresholds as detailed within the NEPM which is HIL-A (low density residential housing); and indeed, if assessed against the HIL-C (Public Open Space) criteria would be approximately 15% of the allowable threshold. Whilst the NEPM does not provide HIL thresholds for fluoride individually, there is evidence that fluoride can occur naturally in clay soils and is bound to soils and doesn't easily dissolve.

The levels or arsenic and fluoride are considered to be of natural origin, and noting the fill is being disposed of at SBWMF, believe this material would not pose any significant risk being disposed of at the facility as clean fill.

6.0 Limitations

This report has been prepared in accordance with the client requirements submitted to Trakondy.

Within the limitations of the agreed upon scope of services, this work has been performed in accordance with generally accepted practices, using a degree of skill and care ordinarily exercised by members of its profession and consulting practice. No other warranty, expressed or implied, is made.

This report is solely for the use of the client, any reliance on this report by third parties shall be at such party's sole risk and may not contain sufficient information for purposes of other parties or for other uses. This report shall only be presented in full and may not be used to support any other objective than those set out in the report, except where written approval with comments are provided by Trakondy.

7.0 References

National Environment Protection Council. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999.* Canberra: National Environment Protection Council.

Northern Territory Environment Protection Authority. (2013). *Guidelines on conceptual site models.* Darwin: NT EPA.

Northern Territory Environment Protection Authority. (2015). *Fact sheet: How to avoid the dangers of accepting illegal fill onto your land.* Darwin: NT EPA.

Northern Territory Government. (2015). *Waste Management and Pollution Control Act 1998.* Darwin: NT Government.

Standards Australia. (1999). *AS 4482.2-1999 Guide to the sampling and investigation of potentially contaminated soil - volatile substances.* Sydney: Standards Australia.

Standards Australia. (2005). *Australian Standard: Guide to the investigation and sampling of sites with potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds.* Sydney: Standards Australia.

EPA Victoria. (2009). *Industrial waste resource guideline 702: Soil sampling.* Melbourne: EPA Victoria.

NSW EPA. (2022). *Contaminated land guidelines: Sampling design Part 1 - application.* Sydney: NSW EPA.

NT EPA. (2021). *Environment protection license: EPL188-04: Attachment 1 waste acceptance criteria.* Darwin: NT EPA.

Appendix A: Photographic Log

Photo 1 – Soil Stockpile

Photo 2 – Soil Stockpile

Photo 3 – Soil Stockpile

Photo 4 – Soil Stockpile

Photo 5 – Soil Stockpile

Photo 6 – Soil Stockpile

Appendix A: Photographic Log (Cont.)

Photo 7 – Test Pits Southern Section of Site – Excavation to 1.0m BGL

Photo 8 – Test Pits Southern Section of Site – Excavation to 1.0m BGL

Photo 9 – Test Pits Southern Section of Site – Excavation to 1.0m BGL

Photo 10 – Test Pits Southern Section of Site – Excavation to 1.0m BGL

Photo 11 – Test Pits Southern Section of Site – Excavation to 1.0m BGL

Photo 12 – Test Pits Southern Section of Site – Excavation to 1.0m BGL

Appendix A: Photographic Log (Cont.)

Photo 13 – Test Pits Southern Section of Site – Excavation to 1.0m BGL

Photo 14 – Test Pits Southern Section of Site – Excavation to 1.0m BGL

Photo 15 – Test Pits Southern Section of Site – Excavation to 1.0m BGL

Photo 16 – Test Pits Southern Section of Site – Excavation to 1.0m BGL

Photo 17 – Test Pits Southern Section of Site – Excavation to 1.0m BGL

Photo 18 – Test Pits Southern Section of Site – Excavation to 1.0m BGL

Appendix A: Photographic Log (Cont.)

Photo 19 – Test Pits Northern Section of Site – Excavation to >1.0m BGL

Photo 20 – Test Pits Northern Section of Site – Excavation to >1.0m BGL

Photo 21 – Test Pits Northern Section of Site – Excavation to >1.0m BGL

Photo 22 – Test Pits Northern Section of Site – Excavation to >1.0m BGL

Photo 23 – Test Pits Northern Section of Site – Excavation to >1.0m BGL

Photo 24 – Test Pits Northern Section of Site – Excavation to >1.0m BGL

Appendix B: Certificates of Analysis

Envirolab Services Pty Ltd
ABN 37 112 535 645 - 002
25 Research Drive Croydon South VIC 3136
ph 03 9763 2500 fax 03 9763 2633
melbourne@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 42406

Client Details

Client	Trakondy Asbestos and Hazardous Materials Pty Ltd
Attention	Mark Kondakov
Address	120 James Circuit, WOODRoffe, NT, 0830

Sample Details

Your Reference	**P724-Waste Classification**
Number of Samples	2 Soil
Date samples received	06/03/2024
Date completed instructions received	06/03/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	13/03/2024
Date of Issue	08/03/2024

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Results Approved By
Chris De Luca, Assistant Lab Manager
Tara White, Metals Supervisor

Authorised By
Pamela Adams, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil			
Our Reference		42406-1	42406-2
Your Reference	UNITS	QC200	QC201
Date Sampled		04/03/2024	04/03/2024
Type of sample		Soil	Soil
Date extracted	-	07/03/2024	07/03/2024
Date analysed	-	07/03/2024	07/03/2024
vTRH C_6 - C_9	mg/kg	<25	<25
vTRH C_6 - C_{10}	mg/kg	<25	<25
TRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
Naphthalene	mg/kg	<1	<1
Total BTEX	mg/kg	<1	<1
Total +ve Xylenes	mg/kg	<1	<1
Surrogate aaa-Trifluorotoluene	%	108	102

TRH Soil C10-C40 NEPM			
Our Reference		42406-1	42406-2
Your Reference	UNITS	QC200	QC201
Date Sampled		04/03/2024	04/03/2024
Type of sample		Soil	Soil
Date extracted	-	07/03/2024	07/03/2024
Date analysed	-	07/03/2024	07/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50
Surrogate o-Terphenyl	%	85	85

Acid Extractable metals in soil			
Our Reference		42406-1	42406-2
Your Reference	UNITS	QC200	QC201
Date Sampled		04/03/2024	04/03/2024
Type of sample		Soil	Soil
Date digested	-	08/03/2024	08/03/2024
Date analysed	-	08/03/2024	08/03/2024
Arsenic	mg/kg	24	12
Cadmium	mg/kg	0.4	<0.4
Chromium	mg/kg	19	22
Copper	mg/kg	38	29
Lead	mg/kg	<1	2
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	7	7
Zinc	mg/kg	15	16

Moisture			
Our Reference		42406-1	42406-2
Your Reference	UNITS	QC200	QC201
Date Sampled		04/03/2024	04/03/2024
Type of sample		Soil	Soil
Date prepared	-	7/03/2024	7/03/2024
Date analysed	-	8/03/2024	8/03/2024
Moisture	%	15	17

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105°C for a minimum of 12 hours.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			07/03/2024	[NT]	[NT]	[NT]	[NT]	07/03/2024	[NT]
Date analysed	-			07/03/2024	[NT]	[NT]	[NT]	[NT]	07/03/2024	[NT]
vTRH C_6 - C_9	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	104	[NT]
vTRH C_6 - C_{10}	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	104	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	[NT]	[NT]	[NT]	[NT]	94	[NT]
Toluene	mg/kg	0.5	Org-023	<0.5	[NT]	[NT]	[NT]	[NT]	102	[NT]
Ethylbenzene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
m+p-xylene	mg/kg	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	111	[NT]
o-Xylene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Naphthalene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	113	[NT]	[NT]	[NT]	[NT]	108	[NT]

QUALITY CONTROL: TRH Soil C10-C40 NEPM						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			07/03/2024	[NT]	[NT]	[NT]	[NT]	07/03/2024	[NT]
Date analysed	-			07/03/2024	[NT]	[NT]	[NT]	[NT]	07/03/2024	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	93	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	98	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	93	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	93	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	98	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	93	[NT]
Surrogate o-Terphenyl	%		Org-020	88	[NT]	[NT]	[NT]	[NT]	92	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date digested	-			08/03/2024	[NT]	[NT]	[NT]	[NT]	08/03/2024	[NT]
Date analysed	-			08/03/2024	[NT]	[NT]	[NT]	[NT]	08/03/2024	[NT]
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	[NT]	[NT]	99	[NT]
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	[NT]	[NT]	102	[NT]
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 345571

Client Details

Client	Trakondy Asbestos & Hazardous Materials Pty Ltd
Attention	Mark Kondakov
Address	120 James Circuit, WOODROFFE, NT, 0830

Sample Details

Your Reference	**P724-Waste Classification Zuccoli**
Number of Samples	51 Soil
Date samples received	05/03/2024
Date completed instructions received	05/03/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	12/03/2024
Date of Issue	12/03/2024

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Results Approved By
Diego Bigolin, Inorganics Supervisor
Dragana Tomas, Senior Chemist
Loren Bardwell, Development Chemist
Priya Samarawickrama, Senior Chemist
Steven Luong, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

VOCs in soil					
Our Reference		345571-8	345571-18	345571-34	345571-42
Your Reference	UNITS	S8	S18	S34	S42
Depth		5.0m	3.0m	5.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date Extracted	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024
Date Analysed	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Vinyl Chloride	mg/kg	<0.1	<0.1	<0.1	<0.1
1,1-Dichloroethene	mg/kg	<0.1	<0.1	<0.1	<0.1
methylene chloride	mg/kg	<0.2	<0.2	<0.2	<0.2
trans-1,2-dichloroethene	mg/kg	<0.1	<0.1	<0.1	<0.1
cis-1,2-dichloroethene	mg/kg	<0.1	<0.1	<0.1	<0.1
chloroform	mg/kg	<0.1	<0.1	<0.1	<0.1
1,1,1-trichloroethane	mg/kg	<0.1	<0.1	<0.1	<0.1
carbon tetrachloride	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,2-dichloroethane	mg/kg	<0.1	<0.1	<0.1	<0.1
trichloroethene	mg/kg	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,1,2-trichloroethane	mg/kg	<0.1	<0.1	<0.1	<0.1
tetrachloroethene	mg/kg	<0.1	<0.1	<0.1	<0.1
chlorobenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,1,1,2-tetrachloroethane	mg/kg	<0.1	<0.1	<0.1	<0.1
m+p-xylene	mg/kg	<0.2	<0.2	<0.2	<0.2
o-Xylene	mg/kg	<0.1	<0.1	<0.1	<0.1
styrene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,1,2,2-tetrachloroethane	mg/kg	<0.1	<0.1	<0.1	<0.1
1,4-dichlorobenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,2-dichlorobenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,2,4-trichlorobenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
hexachlorobutadiene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,2,3-trichlorobenzene	mg/kg	<0.5	<0.5	<0.5	<0.5
Total +ve MAHs	mg/kg	<7	<7	<7	<7
Total +ve Chlorinated Hydrocarbons	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve Other Chlorinated Hydrocarbons	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Bromofluorobenzene	%	94	93	93	93
Surrogate Dibromofluoromethane	%	98	96	95	95
Surrogate Toluene-d_8	%	100	100	99	100
Surrogate aaa-Trifluorotoluene	%	96	103	97	91

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345571-1	345571-2	345571-3	345571-4	345571-5
Your Reference	UNITS	S1	S2	S3	S4	S5
Depth		5.0m	2.0m	5.0m	2.0m	5.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	85	83	92	84	85

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345571-6	345571-7	345571-8	345571-9	345571-10
Your Reference	UNITS	S6	S7	S8	S9	S10
Depth		2.0m	2.0m	5.0m	2.0m	5.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	11/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	12/03/2024	08/03/2024	08/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	94	95	96	91	96

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345571-11	345571-12	345571-13	345571-14	345571-15
Your Reference	UNITS	S11	S12	S13	S14	S15
Depth		2.0m	5.0m	2.0m	3.0m	6.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	86	88	85	92	85

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345571-16	345571-17	345571-18	345571-19	345571-20
Your Reference	UNITS	S16	S17	S18	S19	S20
Depth		2.0m	6.0m	3.0m	6.0m	3.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	11/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	12/03/2024	08/03/2024	08/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	86	84	103	86	82

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345571-21	345571-22	345571-23	345571-24	345571-25
Your Reference	UNITS	S21	S22	S23	S24	S25
Depth		6.0m	3.0m	5.0m	5.0m	2.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	85	89	87	86	84

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345571-26	345571-27	345571-28	345571-29	345571-30
Your Reference	UNITS	S26	S27	S28	S29	S30
Depth		5.0m	2.0m	6.0m	3.0m	6.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	83	87	87	83	83

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345571-31	345571-32	345571-33	345571-34	345571-35
Your Reference	UNITS	S31	S32	S33	S34	S35
Depth		3.0m	4.0m	2.0m	5.0m	2.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	11/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	12/03/2024	08/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	81	84	79	97	89

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345571-36	345571-37	345571-38	345571-39	345571-40
Your Reference	UNITS	S36	S37	S38	S39	S40
Depth		4.0m	2.0m	4.0m	4.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	89	82	83	82	83

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345571-41	345571-42	345571-43	345571-44	345571-45
Your Reference	UNITS	S41	S42	S43	S44	S45
Depth		4.0m	4.0m	4.0m	4.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	11/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	12/03/2024	11/03/2024	11/03/2024	11/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	85	91	87	85	88

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345571-46	345571-47	345571-48	345571-49	345571-50
Your Reference	UNITS	S46	S47	S48	S49 - Pond	QC100
Depth		3.0m	3.0m	3.0m	-	-
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	90	89	85	87	92

vTRH(C6-C10)/MBTEXN in Soil		
Our Reference		345571-51
Your Reference	UNITS	QC101
Depth		-
Date Sampled		04/03/2024
Type of sample		Soil
Date extracted	-	06/03/2024
Date analysed	-	11/03/2024
TRH C_6 - C_9	mg/kg	<25
TRH C_6 - C_{10}	mg/kg	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25
MTBE	mg/kg	<0.5
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
Naphthalene	mg/kg	<1
Total +ve Xylenes	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	88

svTRH (C10-C40) in Soil						
Our Reference		345571-1	345571-2	345571-3	345571-4	345571-5
Your Reference	UNITS	S1	S2	S3	S4	S5
Depth		5.0m	2.0m	5.0m	2.0m	5.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	76	77	77	79	76

svTRH (C10-C40) in Soil						
Our Reference		345571-6	345571-7	345571-8	345571-9	345571-10
Your Reference	UNITS	S6	S7	S8	S9	S10
Depth		2.0m	2.0m	5.0m	2.0m	5.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	75	75	76	75	81

svTRH (C10-C40) in Soil						
Our Reference		345571-11	345571-12	345571-13	345571-14	345571-15
Your Reference	UNITS	S11	S12	S13	S14	S15
Depth		2.0m	5.0m	2.0m	3.0m	6.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	110	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	110	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	120	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	120	<50	<50
Surrogate o-Terphenyl	%	84	81	82	79	79

svTRH (C10-C40) in Soil						
Our Reference		345571-16	345571-17	345571-18	345571-19	345571-20
Your Reference	UNITS	S16	S17	S18	S19	S20
Depth		2.0m	6.0m	3.0m	6.0m	3.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	09/03/2024	09/03/2024	09/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	76	81	84	96	82

svTRH (C10-C40) in Soil						
Our Reference		345571-21	345571-22	345571-23	345571-24	345571-25
Your Reference	UNITS	S21	S22	S23	S24	S25
Depth		6.0m	3.0m	5.0m	5.0m	2.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	09/03/2024	09/03/2024	09/03/2024	09/03/2024	09/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	74	76	74	75	79

svTRH (C10-C40) in Soil						
Our Reference		345571-26	345571-27	345571-28	345571-29	345571-30
Your Reference	UNITS	S26	S27	S28	S29	S30
Depth		5.0m	2.0m	6.0m	3.0m	6.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	09/03/2024	09/03/2024	09/03/2024	09/03/2024	09/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	75	75	76	82	75

svTRH (C10-C40) in Soil						
Our Reference		345571-31	345571-32	345571-33	345571-34	345571-35
Your Reference	UNITS	S31	S32	S33	S34	S35
Depth		3.0m	4.0m	2.0m	5.0m	2.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	09/03/2024	09/03/2024	09/03/2024	09/03/2024	09/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	78	76	74	75	74

svTRH (C10-C40) in Soil						
Our Reference		345571-36	345571-37	345571-38	345571-39	345571-40
Your Reference	UNITS	S36	S37	S38	S39	S40
Depth		4.0m	2.0m	4.0m	4.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	09/03/2024	09/03/2024	09/03/2024	09/03/2024	09/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	75	75	75	75	74

svTRH (C10-C40) in Soil						
Our Reference		345571-41	345571-42	345571-43	345571-44	345571-45
Your Reference	UNITS	S41	S42	S43	S44	S45
Depth		4.0m	4.0m	4.0m	4.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	09/03/2024	09/03/2024	09/03/2024	09/03/2024	09/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	74	78	76	76	76

svTRH (C10-C40) in Soil						
Our Reference		345571-46	345571-47	345571-48	345571-49	345571-50
Your Reference	UNITS	S46	S47	S48	S49 - Pond	QC100
Depth		3.0m	3.0m	3.0m	-	-
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	09/03/2024	09/03/2024	09/03/2024	09/03/2024	09/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	110
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	110
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	120
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	120
Surrogate o-Terphenyl	%	76	76	79	78	81

svTRH (C10-C40) in Soil		
Our Reference		345571-51
Your Reference	UNITS	QC101
Depth		-
Date Sampled		04/03/2024
Type of sample		Soil
Date extracted	-	06/03/2024
Date analysed	-	09/03/2024
TRH C_{10} - C_{14}	mg/kg	<50
TRH C_{15} - C_{28}	mg/kg	<100
TRH C_{29} - C_{36}	mg/kg	<100
Total +ve TRH (C10-C36)	mg/kg	<50
TRH >C_{10} -C_{16}	mg/kg	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50
TRH >C_{16} -C_{34}	mg/kg	<100
TRH >C_{34} -C_{40}	mg/kg	<100
Total +ve TRH (>C10-C40)	mg/kg	<50
Surrogate o-Terphenyl	%	82

PAHs in Soil					
Our Reference		345571-8	345571-18	345571-34	345571-42
Your Reference	UNITS	S8	S18	S34	S42
Depth		5.0m	3.0m	5.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	6/03/2024	6/03/2024	6/03/2024	6/03/2024
Date analysed	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	105	104	106	108

Organochlorine Pesticides in soil					
Our Reference		345571-8	345571-18	345571-34	345571-42
Your Reference	UNITS	S8	S18	S34	S42
Depth		5.0m	3.0m	5.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	6/03/2024	6/03/2024	6/03/2024	6/03/2024
Date analysed	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	94	93	96	94

Organophosphorus Pesticides in Soil					
Our Reference		345571-8	345571-18	345571-34	345571-42
Your Reference	UNITS	S8	S18	S34	S42
Depth		5.0m	3.0m	5.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	6/03/2024	6/03/2024	6/03/2024	6/03/2024
Date analysed	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	94	93	96	94

PCBs in Soil					
Our Reference		345571-8	345571-18	345571-34	345571-42
Your Reference	UNITS	S8	S18	S34	S42
Depth		5.0m	3.0m	5.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	6/03/2024	6/03/2024	6/03/2024	6/03/2024
Date analysed	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	89	90	91	92

Speciated Phenols in Soil					
Our Reference		345571-8	345571-18	345571-34	345571-42
Your Reference	UNITS	S8	S18	S34	S42
Depth		5.0m	3.0m	5.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Phenol	mg/kg	<0.2	<0.2	<0.2	<0.2
2-Chlorophenol	mg/kg	<0.2	<0.2	<0.2	<0.2
2-Methylphenol (o-cresol)	mg/kg	<0.2	<0.2	<0.2	<0.2
3/4-Methylphenol (m/p-cresol)	mg/kg	<0.4	<0.4	<0.4	<0.4
2-Nitrophenol	mg/kg	<0.2	<0.2	<0.2	<0.2
2,4 -Dimethylphenol	mg/kg	<0.2	<0.2	<0.2	<0.2
2,4-Dichlorophenol	mg/kg	<0.05	<0.05	<0.05	<0.05
2,6-Dichlorophenol	mg/kg	<0.05	<0.05	<0.05	<0.05
2,4,5-Trichlorophenol	mg/kg	<0.05	<0.05	<0.05	<0.05
2,4,6-Trichlorophenol	mg/kg	<0.05	<0.05	<0.05	<0.05
2,4-Dinitrophenol	mg/kg	<4	<4	<4	<4
4-Nitrophenol	mg/kg	<4	<4	<4	<4
2346-Tetrachlorophenol	mg/kg	<0.1	<0.1	<0.1	<0.1
2-methyl-4,6-Dinitrophenol	mg/kg	<2	<2	<2	<2
Pentachlorophenol	mg/kg	<0.1	<0.1	<0.1	<0.1
4-Chloro-3-methylphenol	mg/kg	<1	<1	<1	<1
2345-Tetrachlorophenol	mg/kg	<0.1	<0.1	<0.1	<0.1
2356-Tetrachlorophenol	mg/kg	<0.1	<0.1	<0.1	<0.1
2-Cyclohexyl-4,6-Dinitrophenol	mg/kg	<20	<20	<20	<20
Dinoseb	mg/kg	<20	<20	<20	<20
Total +ve Phenols(Halogenated)	mg/kg	<1	<1	<1	<1
Total +ve Phenols Non-Halogenated	mg/kg	<60	<60	<60	<60
Surrogate Phenol-d_6	%	95	93	85	90

Acid Extractable metals in soil						
Our Reference		345571-1	345571-2	345571-3	345571-4	345571-5
Your Reference	UNITS	S1	S2	S3	S4	S5
Depth		5.0m	2.0m	5.0m	2.0m	5.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
Arsenic	mg/kg	28	17	16	28	11
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	25	42	33	20	35
Copper	mg/kg	36	25	18	24	13
Lead	mg/kg	38	16	19	19	12
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	10	7	5	6	3
Zinc	mg/kg	19	12	6	11	5

Acid Extractable metals in soil						
Our Reference		345571-6	345571-7	345571-8	345571-9	345571-10
Your Reference	UNITS	S6	S7	S8	S9	S10
Depth		2.0m	2.0m	5.0m	2.0m	5.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
Arsenic	mg/kg	23	25	23	12	18
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	38	45	32	20	29
Copper	mg/kg	26	29	20	21	28
Lead	mg/kg	25	21	28	11	20
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	[NA]	[NA]	2	[NA]	[NA]
Nickel	mg/kg	10	7	5	5	6
Selenium	mg/kg	[NA]	[NA]	<2	[NA]	[NA]
Silver	mg/kg	[NA]	[NA]	<1	[NA]	[NA]
Tin	mg/kg	[NA]	[NA]	<2	[NA]	[NA]
Zinc	mg/kg	13	12	11	9	11

Acid Extractable metals in soil						
Our Reference		345571-11	345571-12	345571-13	345571-14	345571-15
Your Reference	UNITS	S11	S12	S13	S14	S15
Depth		2.0m	5.0m	2.0m	3.0m	6.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
Arsenic	mg/kg	22	21	19	19	25
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	64	87	61	19	11
Copper	mg/kg	15	13	14	20	31
Lead	mg/kg	21	21	18	13	14
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	3	4	3	8
Zinc	mg/kg	8	5	9	8	16

Acid Extractable metals in soil						
Our Reference		345571-16	345571-17	345571-18	345571-19	345571-20
Your Reference	UNITS	S16	S17	S18	S19	S20
Depth		2.0m	6.0m	3.0m	6.0m	3.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
Arsenic	mg/kg	16	38	9	21	35
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	28	16	58	16	53
Copper	mg/kg	28	37	22	34	40
Lead	mg/kg	15	31	12	21	23
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	[NA]	[NA]	<1	[NA]	[NA]
Nickel	mg/kg	7	10	6	9	7
Selenium	mg/kg	[NA]	[NA]	<2	[NA]	[NA]
Silver	mg/kg	[NA]	[NA]	<1	[NA]	[NA]
Tin	mg/kg	[NA]	[NA]	<2	[NA]	[NA]
Zinc	mg/kg	13	19	12	21	13

Acid Extractable metals in soil						
Our Reference		345571-21	345571-22	345571-23	345571-24	345571-25
Your Reference	UNITS	S21	S22	S23	S24	S25
Depth		6.0m	3.0m	5.0m	5.0m	2.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
Arsenic	mg/kg	31	34	24	22	38
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	28	45	23	28	26
Copper	mg/kg	28	37	29	34	24
Lead	mg/kg	15	17	17	35	11
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	9	15	6	2	5
Zinc	mg/kg	14	18	11	5	9

Acid Extractable metals in soil						
Our Reference		345571-26	345571-27	345571-28	345571-29	345571-30
Your Reference	UNITS	S26	S27	S28	S29	S30
Depth		5.0m	2.0m	6.0m	3.0m	6.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
Arsenic	mg/kg	18	12	17	17	35
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	36	31	30	21	15
Copper	mg/kg	25	21	23	24	39
Lead	mg/kg	25	14	16	11	42
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	9	5	6	6	8
Zinc	mg/kg	13	10	11	14	15

Acid Extractable metals in soil						
Our Reference		345571-31	345571-32	345571-33	345571-34	345571-35
Your Reference	UNITS	S31	S32	S33	S34	S35
Depth		3.0m	4.0m	2.0m	5.0m	2.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
Arsenic	mg/kg	11	21	20	15	23
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	15	44	28	33	37
Copper	mg/kg	28	14	14	11	11
Lead	mg/kg	16	20	26	19	19
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	[NA]	[NA]	[NA]	1	[NA]
Nickel	mg/kg	6	5	5	5	6
Selenium	mg/kg	[NA]	[NA]	[NA]	<2	[NA]
Silver	mg/kg	[NA]	[NA]	[NA]	<1	[NA]
Tin	mg/kg	[NA]	[NA]	[NA]	<2	[NA]
Zinc	mg/kg	15	5	6	4	6

Acid Extractable metals in soil						
Our Reference		345571-36	345571-37	345571-38	345571-39	345571-40
Your Reference	UNITS	S36	S37	S38	S39	S40
Depth		4.0m	2.0m	4.0m	4.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
Arsenic	mg/kg	17	24	18	13	9
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	48	51	67	20	13
Copper	mg/kg	12	13	19	18	25
Lead	mg/kg	17	16	20	13	14
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	5	5	5	8
Zinc	mg/kg	4	4	5	8	17

Acid Extractable metals in soil						
Our Reference		345571-41	345571-42	345571-43	345571-44	345571-45
Your Reference	UNITS	S41	S42	S43	S44	S45
Depth		4.0m	4.0m	4.0m	4.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
Arsenic	mg/kg	23	36	44	25	42
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	57	46	71	28	38
Copper	mg/kg	24	31	43	47	45
Lead	mg/kg	26	24	33	15	43
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	[NA]	2	[NA]	[NA]	[NA]
Nickel	mg/kg	11	8	9	21	12
Selenium	mg/kg	[NA]	<3	[NA]	[NA]	[NA]
Silver	mg/kg	[NA]	<1	[NA]	[NA]	[NA]
Tin	mg/kg	[NA]	<2	[NA]	[NA]	[NA]
Zinc	mg/kg	13	12	13	23	21

Acid Extractable metals in soil						
Our Reference		345571-46	345571-47	345571-48	345571-49	345571-50
Your Reference	UNITS	S46	S47	S48	S49 - Pond	QC100
Depth		3.0m	3.0m	3.0m	-	-
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
Arsenic	mg/kg	22	26	22	<4	25
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	46	110	45	4	14
Copper	mg/kg	19	28	20	6	47
Lead	mg/kg	28	24	18	4	24
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	8	11	7	2	8
Zinc	mg/kg	11	10	11	4	20

Acid Extractable metals in soil						
Our Reference		345571-51	345571-52	345571-53	345571-54	345571-55
Your Reference	UNITS	QC101	S8 - [TRIPLICATE]	S17 - [TRIPLICATE]	S27 - [TRIPLICATE]	S36 - [TRIPLICATE]
Depth		-	5.0m	6.0m	2.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
Arsenic	mg/kg	9	21	33	39	19
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	14	94	15	21	50
Copper	mg/kg	23	16	35	21	27
Lead	mg/kg	11	19	21	15	27
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	[NA]	2	[NA]	[NA]	[NA]
Nickel	mg/kg	8	5	8	6	4
Selenium	mg/kg	[NA]	<2	[NA]	[NA]	[NA]
Silver	mg/kg	[NA]	<1	[NA]	[NA]	[NA]
Tin	mg/kg	[NA]	<2	[NA]	[NA]	[NA]
Zinc	mg/kg	16	9	17	13	3

Misc Soil - Inorg					
Our Reference		345571-8	345571-18	345571-34	345571-42
Your Reference	UNITS	S8	S18	S34	S42
Depth		5.0m	3.0m	5.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024
Date analysed	-	08/03/2024	08/03/2024	08/03/2024	08/03/2024
Hexavalent Chromium, Cr^{6+}	mg/kg	<1	<1	<1	<1

Misc Inorg - Soil					
Our Reference		345571-8	345571-18	345571-34	345571-42
Your Reference	UNITS	S8	S18	S34	S42
Depth		5.0m	3.0m	5.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024
pH 1:5 soil:water	pH Units	7.2	4.8	5.2	5.8
Total Fluoride	mg/kg	370	570	170	420

Misc Soil - Inorg					
Our Reference		345571-8	345571-18	345571-34	345571-42
Your Reference	UNITS	S8	S18	S34	S42
Depth		5.0m	3.0m	5.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Total Cyanide	mg/kg	<0.5	<0.5	<0.5	<0.5

Moisture						
Our Reference		345571-1	345571-2	345571-3	345571-4	345571-5
Your Reference	UNITS	S1	S2	S3	S4	S5
Depth		5.0m	2.0m	5.0m	2.0m	5.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Moisture	%	15	16	15	14	14

Moisture						
Our Reference		345571-6	345571-7	345571-8	345571-9	345571-10
Your Reference	UNITS	S6	S7	S8	S9	S10
Depth		2.0m	2.0m	5.0m	2.0m	5.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Moisture	%	16	13	15	14	15

Moisture						
Our Reference		345571-11	345571-12	345571-13	345571-14	345571-15
Your Reference	UNITS	S11	S12	S13	S14	S15
Depth		2.0m	5.0m	2.0m	3.0m	6.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Moisture	%	16	16	17	14	20

Moisture						
Our Reference		345571-16	345571-17	345571-18	345571-19	345571-20
Your Reference	UNITS	S16	S17	S18	S19	S20
Depth		2.0m	6.0m	3.0m	6.0m	3.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Moisture	%	16	13	19	18	15

Moisture						
Our Reference		345571-21	345571-22	345571-23	345571-24	345571-25
Your Reference	UNITS	S21	S22	S23	S24	S25
Depth		6.0m	3.0m	5.0m	5.0m	2.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Moisture	%	14	15	14	16	16

Moisture						
Our Reference		345571-26	345571-27	345571-28	345571-29	345571-30
Your Reference	UNITS	S26	S27	S28	S29	S30
Depth		5.0m	2.0m	6.0m	3.0m	6.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Moisture	%	16	16	14	14	14

Moisture						
Our Reference		345571-31	345571-32	345571-33	345571-34	345571-35
Your Reference	UNITS	S31	S32	S33	S34	S35
Depth		3.0m	4.0m	2.0m	5.0m	2.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Moisture	%	17	12	12	11	9.8

Moisture						
Our Reference		345571-36	345571-37	345571-38	345571-39	345571-40
Your Reference	UNITS	S36	S37	S38	S39	S40
Depth		4.0m	2.0m	4.0m	4.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Moisture	%	11	11	11	13	15

Moisture						
Our Reference		345571-41	345571-42	345571-43	345571-44	345571-45
Your Reference	UNITS	S41	S42	S43	S44	S45
Depth		4.0m	4.0m	4.0m	4.0m	4.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Moisture	%	16	12	16	15	12

Moisture						
Our Reference		345571-46	345571-47	345571-48	345571-49	345571-50
Your Reference	UNITS	S46	S47	S48	S49 - Pond	QC100
Depth		3.0m	3.0m	3.0m	-	-
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/03/2024	06/03/2024	06/03/2024	06/03/2024	06/03/2024
Date analysed	-	07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Moisture	%	11	18	18	19	15

Moisture		
Our Reference		345571-51
Your Reference	UNITS	QC101
Depth		-
Date Sampled		04/03/2024
Type of sample		Soil
Date prepared	-	06/03/2024
Date analysed	-	07/03/2024
Moisture	%	15

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-014	Cyanide - free, total, weak acid dissociable by segmented flow analyser (in line dialysis with colourimetric finish). Solids/Filters and sorbents are extracted in a caustic media prior to analysis. Impingers are pH adjusted as required prior to analysis. Cyanides amenable to Chlorination - samples are analysed untreated and treated with hypochlorite to assess the potential for chlorination of cyanide forms. Based on APHA latest edition, 4500-CN_G,H.
Inorg-026/53	Fluoride by caustic fusion and determined by ion selective electrode (ISE) analysis.
Inorg-118	Hexavalent Chromium (Cr6+) - determined firstly by separation using ion chromatography followed by the colourimetric analytical finish. Water samples are ideally field filtered into alkali preserved containers prior to receipt for dissolved Cr6+ analysis. Unfiltered water samples into alkali preserved containers (or pH adjusted to pH 8-9 on receipt) can be classified as Total (unfiltered) Cr6+. Please note, for 'Total/Unfiltered' Trivalent Chromium in waters [calculated], these results may be exaggerated due to the digestive limitation of 'Total/Unfiltered' Hexavalent Chromium in NaOH at pH 8-9 compared to more comprehensive digestion for Total Chromium using the mineral acids HNO3 and HCl. Solid (includes soils, filters, paints, swabs for example) samples are extracted in a buffered catalysed solution prior to the analytical finish above. Water extractable options are available (e.g. as an option for filters) on request. Impingers may need pH adjusting to pH 8-9 prior to IC-colourimetric analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.

Method ID	Methodology Summary
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve Cresols or Phenols PQL is reflective of the lowest individual PQL and is therefore" Total +ve Cresols or Phenols" is simply a sum of the positive individual Cresols or Phenols.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

Method ID	Methodology Summary
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: VOCs in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	345571-18
Date Extracted	-			11/03/2024	8	08/03/2024	08/03/2024		11/03/2024	11/03/2024
Date Analysed	-			12/03/2024	8	12/03/2024	12/03/2024		12/03/2024	12/03/2024
Vinyl Chloride	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
1,1-Dichloroethene	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
methylene chloride	mg/kg	0.2	Org-023	<0.2	8	<0.2	<0.2	0	[NT]	[NT]
trans-1,2-dichloroethene	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
cis-1,2-dichloroethene	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
chloroform	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	105	105
1,1,1-trichloroethane	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	103	102
carbon tetrachloride	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Benzene	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	103	103
1,2-dichloroethane	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	109	107
trichloroethene	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	100	99
Toluene	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	107	106
1,1,2-trichloroethane	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
tetrachloroethene	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	104	102
chlorobenzene	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Ethylbenzene	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	112	111
1,1,1,2-tetrachloroethane	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
m+p-xylene	mg/kg	0.2	Org-023	<0.2	8	<0.2	<0.2	0	107	106
o-Xylene	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	110	110
styrene	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
1,1,2,2-tetrachloroethane	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
1,4-dichlorobenzene	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
1,2-dichlorobenzene	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
1,2,4-trichlorobenzene	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
hexachlorobutadiene	mg/kg	0.1	Org-023	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
1,2,3-trichlorobenzene	mg/kg	0.5	Org-023	<0.5	8	<0.5	<0.5	0	[NT]	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	93	8	94	94	0	99	98
Surrogate Dibromofluoromethane	%		Org-023	95	8	98	98	0	99	98
Surrogate Toluene-d_8	%		Org-023	101	8	100	101	1	102	101
Surrogate aaa-Trifluorotoluene	%		Org-023	99	8	96	93	3	93	98

QUALITY CONTROL: vTRH(C6-C10)/MBTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	345571-18
Date extracted	-			06/03/2024	8	11/03/2024	11/03/2024		06/03/2024	11/03/2024
Date analysed	-			08/03/2024	8	12/03/2024	12/03/2024		08/03/2024	12/03/2024
TRH C_6 - C_9	mg/kg	25	Org-023	<25	8	<25	<25	0	107	106
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	8	<25	<25	0	107	106
MTBE	mg/kg	0.5	Org-023	<0.5	8	<0.5	<0.5	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	8	<0.2	<0.2	0	103	103
Toluene	mg/kg	0.5	Org-023	<0.5	8	<0.5	<0.5	0	107	106
Ethylbenzene	mg/kg	1	Org-023	<1	8	<1	<1	0	112	111
m+p-xylene	mg/kg	2	Org-023	<2	8	<2	<2	0	107	106
o-Xylene	mg/kg	1	Org-023	<1	8	<1	<1	0	110	110
Naphthalene	mg/kg	1	Org-023	<1	8	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	99	8	96	93	3	93	98

QUALITY CONTROL: vTRH(C6-C10)/MBTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	345571-37
Date extracted	-			[NT]	17	06/03/2024	06/03/2024		06/03/2024	06/03/2024
Date analysed	-			[NT]	17	08/03/2024	08/03/2024		08/03/2024	08/03/2024
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	17	<25	<25	0	108	96
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	17	<25	<25	0	108	96
MTBE	mg/kg	0.5	Org-023	[NT]	17	<0.5	<0.5	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	17	<0.2	<0.2	0	104	90
Toluene	mg/kg	0.5	Org-023	[NT]	17	<0.5	<0.5	0	113	95
Ethylbenzene	mg/kg	1	Org-023	[NT]	17	<1	<1	0	112	101
m+p-xylene	mg/kg	2	Org-023	[NT]	17	<2	<2	0	105	98
o-Xylene	mg/kg	1	Org-023	[NT]	17	<1	<1	0	110	101
Naphthalene	mg/kg	1	Org-023	[NT]	17	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	17	84	84	0	95	84

QUALITY CONTROL: vTRH(C6-C10)/MBTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	345571-49
Date extracted	-			[NT]	27	06/03/2024	06/03/2024		[NT]	06/03/2024
Date analysed	-			[NT]	27	08/03/2024	08/03/2024		[NT]	12/03/2024
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	27	<25	<25	0	[NT]	83
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	27	<25	<25	0	[NT]	83
MTBE	mg/kg	0.5	Org-023	[NT]	27	<0.5	<0.5	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	27	<0.2	<0.2	0	[NT]	78
Toluene	mg/kg	0.5	Org-023	[NT]	27	<0.5	<0.5	0	[NT]	83
Ethylbenzene	mg/kg	1	Org-023	[NT]	27	<1	<1	0	[NT]	85
m+p-xylene	mg/kg	2	Org-023	[NT]	27	<2	<2	0	[NT]	85
o-Xylene	mg/kg	1	Org-023	[NT]	27	<1	<1	0	[NT]	85
Naphthalene	mg/kg	1	Org-023	[NT]	27	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	27	87	83	5	[NT]	81

QUALITY CONTROL: vTRH(C6-C10)/MBTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	36	06/03/2024	06/03/2024		[NT]	[NT]
Date analysed	-			[NT]	36	08/03/2024	08/03/2024		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	36	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	36	<25	<25	0	[NT]	[NT]
MTBE	mg/kg	0.5	Org-023	[NT]	36	<0.5	<0.5	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	36	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	36	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	36	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	36	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	36	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	36	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	36	89	85	5	[NT]	[NT]

QUALITY CONTROL: vTRH(C6-C10)/MBTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	46	06/03/2024	06/03/2024		[NT]	[NT]
Date analysed	-			[NT]	46	11/03/2024	11/03/2024		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	46	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	46	<25	<25	0	[NT]	[NT]
MTBE	mg/kg	0.5	Org-023	[NT]	46	<0.5	<0.5	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	46	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	46	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	46	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	46	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	46	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	46	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	46	90	88	2	[NT]	[NT]

QUALITY CONTROL: vTRH(C6-C10)/MBTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	51	06/03/2024	06/03/2024		[NT]	[NT]
Date analysed	-			[NT]	51	11/03/2024	11/03/2024		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	51	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	51	<25	<25	0	[NT]	[NT]
MTBE	mg/kg	0.5	Org-023	[NT]	51	<0.5	<0.5	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	51	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	51	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	51	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	51	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	51	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	51	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	51	88	90	2	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	345571-18
Date extracted	-			06/03/2024	8	06/03/2024	06/03/2024		06/03/2024	06/03/2024
Date analysed	-			09/03/2024	8	08/03/2024	08/03/2024		09/03/2024	09/03/2024
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	8	<50	<50	0	130	102
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	8	<100	<100	0	113	96
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	8	<100	<100	0	129	106
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	8	<50	<50	0	130	102
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	8	<100	<100	0	113	96
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	8	<100	<100	0	129	106
Surrogate o-Terphenyl	%		Org-020	81	8	76	76	0	123	84

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	345571-37
Date extracted	-			[NT]	17	06/03/2024	06/03/2024		06/03/2024	06/03/2024
Date analysed	-			[NT]	17	08/03/2024	09/03/2024		09/03/2024	09/03/2024
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	17	<50	<50	0	120	108
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	17	<100	<100	0	112	96
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	17	<100	<100	0	86	94
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	17	<50	<50	0	120	108
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	17	<100	<100	0	112	96
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	17	<100	<100	0	86	94
Surrogate o-Terphenyl	%		Org-020	[NT]	17	81	81	0	99	75

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	345571-49
Date extracted	-			[NT]	27	06/03/2024	06/03/2024		06/03/2024	06/03/2024
Date analysed	-			[NT]	27	09/03/2024	09/03/2024		09/03/2024	12/03/2024
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	27	<50	<50	0	128	111
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	27	<100	<100	0	110	100
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	27	<100	<100	0	114	92
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	27	<50	<50	0	128	111
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	27	<100	<100	0	110	100
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	27	<100	<100	0	114	92
Surrogate o-Terphenyl	%		Org-020	[NT]	27	75	76	1	120	86

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	36	06/03/2024	06/03/2024		[NT]	[NT]
Date analysed	-			[NT]	36	09/03/2024	09/03/2024		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	36	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	36	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	36	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	36	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	36	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	36	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	36	75	75	0	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	46	06/03/2024	06/03/2024		[NT]	[NT]
Date analysed	-			[NT]	46	09/03/2024	09/03/2024		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	46	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	46	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	46	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	46	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	46	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	46	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	46	76	77	1	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	51	06/03/2024	06/03/2024		[NT]	[NT]
Date analysed	-			[NT]	51	09/03/2024	09/03/2024		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	51	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	51	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	51	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	51	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	51	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	51	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	51	82	76	8	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	345571-18
Date extracted	-			6/03/2024	8	6/03/2024	6/03/2024		6/03/2024	6/03/2024
Date analysed	-			11/03/2024	8	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	92	84
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	92	82
Fluorene	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	88	86
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	94	90
Anthracene	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	94	92
Pyrene	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	94	90
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	86	78
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	8	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	8	<0.05	<0.05	0	94	88
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	108	8	105	102	3	96	95

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	345571-18
Date extracted	-			6/03/2024	8	6/03/2024	6/03/2024		6/03/2024	6/03/2024
Date analysed	-			11/03/2024	8	11/03/2024	11/03/2024		11/03/2024	11/03/2024
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	124	112
HCB	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	128	114
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	124	112
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	132	118
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	140	130
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	132	126
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	134	130
Endrin	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	122	114
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	122	116
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	116	110
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	96	8	94	87	8	89	84

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	345571-18
Date extracted	-			6/03/2024	8	6/03/2024	6/03/2024		6/03/2024	6/03/2024
Date analysed	-			11/03/2024	8	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	114	102
Mevinphos	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	90	84
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	98	88
Malathion	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	88	84
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	90	96
Fenthion	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	94	92
Bromophos-ethyl	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	98	92
Phosalone	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	96	8	94	87	8	89	84

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	345571-18
Date extracted	-			6/03/2024	8	6/03/2024	6/03/2024		6/03/2024	6/03/2024
Date analysed	-			11/03/2024	8	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Aroclor 1016	mg/kg	0.1	Org-021/022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	<0.1	8	<0.1	<0.1	0	94	80
Aroclor 1260	mg/kg	0.1	Org-021/022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	97	8	89	91	2	96	91

QUALITY CONTROL: Speciated Phenols in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	345571-18
Date extracted	-			06/03/2024	8	06/03/2024	06/03/2024		06/03/2024	06/03/2024
Date analysed	-			12/03/2024	8	12/03/2024	12/03/2024		12/03/2024	12/03/2024
Phenol	mg/kg	0.2	Org-022/025	<0.2	8	<0.2	<0.2	0	88	78
2-Chlorophenol	mg/kg	0.2	Org-022/025	<0.2	8	<0.2	<0.2	0	106	84
2-Methylphenol (o-cresol)	mg/kg	0.2	Org-022/025	<0.2	8	<0.2	<0.2	0	94	84
3/4-Methylphenol (m/p-cresol)	mg/kg	0.4	Org-022/025	<0.4	8	<0.4	<0.4	0	[NT]	[NT]
2-Nitrophenol	mg/kg	0.2	Org-022/025	<0.2	8	<0.2	<0.2	0	[NT]	[NT]
2,4 -Dimethylphenol	mg/kg	0.2	Org-022/025	<0.2	8	<0.2	<0.2	0	[NT]	[NT]
2,4-Dichlorophenol	mg/kg	0.05	Org-022/025	<0.05	8	<0.05	<0.05	0	[NT]	[NT]
2,6-Dichlorophenol	mg/kg	0.05	Org-022/025	<0.05	8	<0.05	<0.05	0	92	76
2,4,5-Trichlorophenol	mg/kg	0.05	Org-022/025	<0.05	8	<0.05	<0.05	0	[NT]	[NT]
2,4,6-Trichlorophenol	mg/kg	0.05	Org-022/025	<0.05	8	<0.05	<0.05	0	[NT]	[NT]
2,4-Dinitrophenol	mg/kg	4	Org-022/025	<4	8	<4	<4	0	[NT]	[NT]
4-Nitrophenol	mg/kg	4	Org-022/025	<4	8	<4	<4	0	82	84
2346-Tetrachlorophenol	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
2-methyl-4,6-Dinitrophenol	mg/kg	2	Org-022/025	<2	8	<2	<2	0	[NT]	[NT]
Pentachlorophenol	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	96	82
4-Chloro-3-methylphenol	mg/kg	1	Org-022/025	<1	8	<1	<1	0	[NT]	[NT]
2345-Tetrachlorophenol	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
2356-Tetrachlorophenol	mg/kg	0.1	Org-022/025	<0.1	8	<0.1	<0.1	0	[NT]	[NT]
2-Cyclohexyl-4,6-Dinitrophenol	mg/kg	20	Org-022/025	<20	8	<20	<20	0	[NT]	[NT]
Dinoseb	mg/kg	20	Org-022/025	<20	8	<20	<20	0	[NT]	[NT]
Surrogate Phenol-d_6	%		Org-022/025	105	8	95	97	2	96	88

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	345571-2
Date prepared	-			06/03/2024	8	06/03/2024	06/03/2024		06/03/2024	06/03/2024
Date analysed	-			08/03/2024	8	08/03/2024	08/03/2024		08/03/2024	08/03/2024
Arsenic	mg/kg	4	Metals-020	<4	8	23	32	33	121	113
Cadmium	mg/kg	0.4	Metals-020	<0.4	8	<0.4	<0.4	0	117	102
Chromium	mg/kg	1	Metals-020	<1	8	32	70	75	118	89
Copper	mg/kg	1	Metals-020	<1	8	20	21	5	110	117
Lead	mg/kg	1	Metals-020	<1	8	28	22	24	120	103
Mercury	mg/kg	0.1	Metals-021	<0.1	8	<0.1	<0.1	0	100	107
Molybdenum	mg/kg	1	Metals-020	<1	8	2	2	0	117	[NT]
Nickel	mg/kg	1	Metals-020	<1	8	5	5	0	115	109
Selenium	mg/kg	2	Metals-020	<2	8	<2	<2	0	115	[NT]
Silver	mg/kg	1	Metals-020	<1	8	<1	<1	0	111	[NT]
Tin	mg/kg	2	Metals-020	<2	8	<2	<2	0	115	[NT]
Zinc	mg/kg	1	Metals-020	<1	8	11	9	20	119	108

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	345571-18
Date prepared	-			[NT]	17	06/03/2024	06/03/2024		06/03/2024	06/03/2024
Date analysed	-			[NT]	17	08/03/2024	08/03/2024		08/03/2024	08/03/2024
Arsenic	mg/kg	4	Metals-020	[NT]	17	38	30	24	127	115
Cadmium	mg/kg	0.4	Metals-020	[NT]	17	<0.4	<0.4	0	121	108
Chromium	mg/kg	1	Metals-020	[NT]	17	16	18	12	124	82
Copper	mg/kg	1	Metals-020	[NT]	17	37	30	21	114	128
Lead	mg/kg	1	Metals-020	[NT]	17	31	13	82	129	110
Mercury	mg/kg	0.1	Metals-021	[NT]	17	<0.1	<0.1	0	107	105
Nickel	mg/kg	1	Metals-020	[NT]	17	10	7	35	119	112
Zinc	mg/kg	1	Metals-020	[NT]	17	19	14	30	125	114
Molybdenum	mg/kg	1	Metals-020	[NT]	[NT]	[NT]	[NT]	[NT]	123	94
Selenium	mg/kg	2	Metals-020	[NT]	[NT]	[NT]	[NT]	[NT]	119	107
Silver	mg/kg	1	Metals-020	[NT]	[NT]	[NT]	[NT]	[NT]	115	115
Tin	mg/kg	2	Metals-020	[NT]	[NT]	[NT]	[NT]	[NT]	119	109

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	345571-37
Date prepared	-			[NT]	27	06/03/2024	06/03/2024		06/03/2024	06/03/2024
Date analysed	-			[NT]	27	08/03/2024	08/03/2024		08/03/2024	08/03/2024
Arsenic	mg/kg	4	Metals-020	[NT]	27	12	16	29	121	106
Cadmium	mg/kg	0.4	Metals-020	[NT]	27	<0.4	<0.4	0	118	94
Chromium	mg/kg	1	Metals-020	[NT]	27	31	20	43	118	114
Copper	mg/kg	1	Metals-020	[NT]	27	21	23	9	109	121
Lead	mg/kg	1	Metals-020	[NT]	27	14	15	7	121	109
Mercury	mg/kg	0.1	Metals-021	[NT]	27	<0.1	<0.1	0	103	105
Nickel	mg/kg	1	Metals-020	[NT]	27	5	7	33	115	103
Zinc	mg/kg	1	Metals-020	[NT]	27	10	16	46	119	100
Selenium	mg/kg	2	Metals-020	[NT]	[NT]	[NT]	[NT]	[NT]	109	[NT]
Silver	mg/kg	1	Metals-020	[NT]	[NT]	[NT]	[NT]	[NT]	108	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	36	06/03/2024	06/03/2024		[NT]	[NT]
Date analysed	-			[NT]	36	08/03/2024	08/03/2024		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	36	17	13	27	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	36	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	36	48	25	63	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	36	12	13	8	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	36	17	17	0	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	36	5	5	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	36	4	5	22	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	46	06/03/2024	06/03/2024		[NT]	[NT]
Date analysed	-			[NT]	46	08/03/2024	08/03/2024		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	46	22	26	17	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	46	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	46	46	61	28	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	46	19	21	10	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	46	28	24	15	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	46	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	46	8	8	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	46	11	12	9	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	51	06/03/2024	06/03/2024		[NT]	[NT]
Date analysed	-			[NT]	51	08/03/2024	08/03/2024		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	51	9	13	36	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	51	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	51	14	20	35	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	51	23	28	20	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	51	11	14	24	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	51	8	9	12	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	51	16	19	17	[NT]	[NT]

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	345571-18
Date prepared	-			08/03/2024	8	08/03/2024	08/03/2024		08/03/2024	08/03/2024
Date analysed	-			08/03/2024	8	08/03/2024	08/03/2024		08/03/2024	08/03/2024
Hexavalent Chromium, Cr^{6+}	mg/kg	1	Inorg-118	<1	8	<1	<1	0	99	102

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	345571-18
Date prepared	-			06/03/2024	8	06/03/2024	06/03/2024		06/03/2024	06/03/2024
Date analysed	-			06/03/2024	8	06/03/2024	06/03/2024		06/03/2024	06/03/2024
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	8	7.2	[NT]		100	[NT]
Total Fluoride	mg/kg	50	Inorg-026/53	<50	8	370	380	3	81	80

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	345571-18
Date prepared	-			06/03/2024	8	06/03/2024	06/03/2024		06/03/2024	06/03/2024
Date analysed	-			06/03/2024	8	06/03/2024	06/03/2024		06/03/2024	06/03/2024
Total Cyanide	mg/kg	0.5	Inorg-014	<0.5	8	<0.5	<0.5	0	95	88

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

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Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

Acid Extractable Metals in Soil:
- The laboratory RPD acceptance criteria has been exceeded for 345571-8 for Cr. Therefore a triplicate result has been issued as laboratory sample number 345571-52.
- The laboratory RPD acceptance criteria has been exceeded for 345571-17 for Pb. Therefore a triplicate result has been issued as laboratory sample number 345571-53.
- The laboratory RPD acceptance criteria has been exceeded for 345571-27 for Cr and Zn. Therefore a triplicate result has been issued as laboratory sample number 345571-54.
- The laboratory RPD acceptance criteria has been exceeded for 345571-36 for Cr. Therefore a triplicate result has been issued as laboratory sample number 345571-55.
- The PQL has been raised for Se due to interferences from analytes (other than those being tested) in sample 345571-42.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 345571-A

Client Details

Client	Trakondy Asbestos & Hazardous Materials Pty Ltd
Attention	Mark Kondakov
Address	120 James Circuit, WOODROFFE, NT, 0830

Sample Details

Your Reference	**P724-Waste Classification Zuccoli**
Number of Samples	Additional analysis
Date samples received	05/03/2024
Date completed instructions received	26/03/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	28/03/2024
Date of Issue	28/03/2024

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Results Approved By
Priya Samarawickrama, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

Misc Inorg - Soil						
Our Reference		345571-A-1	345571-A-9	345571-A-15	345571-A-25	345571-A-37
Your Reference	UNITS	S1	S9	S15	S25	S37
Depth		5.0m	2.0m	6.0m	2.0m	2.0m
Date Sampled		04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	27/03/2024	27/03/2024	27/03/2024	27/03/2024	27/03/2024
Date analysed	-	28/03/2024	28/03/2024	28/03/2024	28/03/2024	28/03/2024
Total Fluoride	mg/kg	750	690	600	690	250

Misc Inorg - Soil		
Our Reference		345571-A-45
Your Reference	UNITS	S45
Depth		4.0m
Date Sampled		04/03/2024
Type of sample		Soil
Date prepared	-	27/03/2024
Date analysed	-	28/03/2024
Total Fluoride	mg/kg	550

Method ID	Methodology Summary
Inorg-026/53	Fluoride by caustic fusion and determined by ion selective electrode (ISE) analysis.

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	345571-A-9
Date prepared	-			27/03/2024	1	27/03/2024	27/03/2024		27/03/2024	27/03/2024
Date analysed	-			28/03/2024	1	28/03/2024	28/03/2024		28/03/2024	28/03/2024
Total Fluoride	mg/kg	50	Inorg-026/53	<50	1	750	600	22	89	85

Result Definitions

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NA	Test not required
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>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
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Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 345945

Client Details

Client	Trakondy Asbestos & Hazardous Materials Pty Ltd
Attention	Mark Kondakov
Address	120 James Circuit, WOODROFFE, NT, 0830

Sample Details

Your Reference	**P724-Part 2-Waste Classification Zuccoli**
Number of Samples	50 Soil
Date samples received	08/03/2024
Date completed instructions received	08/03/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	15/03/2024
Date of Issue	15/03/2024

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Results Approved By
Diego Bigolin, Inorganics Supervisor
Dragana Tomas, Senior Chemist
Hannah Nguyen, Metals Supervisor
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

VOCs in soil					
Our Reference		345945-1	345945-7	345945-13	345945-34
Your Reference	UNITS	S50	S56	S62	S83
Depth		1.0m	1.0m	0.3m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date Extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date Analysed	-	13/03/2024	13/03/2024	13/03/2024	13/03/2024
Vinyl Chloride	mg/kg	<0.1	<0.1	<0.1	<0.1
1,1-Dichloroethene	mg/kg	<0.1	<0.1	<0.1	<0.1
methylene chloride	mg/kg	<0.2	<0.2	<0.2	<0.2
trans-1,2-dichloroethene	mg/kg	<0.1	<0.1	<0.1	<0.1
cis-1,2-dichloroethene	mg/kg	<0.1	<0.1	<0.1	<0.1
chloroform	mg/kg	<0.1	<0.1	<0.1	<0.1
1,1,1-trichloroethane	mg/kg	<0.1	<0.1	<0.1	<0.1
carbon tetrachloride	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,2-dichloroethane	mg/kg	<0.1	<0.1	<0.1	<0.1
trichloroethene	mg/kg	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,1,2-trichloroethane	mg/kg	<0.1	<0.1	<0.1	<0.1
tetrachloroethene	mg/kg	<0.1	<0.1	<0.1	<0.1
chlorobenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,1,1,2-tetrachloroethane	mg/kg	<0.1	<0.1	<0.1	<0.1
m+p-xylene	mg/kg	<0.2	<0.2	<0.2	<0.2
o-Xylene	mg/kg	<0.1	<0.1	<0.1	<0.1
styrene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,1,2,2-tetrachloroethane	mg/kg	<0.1	<0.1	<0.1	<0.1
1,4-dichlorobenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,2-dichlorobenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,2,4-trichlorobenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
hexachlorobutadiene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,2,3-trichlorobenzene	mg/kg	<0.5	<0.5	<0.5	<0.5
Total +ve MAHs	mg/kg	<7	<7	<7	<7
Total +ve Chlorinated Hydrocarbons	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve Other Chlorinated Hydrocarbons	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Bromofluorobenzene	%	95	94	95	94
Surrogate Dibromofluoromethane	%	97	97	98	98
Surrogate Toluene-d_8	%	101	100	101	99
Surrogate aaa-Trifluorotoluene	%	93	92	90	85

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345945-1	345945-2	345945-3	345945-4	345945-5
Your Reference	UNITS	S50	S51	S52	S53	S54
Depth		1.0m	1.0m	1.0m	1.0m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	13/03/2024	15/03/2024	15/03/2024	15/03/2024	15/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	93	107	98	101	79

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345945-6	345945-7	345945-8	345945-9	345945-10
Your Reference	UNITS	S55	S56	S57	S58	S59
Depth		1.0m	1.0m	1.1m	1.0m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	15/03/2024	13/03/2024	15/03/2024	15/03/2024	15/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	103	92	90	111	94

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345945-11	345945-12	345945-13	345945-14	345945-15
Your Reference	UNITS	S60	S61	S62	S63	S64
Depth		0.3m	1.0m	0.3m	1.0m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	15/03/2024	15/03/2024	13/03/2024	15/03/2024	15/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	101	97	90	101	107

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345945-16	345945-17	345945-18	345945-19	345945-20
Your Reference	UNITS	S65	S66	S67	S68	S69
Depth		1.0m	0.3m	1.0m	0.3m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	15/03/2024	15/03/2024	15/03/2024	15/03/2024	15/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	115	101	97	100	111

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345945-21	345945-22	345945-23	345945-24	345945-25
Your Reference	UNITS	S70	S71	S72	S73	S74
Depth		0.3m	1.0m	0.3m	1.0m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	15/03/2024	15/03/2024	15/03/2024	15/03/2024	15/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	108	109	109	110	101

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345945-26	345945-27	345945-28	345945-29	345945-30
Your Reference	UNITS	S75	S76	S77	S78	S79
Depth		1.0m	3.0m	0.3m	1.0m	2.5m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	15/03/2024	15/03/2024	15/03/2024	15/03/2024	15/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	103	101	102	102	81

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345945-31	345945-32	345945-33	345945-34	345945-35
Your Reference	UNITS	S80	S81	S82	S83	S84
Depth		0.3m	1.0m	2.6m	0.3m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	15/03/2024	15/03/2024	15/03/2024	13/03/2024	15/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	81	85	70	85	83

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345945-36	345945-37	345945-38	345945-39	345945-40
Your Reference	UNITS	S85	S86	S87	S88	S89
Depth		3.0m	0.3m	0.8m	0.3m	0.8m
Date Sampled		5/03/2024	6/03/2024	6/03/2024	6/03/2024	6/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	15/03/2024	15/03/2024	15/03/2024	15/03/2024	15/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	85	80	81	104	107

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345945-41	345945-42	345945-43	345945-44	345945-45
Your Reference	UNITS	S90	S91	S92	S93	S94
Depth		0.3m	0.8m	0.3m	0.8m	0.3m
Date Sampled		6/03/2024	6/03/2024	6/03/2024	6/03/2024	6/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	15/03/2024	15/03/2024	15/03/2024	15/03/2024	15/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	86	86	84	84	84

vTRH(C6-C10)/MBTEXN in Soil						
Our Reference		345945-46	345945-47	345945-48	345945-49	345945-50
Your Reference	UNITS	S95	S96	S97	QC102	QC103
Depth		0.8m	0.3m	0.8m	-	-
Date Sampled		6/03/2024	6/03/2024	6/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	15/03/2024	15/03/2024	15/03/2024	15/03/2024	15/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
MTBE	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	90	88	91	88	85

svTRH (C10-C40) in Soil						
Our Reference		345945-1	345945-2	345945-3	345945-4	345945-5
Your Reference	UNITS	S50	S51	S52	S53	S54
Depth		1.0m	1.0m	1.0m	1.0m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	13/03/2024	13/03/2024	13/03/2024	13/03/2024	13/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	92	73	74	74	73

svTRH (C10-C40) in Soil						
Our Reference		345945-6	345945-7	345945-8	345945-9	345945-10
Your Reference	UNITS	S55	S56	S57	S58	S59
Depth		1.0m	1.0m	1.1m	1.0m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	13/03/2024	13/03/2024	13/03/2024	13/03/2024	13/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	73	91	84	77	86

svTRH (C10-C40) in Soil						
Our Reference		345945-11	345945-12	345945-13	345945-14	345945-15
Your Reference	UNITS	S60	S61	S62	S63	S64
Depth		0.3m	1.0m	0.3m	1.0m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	13/03/2024	13/03/2024	13/03/2024	13/03/2024	14/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	77	83	92	76	77

svTRH (C10-C40) in Soil						
Our Reference		345945-16	345945-17	345945-18	345945-19	345945-20
Your Reference	UNITS	S65	S66	S67	S68	S69
Depth		1.0m	0.3m	1.0m	0.3m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024	14/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	76	77	77	77	76

svTRH (C10-C40) in Soil						
Our Reference		345945-21	345945-22	345945-23	345945-24	345945-25
Your Reference	UNITS	S70	S71	S72	S73	S74
Depth		0.3m	1.0m	0.3m	1.0m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024	14/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	77	78	79	75	77

svTRH (C10-C40) in Soil						
Our Reference		345945-26	345945-27	345945-28	345945-29	345945-30
Your Reference	UNITS	S75	S76	S77	S78	S79
Depth		1.0m	3.0m	0.3m	1.0m	2.5m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024	14/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	78	85	76	77	78

svTRH (C10-C40) in Soil						
Our Reference		345945-31	345945-32	345945-33	345945-34	345945-35
Your Reference	UNITS	S80	S81	S82	S83	S84
Depth		0.3m	1.0m	2.6m	0.3m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024	14/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	83	77	75	104	76

svTRH (C10-C40) in Soil						
Our Reference		345945-36	345945-37	345945-38	345945-39	345945-40
Your Reference	UNITS	S85	S86	S87	S88	S89
Depth		3.0m	0.3m	0.8m	0.3m	0.8m
Date Sampled		5/03/2024	6/03/2024	6/03/2024	6/03/2024	6/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024	14/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	76	76	77	77	76

svTRH (C10-C40) in Soil						
Our Reference		345945-41	345945-42	345945-43	345945-44	345945-45
Your Reference	UNITS	S90	S91	S92	S93	S94
Depth		0.3m	0.8m	0.3m	0.8m	0.3m
Date Sampled		6/03/2024	6/03/2024	6/03/2024	6/03/2024	6/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	14/03/2024	14/03/2024	13/03/2024	13/03/2024	13/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	77	77	78	81	78

svTRH (C10-C40) in Soil						
Our Reference		345945-46	345945-47	345945-48	345945-49	345945-50
Your Reference	UNITS	S95	S96	S97	QC102	QC103
Depth		0.8m	0.3m	0.8m	-	-
Date Sampled		6/03/2024	6/03/2024	6/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	13/03/2024	13/03/2024	13/03/2024	13/03/2024	13/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	81	81	80	99	97

PAHs in Soil					
Our Reference		345945-1	345945-7	345945-13	345945-34
Your Reference	UNITS	S50	S56	S62	S83
Depth		1.0m	1.0m	0.3m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	94	100	102	100

Organochlorine Pesticides in soil					
Our Reference		345945-1	345945-7	345945-13	345945-34
Your Reference	UNITS	S50	S56	S62	S83
Depth		1.0m	1.0m	0.3m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	93	95	98	95

Organophosphorus Pesticides in Soil					
Our Reference		345945-1	345945-7	345945-13	345945-34
Your Reference	UNITS	S50	S56	S62	S83
Depth		1.0m	1.0m	0.3m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	93	95	98	95

PCBs in Soil					
Our Reference		345945-1	345945-7	345945-13	345945-34
Your Reference	UNITS	S50	S56	S62	S83
Depth		1.0m	1.0m	0.3m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	103	106	103	103

Speciated Phenols in Soil					
Our Reference		345945-1	345945-7	345945-13	345945-34
Your Reference	UNITS	S50	S56	S62	S83
Depth		1.0m	1.0m	0.3m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024
Phenol	mg/kg	<0.2	<0.2	<0.2	<0.2
2-Chlorophenol	mg/kg	<0.2	<0.2	<0.2	<0.2
2-Methylphenol (o-cresol)	mg/kg	<0.2	<0.2	<0.2	<0.2
3/4-Methylphenol (m/p-cresol)	mg/kg	<0.4	<0.4	<0.4	<0.4
2-Nitrophenol	mg/kg	<0.2	<0.2	<0.2	<0.2
2,4 -Dimethylphenol	mg/kg	<0.2	<0.2	<0.2	<0.2
2,4-Dichlorophenol	mg/kg	<0.05	<0.05	<0.05	<0.05
2,6-Dichlorophenol	mg/kg	<0.05	<0.05	<0.05	<0.05
2,4,5-Trichlorophenol	mg/kg	<0.05	<0.05	<0.05	<0.05
2,4,6-Trichlorophenol	mg/kg	<0.05	<0.05	<0.05	<0.05
2,4-Dinitrophenol	mg/kg	<4	<4	<4	<4
4-Nitrophenol	mg/kg	<4	<4	<4	<4
2346-Tetrachlorophenol	mg/kg	<0.1	<0.1	<0.1	<0.1
2-methyl-4,6-Dinitrophenol	mg/kg	<2	<2	<2	<2
Pentachlorophenol	mg/kg	<0.1	<0.1	<0.1	<0.1
4-Chloro-3-methylphenol	mg/kg	<1	<1	<1	<1
2345-Tetrachlorophenol	mg/kg	<0.1	<0.1	<0.1	<0.1
2356-Tetrachlorophenol	mg/kg	<0.1	<0.1	<0.1	<0.1
2-Cyclohexyl-4,6-Dinitrophenol	mg/kg	<20	<20	<20	<20
Dinoseb	mg/kg	<20	<20	<20	<20
Total +ve Phenols(Halogenated)	mg/kg	<1	<1	<1	<1
Total +ve Phenols Non-Halogenated	mg/kg	<60	<60	<60	<60
Surrogate Phenol-d_6	%	90	97	90	87

Acid Extractable metals in soil						
Our Reference		345945-1	345945-2	345945-3	345945-4	345945-5
Your Reference	UNITS	S50	S51	S52	S53	S54
Depth		1.0m	1.0m	1.0m	1.0m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024	14/03/2024
Arsenic	mg/kg	32	36	38	22	17
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	79	85	110	96	32
Copper	mg/kg	25	20	15	10	17
Lead	mg/kg	110	80	40	29	18
Mercury	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	2	2	2	2	2
Nickel	mg/kg	6	6	6	4	4
Selenium	mg/kg	<2	<4	<4	<2	<2
Silver	mg/kg	<1	<1	<1	<1	<1
Tin	mg/kg	<2	<2	<2	<2	<2
Zinc	mg/kg	4	9	6	2	5

Acid Extractable metals in soil						
Our Reference		345945-6	345945-7	345945-8	345945-9	345945-10
Your Reference	UNITS	S55	S56	S57	S58	S59
Depth		1.0m	1.0m	1.1m	1.0m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024	14/03/2024
Arsenic	mg/kg	22	9	7	10	25
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	40	24	12	44	78
Copper	mg/kg	33	18	23	32	11
Lead	mg/kg	190	13	23	20	22
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	2	1	<1	<1	2
Nickel	mg/kg	5	2	2	2	2
Selenium	mg/kg	<4	<2	<2	<2	<2
Silver	mg/kg	<1	<1	<1	<1	<1
Tin	mg/kg	<2	<2	<2	<2	<2
Zinc	mg/kg	16	3	4	8	<1

Acid Extractable metals in soil						
Our Reference		345945-11	345945-12	345945-13	345945-14	345945-15
Your Reference	UNITS	S60	S61	S62	S63	S64
Depth		0.3m	1.0m	0.3m	1.0m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024	14/03/2024
Arsenic	mg/kg	22	15	19	11	7
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	52	75	27	30	14
Copper	mg/kg	22	15	26	19	11
Lead	mg/kg	25	33	20	22	14
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	2	2	2	1	<1
Nickel	mg/kg	6	1	6	1	<1
Selenium	mg/kg	<2	<2	<2	<2	<2
Silver	mg/kg	<1	<1	<1	<1	<1
Tin	mg/kg	<2	<2	<2	<2	<2
Zinc	mg/kg	7	<1	11	<1	<1

Acid Extractable metals in soil						
Our Reference		345945-16	345945-17	345945-18	345945-19	345945-20
Your Reference	UNITS	S65	S66	S67	S68	S69
Depth		1.0m	0.3m	1.0m	0.3m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024	14/03/2024
Arsenic	mg/kg	5	12	6	9	10
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	9	30	9	27	16
Copper	mg/kg	8	15	9	30	19
Lead	mg/kg	11	14	10	14	13
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	<1	1	<1	<1	<1
Nickel	mg/kg	<1	1	<1	5	2
Selenium	mg/kg	<2	<4	<2	<2	<2
Silver	mg/kg	<1	<1	<1	<1	<1
Tin	mg/kg	<2	<2	<2	<2	<2
Zinc	mg/kg	<1	1	<1	10	4

Acid Extractable metals in soil						
Our Reference		345945-21	345945-22	345945-23	345945-24	345945-25
Your Reference	UNITS	S70	S71	S72	S73	S74
Depth		0.3m	1.0m	0.3m	1.0m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024	14/03/2024
Arsenic	mg/kg	16	9	11	8	14
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	74	14	23	13	91
Copper	mg/kg	20	18	33	35	7
Lead	mg/kg	20	8	22	19	16
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	2	<1	1	<1	2
Nickel	mg/kg	2	2	1	<1	3
Selenium	mg/kg	<2	<2	<2	<2	<4
Silver	mg/kg	<1	<1	<1	<1	<1
Tin	mg/kg	<2	<2	<2	<2	<2
Zinc	mg/kg	<1	4	1	<1	2

Acid Extractable metals in soil						
Our Reference		345945-26	345945-27	345945-28	345945-29	345945-30
Your Reference	UNITS	S75	S76	S77	S78	S79
Depth		1.0m	3.0m	0.3m	1.0m	2.5m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024	14/03/2024
Arsenic	mg/kg	16	10	21	15	12
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	70	29	110	43	43
Copper	mg/kg	29	12	11	16	14
Lead	mg/kg	27	22	23	25	16
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	2	1	2	1	1
Nickel	mg/kg	1	<1	2	<1	3
Selenium	mg/kg	<2	<2	<2	<2	<2
Silver	mg/kg	<1	<1	<1	<1	<1
Tin	mg/kg	<2	<2	<2	<2	<2
Zinc	mg/kg	1	<1	<1	<1	6

Acid Extractable metals in soil						
Our Reference		345945-31	345945-32	345945-33	345945-34	345945-35
Your Reference	UNITS	S80	S81	S82	S83	S84
Depth		0.3m	1.0m	2.6m	0.3m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024	14/03/2024
Arsenic	mg/kg	15	14	6	18	12
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	34	31	15	92	64
Copper	mg/kg	17	16	8	11	10
Lead	mg/kg	16	16	9	18	19
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	1	1	<1	2	1
Nickel	mg/kg	<1	<1	<1	<1	<1
Selenium	mg/kg	<2	<2	<2	<2	<2
Silver	mg/kg	<1	<1	<1	<1	<1
Tin	mg/kg	2	<2	<2	<2	<2
Zinc	mg/kg	<1	<1	<1	<1	<1

Acid Extractable metals in soil						
Our Reference		345945-36	345945-37	345945-38	345945-39	345945-40
Your Reference	UNITS	S85	S86	S87	S88	S89
Depth		3.0m	0.3m	0.8m	0.3m	0.8m
Date Sampled		5/03/2024	6/03/2024	6/03/2024	6/03/2024	6/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024	14/03/2024
Arsenic	mg/kg	11	17	9	19	10
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	33	81	17	49	35
Copper	mg/kg	9	15	6	19	7
Lead	mg/kg	12	18	11	20	16
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	1	2	<1	2	<1
Nickel	mg/kg	<1	1	<1	2	<1
Selenium	mg/kg	<2	<2	<2	<4	<4
Silver	mg/kg	<1	<1	<1	<1	<1
Tin	mg/kg	<2	<2	<2	2	<2
Zinc	mg/kg	1	<1	<1	2	<1

Acid Extractable metals in soil						
Our Reference		345945-41	345945-42	345945-43	345945-44	345945-45
Your Reference	UNITS	S90	S91	S92	S93	S94
Depth		0.3m	0.8m	0.3m	0.8m	0.3m
Date Sampled		6/03/2024	6/03/2024	6/03/2024	6/03/2024	6/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024	14/03/2024
Arsenic	mg/kg	19	10	25	11	12
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	68	24	130	24	32
Copper	mg/kg	15	7	14	6	14
Lead	mg/kg	21	11	26	11	14
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	2	1	1	<1	<1
Nickel	mg/kg	1	<1	<1	<1	<1
Selenium	mg/kg	<4	<2	<4	<2	<4
Silver	mg/kg	<1	<1	<1	<1	<1
Tin	mg/kg	<2	<2	<2	<2	<2
Zinc	mg/kg	<1	<1	<1	<1	<1

Acid Extractable metals in soil						
Our Reference		345945-46	345945-47	345945-48	345945-49	345945-50
Your Reference	UNITS	S95	S96	S97	QC102	QC103
Depth		0.8m	0.3m	0.8m	-	-
Date Sampled		6/03/2024	6/03/2024	6/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024	14/03/2024	14/03/2024
Arsenic	mg/kg	6	4	<4	21	17
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	10	10	5	59	77
Copper	mg/kg	5	14	6	18	17
Lead	mg/kg	8	7	4	20	19
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	<1	<1	<1	2	2
Nickel	mg/kg	<1	5	1	5	1
Selenium	mg/kg	<2	<2	<2	<2	<4
Silver	mg/kg	<1	<1	<1	<1	<1
Tin	mg/kg	<2	<2	<2	<2	<2
Zinc	mg/kg	<1	9	2	7	<1

Acid Extractable metals in soil				
Our Reference		345945-51	345945-52	345945-54
Your Reference	UNITS	S56 - [TRIPLICATE]	S62 - [TRIPLICATE]	S97 - [TRIPLICATE]
Depth		1.0m	0.3m	0.8m
Date Sampled		5/03/2024	5/03/2024	6/03/2024
Type of sample		Soil	Soil	Soil
Date prepared	-	12/03/2024	12/03/2024	12/03/2024
Date analysed	-	14/03/2024	14/03/2024	14/03/2024
Arsenic	mg/kg	9	26	4
Cadmium	mg/kg	<0.4	<0.4	<0.4
Chromium	mg/kg	29	23	13
Copper	mg/kg	19	28	11
Lead	mg/kg	15	16	9
Mercury	mg/kg	<0.1	<0.1	<0.1
Molybdenum	mg/kg	1	1	<1
Nickel	mg/kg	2	6	2
Selenium	mg/kg	<2	<2	<2
Silver	mg/kg	<1	<1	<1
Tin	mg/kg	<2	<2	<2
Zinc	mg/kg	3	15	5

Misc Soil - Inorg					
Our Reference		345945-1	345945-7	345945-13	345945-34
Your Reference	UNITS	S50	S56	S62	S83
Depth		1.0m	1.0m	0.3m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Date analysed	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Hexavalent Chromium, Cr^{6+}	mg/kg	<1	<1	<1	<1

Misc Inorg - Soil					
Our Reference		345945-1	345945-7	345945-13	345945-34
Your Reference	UNITS	S50	S56	S62	S83
Depth		1.0m	1.0m	0.3m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	15/03/2024	15/03/2024	15/03/2024	15/03/2024
Date analysed	-	15/03/2024	15/03/2024	15/03/2024	15/03/2024
pH 1:5 soil:water	pH Units	5.0	5.0	5.5	4.9
Total Fluoride	mg/kg	300	350	730	420

Misc Soil - Inorg					
Our Reference		345945-1	345945-7	345945-13	345945-34
Your Reference	UNITS	S50	S56	S62	S83
Depth		1.0m	1.0m	0.3m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Total Cyanide	mg/kg	<0.5	<0.5	<0.5	<0.5

Moisture						
Our Reference		345945-1	345945-2	345945-3	345945-4	345945-5
Your Reference	UNITS	S50	S51	S52	S53	S54
Depth		1.0m	1.0m	1.0m	1.0m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Moisture	%	14	15	17	16	16

Moisture						
Our Reference		345945-6	345945-7	345945-8	345945-9	345945-10
Your Reference	UNITS	S55	S56	S57	S58	S59
Depth		1.0m	1.0m	1.1m	1.0m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Moisture	%	15	9.9	11	13	17

Moisture						
Our Reference		345945-11	345945-12	345945-13	345945-14	345945-15
Your Reference	UNITS	S60	S61	S62	S63	S64
Depth		0.3m	1.0m	0.3m	1.0m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Moisture	%	9.8	13	12	14	14

Moisture						
Our Reference		345945-16	345945-17	345945-18	345945-19	345945-20
Your Reference	UNITS	S65	S66	S67	S68	S69
Depth		1.0m	0.3m	1.0m	0.3m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Moisture	%	13	15	19	13	12

Moisture						
Our Reference		345945-21	345945-22	345945-23	345945-24	345945-25
Your Reference	UNITS	S70	S71	S72	S73	S74
Depth		0.3m	1.0m	0.3m	1.0m	0.3m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Moisture	%	13	17	11	12	12

Moisture						
Our Reference		345945-26	345945-27	345945-28	345945-29	345945-30
Your Reference	UNITS	S75	S76	S77	S78	S79
Depth		1.0m	3.0m	0.3m	1.0m	2.5m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Moisture	%	18	20	13	22	16

Moisture						
Our Reference		345945-31	345945-32	345945-33	345945-34	345945-35
Your Reference	UNITS	S80	S81	S82	S83	S84
Depth		0.3m	1.0m	2.6m	0.3m	1.0m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Moisture	%	17	18	11	14	13

Moisture						
Our Reference		345945-36	345945-37	345945-38	345945-39	345945-40
Your Reference	UNITS	S85	S86	S87	S88	S89
Depth		3.0m	0.3m	0.8m	0.3m	0.8m
Date Sampled		5/03/2024	6/03/2024	6/03/2024	6/03/2024	6/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Moisture	%	15	19	23	22	16

Moisture						
Our Reference		345945-41	345945-42	345945-43	345945-44	345945-45
Your Reference	UNITS	S90	S91	S92	S93	S94
Depth		0.3m	0.8m	0.3m	0.8m	0.3m
Date Sampled		6/03/2024	6/03/2024	6/03/2024	6/03/2024	6/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Moisture	%	19	13	15	19	15

Moisture						
Our Reference		345945-46	345945-47	345945-48	345945-49	345945-50
Your Reference	UNITS	S95	S96	S97	QC102	QC103
Depth		0.8m	0.3m	0.8m	-	-
Date Sampled		6/03/2024	6/03/2024	6/03/2024	5/03/2024	5/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/03/2024	11/03/2024	11/03/2024	11/03/2024	11/03/2024
Date analysed	-	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Moisture	%	16	14	11	10	16

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-014	Cyanide - free, total, weak acid dissociable by segmented flow analyser (in line dialysis with colourimetric finish). Solids/Filters and sorbents are extracted in a caustic media prior to analysis. Impingers are pH adjusted as required prior to analysis. Cyanides amenable to Chlorination - samples are analysed untreated and treated with hypochlorite to assess the potential for chlorination of cyanide forms. Based on APHA latest edition, 4500-CN_G,H.
Inorg-026/53	Fluoride by caustic fusion and determined by ion selective electrode (ISE) analysis.
Inorg-118	Hexavalent Chromium (Cr6+) - determined firstly by separation using ion chromatography followed by the colourimetric analytical finish. Water samples are ideally field filtered into alkali preserved containers prior to receipt for dissolved Cr6+ analysis. Unfiltered water samples into alkali preserved containers (or pH adjusted to pH 8-9 on receipt) can be classified as Total (unfiltered) Cr6+. Please note, for 'Total/Unfiltered' Trivalent Chromium in waters [calculated], these results may be exaggerated due to the digestive limitation of 'Total/Unfiltered' Hexavalent Chromium in NaOH at pH 8-9 compared to more comprehensive digestion for Total Chromium using the mineral acids HNO3 and HCl. Solid (includes soils, filters, paints, swabs for example) samples are extracted in a buffered catalysed solution prior to the analytical finish above. Water extractable options are available (e.g. as an option for filters) on request. Impingers may need pH adjusting to pH 8-9 prior to IC-colourimetric analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.

Method ID	Methodology Summary
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve Cresols or Phenols PQL is reflective of the lowest individual PQL and is therefore" Total +ve Cresols or Phenols" is simply a sum of the positive individual Cresols or Phenols.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

Method ID	Methodology Summary
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: VOCs in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	345945-1
Date Extracted	-			11/03/2024	7	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Date Analysed	-			13/03/2024	7	13/03/2024	13/03/2024		13/03/2024	15/03/2024
Vinyl Chloride	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
1,1-Dichloroethene	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
methylene chloride	mg/kg	0.2	Org-023	<0.2	7	<0.2	<0.2	0	[NT]	[NT]
trans-1,2-dichloroethene	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
cis-1,2-dichloroethene	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
chloroform	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	108	91
1,1,1-trichloroethane	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	82	89
carbon tetrachloride	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Benzene	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	87	88
1,2-dichloroethane	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	97	90
trichloroethene	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	77	88
Toluene	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	95	92
1,1,2-trichloroethane	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
tetrachloroethene	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	97	92
chlorobenzene	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Ethylbenzene	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	92	96
1,1,1,2-tetrachloroethane	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
m+p-xylene	mg/kg	0.2	Org-023	<0.2	7	<0.2	<0.2	0	93	104
o-Xylene	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	93	109
styrene	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
1,1,2,2-tetrachloroethane	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
1,4-dichlorobenzene	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
1,2-dichlorobenzene	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
1,2,4-trichlorobenzene	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
hexachlorobutadiene	mg/kg	0.1	Org-023	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
1,2,3-trichlorobenzene	mg/kg	0.5	Org-023	<0.5	7	<0.5	<0.5	0	[NT]	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	92	7	94	95	1	98	98
Surrogate Dibromofluoromethane	%		Org-023	101	7	97	98	1	97	97
Surrogate Toluene-d_8	%		Org-023	102	7	100	98	2	97	101
Surrogate aaa-Trifluorotoluene	%		Org-023	89	7	92	81	13	92	87

QUALITY CONTROL: VOCs in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	345945-34
Date Extracted	-			[NT]	13	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Date Analysed	-			[NT]	13	13/03/2024	13/03/2024		13/03/2024	15/03/2024
Vinyl Chloride	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
1,1-Dichloroethene	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
methylene chloride	mg/kg	0.2	Org-023	[NT]	13	<0.2	<0.2	0	[NT]	[NT]
trans-1,2-dichloroethene	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
cis-1,2-dichloroethene	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
chloroform	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	110	98
1,1,1-trichloroethane	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	97	95
carbon tetrachloride	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Benzene	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	95	95
1,2-dichloroethane	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	104	96
trichloroethene	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	91	92
Toluene	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	98	99
1,1,2-trichloroethane	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
tetrachloroethene	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	90	94
chlorobenzene	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Ethylbenzene	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	99	108
1,1,1,2-tetrachloroethane	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
m+p-xylene	mg/kg	0.2	Org-023	[NT]	13	<0.2	<0.2	0	97	110
o-Xylene	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	100	111
styrene	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
1,1,2,2-tetrachloroethane	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
1,4-dichlorobenzene	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
1,2-dichlorobenzene	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
1,2,4-trichlorobenzene	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
hexachlorobutadiene	mg/kg	0.1	Org-023	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
1,2,3-trichlorobenzene	mg/kg	0.5	Org-023	[NT]	13	<0.5	<0.5	0	[NT]	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	[NT]	13	95	95	0	96	98
Surrogate Dibromofluoromethane	%		Org-023	[NT]	13	98	97	1	101	97
Surrogate Toluene-d_8	%		Org-023	[NT]	13	101	100	1	101	100
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	13	90	99	10	87	89

QUALITY CONTROL: vTRH(C6-C10)/MBTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	345945-1
Date extracted	-			11/03/2024	7	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Date analysed	-			13/03/2024	7	13/03/2024	13/03/2024		13/03/2024	15/03/2024
TRH C_6 - C_9	mg/kg	25	Org-023	<25	7	<25	<25	0	79	97
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	7	<25	<25	0	79	97
MTBE	mg/kg	0.5	Org-023	<0.5	7	<0.5	<0.5	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	7	<0.2	<0.2	0	75	88
Toluene	mg/kg	0.5	Org-023	<0.5	7	<0.5	<0.5	0	85	92
Ethylbenzene	mg/kg	1	Org-023	<1	7	<1	<1	0	78	96
m+p-xylene	mg/kg	2	Org-023	<2	7	<2	<2	0	79	104
o-Xylene	mg/kg	1	Org-023	<1	7	<1	<1	0	79	109
Naphthalene	mg/kg	1	Org-023	<1	7	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	89	7	92	81	13	86	87

QUALITY CONTROL: vTRH(C6-C10)/MBTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	345945-25
Date extracted	-			[NT]	13	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Date analysed	-			[NT]	13	13/03/2024	13/03/2024		13/03/2024	15/03/2024
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	13	<25	<25	0	92	93
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	13	<25	<25	0	92	93
MTBE	mg/kg	0.5	Org-023	[NT]	13	<0.5	<0.5	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	13	<0.2	<0.2	0	87	88
Toluene	mg/kg	0.5	Org-023	[NT]	13	<0.5	<0.5	0	95	97
Ethylbenzene	mg/kg	1	Org-023	[NT]	13	<1	<1	0	92	92
m+p-xylene	mg/kg	2	Org-023	[NT]	13	<2	<2	0	93	94
o-Xylene	mg/kg	1	Org-023	[NT]	13	<1	<1	0	93	94
Naphthalene	mg/kg	1	Org-023	[NT]	13	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	13	90	99	10	92	92

QUALITY CONTROL: vTRH(C6-C10)/MBTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	345945-34
Date extracted	-			[NT]	24	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Date analysed	-			[NT]	24	15/03/2024	15/03/2024		13/03/2024	15/03/2024
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	24	<25	<25	0	97	104
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	24	<25	<25	0	97	104
MTBE	mg/kg	0.5	Org-023	[NT]	24	<0.5	<0.5	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	24	<0.2	<0.2	0	95	95
Toluene	mg/kg	0.5	Org-023	[NT]	24	<0.5	<0.5	0	98	99
Ethylbenzene	mg/kg	1	Org-023	[NT]	24	<1	<1	0	99	108
m+p-xylene	mg/kg	2	Org-023	[NT]	24	<2	<2	0	97	110
o-Xylene	mg/kg	1	Org-023	[NT]	24	<1	<1	0	100	111
Naphthalene	mg/kg	1	Org-023	[NT]	24	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	24	110	104	6	87	89

QUALITY CONTROL: vTRH(C6-C10)/MBTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	39	11/03/2024	11/03/2024		[NT]	[NT]
Date analysed	-			[NT]	39	15/03/2024	15/03/2024		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	39	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	39	<25	<25	0	[NT]	[NT]
MTBE	mg/kg	0.5	Org-023	[NT]	39	<0.5	<0.5	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	39	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	39	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	39	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	39	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	39	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	39	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	39	104	103	1	[NT]	[NT]

QUALITY CONTROL: vTRH(C6-C10)/MBTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	48	11/03/2024	11/03/2024		[NT]	[NT]
Date analysed	-			[NT]	48	15/03/2024	15/03/2024		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	48	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	48	<25	<25	0	[NT]	[NT]
MTBE	mg/kg	0.5	Org-023	[NT]	48	<0.5	<0.5	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	48	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	48	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	48	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	48	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	48	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	48	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	48	91	87	4	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	345945-1
Date extracted	-			11/03/2024	7	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Date analysed	-			14/03/2024	7	13/03/2024	13/03/2024		13/03/2024	13/03/2024
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	7	<50	<50	0	127	113
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	7	<100	<100	0	123	121
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	7	<100	<100	0	129	109
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	7	<50	<50	0	127	113
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	7	<100	<100	0	123	121
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	7	<100	<100	0	129	109
Surrogate o-Terphenyl	%		Org-020	94	7	91	93	2	103	101

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	345945-25
Date extracted	-			[NT]	13	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Date analysed	-			[NT]	13	13/03/2024	13/03/2024		14/03/2024	14/03/2024
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	13	<50	<50	0	117	109
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	13	<100	<100	0	111	118
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	13	<100	<100	0	100	100
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	13	<50	<50	0	117	109
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	13	<100	<100	0	111	118
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	13	<100	<100	0	100	100
Surrogate o-Terphenyl	%		Org-020	[NT]	13	92	101	9	95	88

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	345945-34
Date extracted	-			[NT]	24	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Date analysed	-			[NT]	24	14/03/2024	14/03/2024		13/03/2024	14/03/2024
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	24	<50	<50	0	114	117
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	24	<100	<100	0	110	124
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	24	<100	<100	0	129	130
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	24	<50	<50	0	114	117
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	24	<100	<100	0	110	124
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	24	<100	<100	0	129	130
Surrogate o-Terphenyl	%		Org-020	[NT]	24	75	76	1	103	105

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	39	11/03/2024	11/03/2024		[NT]	[NT]
Date analysed	-			[NT]	39	14/03/2024	14/03/2024		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	39	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	39	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	39	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	39	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	39	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	39	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	39	77	77	0	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	48	11/03/2024	11/03/2024		[NT]	[NT]
Date analysed	-			[NT]	48	13/03/2024	13/03/2024		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	48	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	48	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	48	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	48	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	48	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	48	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	48	80	82	2	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	345945-1
Date extracted	-			11/03/2024	7	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Date analysed	-			14/03/2024	7	14/03/2024	14/03/2024		14/03/2024	14/03/2024
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	90	80
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	100	86
Fluorene	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	96	84
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	96	82
Anthracene	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	100	88
Pyrene	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	94	84
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	84	76
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	7	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	7	<0.05	<0.05	0	92	82
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	103	7	100	100	0	100	95

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	13	11/03/2024	11/03/2024		[NT]	[NT]
Date analysed	-			[NT]	13	14/03/2024	14/03/2024		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	13	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	13	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	13	102	97	5	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	345945-1
Date extracted	-			11/03/2024	7	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Date analysed	-			14/03/2024	7	14/03/2024	14/03/2024		14/03/2024	14/03/2024
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	116	106
HCB	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	126	112
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	104	98
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	124	110
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	128	112
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	126	114
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	126	118
Endrin	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	134	104
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	126	114
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	76	74
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	96	7	95	96	1	101	94

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	13	11/03/2024	11/03/2024		[NT]	[NT]
Date analysed	-			[NT]	13	14/03/2024	14/03/2024		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	13	98	93	5	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	345945-1
Date extracted	-			11/03/2024	7	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Date analysed	-			14/03/2024	7	14/03/2024	14/03/2024		14/03/2024	14/03/2024
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	106	92
Mevinphos	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	86	78
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	74	64
Malathion	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	72	68
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	90	80
Fenthion	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	84	68
Bromophos-ethyl	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	86	78
Phosalone	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	96	7	95	96	1	101	94

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	13	11/03/2024	11/03/2024		[NT]	[NT]
Date analysed	-			[NT]	13	14/03/2024	14/03/2024		[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Mevinphos	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Fenthion	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Phosalone	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	13	98	93	5	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	345945-1
Date extracted	-			11/03/2024	7	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Date analysed	-			14/03/2024	7	14/03/2024	14/03/2024		14/03/2024	14/03/2024
Aroclor 1016	mg/kg	0.1	Org-021/022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	<0.1	7	<0.1	<0.1	0	115	80
Aroclor 1260	mg/kg	0.1	Org-021/022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	94	7	106	105	1	97	100

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	13	11/03/2024	11/03/2024		[NT]	[NT]
Date analysed	-			[NT]	13	14/03/2024	14/03/2024		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021/022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021/022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	[NT]	13	103	106	3	[NT]	[NT]

QUALITY CONTROL: Speciated Phenols in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	345945-34
Date extracted	-			11/03/2024	7	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Date analysed	-			14/03/2024	7	14/03/2024	14/03/2024		14/03/2024	14/03/2024
Phenol	mg/kg	0.2	Org-022/025	<0.2	7	<0.2	<0.2	0	86	76
2-Chlorophenol	mg/kg	0.2	Org-022/025	<0.2	7	<0.2	<0.2	0	99	82
2-Methylphenol (o-cresol)	mg/kg	0.2	Org-022/025	<0.2	7	<0.2	<0.2	0	89	76
3/4-Methylphenol (m/p-cresol)	mg/kg	0.4	Org-022/025	<0.4	7	<0.4	<0.4	0	[NT]	[NT]
2-Nitrophenol	mg/kg	0.2	Org-022/025	<0.2	7	<0.2	<0.2	0	[NT]	[NT]
2,4 -Dimethylphenol	mg/kg	0.2	Org-022/025	<0.2	7	<0.2	<0.2	0	[NT]	[NT]
2,4-Dichlorophenol	mg/kg	0.05	Org-022/025	<0.05	7	<0.05	<0.05	0	[NT]	[NT]
2,6-Dichlorophenol	mg/kg	0.05	Org-022/025	<0.05	7	<0.05	<0.05	0	88	76
2,4,5-Trichlorophenol	mg/kg	0.05	Org-022/025	<0.05	7	<0.05	<0.05	0	[NT]	[NT]
2,4,6-Trichlorophenol	mg/kg	0.05	Org-022/025	<0.05	7	<0.05	<0.05	0	[NT]	[NT]
2,4-Dinitrophenol	mg/kg	4	Org-022/025	<4	7	<4	<4	0	[NT]	[NT]
4-Nitrophenol	mg/kg	4	Org-022/025	<4	7	<4	<4	0	84	70
2346-Tetrachlorophenol	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
2-methyl-4,6-Dinitrophenol	mg/kg	2	Org-022/025	<2	7	<2	<2	0	[NT]	[NT]
Pentachlorophenol	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	87	74
4-Chloro-3-methylphenol	mg/kg	1	Org-022/025	<1	7	<1	<1	0	[NT]	[NT]
2345-Tetrachlorophenol	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
2356-Tetrachlorophenol	mg/kg	0.1	Org-022/025	<0.1	7	<0.1	<0.1	0	[NT]	[NT]
2-Cyclohexyl-4,6-Dinitrophenol	mg/kg	20	Org-022/025	<20	7	<20	<20	0	[NT]	[NT]
Dinoseb	mg/kg	20	Org-022/025	<20	7	<20	<20	0	[NT]	[NT]
Surrogate Phenol-d_6	%		Org-022/025	95	7	97	87	11	100	85

QUALITY CONTROL: Speciated Phenols in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	13	11/03/2024	11/03/2024		[NT]	[NT]
Date analysed	-			[NT]	13	14/03/2024	14/03/2024		[NT]	[NT]
Phenol	mg/kg	0.2	Org-022/025	[NT]	13	<0.2	<0.2	0	[NT]	[NT]
2-Chlorophenol	mg/kg	0.2	Org-022/025	[NT]	13	<0.2	<0.2	0	[NT]	[NT]
2-Methylphenol (o-cresol)	mg/kg	0.2	Org-022/025	[NT]	13	<0.2	<0.2	0	[NT]	[NT]
3/4-Methylphenol (m/p-cresol)	mg/kg	0.4	Org-022/025	[NT]	13	<0.4	<0.4	0	[NT]	[NT]
2-Nitrophenol	mg/kg	0.2	Org-022/025	[NT]	13	<0.2	<0.2	0	[NT]	[NT]
2,4 -Dimethylphenol	mg/kg	0.2	Org-022/025	[NT]	13	<0.2	<0.2	0	[NT]	[NT]
2,4-Dichlorophenol	mg/kg	0.05	Org-022/025	[NT]	13	<0.05	<0.05	0	[NT]	[NT]
2,6-Dichlorophenol	mg/kg	0.05	Org-022/025	[NT]	13	<0.05	<0.05	0	[NT]	[NT]
2,4,5-Trichlorophenol	mg/kg	0.05	Org-022/025	[NT]	13	<0.05	<0.05	0	[NT]	[NT]
2,4,6-Trichlorophenol	mg/kg	0.05	Org-022/025	[NT]	13	<0.05	<0.05	0	[NT]	[NT]
2,4-Dinitrophenol	mg/kg	4	Org-022/025	[NT]	13	<4	<4	0	[NT]	[NT]
4-Nitrophenol	mg/kg	4	Org-022/025	[NT]	13	<4	<4	0	[NT]	[NT]
2346-Tetrachlorophenol	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
2-methyl-4,6-Dinitrophenol	mg/kg	2	Org-022/025	[NT]	13	<2	<2	0	[NT]	[NT]
Pentachlorophenol	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
4-Chloro-3-methylphenol	mg/kg	1	Org-022/025	[NT]	13	<1	<1	0	[NT]	[NT]
2345-Tetrachlorophenol	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
2356-Tetrachlorophenol	mg/kg	0.1	Org-022/025	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
2-Cyclohexyl-4,6-Dinitrophenol	mg/kg	20	Org-022/025	[NT]	13	<20	<20	0	[NT]	[NT]
Dinoseb	mg/kg	20	Org-022/025	[NT]	13	<20	<20	0	[NT]	[NT]
Surrogate Phenol-d_6	%		Org-022/025	[NT]	13	90	88	2	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	345945-1
Date prepared	-			12/03/2024	7	12/03/2024	12/03/2024		12/03/2024	12/03/2024
Date analysed	-			14/03/2024	7	14/03/2024	14/03/2024		14/03/2024	14/03/2024
Arsenic	mg/kg	4	Metals-020	<4	7	9	10	11	105	90
Cadmium	mg/kg	0.4	Metals-020	<0.4	7	<0.4	<0.4	0	105	89
Chromium	mg/kg	1	Metals-020	<1	7	24	41	52	103	116
Copper	mg/kg	1	Metals-020	<1	7	18	17	6	97	101
Lead	mg/kg	1	Metals-020	<1	7	13	14	7	105	#
Mercury	mg/kg	0.1	Metals-021	<0.1	7	<0.1	<0.1	0	102	113
Molybdenum	mg/kg	1	Metals-020	<1	7	1	2	67	104	#
Nickel	mg/kg	1	Metals-020	<1	7	2	2	0	101	96
Selenium	mg/kg	2	Metals-020	<2	7	<2	<2	0	101	70
Silver	mg/kg	1	Metals-020	<1	7	<1	<1	0	100	95
Tin	mg/kg	2	Metals-020	<2	7	<2	<2	0	103	86
Zinc	mg/kg	1	Metals-020	<1	7	3	2	40	106	88

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	345945-25
Date prepared	-			[NT]	13	12/03/2024	12/03/2024		12/03/2024	12/03/2024
Date analysed	-			[NT]	13	14/03/2024	14/03/2024		14/03/2024	14/03/2024
Arsenic	mg/kg	4	Metals-020	[NT]	13	19	21	10	106	88
Cadmium	mg/kg	0.4	Metals-020	[NT]	13	<0.4	<0.4	0	106	87
Chromium	mg/kg	1	Metals-020	[NT]	13	27	24	12	104	119
Copper	mg/kg	1	Metals-020	[NT]	13	26	25	4	97	101
Lead	mg/kg	1	Metals-020	[NT]	13	20	31	43	106	93
Mercury	mg/kg	0.1	Metals-021	[NT]	13	<0.1	<0.1	0	101	123
Molybdenum	mg/kg	1	Metals-020	[NT]	13	2	1	67	105	#
Nickel	mg/kg	1	Metals-020	[NT]	13	6	7	15	102	90
Selenium	mg/kg	2	Metals-020	[NT]	13	<2	<2	0	101	##
Silver	mg/kg	1	Metals-020	[NT]	13	<1	<1	0	93	114
Tin	mg/kg	2	Metals-020	[NT]	13	<2	<2	0	104	85
Zinc	mg/kg	1	Metals-020	[NT]	13	11	12	9	106	86

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	345945-34
Date prepared	-			[NT]	24	12/03/2024	12/03/2024		12/03/2024	12/03/2024
Date analysed	-			[NT]	24	14/03/2024	14/03/2024		14/03/2024	14/03/2024
Arsenic	mg/kg	4	Metals-020	[NT]	24	8	7	13	112	89
Cadmium	mg/kg	0.4	Metals-020	[NT]	24	<0.4	<0.4	0	113	90
Chromium	mg/kg	1	Metals-020	[NT]	24	13	19	38	111	126
Copper	mg/kg	1	Metals-020	[NT]	24	35	46	27	103	110
Lead	mg/kg	1	Metals-020	[NT]	24	19	16	17	115	93
Mercury	mg/kg	0.1	Metals-021	[NT]	24	<0.1	<0.1	0	97	102
Molybdenum	mg/kg	1	Metals-020	[NT]	24	<1	<1	0	112	#
Nickel	mg/kg	1	Metals-020	[NT]	24	<1	<1	0	109	91
Selenium	mg/kg	2	Metals-020	[NT]	24	<2	<2	0	107	70
Silver	mg/kg	1	Metals-020	[NT]	24	<1	<1	0	106	111
Tin	mg/kg	2	Metals-020	[NT]	24	<2	<2	0	111	88
Zinc	mg/kg	1	Metals-020	[NT]	24	<1	2	67	114	89

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	39	12/03/2024	12/03/2024		[NT]	[NT]
Date analysed	-			[NT]	39	14/03/2024	14/03/2024		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	39	19	20	5	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	39	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	39	49	51	4	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	39	19	16	17	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	39	20	19	5	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Molybdenum	mg/kg	1	Metals-020	[NT]	39	2	2	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	39	2	2	0	[NT]	[NT]
Selenium	mg/kg	2	Metals-020	[NT]	39	<4	<4	0	[NT]	[NT]
Silver	mg/kg	1	Metals-020	[NT]	39	<1	<1	0	[NT]	[NT]
Tin	mg/kg	2	Metals-020	[NT]	39	2	<2	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	39	2	1	67	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	48	12/03/2024	12/03/2024		[NT]	[NT]
Date analysed	-			[NT]	48	14/03/2024	14/03/2024		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	48	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	48	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	48	5	9	57	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	48	6	9	40	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	48	4	7	55	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	48	<0.1	<0.1	0	[NT]	[NT]
Molybdenum	mg/kg	1	Metals-020	[NT]	48	<1	<1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	48	1	2	67	[NT]	[NT]
Selenium	mg/kg	2	Metals-020	[NT]	48	<2	<2	0	[NT]	[NT]
Silver	mg/kg	1	Metals-020	[NT]	48	<1	<1	0	[NT]	[NT]
Tin	mg/kg	2	Metals-020	[NT]	48	<2	<2	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	48	2	4	67	[NT]	[NT]

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	[NT]
Date prepared	-			12/03/2024	7	12/03/2024	12/03/2024		12/03/2024	[NT]
Date analysed	-			12/03/2024	7	12/03/2024	12/03/2024		12/03/2024	[NT]
Hexavalent Chromium, Cr^{6+}	mg/kg	1	Inorg-118	<1	7	<1	<1	0	97	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	345945-7
Date prepared	-			08/03/2024	1	15/03/2024	08/03/2024		08/03/2024	08/03/2024
Date analysed	-			15/03/2024	1	15/03/2024	15/03/2024		15/03/2024	15/03/2024
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	1	5.0	[NT]		100	[NT]
Total Fluoride	mg/kg	50	Inorg-026/53	<50	1	300	240	22	85	66

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	345945-7
Date prepared	-			11/03/2024	1	11/03/2024	11/03/2024		11/03/2024	11/03/2024
Date analysed	-			12/03/2024	1	12/03/2024	12/03/2024		12/03/2024	12/03/2024
Total Cyanide	mg/kg	0.5	Inorg-014	<0.5	1	<0.5	<0.5	0	90	91

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

Acid Extractable Metals in Soil:
- The laboratory RPD acceptance criteria has been exceeded for 345945-7 for Cr. Therefore a triplicate result has been issued as laboratory sample number 345945-51.
- The laboratory RPD acceptance criteria has been exceeded for 345945-13 for Pb. Therefore a triplicate result has been issued as laboratory sample number 345945-52.
- The laboratory RPD acceptance criteria has been exceeded for 345945-48 for Cr and Cu. Therefore a triplicate result has been issued as laboratory sample number 345945-54.
- The PQL has been raised for Se due to interferences from analytes (other than those being tested) in samples.
- # Percent recovery is not possible to report due to the inhomogeneous nature of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.
- ## Low spike recovery was obtained for this sample. Sample matrix interference is suspected. However, an acceptable recovery was obtained for the LCS.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 345945-A

Client Details

Client	Trakondy Asbestos & Hazardous Materials Pty Ltd
Attention	Mark Kondakov
Address	120 James Circuit, WOODROFFE, NT, 0830

Sample Details

Your Reference	**P724-Part 2-Waste Classification Zuccoli**
Number of Samples	50 Soil
Date samples received	08/03/2024
Date completed instructions received	26/03/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	28/03/2024
Date of Issue	28/03/2024

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Results Approved By
Priya Samarawickrama, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

Misc Inorg - Soil						
Our Reference		345945-A-5	345945-A-11	345945-A-18	345945-A-28	345945-A-38
Your Reference	UNITS	S54	S60	S67	S77	S87
Depth		1.0m	0.3m	1.0m	0.3m	0.8m
Date Sampled		5/03/2024	5/03/2024	5/03/2024	5/03/2024	6/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	27/03/2024	27/03/2024	27/03/2024	27/03/2024	27/03/2024
Date analysed	-	28/03/2024	28/03/2024	28/03/2024	28/03/2024	28/03/2024
Total Fluoride	mg/kg	440	390	730	390	590

Misc Inorg - Soil		
Our Reference		345945-A-44
Your Reference	UNITS	S93
Depth		0.8m
Date Sampled		6/03/2024
Type of sample		Soil
Date prepared	-	27/03/2024
Date analysed	-	28/03/2024
Total Fluoride	mg/kg	650

Method ID	Methodology Summary
Inorg-026/53	Fluoride by caustic fusion and determined by ion selective electrode (ISE) analysis.

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			27/03/2024	5	27/03/2024	27/03/2024		27/03/2024	[NT]
Date analysed	-			28/03/2024	5	28/03/2024	28/03/2024		28/03/2024	[NT]
Total Fluoride	mg/kg	50	Inorg-026/53	<50	5	440	360	20	89	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Appendix C: Chain of Custody

CHAIN OF CUSTODY FORM - Client

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ENVIROLAB GROUP
National phone number 1300 424 344

Sydney Lab - Envirolab Services
12 Ashley St, Chatswood, NSW 2067
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Perth Lab - MPL Laboratories
16-18 Hayden Crt, Myaree, WA 6154
T 08 9317 2505 | E lab@mpl.com.au

Melbourne Lab - Envirolab Services
25 Research Drive, Croydon South, VIC 3136
T 03 9763 2500 | E melbourne@envirolab.com.au

Adelaide Office - Envirolab Services
7a The Parade, Norwood, SA 5067
T 08 7087 6800 | E adelaide@envirolab.com.au

Brisbane Office - Envirolab Services
20a, 10-20 Depot St, Banyo, QLD 4014
T 07 3266 9532 | E brisbane@envirolab.com.au

Darwin Office - Envirolab Services
Unit 20/119 Reichardt Road, Winnellie, NT 0820
T 08 8987 1201 | E darwin@envirolab.com.au

Company:	Trakondy Asbestos And Hazardous Materials Pty Ltd	Client Project Name/Number/Site etc (ie report title):	P724 - Waste Classification Zuccoli
Contact Person:	Mark Kondakov		
Project Mgr:	Mark Kondakov	PO No. (if applicable):	P724
Sampler:	Mark Kondakov	Envirolab Quote No. :	
Address:	120 James Circuit, Woodroffe NT 0830	Data results required: Or choose:	Standard / Same Day / 1 day / 2 day / 3 day
Phone:	Mob: 0400 260 483	Note: Inform lab in advance if urgent turnaround is required - surcharges apply	
Email Results to:	mark.kondakov@outlook.com	Additional report format:	Esdat / Equis
Email Invoice to:	mark.kondakov@outlook.com	Lab Comments:	

Envirolab Sample ID (Lab use only)	Client Sample ID or Information	Depth	Date Sampled	Type of Sample	8 Metals	SS220 Vic EPA 1828.2 - Fill	Comments
1	S1	5.0m	04/03/2024	Soil	X		
2 3	S2	2.0m	04/03/2024	Soil	X		
	S2	5.0m	04/03/2024	Soil	X		
4	S4	2.0m	04/03/2024	Soil	X		
5	S5	5.0m	04/03/2024	Soil	X		
6	S6	2.0m	04/03/2024	Soil	X		
7	S7	2.0m	04/03/2024	Soil	X		
8	S8	5.0m	04/03/2024	Soil		X	
9	S9	2.0m	04/03/2024	Soil	X		
10	S10	5.0m	04/03/2024	Soil	X		
11	S11	2.0m	04/03/2024	Soil	X		
12 13	S12	5.0m	04/03/2024	Soil	X		
	S13	2.0m	04/03/2024	Soil	X		
14	S14	3.0m	04/03/2024	Soil	X		
15	S15	6.0m	04/03/2024	Soil	X		
16 17	S16	2.0m	04/03/2024	Soil	X		
	S17	6.0m	04/03/2024	Soil	X		
18	S18	3.0m	04/03/2024	Soil		X	
19 20	S19	6.0m	04/03/2024	Soil	X		
	S20	3.0m	04/03/2024	Soil	X		
21	S21	6.0m	04/03/2024	Soil	X		
22	S22	3.0m	04/03/2024	Soil	X		
23	S23	5.0m	04/03/2024	Soil	X		
24 25	S24	5.0m	04/03/2024	Soil	X		
	S25	2.0m	04/03/2024	Soil	X		
26 27	S26	5.0m	04/03/2024	Soil	X		
	S27	2.0m	04/03/2024	Soil	X		
28 29	S28	6.0m	04/03/2024	Soil	X		
	S29	3.0m	04/03/2024	Soil	X		
30 31	S30	6.0m	04/03/2024	Soil	X		
	S31	3.0m	04/03/2024	Soil	X		
32 33	S32	4.0m	04/03/2024	Soil	X		
	S33	2.0m	04/03/2024	Soil	X		
34 35	S34	5.0m	04/03/2024	Soil		X	
	S35	2.0m	04/03/2024	Soil	X		
36 37	S36	4.0m	04/03/2024	Soil	X		
	S37	2.0m	04/03/2024	Soil	X		
38 39	S38	4.0m	04/03/2024	Soil	X		
	S39	4.0m	04/03/2024	Soil	X		
40 41	S40	4.0m	04/03/2024	Soil	X		
	S41	4.0m	04/03/2024	Soil	X		
42 43	S42	4.0m	04/03/2024	Soil		X	
	S43	4.0m	04/03/2024	Soil	X		
44 45	S44	4.0m	04/03/2024	Soil	X		
	S45	4.0m	04/03/2024	Soil	X		
46 47	S46	3.0m	04/03/2024	Soil	X		
	S47	3.0m	04/03/2024	Soil	X		
48 49	S48	3.0m	04/03/2024	Soil	X		
	S49 - Pond		04/03/2024	Soil	X		
50 51	QC100		04/03/2024	Soil	X		
	QC101		04/03/2024	Soil	X		
1	QC200		04/03/2024	Soil	X		Secondary Lab
2	QC201		04/03/2024	Soil	X		Secondary Lab

Envirolab Services
25 Research Drive
Croydon South VIC 3136
Ph: (03) 9763 2500

Job No: 424106
Date Received: 5/3/24
Time Received: 12:30pm 18.7°C
Received By: AG
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Please tick the box if observed settled sediment present in water samples is to be included in the extraction and/or analysis

Relinquished by	Client	Interstate Office	Laboratory	Lab Use Only
Print Name:	Mark Kondakov	Darwin - Gwenda Hayes	OLIVIA WILLIAMS	Job number: 345571
Date & Time:	04/03/2024		5/3/24 0000	Temp Office: Temp Lab: 10°C
Signature:			OW	TAT: SAME day / 1 / 2 / 3 / 4 / STD
				Office Cooling: Ice / Icepack / None
				Lab Cooling: Ice / Ice pack / None 10°C
				Security seal: Intact / Broken / None

Relinquished by: ELSSAN
Jenna Nguyen
5/3/24, 1325

Anna Bui

From: Stuart Chen
Sent: Tuesday, 26 March 2024 5:30 PM
To: Mark Kondakov; Gwenda Hayes; Customer Service
Subject: RE: Results for Registration 345571 P724-Waste Classification Zuccoli

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Mark,

EW REF: 345571-A

Doing great thanks ☺

TAT: 2 DAY

No problems, we will arrange this and 345945 for you.

DUE: 28/3/24

@Customer Service A-job please

AB-

Kind Regards,

Stuart Chen | Reporting Coordinator | Envirolab Services

Great Science. Great Service.

12 Ashley Street Chatswood NSW 2067
T 612 9910 6200
E SChen2@envirolab.com.au | **W** www.envirolab.com.au

Follow us on: LinkedIn | Facebook | Twitter

Samples will be analysed per our T&C's.

From: Mark Kondakov <mark.kondakov@outlook.com>
Sent: Tuesday, March 26, 2024 4:36 PM
To: Stuart Chen <SChen2@envirolab.com.au>; Gwenda Hayes <GHayes@envirolab.com.au>
Subject: RE: Results for Registration 345571 P724-Waste Classification Zuccoli

CAUTION: This email originated from outside of the organisation. Do not act on instructions, click links or open attachments unless you recognise the sender and know the content is authentic and safe.

G'day Stuart,

Hoping you are well?

Is there any chance I could get some fluoride tests ran on the following samples with a TAT to have results back by COB this Thursday please:

1
9
15
25
37
45

Please do not hesitate to contact me if you wish to discuss further.

Regards and thanks

Mark Kondakov
Managing Director
Principal Hazardous Materials Consultant
Licensed Asbestos Assessor No NTWS-AA-456703
Trakondy Asbestos and Hazardous Materials Pty Ltd
M: 0400 260 483

TRAKONDY
Asbestos and Hazardous Materials Pty Ltd

TERRITORY PROUD
Australia's Northern Territory

From: Stuart Chen <SChen2@envirolab.com.au>
Sent: Tuesday, 12 March 2024 5:04 PM
To: Gwenda Hayes <GHayes@envirolab.com.au>; mark.kondakov@outlook.com
Subject: Results for Registration 345571 P724-Waste Classification Zuccoli

Please refer to attached for:
a copy of the Certificate of Analysis
a copy of the COC/paperwork received from you
an Excel or .csv file containing the results
a copy of the Invoice

Please note that a hard copy will not be posted.

Enquiries should be made directly to:
customerservice@envirolab.com.au

How did we do? Send Feedback

Kind Regards,

Stuart Chen | Reporting Coordinator | Envirolab Services

Great Science. Great Service.

12 Ashley Street Chatswood NSW 2067
T 612 9910 6200
E SChen2@envirolab.com.au | W www.envirolab.com.au

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Contaminated Land • Trade Waste • OHS • Drinking Water • Air Quality • Asbestos
Methamphetamines & Other Drug Residue • Acid Sulphate S
Emerging Contaminants • Forer

JAS-ANZ

ISO 14001:2015 ISO 45001:2018

ISO 17

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Latest Update: **Melbourne lab is now NATA accredited for Asbestos.**

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16-18 Hayden Crt, Myaree, WA 6154
T 08 9317 2505 | E lab@mpl.com.au

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25 Research Drive, Croydon South, VIC 3136
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20a, 10-20 Depot St, Banyo, QLD 4014
T 07 3266 9532 | E brisbane@envirolab.com.au

Darwin Office - Envirolab Services
Unit 20/119 Reichardt Road, Winnellie, NT 0820
T 08 8987 1201 | E darwin@envirolab.com.au

Company:	Trakondy Asbestos And Hazardous Materials Pty Ltd			Client Project Name/Number/Site etc (to report title):	P724 - Waste Classification Zuccoli
Contact Person:	Mark Kondakov				
Project Mgr:	Mark Kondakov			PO No. (if applicable):	P724
Sampler:	Mark Kondakov			Envirolab Quote No.:	
Address:	120 James Circuit, Woodroffe NT 0830			Date results required: Or choose: Standard / Same Day / 1 day / 2 day / 3 day	
Phone:		Mob:	0400 260 483	Note: Inform lab in advance if urgent turnaround is required - surcharges apply	
Email Results to:	mark.kondakov@outlook.com			Additional report format: Esdat / Equis	
Email Invoice to:	mark.kondakov@outlook.com			Lab Comments:	

Sample Information					Tests Required																		Comments
Envirolab Sample ID (Lab use only)	Client Sample ID or Information	Depth	Date Sampled	Type of Sample	CS001_M Combo 1 8 Metals	SS226 Vic EPA 1828.2 - Fill																	Provide as much information about the sample as you can
1	S1	5.0m	04/03/2024	Soil	X																		
2	S2	2.0m	04/03/2024	Soil	X																		
3	S3	5.0m	04/03/2024	Soil	X																		
4	S4	2.0m	04/03/2024	Soil	X																		
5	S5	5.0m	04/03/2024	Soil	X																		
6	S6	2.0m	04/03/2024	Soil	X																		
7	S7	2.0m	04/03/2024	Soil	X																		
8	S8	5.0m	04/03/2024	Soil		X																	
9	S9	2.0m	04/03/2024	Soil	X																		
10	S10	5.0m	04/03/2024	Soil	X																		
11	S11	2.0m	04/03/2024	Soil	X																		
12	S12	5.0m	04/03/2024	Soil	X																		
13	S13	2.0m	04/03/2024	Soil	X																		
14	S14	3.0m	04/03/2024	Soil	X																		
15	S15	6.0m	04/03/2024	Soil	X																		
16	S16	2.0m	04/03/2024	Soil	X																		
17	S17	6.0m	04/03/2024	Soil	X																		
18	S18	3.0m	04/03/2024	Soil		X																	
19	S19	6.0m	04/03/2024	Soil	X																		
20	S20	3.0m	04/03/2024	Soil	X																		
21	S21	6.0m	04/03/2024	Soil	X																		
22	S22	3.0m	04/03/2024	Soil	X																		
23	S23	5.0m	04/03/2024	Soil	X																		
24	S24	5.0m	04/03/2024	Soil	X																		
25	S25	2.0m	04/03/2024	Soil	X																		
26	S26	5.0m	04/03/2024	Soil	X																		
27	S27	2.0m	04/03/2024	Soil	X																		
28	S28	6.0m	04/03/2024	Soil	X																		
29	S29	3.0m	04/03/2024	Soil	X																		
30	S30	6.0m	04/03/2024	Soil	X																		
31	S31	3.0m	04/03/2024	Soil	X																		
32	S32	4.0m	04/03/2024	Soil	X																		
33	S33	2.0m	04/03/2024	Soil	X																		
34	S34	5.0m	04/03/2024	Soil		X																	
35	S35	2.0m	04/03/2024	Soil	X																		
36	S36	4.0m	04/03/2024	Soil	X																		
37	S37	2.0m	04/03/2024	Soil	X																		
38	S38	4.0m	04/03/2024	Soil	X																		
39	S39	4.0m	04/03/2024	Soil	X																		
40	S40	4.0m	04/03/2024	Soil	X																		
41	S41	4.0m	04/03/2024	Soil	X																		
42	S42	4.0m	04/03/2024	Soil		X																	
43	S43	4.0m	04/03/2024	Soil	X																		
44	S44	4.0m	04/03/2024	Soil	X																		
45	S45	4.0m	04/03/2024	Soil	X																		
46	S46	3.0m	04/03/2024	Soil	X																		
47	S47	3.0m	04/03/2024	Soil	X																		
48	S48	3.0m	04/03/2024	Soil	X																		
49	S49 - Pond		04/03/2024	Soil	X																		
50	QC100		04/03/2024	Soil	X																		
51	QC101		04/03/2024	Soil	X																		
	QC200		04/03/2024	Soil	X																		Secondary Lab
	QC201		04/03/2024	Soil	X																		Secondary Lab

☐ *Please tick the box if observed settled sediment present in water samples is to be included in the extraction and/or analysis*

Relinquished by	Client	Interstate Office	Laboratory	Lab Use Only	
Print Name:	Mark Kondakov	Darwin - Gwenda Hayes	OLIVIA WILLIAMS	Job number: 345571	Office Cooling: Ice / Icepack / None
Date & Time:	04/03/2024		5/3/24 0900	Temp Office: Temp Lab: 10°C	Lab Cooling: Ice / Ice pack / None 10°C
Signature:			OW	TAT: SAME day / 1 / 2 / 3 / 4 / STD	Security seal: Intact / Broken / None

CoC:

CHAIN OF CUSTODY FORM - Client

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National phone number 1300 424 344

Sydney Lab - Envirolab Services
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✆ 02 9910 6200 | ✉ sydney@envirolab.com.au

Perth Lab - MPL Laboratories
16-18 Hayden Crt, Myaree, WA 6154
✆ 08 9317 2505 | ✉ lab@mpl.com.au

Melbourne Lab - Envirolab Services
25 Research Drive, Croydon South, VIC 3136
✆ 03 9763 2500 | ✉ melbourne@envirolab.com.au

Adelaide Office - Envirolab Services
7a The Parade, Norwood, SA 5067
✆ 08 7087 6800 | ✉ adelaide@envirolab.com.au

Brisbane Office - Envirolab Services
20a, 10-20 Depot St, Banyo, QLD 4014
✆ 07 3266 9632 | ✉ brisbane@envirolab.com.au

Darwin Office - Envirolab Services

Company: Trakenley
Contact Person:
Project Mgr:
Sampler:
Address:
Phone: Mob:
Email Results to:
Email Invoice to:

Client Project Name/Number/Site etc (ie report title): P724
PO No. (if applicable):
Envirolab Quote No.:
Date results required:
Or choose: ☐ Standard ☐ Same Day ☐ 1 day ☐ 2 day ☐ 3 day
Note: Inform lab in advance if urgent turnaround is required - surcharges apply
Additional report format: ☐ Esdat ☐ Equis
Lab Comments: Draft COC.

Sample Information					Volume Data							Tests Required							Comments
Envirolab Sample ID *(Lab use only)*	Client Sample ID or Information	Filter ID	Type of Sample	Date Sampled	Time On	Time Off	Total Time (mins)	Flow Rate On (L/min)	Flow Rate Off (L/min)	Av. Flow rate (L/min)	Total Air Volume (L)								Provide as much information about the sample as you can
	49 Soils 4 QC		4/3/24																

Relinquished by (Company):	Received by (Company): Envirolab Darwin	Lab Use Only	
Print Name:	Print Name: Gwenda Hoy.	Job number:	Cooling: Ice / Ice pack / None
Date & Time:	Date & Time: 4/3/24	Temperature: 31°C	Security seal: Intact / Broken / None
Signature:	Signature:	TAT Req - SAME day / 1 / 2 / 3 / 4 / STD	

T120

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National phone number 1300 424 344

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① 02 9910 6200 | ✉ sydney@envirolab.com.au

Perth Lab - MPL Laboratories
16-18 Hayden Crt, Myaree, WA 6154
① 08 9317 2505 | ✉ lab@mpl.com.au

Melbourne Lab - Envirolab Services
25 Research Drive, Croydon South, VIC 3136
① 03 9763 2500 | ✉ melbourne@envirolab.com.au

Adelaide Office - Envirolab Services
7a The Parade, Norwood, SA 5067
① 08 7087 6800 | ✉ adelaide@envirolab.com.au

Brisbane Office - Envirolab Services
20a, 10-20 Depot St, Banyo, QLD 4014
① 07 3266 9532 | ✉ brisbane@envirolab.com.au

Darwin Office - Envirolab Services

Company: Trakenly	Client Project Name/Number/Site etc (ie report title): P724
Contact Person:	PO No. (if applicable):
Project Mgr:	Envirolab Quote No. :
Sampler:	Date results required:
Address:	Or choose: ☐ Standard ☐ Same Day ☐ 1 day ☐ 2 day ☐ 3 day
Phone: Mob:	*Note: Inform lab in advance if urgent turnaround is required - surcharges apply*
Email Results to:	Additional report format: ☐ Esdat ☐ Equis
Email Invoice to:	Lab Comments: Draft COC.

Sample information					Volume Data							Tests Required							Comments
Envirolab Sample ID *(Lab use only)*	Client Sample ID or Information	Filter ID	Type of Sample	Date Sampled	Time On	Time Off	Total Time (mins)	Flow Rate On (L/min)	Flow Rate Off (L/min)	Av. Flow rete (L/min)	Total Air Volume (L)								Provide as much information about the sample as you can
	49 Soils 4 QC.		4/3/24																

Relinquished by (Company):	Received by (Company): Envirolab Darwin	*Lab Use Only*	
Print Name:	Print Name: Gwenda Hoy.	Job number:	Cooling: Ice / Ice pack / None
Date & Time:	Date & Time: 4/3/24	Temperature: 31°C	Security seal: Intact / Broken / None
Signature:	Signature: GHoy.	TAT Req - SAME day / 1 / 2 / 3 / 4 / STD	

T120

FW: Results for Registration 345945 P724-Part 2-Waste Classification Zuccoli

Stuart Chen <SChen2@envirolab.com.au>
Tue 3/26/2024 5:30 PM
To:Customer Service <CustomerService@envirolab.com.au>
A-Job please.

From: Mark Kondakov <mark.kondakov@outlook.com>
Sent: Tuesday, March 26, 2024 4:24 PM
To: Stuart Chen <SChen2@envirolab.com.au>; Gwenda Hayes <GHayes@envirolab.com.au>
Subject: RE: Results for Registration 345945 P724-Part 2-Waste Classification Zuccoli

CAUTION: This email originated from outside of the organisation. Do not act on instructions, click links or open attachments unless you recognise the sender and know the content is authentic and safe.

G'day Stuart,

Hoping you are well?

Is there any chance I could get some fluoride tests ran on the following samples with a TAT to have results back by COB this Thursday please:

54
60
67
77
87
93

345945-A
2 day TAT due 28/03/24

Please do not hesitate to contact me if you wish to discuss further.

Regards and thanks

Mark Kondakov
Managing Director
Principal Hazardous Materials Consultant
Licensed Asbestos Assessor No NTWS-AA-4S6703
Trakondy Asbestos and Hazardous Materials Pty Ltd
M: 0400 260 483

TRAKONDY Asbestos and Hazardous Materials Pty Ltd

TERRITORY PROUD

From: Stuart Chen <SChen2@envirolab.com.au>
Sent: Friday, 15 March 2024 3:15 PM
To: Gwenda Hayes <GHayes@envirolab.com.au>; mark.kondakov@outlook.com
Subject: Results for Registration 345945 P724-Part 2-Waste Classification Zuccoli

Please refer to attached for:
a copy of the Certificate of Analysis
a copy of the COC/paperwork received from you
an Excel or .csv file containing the results
a copy of the Invoice

Please note that a hard copy will not be posted.

Enquiries should be made directly to:
customerservice@envirolab.com.au

How did we do? Send Feedback

Kind Regards,

Stuart Chen | Reporting Coordinator | Envirolab Services

Great Science. Great Service.

12 Ashley Street Chatswood NSW 2067
T 612 9910 6200
E SChen2@envirolab.com.au | W www.envirolab.com.au

CHAIN OF CUSTODY FORM - Client

[Copyright and Confidential]

ENVIROLAB GROUP
National phone number 1300 424 344

Sydney Lab - Envirolab Services
12 Ashley St, Chatswood, NSW 2067
✆ 02 9910 6200 | ✉ sydney@envirolab.com.au

Perth Lab - MPL Laboratories
15-18 Hayden Crt, Myaree, WA 6154
✆ 08 9317 2505 | ✉ lab@mpl.com.au

Melbourne Lab - Envirolab Services
25 Research Drive, Croydon South, VIC 3136
✆ 03 9763 2500 | ✉ melbourne@envirolab.com.au

Adelaide Office - Envirolab Services
7a The Parade, Norwood, SA 5067
✆ 08 7087 6800 | ✉ adelaide@envirolab.com.au

Brisbane Office - Envirolab Services
20a, 10-20 Depot St, Banyo, QLD 4014
✆ 07 3266 9532 | ✉ brisbane@envirolab.com.au

Darwin Office - Envirolab Services
Unit 20/119 Reichardt Road, Winnellie, NT 0820
✆ 08 8967 1201 | ✉ darwin@envirolab.com.au

Company:	Trakondy Asbestos And Hazardous Materials Pty Ltd	Client Project Name/Number/Site etc (ie report title):	P724 - Part 2 - Waste Classification Zuccoli
Contact Person:	Mark Kondakov		
Project Mgr:	Mark Kondakov	PO No. (if applicable):	P724
Sampler:	Mark Kondakov	Envirolab Quote No. :	
Address:	120 James Circuit, Woodroffe NT 0830	Date results required:	
		Or choose:	☑ Standard ☐ Same Day ☐ 1 day ☐ 2 day ☐ 3 day
Phone:	Mob: 0400 260 483	*Note: Inform lab in advance if urgent turnaround is required - surcharges apply*	
Email Results to:	mark.kondakov@outlook.com	Additional report format:	☐ Esdat ☐ Equis
Email Invoice to:	mark.kondakov@outlook.com	Lab Comments:	

Sample Information					Tests Required																Comments
Envirolab Sample ID (Lab use only)	Client Sample ID or Information	Depth	Date Sampled	Type of Sample	CS001_M Combo 1 8 Metals	SS220 Vic EPA 1828.2 - Fill															Provide as much information about the sample as you can
1	S50	1.0m	5/03/2024	Soil		X															
2	S51	1.0m	5/03/2024	Soil	X																
3	S52	1.0m	5/03/2024	Soil	X																
4	S53	1.0m	5/03/2024	Soil	X																
5	S54	1.0m	5/03/2024	Soil	X																
6	S55	1.0m	5/03/2024	Soil	X																
7	S56	~~0.8m~~ 1.0m	5/03/2024	Soil		X															
8	S57	1.1m	5/03/2024	Soil	X																
9	S58	1.0m	5/03/2024	Soil	X																
10	S59	1.0m	5/03/2024	Soil	X																
11	S60	0.3m	5/03/2024	Soil	X																
12	S61	1.0m	5/03/2024	Soil	X																
13	S62	0.3m	5/03/2024	Soil		X															
14	S63	1.0m	5/03/2024	Soil	X																
15	S64	0.3m	5/03/2024	Soil	X																
16	S65	1.0m	5/03/2024	Soil	X																

ENVIROLAB GROUP
Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 343945
Date Received: 8/3/24
Time Received: 0930
Received By: C
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

17	S66	0.3m	5/03/2024	Soil	X																		
18	S67	1.0m	5/03/2024	Soil	X																		
19	S68	0.3m	5/03/2024	Soil	X																		
20	S69	1.0m	5/03/2024	Soil	X																		
21	S70	0.3m	5/03/2024	Soil	X																		
22	S71	1.0m	5/03/2024	Soil	X																		
23	S72	0.3m	5/03/2024	Soil	X																		
24	S73	1.0m	5/03/2024	Soil	X																		
25	S74	0.3m	5/03/2024	Soil	X																		
26	S75	1.0m	5/03/2024	Soil	X																		
27	S76	3.0m	5/03/2024	Soil	X																		
28	S77	0.3m	5/03/2024	Soil	X																		
29	S78	1.0m	5/03/2024	Soil	X																		
30	S79	2.5m	5/03/2024	Soil	X																		
31	S80	0.3m	5/03/2024	Soil	X																		
32	S81	1.0m	5/03/2024	Soil	X																		
33	S82	2.6m	5/03/2024	Soil	X																		
34	S83	0.3m	5/03/2024	Soil		X																	
35	S84	1.0m	5/03/2024	Soil	X																		
36	S85	3.0m	5/03/2024	Soil	X																		
37	S86	0.3m	6/03/2024	Soil	X																		
38	S87	0.8m	6/03/2024	Soil	X																		
39	S88	0.3m	6/03/2024	Soil	X																		
40	S89	0.8m	6/03/2024	Soil	X																		
41	S90	0.3m	6/03/2024	Soil	X																		
42	S91	0.8m	6/03/2024	Soil	X																		
43	S92	0.3m	6/03/2024	Soil	X																		
44	S93	0.8m	6/03/2024	Soil	X																		
45	S94	0.3m	6/03/2024	Soil	X																		
46	S95	0.8m	6/03/2024	Soil	X																		
47	S96	0.3m	6/03/2024	Soil	X																		
48	S97	0.8m	6/03/2024	Soil	X																		
49	QC102		5/03/2024	Soil	X																		
50	QC103		5/03/2024	Soil	X																		
50	QC202		5/03/2024	Soil	X																		Secondary Lab
50	QC203		5/03/2024	Soil	X																		Secondary Lab

ENVIROLAB

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 345495

Date Received: 8/3/24
Time Received: 0930
Received By: CL
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

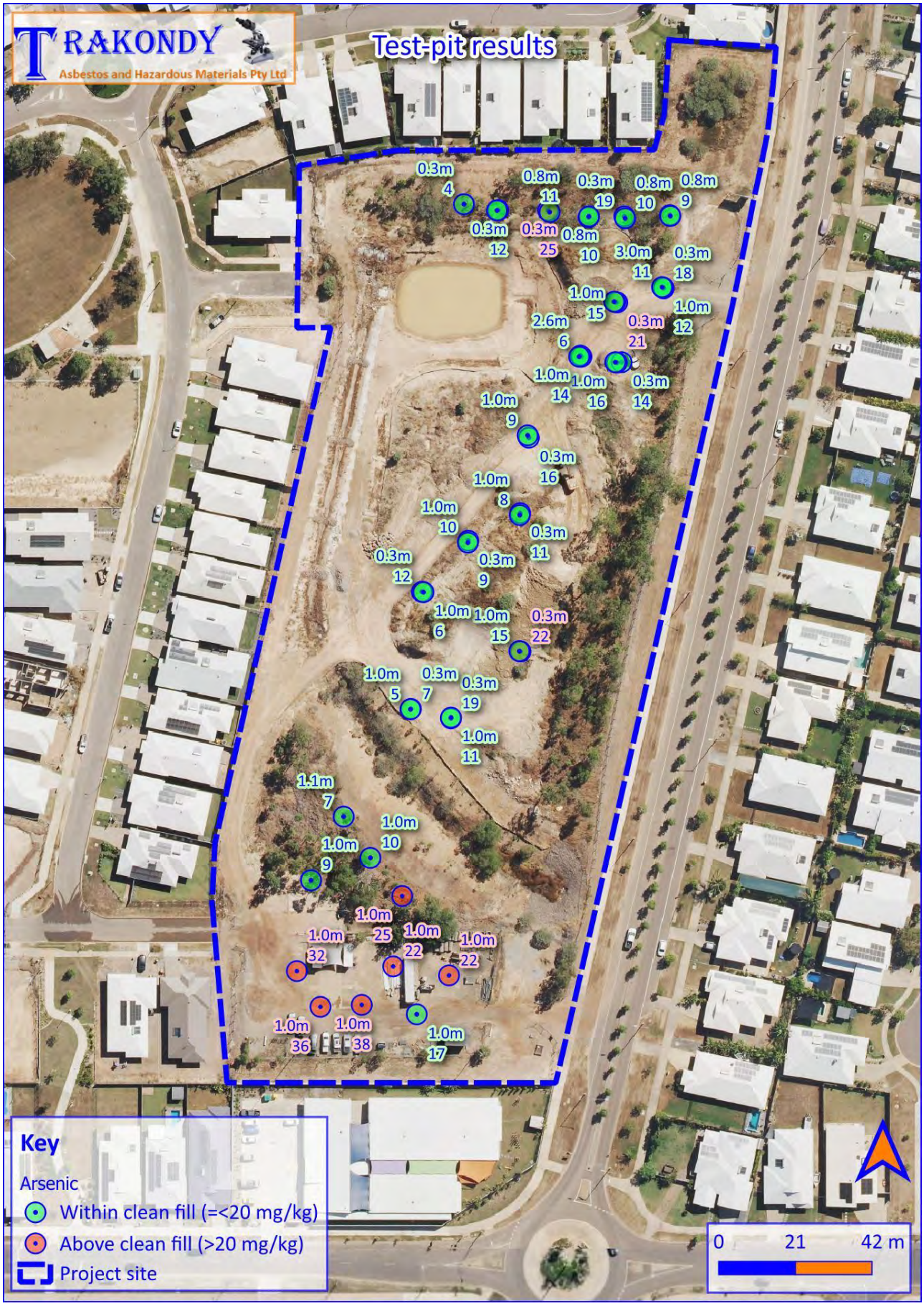
☐ *Please tick the box if observed settled sediment present in water samples is to be included in the extraction and/or analysis*

Relinquished by	Client	Interstate Office	Laboratory	*Lab Use Only*	
Print Name:	Mark Kondakov	Darwin - Gwenda Hayes	CH KTS C	Job number: 345945	Office Cooling: Ice / Ice pack / None
Date & Time:	6/03/2024 0:00	6/3/24 KMG 1245	8/3/24 0930 T120.	Temp Office: 11°C Temp Lab: 15°	Lab Cooling: Ice / Ice pack / None
Signature:				TAT: SAME day / 1 / 2 / 3 / 4 / STD	Security seal: Intact / Broken / None

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

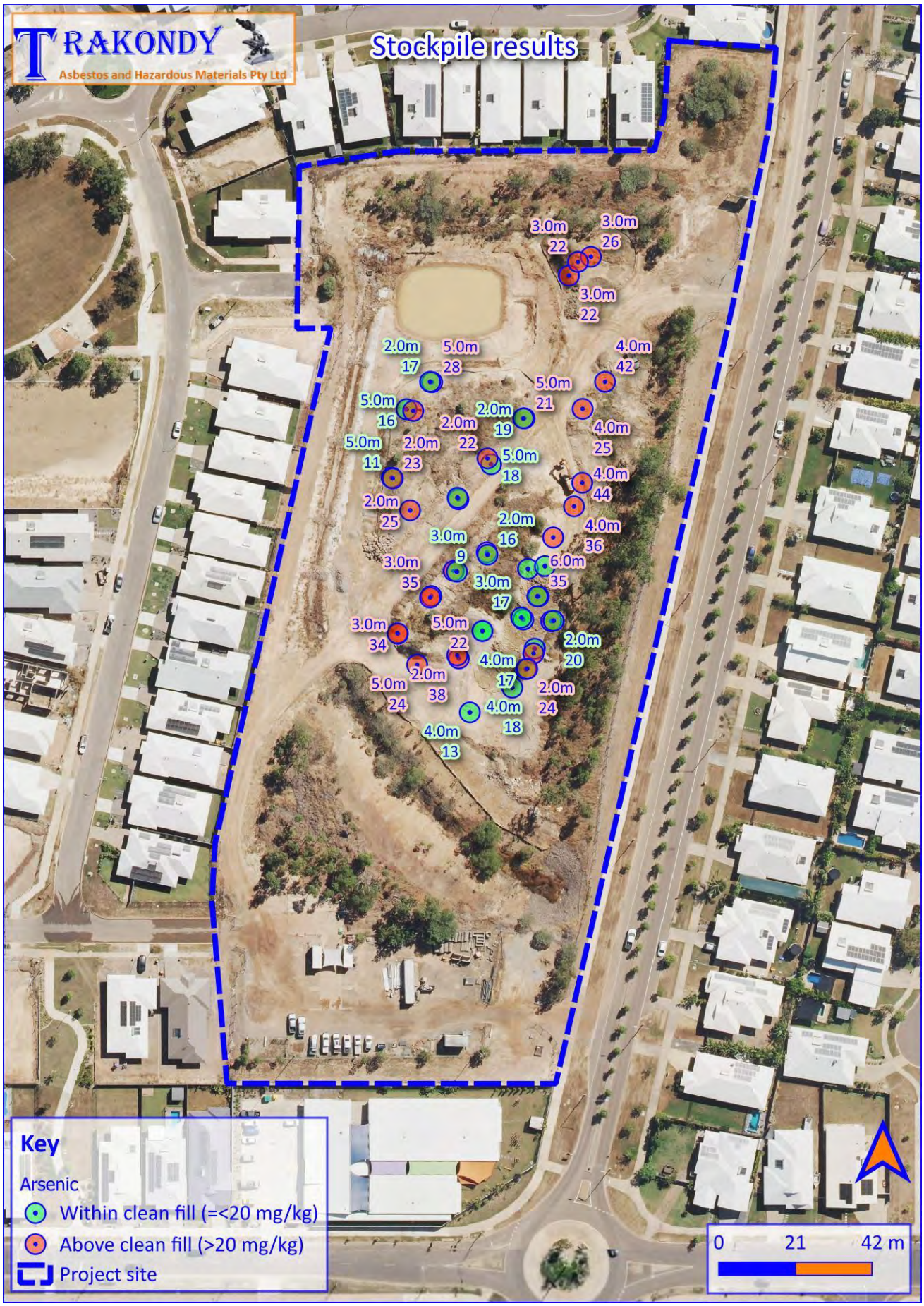
Job No: 345945
Date Received: 8/3/24
Time Received: 0930
Received By: CE
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Appendix D: Test Pit Sampling Locations - Arsenic



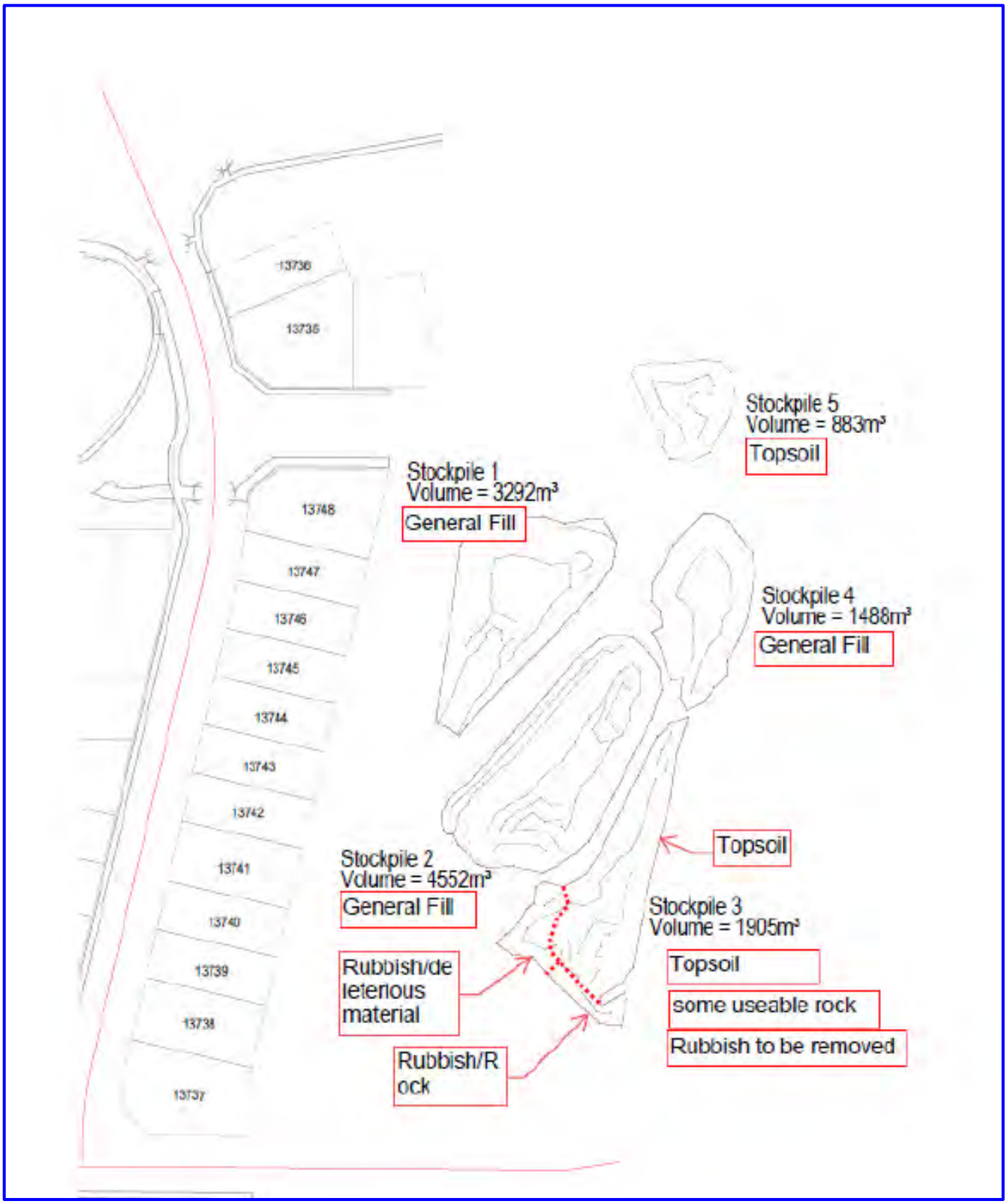
Appendix D: Test Pit Sampling Locations – Fluoride (Cont.)

Appendix E: Stockpile Sampling Locations – Arsenic

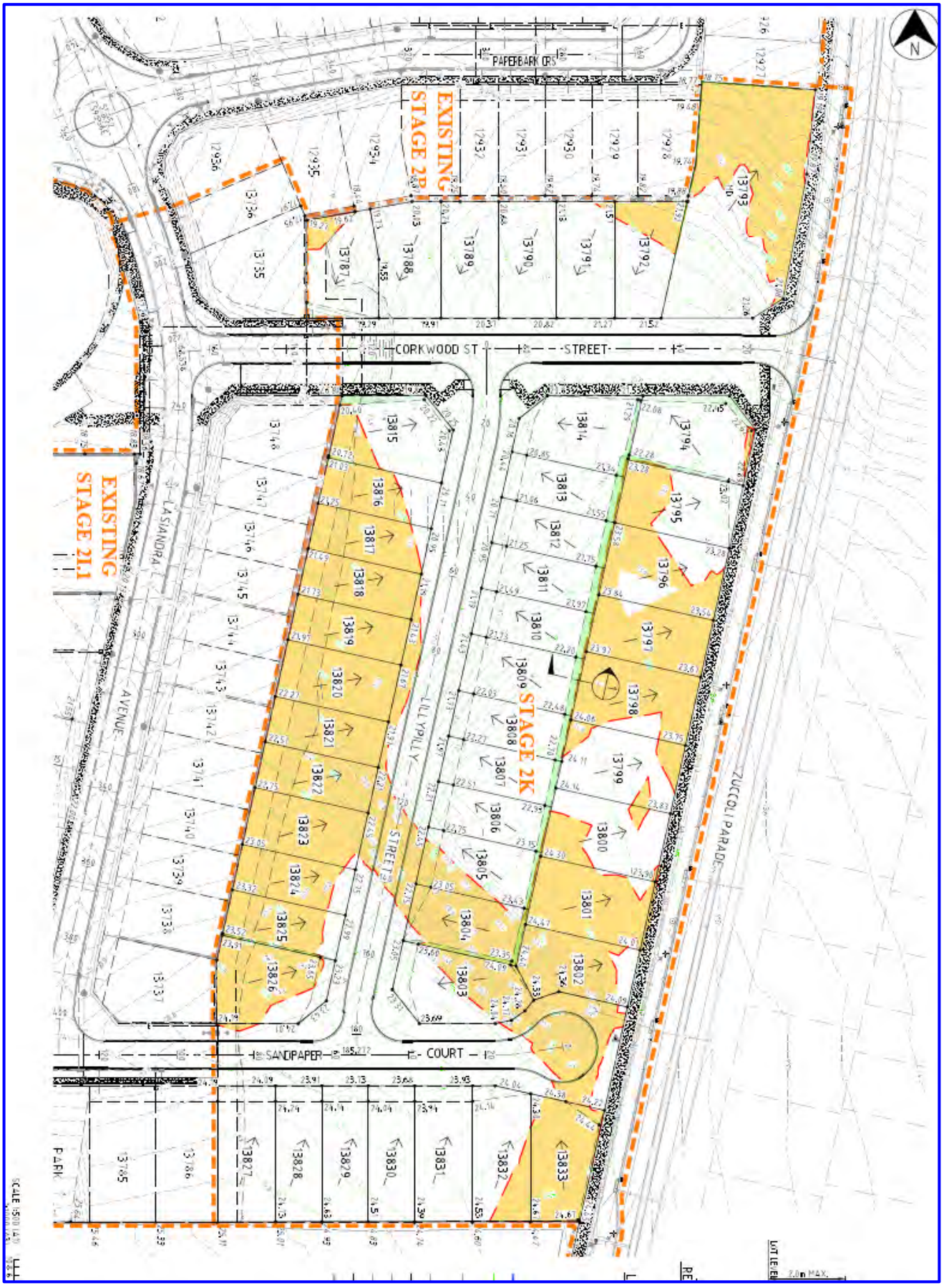


Appendix E: Stockpile Sampling Locations – Fluoride (Cont.)

Appendix F: Soil Stockpile Locations and Volumes



Appendix G: Cut and Fill Locations



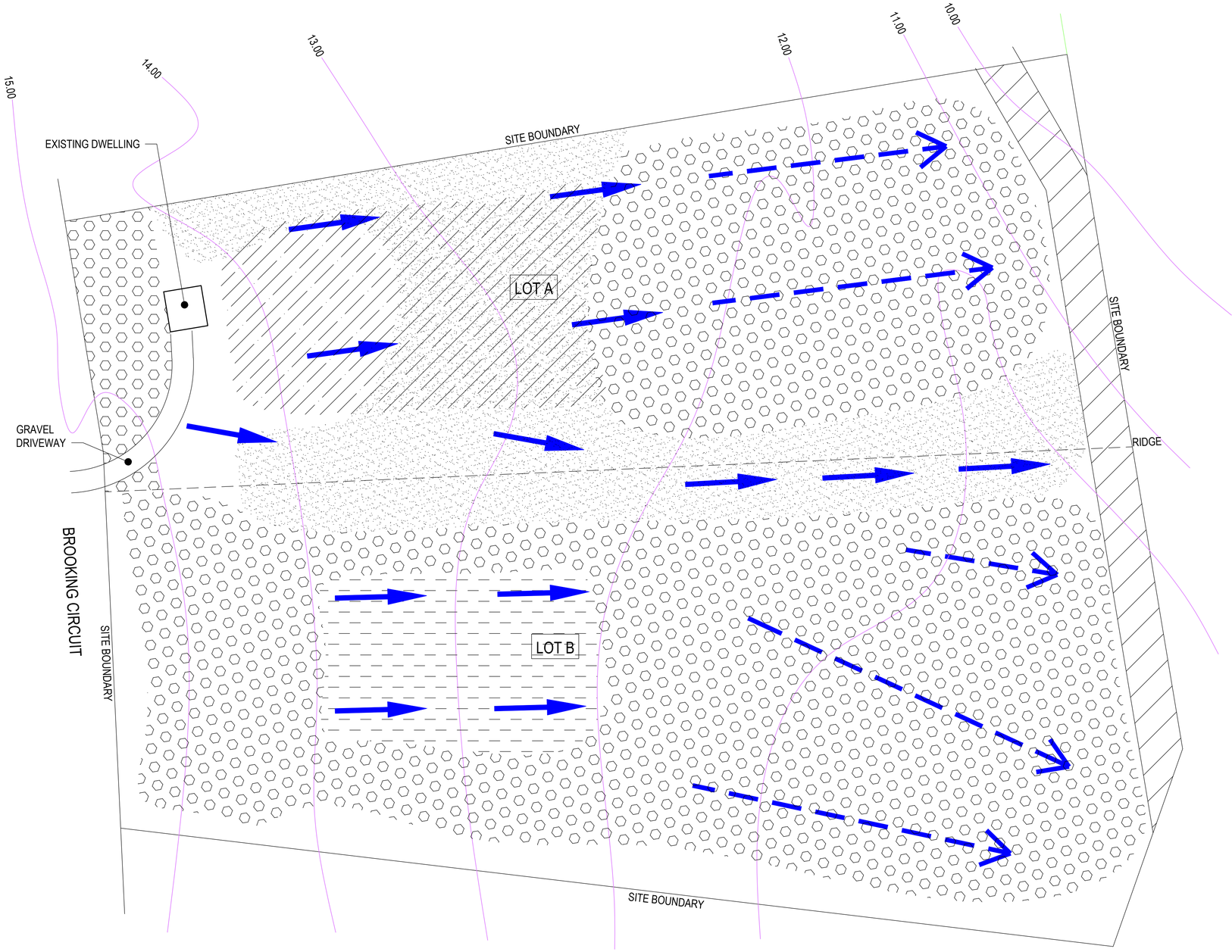
Appendix G: Test Pit Logs

SITE PLAN

NTS

LEGEND

- 15.00 — EXISTING CONTOUR
- DRAINAGE EASEMENT
- DENSE VEGETATION (SHRUBS AND SMALL TREES) WITH GRASS UNDERGROWTH
- GRASSED AREA
- FILL AREA / HEAVY MACHINERY COMPACTED FLUSH WITH EXISTING NATURAL SURFACE
- NATURAL LOW SCRUB AND GRASS UNDERGROWTH
- DIRECTION OF STORMWATER FLOW AT APPROX. 1:5 GRADIENT
- DIRECTION OF FILTERED WATER RUNOFF IN VEGETATED SOAKAGE AREA



NOTE: THE APPLIED FILL IS CONIGUOUS WITH THE EXISTING GROUND LEVEL TO PREVENT PONDING AND TO PREVENT THE BREEDING OF BITING INSECTS

SOIL & EROSION PLAN

NTS

300mm 200 100 50 0 10mm

No.	Description	Date	By	No	Description	Date	By
A	ISSUE FOR APPROVAL	19/03/26	SAW				

Associated Consultant: -

Designed: SAW | Drawn: SAW | Verified: AWP | Approved: AWP | Date: 19/03/2026

PRECISION
CIVIL AND HYDRAULIC
ENGINEERING
Ph: 0439 399 835
e: tony.parsons@pche.com.au
ABN: 76635213820

North: NORTH

Scale:

Client: YANTER INVESTMENTS

Project: LOT 3987 BROOKING CIRCUIT VIRGINIA

Title: SOIL AND EROSION PLAN

Orig. Drg. Size	Job No.	Drawing No.	Revision:
A1	PH26061	C01	A

APPROVAL

Original Sheet Size A1 [841x594]

NORTHERN TERRITORY OF AUSTRALIA

Planning Act 1999

Sections 53 and 54

NOTICE OF REFUSAL

NR03/0010

DESCRIPTION OF SUBJECT LAND

Lot No.:	SECTION 3987
Town/Hundred:	HUNDRED OF STRANGWAYS
Street Address:	175 BROOKING CIRCUIT, VIRGINIA

The Development Consent Authority, at its meeting of 13 March 2003, resolved, pursuant to section 53(b) of the *Planning Act,* to refuse consent to the subdivision application to create 2 lots, for the reasons in the attached Statement of Reasons, given under section 54(1)(a) of the Act.

Dated this 21 day of March 2003

Ethel Bourke

ETHEL BOURKE
Delegate
Development Consent Authority

STATEMENT OF REASONS FOR DETERMINATION

NOTICE OF REFUSAL

NR03/0010

Reasons

1. The proposal does not take account of the environmental constraints of the site, in particular the large seepage areas, which have been filled in breach of the *Planning Act*.

2. The proposal represents an inappropriate re-subdivision of a 4ha property that was intentionally left larger than the minimum lot size of 2 hectares to allow for the large proportion of the property that is constrained by seasonal waterlogging.

3. Following an earlier application to subdivide Section 3987 (in 2001), a site inspection was undertaken with the applicant, and it was found that Section 3987 had only approximately 1.58 hectares of unconstrained land, and was therefore unsuitable for further subdivision.

4. Policy No.1 of the Litchfield Division of the Authority states that "every lot in excess of 1 hectare must have a minimum of 1 hectare of land adjacent to a formed, public road ...which is not subject to flooding during a 1 in 100 year flood event or to seepage". The Authority does not consider the constrained areas of Section 3987 that have subsequently been filled to now be unconstrained for the purposes of this policy.

5. The practice of filling constrained land without appropriate approvals and environmental safeguards is illegal under the section 75 (use or development to comply with the Act) of the *Planning Act,* and section 40 (prohibition of unauthorised works) of the *Water Act* and potentially damaging to the environment. This practice is not supported by the Authority.

Right of Appeal

Pursuant to section 54(2) of the *Planning Act*, applicants are advised that a right of appeal to the Appeals Tribunal exists under Part 9 of the Act, against the refusal to grant a permit. An appeal under section 111(1) must be made within 28 days of the service of this notice. The Registrar of the Appeals Tribunal can provide information regarding the Notice of Appeal form and fees payable. The postal address for lodgement of a Notice of Appeal appears below.

Postal Address:
Lands and Mining Tribunal
GPO Box 2014
DARWIN NT 0801
Telephone: (08) 8999 1471

Location:
Level 3
9-11 Cavenagh Street
DARWIN NT 0800
Facsimile: (08) 8999 1473

Ethel Bourke

ETHEL BOURKE
Delegate
Development Consent Authority

21/3/2003

NORTHERN TERRITORY OF AUSTRALIA

Planning Act 1999

Sections 53 and 54

NOTICE OF REFUSAL

NR03/0010

DESCRIPTION OF SUBJECT LAND

Lot No.: SECTION 3987

Town/Hundred: HUNDRED OF STRANGWAYS

Street Address: 175 BROOKING CIRCUIT, VIRGINIA

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Dated this 21st day of March 2003

ETHEL BOURKE
Delegate
Development Consent Authority

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NOTICE OF REFUSAL

NR03/0010

Reasons

1. The proposal does not take account of the environmental constraints of the site, in particular the large seepage areas, which have been filled in breach of the Planning Act.

2. The proposal represents an inappropriate re-subdivision of a 4ha property that was intentionally left larger than the minimum lot size of 2 hectares to allow for the large proportion of the property that is constrained by seasonal waterlogging.

3. Following an earlier application to subdivide Section 3987 (in 2001), a site inspection was undertaken with the applicant, and it was found that Section 3987 had only approximately 1.58 hectares of

unconstrained land, and was therefore unsuitable for further subdivision.

4. Policy No.1 of the Litchfield Division of the Authority states that "every lot in excess of 1 hectare must have a minimum of 1 hectare of land adjacent to a formed, public road .which is not subject to flooding during a 1 in 100 year flood event or to seepage". The Authority does not consider the constrained areas of Section 3987 that have subsequently been filled to now be unconstrained for the purposes of this policy.

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Postal Address: Location:
Lands and Mining Tribunal Level 3
GPO Box 2014 9-11 Cavenagh Street
DARWIN NT 0801 DARWIN NT 0800
Telephone: (08) 8999 1471 Facsimile: (08) 8999 1473

ETHEL BOURKE
Delegate
Development Consent Authority

21/3/2003

Form 59

Section 106

Land Title Act
REGISTRAR-GENERAL'S DIRECTIONS

OF AUSTRALIA

DL00816666D

Commissioner of Taxes use only

NT STAMP DUTY 21/02/14
3278 13770404 RL duty $0.00

Dealing Number: 816666 Lodged 21/02/2014 at 12:58:21
Dealing Type: CV By CASH
Volume 577 Folio 181 etc. Fee $234.00 Receipt 592607

CREATION OF COVENANT

The owner of the land burdened covenants with the owner of the land benefiting in respect of the covenant described. (NOTES 1 – 3)

	Register	Volume	Folio	Location	Lot Description	Plan	Unit
LAND BURDENED (NOTE 4)	CUFT	577	181	Hundred of Strangways	Section 3983	LTO96/090A	

OWNER OF THE LAND BURDENED: Alexander Gaston Ford and Joanne Hall (NOTE 5)

	Register	Volume	Folio	Location	Lot Description	Plan	Unit
LAND RECEIVING BENEFIT (NOTE 6)	CUFT	677	038	Hundred of Strangways	Section 3987	LTO96/090A	

OWNER OF THE LAND RECEIVING BENEFIT: Robyn Joyce Moo, Lucille Mayse Bridges and Roslyn Kirby (NOTE 7)

Description of Covenant: Restrictive Building Covenant (NOTE 8)

.....
SIGNED by the Owner of the land burdened by the covenant – Alexander Gaston Ford
on (Date) 31-1-2014
In the presence of:
.....
Qualified Witness: JOHN VINCENT ASCOLI. JP.
0417 084 859 MB

.....
SIGNED by the Owner of the land burdened by the covenant – Joanne Hall
on (Date) 31-1-2014
In the presence of:
.....
Qualified Witness: JOHN VINCENT ASCOLI. JP.
0417 084 859 MB. (NOTE 9)

Registered on 24/2/14 At 14:3

CONSENT OF REGISTERED MORTGAGEES (NOTE 10)

Instrument type: .....

Instrument No: .....

Name of Parties: .....

.....

I the registered proprietor of the interest shown above consent to the registration of this instrument.

Signed: .....

(Date): .....
In the presence of:

.....

Name of Witness: .....

Address or Telephone No.:.....

Instrument type: .....

Instrument No: .....

Name of Parties: .....

.....

I the registered proprietor of the interest shown above consent to the registration of this instrument.

Signed: .....

(Date): .....
In the presence of:

.....

Name of Witness: .....

Address or Telephone No.:.....

COVENANTS

☐ To comply with the provisions contained in Memorandum of Common Provisions recorded in the Register as LTO No:
☐ Additional Covenants:

SCHEDULE OF NOTES

.....
SIGNED by the Owner of the land receiving benefit
Robyn Joyce Moo

on (Date) 18.02.14

In the presence of:

.....
Qualified Witness
Ben David Tschirpig, Licensed Conveyancing Agent
Ph: (08) 8948 4600

.....
SIGNED by the Owner of the land receiving benefit
Robyn Joyce Moo as Power of Attorney ~~343109~~ 343110 for
Lucille Mayse Bridges

on (Date) 18.02.14

In the presence of:

.....
Qualified Witness
Ben David Tschirpig, Licensed Conveyancing Agent
Ph: (08) 8948 4600

(NOTE 9)

.....
SIGNED by the Owner of the land receiving benefit
~~Roslyn Kirby~~ Robyn Joyce Moo as Power of Attorney 343109 for Roslyn Kirby

on (Date) 18.02.14

In the presence of:

.....
Qualified Witness
Ben David Tschirpig, Licensed Conveyancing Agent
Ph: (08) 8948 4600

(NOTE 9)

PRIVACY STATEMENT – LAND REGISTER FORMS

The Registrar-General's Office is authorised by the Land Title Act to collect the information on this form for the establishment and maintenance of the Land Register, which is made available for search by any person, anywhere, including through the Internet, upon payment of a fee. The information is regularly provided to other NT Government agencies, the Australian Valuation Office, local governments, the Australian Bureau of Statistics, the Australian Taxation Office or other Commonwealth Agencies as required or authorised by law, and some private sector organisations for conveyancing, local government, valuation, statistical, administrative and other purposes. The Department of Planning and Infrastructure also uses the information to prepare and sell or licence property sales reports to commercial organisations concerned with the development, sale or marketing of property.

Failure to provide the information in full or in part may prevent your application or transaction being completed.

Your personal information provided on this form can be subsequently accessed by you on request. If you have any queries please contact the Deputy Registrar-General on 8999 5318.

ADDITIONAL COVENANTS

MORGAN HEIGHTS

We, Alexander Gaston Ford and Joanne Hall being the owner of the land burdened by this covenant ("the owner") covenants with Robyn Joyce Moo, Lucille Mayse Bridges and Roslyn Kirby being the owner of the land receiving the benefits of this covenant ("the Seller") to observe and comply with the following:

(a) The Owner will not at any time sell the land the subject of this Covenant ("the Land") without requiring the proposed purchaser of the said land and his/her successors or assigns to enter into direct covenant with the Owner and or the Seller in identical terms as are herein contained including this covenant.

(b) The Owner will not erect or permit to be erected on the said land a dwelling house with a total floor area of less than one hundred and thirty (130) square metres and in calculating the floor area the verandahs and carports shall be computed at one half.

(c) The said dwelling house and any other building shall be built in a substantial and workmanlike manner upon the land. All material used in the construction of the dwelling house shall be of the best quality of their respective kinds.

(d) No more than one private dwelling house shall be erected on the land and no profession, business, trade or manufacture of any kind shall be at any time set up or carried on in or upon the land without the appropriate consent required pursuant to the Planning Act (NT).

(e) The Owner will not use any caravan or tent on the land as living quarters on a permanent basis.

(f) The Owner shall when they commence construction of any dwelling house, building or fencing cause the dwelling house, building or fencing to be completed in accordance with plans and specifications previously approved by the Owner in writing without interruption or delay and as expeditiously as possible and shall not occupy or allow to be occupied any such building until construction is completed in every respect and appropriate approval pursuant to the Building Act 1993 obtained.

(g) The Owner shall at all times keep in good order and maintain and repair each and every dwelling house or other building or fence from time to time erected on the land.

(h) No business signboard or commercial advertisement of any kind shall be displayed on the land or any building constructed on the land without the Seller's written consent previously had and obtained which consent will be given or refused at the Seller's unfettered discretion.

(i) The Owner will not allow the footpath and verge bordering the front of the land or the land to become overgrown or untidy, nor allow the accumulation or depositing of rubbish debris or refuse thereon at any time. The Owner will maintain the land in a clean and tidy condition.

(j) The Owner will not erect or permit to be erected on the land any fence other than in a substantial and workmanlike manner. No secondhand corrugated iron or barbwire will be utilized by the Owner in the construction of any fence on the land.

Viewed at 10:04:51 on 27/02/2026 by EEDAI.

Viewed at 10:04:51 on 27/02/2026 by EEDAI.

00529607

00529629

Department of the Attorney-General and Justice (ABN 84 085 734 992)
REGISTRAR-GENERAL'S OFFICE 2 OF 2
NICHOLS PLACE
GPO BOX 3021

Priority of Lodgement	2

Enquiries : 8999 6252

TAX INVOICE (RECEIPT) - OFFICE COPY

Lodging Party:
JOHN ASCOLI & ASSOCIATES,
PO BOX 38394
WINNELLIE 0821

Customer Code: ASSA
Self Assessing Code: Y

Date of Issue	21/02/2014
at	12:16
by	F6O
Application #	00306347

Document Delivery:
JOHN ASCOLI & ASSOCIATES
PO BOX 38394
WINNELLIE 0821

Lodgement No 816666

If paper title exists enter

Volume _____

Folio _____

Description	GST Incl Amount
NOTING FEE	51.00
~~TRANSFER OF LOT~~ (LOT 3983 STRANGWAYS FORD & HALL)	183.00

Creation of Covenant

Total Cost excl GST	$234.00
Total GST	$0.00
Total Invoice	$234.00

Payment Details

CHEQUE (308788 ANZ DARWIN (015901))
CASH

942/14

Technical Assessment PA2025/0344

TECHNICAL ASSESSMENT OF PROPOSED DEVELOPMENT AGAINST RELEVANT PROVISIONS OF THE NORTHERN TERRITORY PLANNING SCHEME 2020

Application No: PA2025/0344

Lot number: Section 03987

Town/Hundred: Hundred of Strangways

Address: 175 Brooking Circuit, Virginia NT

Zone: RL (Rural Living)

Site Area: 40,900

Proposal: Subdivision to create 2 lots

Plans used for assessment: GLY052/SDI SEPT 2025

Date assessment finalised: 30/04/2026

The proposed development requires consent under the Northern Territory Planning Scheme 2020 as described in the below table:

Zone RL (RURAL LIVING)				
Defined Use	**Assessment Category**	**Overlays**	**General Development Requirements**	**Specific Development Requirements**
Subdivision	Impact Assessable	N/A	2.0 - Strategic Framework 4.7 – Zone RL (Rural Living)	6.3 - Subdivision in Zones RR, RL, R and H, and Unzoned land 6.3.2 Subdivision in Zone RL, 6.3.3 - Site Characteristics for Subdivision for Lots of 1ha or Greater in Zones RR, RL, R and H, and Unzoned Land, 6.3.4 Infrastructure in Zones RL, R and Unzoned Land.

Clause 1.8(1)(c)
(c) Impact Assessable – use and development that requires the exercise of discretion by the consent authority to determine if it is appropriate given the location of the site and the potential impacts on surrounding uses, and if it accords with the Strategic Framework. Use and development of land requires consent and is Impact Assessable when any of the following apply:

i. it is shown as Impact Assessable on the relevant assessment table in Part 4;
ii. it is for the subdivision of land other than that included at Clause 1.8(1)(b)(iii); or
iii. it is identified as Impact Assessable in Clause 1.9; or
iv. it is a Prohibited development which relates to a heritage place as set out in Clause 1.10(7)(b); or
v. a provision of this Planning Scheme expressly requires assessment as Impact Assessable.

Clause 1.10.4 Exercise of Discretion by the Consent Authority
4. In considering an application for a use or development identified as Impact Assessable the consent authority must take into account all of the following:

(a) any relevant requirements, including the purpose of the requirements, as set out in Parts 5 or 6;
(b) any Overlays and associated requirements in Part 3 that apply to the land;
(c) the guidance provided by the relevant zone purpose and outcomes in Part 4, or Schedule 4.1 Specific Use Zones; and
(d) any component of the Strategic Framework relevant to the land as set out in Part 2. This is a technical assessment of the proposal against the requirements of the Northern Territory Planning Scheme and is no indication of whether or not approval will be given by the Development Consent Authority.

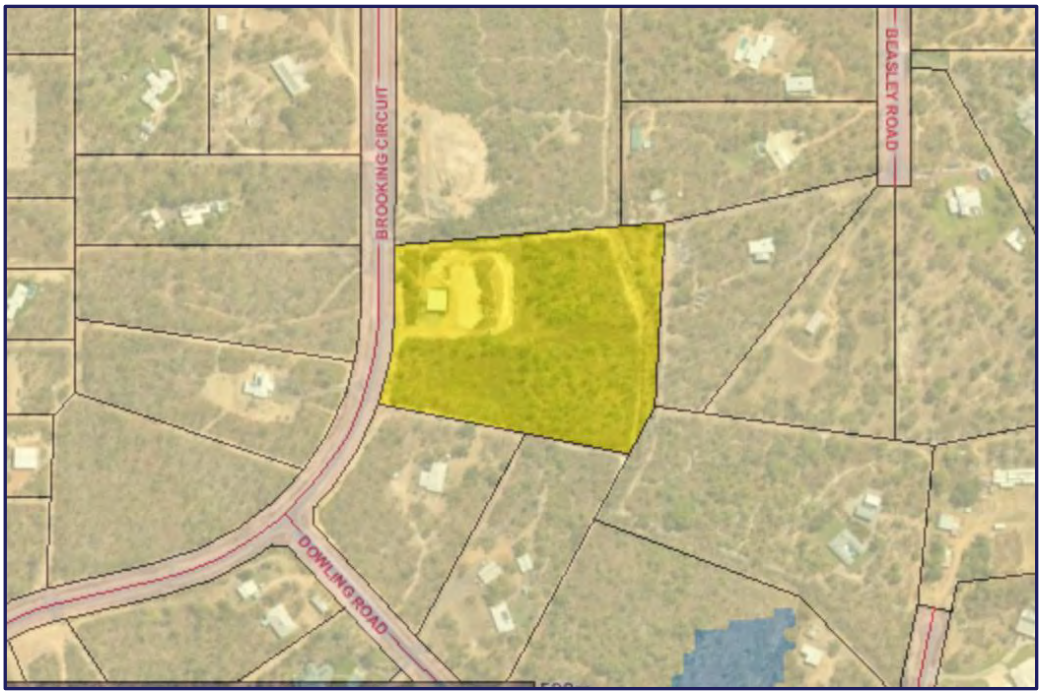


Figure 1: Subject site at 175 Brooking Circuit, Virginia, NT

Clause 2.0 - Strategic Framework

The following is relevant to the subject site.

Darwin Regional Land Use Plan

Rural lifestyle lots provide a buffer of very low density residential development to areas of greater density development. They need to respond to the environmental constraints of the particular location.

Holtze to Elizabeth River Subregional Land Use Plan
The site is identified to be in an existing Rural Living zone within the Virginia South-West Focus Area.

Virginia South-West Focus Area
'Southwestern Virginia is an established rural area with a range of rural lifestyle lots. There is no plan to change this, or to provide infrastructure for more intense land use.'pg 28 Holtze to Elizabeth River Subregional Land Use Plan.

The area is recognised to be constrained by:
- soil waterlogging;
- storm surge; and
- exposure to biting insects;

which reduces the capacity to support development.

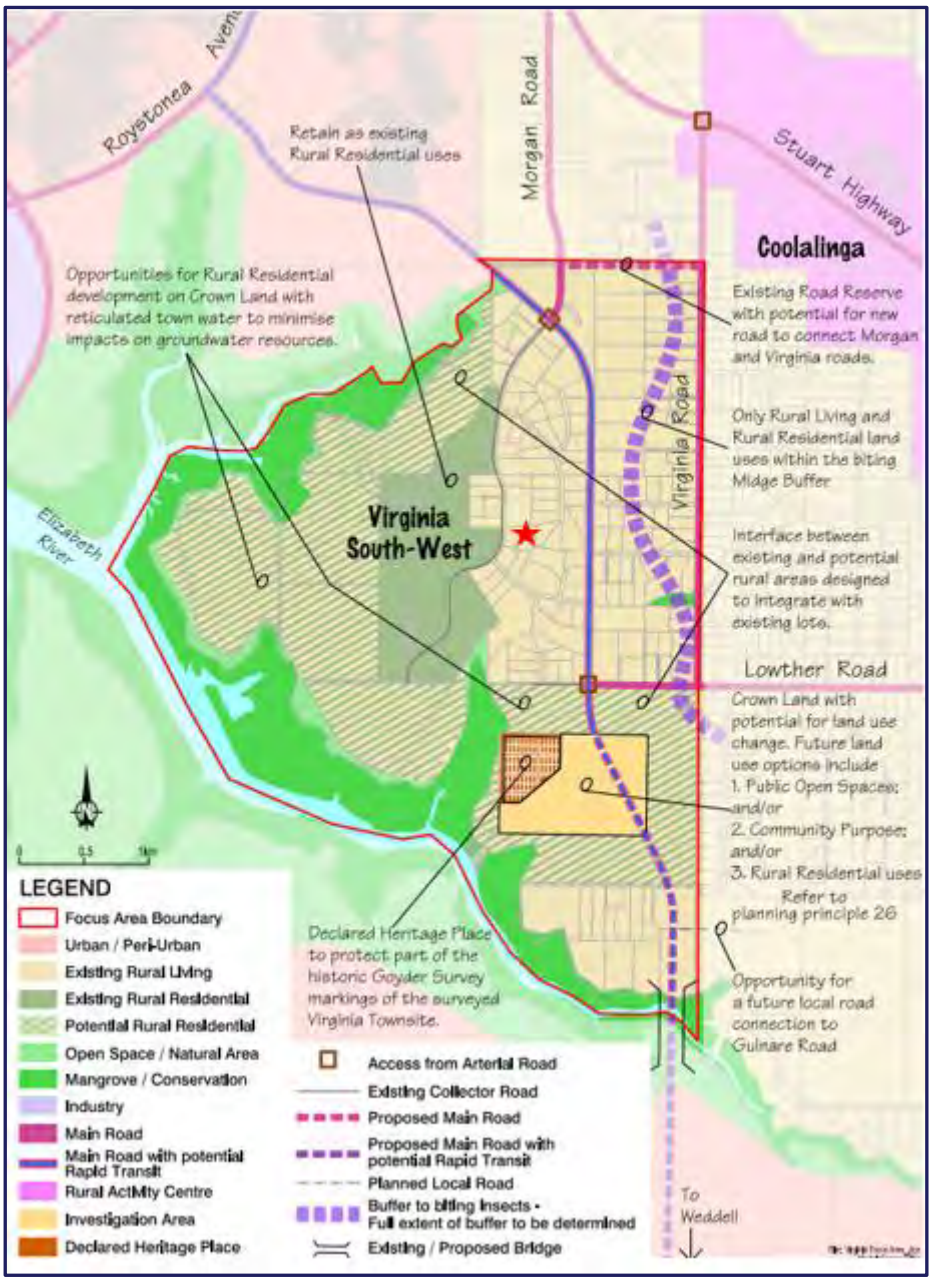


Figure 2: Virginia South-West Land Use Concept Plan in Holtze to Elizabeth River Land Use Plan showing subject site with a red star (Holtze to Elizabeth River Land Use Plan pg.29).

The proposal generally aligns with the relevant provisions of the Framework. The site is located within a seepage basin and is environmentally sensitive.

GENERALLY CONSISTENT

3.2 Overlay – CNV – Clearing of Native Vegetation

*This Overlay does not apply if the **clearing of native vegetation** is required or controlled under any Act in force in the Territory, or is for the purpose of:*

(a) a firebreak as specified by the Bushfires Management Act 2016 or the Fire and Emergency Act1996, up to 5m wide along a boundary of a lot having an area of 8ha or less, up to 10m wide on a lot having an area greater than 8ha unless otherwise specified by a Regional Fire Control Committee;
(b) an internal fence line up to 10m wide on a lot having an area greater than 8ha;
*(c) a road to **access** the land or other land; or*
(d) the maintenance and repair of public infrastructure.

2. Notwithstanding sub-clause 1, all clearing of native vegetation in Zone CN requires consent, other than as provided for by sub-clause 4.

3. The consent authority may consent to the clearing of native vegetation that is not in accordance with subclause 5 only if it is satisfied that it is consistent with the purpose of this requirements and is appropriate in the context of the site and the locality having regard to such matters as:
(a) the suitability of the site for the proposed use;
(b) the values associated with the environmental characteristics (as applicable);
(c) the significance, extent and likelihood of any potential environmental impacts; and
(d) the measures the application proposes will be implemented to mitigate any potential impacts.

4. This Overlay does not apply if the clearing of native vegetation is required or controlled under any Act in force in the Territory, or is for the purpose of:
(a) a firebreak as specified by the Bushfires Management Act 2016 or the Fire and Emergency Act 1996, up to 5m wide along a boundary of a lot having an area of 8ha or less, up to 10m wide on a lot having an area greater than 8ha unless otherwise specified by a Regional Fire Control Committee;
(b) an internal fence line up to 10m wide on a lot having an area greater than 8ha;
(c) a road to access the land or other land; or
(d) the maintenance and repair of public infrastructure.

Requirements
5. The clearing of native vegetation is to:
(a) avoid impacts on environmentally significant or sensitive vegetation;
(b) be based on land capability and suitability for the intended use;
(c) avoid impacts on drainage areas, wetlands and waterways;
(d) avoid habitat fragmentation and impacts
e) avoid impacts on highly erodible soils.

The proposal is for a 2 lot subdivision in a rural living zone and it can be assumed that a dwelling would be constructed on the second Lot. Lot B. This lot is moderately well vegetated. However, clearing for a dwelling would expected to be less than 1 Ha. In giving consideration to Requirement 5 the LSA, Soil and Drainage Report provided indicate that the site can be managed to prevent impacts to the surrounding environment even with some clearing of vegetation.

COMPLIES

4.7 Zone RL – Rural Living

Zone Purpose
Provide for a range of rural lifestyle choices and rural activities, in areas where access to reticulated water and sewerage may not be available.

4.7.9 Subdivision design is informed by land suitability assessment to confirm the land is able to support residential development.

4.7.10 Development is provided with an appropriate level of services and infrastructure and minimises impacts on sensitive environments.

The proposal for a 2 Lot subdivision adequately address the requirements of the zone in particular the above clauses, 4.7.9 and 4.7.10.

The proposal is for a 2 Lot subdivision. The original lodgement documents did not adequately address the requirements of the zone in particular clauses 4.7.9 and 4.7.10. A land suitability assessment document prepared by suitably qualified professional and a localised Stormwater flooding assessment prepared by a suitably qualified professional which fully considered the surrounding area and the seepage basin and the riparian environment was requested through a request for further information. The Land Suitability Report (WANT Geotechnics) and the Stormwater/ soil and erosion plan provided indicate that the site has capacity to support development. The updated LSA by WANT geotechnics indicated that there is 1ha of unconstrained land for each proposed lot. On Lot A the filled soil is stable and unlikely to erode, and it is not contaminated.

However, the compaction aspect of the filled soil was unknown. Fill needs to be sufficiently engineered and compacted to support residential development. A further request for information was made requesting an addendum to the SLA with confirmation testing of the fill to confirm that it does not hold water and is well compacted. Dynamic Cone Penetrometer (DCP) testing of the fill was undertaken and a report was provided by WANT Geotechnics. The DCP test results indicate the fill pad has a minimum bearing capacity of 105kPa. A bearing capacity of 100kPa is typically taken as competent ground on which a house could be built indicating the fill has been placed and compacted to achieve a stable landform. In addition, the batters of the pad were inspected following the 2025/2026 record wet season. The batters showed no signs of erosion or loss of shape confirming the material used is not susceptible to erosion.

COMPLIES

6.3.2 Subdivision in a Zone RL

Purpose
Ensure subdivisions of rural and unzoned land:
a. have lots that are of a size and configuration suited for the intended purpose;
b. have lots that are of a size consistent with the topographical constraints of the land (that may dictate that lots are of an area in excess of the specified minimum); and
c. do not impose unsustainable demands on groundwater or unreasonably degrade the environment.

Administration
The consent authority may ***consent*** to a subdivision that is not in accordance with sub-clauses 5-10 if it is satisfied that: the subdivision does not result in an increased lot yield; and
the lot size and/or configuration achieves at least one of the following:
i an existing boundary encroachment by a building is remedied;
ii the lots created are more regular in shape;
iii ***access*** is provided to a lot that previously had no ***access*** or an unsuitable ***access***;
iv the subdivision will better meet the overall outcomes for the zone and the relevant components of the strategic framework applicable to the locality;
v the arrangement of lots results in a significant protection of areas of environmental value; or
provides opportunity for a future local road network; and the consent authority is satisfied that the lots created will be consistent with the purpose of this requirement and the zone purpose and outcomes.

2. The consent authority may ***consent*** to a subdivision on Unzoned Land that is not in accordance with the table to this clause only if it is satisfied that the lots created will be consistent with the purpose of this requirement.

3. Despite sub-clause 1, the consent authority must not ***consent*** to a subdivision in Zone RL in Alice Springs and adjacent zoned areas that is not in accordance with the table to this clause.

4. The unconstrained nature of the land is to be demonstrated by a land suitability assessment addressing the NT Land Suitability Guidelines, in accordance with clause 6.3.3.

Table to Clause 6.3.2: Lot Size and Configuration for Subdivision in Zones RL, R and H, and Unzoned Land	
Zone	**Minimum Lot Size and Requirements**
RL	2ha with a minimum of 1ha of unconstrained land
R	8ha with a minimum of 1ha of unconstrained land or 40ha in Alice Springs and Tennant Creek municipalities, with a minimum of 1ha of unconstrained land
H	25ha all unconstrained land
Unzoned Land	8ha

Assessment

The proposed subdivision would create 2 Lots each of 2Ha.

a. have lots that are of a size and configuration suited for the intended purpose;

The proposal is to create an additional lot for residential purpose. Access would be possible from Brooking Circuit. The size and configuration would be acceptable.

b. have lots that are of a size consistent with the topographical constraints of the land (that may dictate that lots are of an area in excess of the specified minimum); and

The proposal is for 2 x2Ha Lots. Both lots would have a minimum size of 2 Ha, Based on the initial information provided the unconstrained aspect of both lots was difficult to ascertain. Further information was requested .The new Land Capability Assessment lodged on request with further information was prepared by a suitably qualified professional. The report confirms that each lot A and B have at least one 1 Ha of land unconstrained by storm tide, riverine or localised stormwater flooding.

A referral was made to The Land Assessment Branch who were unable to provide advice regarding whether the fill has resolved drainage constraints. They indicated that a geotechnical engineer would need to confirm the suitability of the filled land for development.

A Geotechnical Report prepared by a suitably qualified Geotechnical engineer was requested through request for further information. The potential for environmental contamination in the fill needed to be assessed by a suitable professional. The applicant also provide a Geotechnical report which confirmed that the fill was not contaminated. The updated SLA by WANT Geotechnics indicated that each lot had 1 ha of unconstrained land and that drainage constraints had been resolved. However, the report did not address soil compaction of the fill on Lot A which was part of the proposed unconstrained land. An addendum to the report was provided on request which

showed soil samples taken indicated that the soil was suitably compacted, sediment runoff would not occur and it was suitable for rural residential use.

c. do not impose unsustainable demands on groundwater or unreasonably degrade the environment. The planning application provided a simple stormwater plan but this did not address offsite impacts of stormwater nor did it recognise the potential for flooding or waterlogging that effects the wider area and potential environmental impacts of future clearing. An updated Stormwater Plan by a suitably qualified professional was requested through further information. A Soil and Erosion Plan was provided which showed direction of stormwater flow across the site. This does not fully address the impacts to the surrounding area but does indicate that stormwater would be managed on site.

The Statement of Effect (SoE) states the proposed second lot, Lot B, would be connected to reticulated water and power and have direct access to a public road.

COMPLIES

6.3.3 Site Characteristics for Subdivision for Lots of 1ha or Greater in Zones RR, RL, R and H, and Unzoned Land

Purpose
Ensure subdivision of land in Zones RR, RL, R and H, and unzoned land, responds to the physical characteristics of the land.

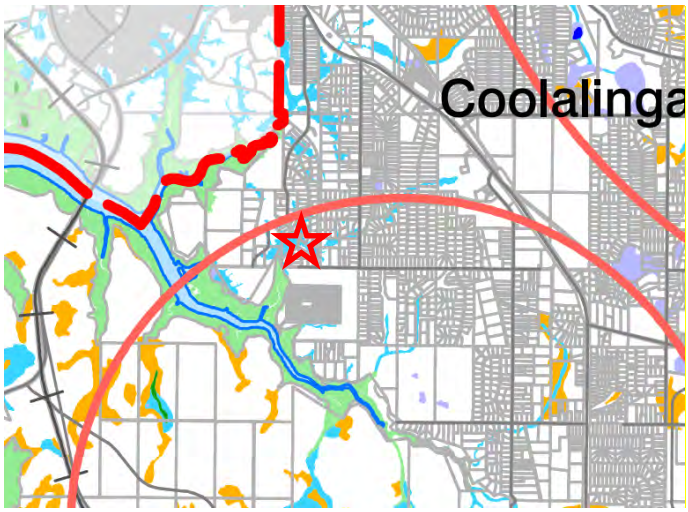
Administration
*1. The consent authority must not **consent** to a subdivision that does not include 1ha of land per lot in Zones RL, R and Unzoned Land, and 25ha in Zone H, identified as unconstrained in relation to:*
(a) Storm tide flooding;
(b) Riverine flooding;
(c) Localised stormwater flooding;

in accordance with the land suitability assessment and stormwater management plan.

*2. The consent authority must not **consent** to a subdivision unless the relevant government agencies, local government council and service authorities provide formal comment to the consent authority in relation to the land suitability assessment and stormwater management plan and the possibility of storm tide flooding, riverine flooding and localised stormwater flooding of the identified 1ha of land.*

*3. The consent authority may **consent** to an application that is not in accordance with sub-clauses 4-7 if the application includes preliminary land assessment and stormwater management plans prepared by the applicant and approved by the relevant government agency and or service authority, demonstrating that 1ha of land per lot and all internal roads are unconstrained by localised stormwater flooding and by those issues addressed in the NT Land Suitability Guidelines.*

Requirements	Assessment
4. Each lot is to have unconstrained access from a public road to the identified unconstrained land.	Access is available to each lot from 175 Brooking Circuit and this reaches the unconstrained parts of the land.

5. An application to subdivide rural or unzoned land should include the following documents prepared by suitably qualified professionals: (a) a land suitability assessment addressing the NT Land Suitability Guidelines; and (b) a stormwater management plan including but not limited to; the potential impact on neighbouring land, external roads, internal roads and the 1ha of land identified as unconstrained, the upstream and downstream flows and any proposed mitigation measures.	COMPLIES <u>Land Suitability Assessment</u> An updated land suitability assessment was provided and this adequately address the NT Land Suitability Guidelines and it identifies the suitability class, discusses in any detail the type of soil, drainage, onsite wastewater management, erosion risk, soil salinity, acid sulphate soils, and riverine flooding. An application to subdivide rural land should include a land suitability document prepared by suitably qualified professional. <u>Stormwater Management Plan</u> An updated stormwater management plan was provided for what is a complex site and these better addresses potential impacts. An application to subdivide rural land should include a stormwater management plan prepared by suitably qualified professional.
6. The subdivision design must address the constraints as identified in the land suitability assessment and stormwater management plan in relation to the location of internal roads, lot boundaries and the identified 1ha of unconstrained land.	COMPLIES
7. An application to subdivide land on the maps "Priority Environmental Management Areas – Litchfield" and "Priority Environmental Management Areas – Katherine" as an area potentially of environmental significance should, on the advice of the relevant government agency, be accompanied by and the consent authority shall have regard to an evaluation by a suitably qualified professional of the environmental significance of the native vegetation and land form (e.g. lagoons, wetlands, rugged terrain and drainage systems).	APPLICABLE - The site is within the 'Priority management Area – Litchfield.'  Priority Environmental Management Area- the site is within Drainage and Riparian and Threatened Vegetation Concentration areas

	COMPLIES An evaluation by a suitably qualified professional of the environmental significance of the native vegetation and landform (e.g. lagoons, wetlands, rugged terrain and drainage systems) was provided.
8. An application described in sub-clause 7 must demonstrate that the proposed subdivision design does not adversely affect the environmental values as identified in the evaluation.	The proposal demonstrates that the subdivision design is a successful response and will not adversely affect the environmental values of the site. The fill on Lot A is not contaminated, the drainage plan response to the site and the surrounds, the soil report indicates no contamination, and the LSA indicates that the 2 ha of unconstrained land are available and would therefore support a 2 lot subdivision.
9. Subdivision design of rural and unzoned land should: (a) Retain and protect significant natural and cultural features; (b) Minimise the number of lots in, or exclude from subdivision, areas of high conservation significance and riparian zones; (c) Minimise alteration or disturbance to natural drainage systems including drainage areas, recognisable watercourses, lagoons and permanent and semi-permanent springs; and (d) Minimise erosion hazard, sedimentation and pollution of watercourses.	COMPLIES The original subdivision created a 4 Ha lot in order to protect the Riparian Zone (seepage basin for Wells Creek which is tributary to the Elizabeth River) and is identified as an area of significant natural value. The 4 Ha Lot size recognised the reduced unconstrained land available at that location addressing 9(c) and 9(d) and protecting the riparian area. The proposal indicates that 2ha of unconstrained land are now available on site allowing for a 2 lot subdivision. The reports indicate that erosion hazard, sedimentation and pollution of watercourses would not occur.

The amount of constrained land has been reduced over time through illegal land filling which has occurred over approximately 20 years. The original subdivision was heavily constrained and that is why it was subdivided as a larger site.

A plan was provided indicating amounts of unconstrained and constrained land. There is now enough unconstrained land to allow for a subdivision into two parcels A and B each with at least 1ha of unconstrained land.

COMPLIES

6.3.4 Infrastructure for Subdivision in Zones RL, R and Unzoned Land

Purpose
Ensure that subdivision of land in Zones RL, R and unzoned land, is integrated with infrastructure, community services and facilities and will not unreasonably affect the environment.
Administration

1. The consent authority may ***consent*** to a subdivision that is not in accordance with sub-clauses 2-7, only if it is satisfied the subdivision is consistent with the purpose of this clause.

Requirements

2. Minimise disturbance through earthworks associated with the provision of infrastructure.

3. Provide for connection to reticulated services where practical.

4. Where no reticulated sewerage is available, a site and soil evaluation report must be completed by an appropriately qualified site-and-soil evaluator demonstrating that onsite wastewater management systems can be installed on each lot in accordance with the requirements of the Code of Practice for Wastewater Management.

5. Where no reticulated water is available, development is to demonstrate that an adequate supply of groundwater is available for domestic purposes, except where the land is:
   (a) Located within Zone RL or R in the Top End Region; and
   (b) Within a 'restricted water extraction area' as declared by the Minister responsible for the administration of the Water Act 1992.

Editor's Notes: 1) The Top End Region is the northern one third of the 'Northern Territory Water Allocation Planning Framework'
2) Where clause 5(a) and (b) are applicable, the relevant restrictions and the requirements of the *Water Act 1992* apply.

6. Roads should:
(c) be designed to:
i. interconnect with the existing road network;
ii. provide for connections to potential future subdivisions of adjoining lands;
iii. provide a clear hierarchy of roads; and
iv. minimise individual lot ***access*** to major roads;
(d) respond to the physical characteristics of the land by:
i. following ridge lines or contours where possible; and
ii. where crossing watercourses be positioned at right angles to the watercourse and minimise the number of crossing points;
(e) be sealed where lot sizes are 2ha or less;
(f) be located above the 1.0% AEP flood line or any seepage line, whichever is the higher;
(g) be designed with discharge drains placed to minimise erosion and associated engineering and maintenance costs;
(h) provide direct ***access*** to lots and avoid battle-axe strips, however, where justified, battle-axe strips should be:
i. not less than 10m wide; and
ii. less than 250m in length.

7. Where a road crosses a tidal arm in a rural subdivision it is expected to have a minimum elevation of RL 8m AHD and be designed to enable a discharge of at least a 5.0% AEP flood event.
1. **Editor's Note: The Code of Practice for Wastewater Management provides further guidance on the requirements of a site-and-soil evaluator.**

Requirements	Assessment

Minimise disturbance through earthworks associated with the provision of infrastructure	Earthworks are not proposed. COMPLIES
Provide for connection to reticulated services where practical.	Connection to reticulated services can be provided. COMPLIES
Where no reticulated sewerage is available, a site and soil evaluation report must be completed by an appropriately qualified site-and-soil evaluator demonstrating that onsite wastewater management systems can be installed on each lot in accordance with the requirements of the Code of Practice for Wastewater Management	No reticulated sewerage is available. The application has provided a Site and soil plan and an updated LSA, soil contamination report these demonstrate that onsite wastewater management systems can be installed on the second lot, Lot B, in accordance with the requirements of the Code of Practice for Wastewater Management. COMPLIES
Where no reticulated water is available, development is to demonstrate that an adequate supply of groundwater is available for domestic purposes, except where the land is: (a) Located within Zone RL or R in the Top End Region; and (b) Within a 'restricted water extraction area' as declared by the Minister responsible for the administration of the Water Act 1992.	N/A
Roads should: (c) be designed to: i. interconnect with the existing road network; ii. provide for connections to potential future subdivisions of adjoining lands; iii. provide a clear hierarchy of roads; and iv. minimise individual lot ***access*** to major roads; (d) respond to the physical characteristics of the land by: i. following ridge lines or contours where possible; and ii. where crossing watercourses be positioned at right angles to the watercourse and minimise the number of crossing points; (e) be sealed where lot sizes are 2ha or less; (f) be located above the 1.0% AEP flood line or any seepage line, whichever is the higher; (g) be designed with discharge drains placed to minimise erosion and associated engineering and maintenance costs;	Brooking Circuit is constructed. Direct access to the additional lot, Lot B is achievable as the lot directly fronts Brooking Circuit. COMPLIES

(h) provide direct ***access*** to lots and avoid battle-axe strips, however, where justified, battle-axe strips should be: i. not less than 10m wide; and ii. less than 250m in length.	
Where a road crosses a tidal arm in a rural subdivision it is expected to have a minimum elevation of RL 8m AHD and be designed to enable a discharge of at least a 5.0% AEP flood event.	Brooking Circuit is constructed. N/A

The compliance can be achieved.

C**OMPLIES**

10 April 2026

Development Assessment Services
Department of Lands, Planning and Environment
GPO Box 1680
Darwin NT 0801

RE: Letter of Comment Development Application

Hun: 695 P: 03987 175 Brooking Circuit VIRGINIA, Hundred of Strangways
Subdivision to create 2 lots - Re-exibition of application (due to deferral)

Thank you for the Development Application referred to this office on 27/03/2026, concerning the above. This letter may be tabled at Litchfield Council's next Council Meeting. Should this letter be varied or not endorsed by Council, you will be advised accordingly.

The following issues are raised for consideration by the Authority:

Council supports the granting of a Development Permit for the following reasons:

a) The updated proposal now includes a Land Suitability Assessment by a qualified person as well as a Stormwater Plan and appears to meet the requirements of the *NT Planning Scheme 2020* (NTPS).

The noted support is only given provided the following issues are adequately addressed:

a) The provided Land Suitability Assessment refers to the total unconstrained portion of land for proposed Lot B, however it does not indicate that there is unconstrained access from a road to the full unconstrained portion of land (1ha as per Part 6 of the NTPS). Demonstration of this should be provided on any endorsed plans.

b) All requirements of previously issued development permit DP2025/0010 should be finalised and approved prior to commencement of development for this development permit.

Council can provide the following comments in relation to the application:

a) Whilst support is provided for the development as it meets the necessary requirements of the NTPS, it is still Council's view that this proposed subdivision does

not align with Part 2: Land Use Structure of the Holtze to Elizabeth River Subregional Land Use Plan in respect to the natural environment. The proposal is likely to increase impacts on the existing drainage regime of the site, altering natural flow paths and changing how stormwater is dispersed across the land. This would be inconsistent with the plan's objectives to maintain natural hydrological flows and avoid detrimental impacts on the receiving catchments.

Should the application be approved, the Council requests the following condition(s) be included as Condition(s) Precedent in any Development Permit issued by the consent authority:

a) The crossover and driveway shall meet Litchfield Council's requirements and be in accordance with the NT Subdivision and Development Guidelines.

b) Prior to the endorsement of plans and prior to the commencement of works, a schematic plan demonstrating the on-site collection of stormwater, and its discharge into Litchfield Council's stormwater drainage system, shall be submitted to and approved by Litchfield Council.

Should the application be approved, the following condition(s) pursuant to the *Planning Act* and Council's responsibility under the *Local Government Act* are also recommended for inclusion in any Development Permit issued by the consent authority:

a) A monetary contribution is required to be paid to Litchfield Council in accordance with its development contribution plan.

b) Engineering design and specifications for the proposed and affected roads, street lighting, stormwater drainage, vehicular access, pedestrian/cycle corridors, and streetscaping shall be to the technical requirements and approval of Litchfield Council, with all approved works constructed at the developer's expense.

Note: Design drawings shall be approved by Litchfield Council prior to construction of the works.

c) All existing or proposed easements or reserves required for the purposes of stormwater drainage, roads, access or for any other purpose, shall be made available free of cost to, and in favour of, Litchfield Council and/or neighbouring property owners.

Should the application be approved, the following notes are recommended for inclusion in any Development Permit issued by the consent authority:

a) Litchfield Council's current Fees and Charges may apply to the above conditions. Additional information can be found at www.litchfield.nt.gov.au.

b) A *Works Permit* is required from Litchfield Council before commencement of any work within the road reserve, which would include creation of any driveway crossover connecting to Litchfield Council's road network.

c) Notwithstanding any approved plans, signs within Litchfield Council's municipal boundaries are subject to approval under Interim Development Control Order 33.

If you require any further discussion in relation to this application, please contact Litchfield Council on 08 8983 0600.

Kind regards,

Jaimie O'Connor
Planning and Development Program Leader

12 November 2025

Development Assessment Services
Department of Lands, Planning and Environment
GPO Box 1680
Darwin NT 0801

RE: Letter of Comment Development Application

PA2025/0344
Hun: 695 P: 03987 175 Brooking Circuit VIRGINIA, Hundred of Strangways
Subdivision to create 2 lots

Thank you for the Development Application referred to this office on 29/10/2025, concerning the above. This letter may be tabled at Litchfield Council's next Council Meeting. Should this letter be varied or not endorsed by Council, you will be advised accordingly.

The following issues are raised for consideration by the Authority:

Council does not support the granting of a Development Permit for the following reasons:

a) Council does not believe that the proposed subdivision aligns with Part 2: Land Use Structure of the Holtze to Elizabeth River Subregional Land Use Plan in respect to the natural environment. The proposal is likely to increase impacts on the existing drainage regime of the site, altering natural flow paths and changing how stormwater is dispersed across the land. This would be inconsistent with the plan's objectives to maintain natural hydrological flows and avoid detrimental impacts on the receiving catchments.

b) The proposal to subdivide the property appears to rely on an assumption of acceptable land suitability and the availability of unconstrained land. However, the application does not include a Land Suitability Assessment prepared by a qualified professional, nor does it address that Development Permit DP2025/0010 has not yet received a Certificate of Completion. Council confirms that Clearance of Conditions has not been granted for that permit.

c) As the previous subdivision application, PA2003/0071, was refused due to land suitability constraints and insufficient unconstrained land, the absence of a professional land suitability review introduces further uncertainty for the current proposal. It is further noted that the earlier refusal identified the proposal as an

inappropriate re-subdivision of a 4-hectare property that was intentionally left larger to accommodate the substantial portion of land constrained by seasonal waterlogging.

Council can provide the following comments in relation to the application:

a) It is noted that under Clause 6.3.3 of the *NT Planning Scheme 2020*, an applicant may submit preliminary plans addressing land suitability (in accordance with the relevant guidelines) and stormwater management. However, Council considers that in this instance, given the historical nature of the proposal, it is necessary for a suitably qualified person to prepare these reports to enable a proper and informed assessment of the application.

Should the application be approved, the Council requests the following condition(s) be included as Condition(s) Precedent in any Development Permit issued by the consent authority:

a) The crossover and driveway shall meet Litchfield Council's requirements and be in accordance with the NT Subdivision and Development Guidelines.

b) Prior to the endorsement of plans and prior to the commencement of works, a schematic plan demonstrating the on-site collection of stormwater, and its discharge into Litchfield Council's stormwater drainage system, shall be submitted to and approved by Litchfield Council.

Should the application be approved, the following condition(s) pursuant to the *Planning Act* and Council's responsibility under the *Local Government Act* are also recommended for inclusion in any Development Permit issued by the consent authority:

a) A monetary contribution is required to be paid to Litchfield Council in accordance with its development contribution plan.

b) Engineering design and specifications for the proposed and affected roads, street lighting, stormwater drainage, vehicular access, pedestrian/cycle corridors, and streetscaping shall be to the technical requirements and approval of Litchfield Council, with all approved works constructed at the developer's expense.

Note: Design drawings shall be approved by Litchfield Council prior to construction of the works.

c) All existing or proposed easements or reserves required for the purposes of stormwater drainage, roads, access or for any other purpose, shall be made available free of cost to, and in favour of, Litchfield Council and/or neighbouring property owners.

Should the application be approved, the following notes are recommended for inclusion in any Development Permit issued by the consent authority:

a) Litchfield Council's current Fees and Charges may apply to the above conditions. Additional information can be found at www.litchfield.nt.gov.au.

b) A *Works Permit* is required from Litchfield Council before commencement of any work within the road reserve, which would include creation of any driveway crossover connecting to Litchfield Council's road network.

c) Notwithstanding any approved plans, signs within Litchfield Council's municipal boundaries are subject to approval under Interim Development Control Order 33.

If you require any further discussion in relation to this application, please contact Litchfield Council on 08 8983 0600.

Kind regards,

Jaimie O'Connor
Planning and Development Program Leader

From:	Jaimie O"Connor
To:	Eve-Marie Davie
Subject:	RE: 175 Brooking Crt Virginia PA2025/0344
Date:	Tuesday, 19 May 2026 3:36:00 PM
Attachments:	image002.png image003.png image004.png image005.png image006.png image007.png

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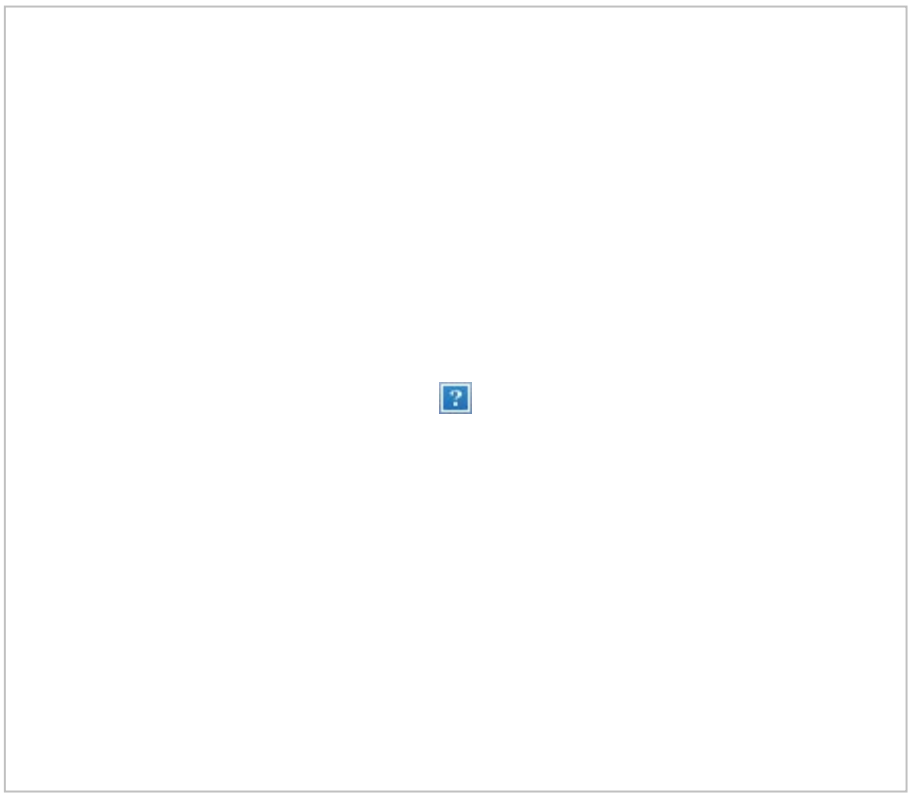
Hi Eve-Marie

Thank you for the below email,
It is assumed with these options then that proposed Lot B does not have a full 1ha of unconstrained land at the front of the property.

Regarding their options, I would consider that access culvert along their boundary would be the best option for the land holder and would align with the existing drainage channels.

Please let me know if you require additional information.



Cheers,

Jaimie O'Connor
Planning and Development Program Leader
T: 08 8983 0615
M: 0488 448 338
E: jaimie.oconnor@litchfield.nt.gov.au
Litchfield Council Office| PO Box 446 Humpty Doo NT 0836

Litchfieldemailbanner.png

This email, including any attachments, is intended for use by the addressee(s) and may contain confidential and/or personal information and may also be the subject of legal privilege. If you are not the intended recipient, please advise by return email, delete the message permanently from your system and destroy any copies without disclosing the contents in any way.

Litchfield Council acknowledges the Traditional Owners of the land we work on and recognises their continuing connection to land, water and communities. We pay our respects to all Traditional Owners and to the Elders past, present and emerging.

From: Eve-Marie Davie <Eve-Marie.Davie@nt.gov.au>
Sent: Tuesday, 19 May 2026 2:05 PM
To: Jaimie O'Connor <jaimie.oconnor@litchfield.nt.gov.au>
Subject: 175 Brooking Crt Virginia PA2025/0344

Hi Jaime

Please see the attached updated SLA – refer to page 5 re access to road for unconstrained land.
Please let me know what Litchfield Council consider regarding this additional information and the solutions proposed.
I have also circulated to DLPE.

Kind Regards,

Eve-Marie Davie
Senior Planner
Development Assessment Services
Department of Lands, Planning and Environment
Northern Territory Government

Floor 1, 18-20 Cavenagh Street, Darwin NT 0800
GPO Box 1680 Darwin NT 0800

P: **+61 8 8999 7937**
E: eve-marie.davie@nt.gov.au

PowerWater

Phone 1800 245 092
Web powerwater.com.au

Record number: D2025/404062
Container number: NE695/3987

Your ref: PA2025/0344

Eve-Marie Davie
Development Assessment Services
GPO Box 1680
Darwin NT 0801

Dear Eve

Re: Section 3987 (175) Brooking Circuit Virginia Hundred of Strangways

In response to your letter of the above proposal for the purpose of subdivision to create 2 lots

- Lot A (20,080m2, Zoned RL, Rural Living)
- Lot B (20,142 m2, Zoned RL, Rural Living)

Power and Water (PWC) advises the following with reference to electricity enquiries:

1. The current overhead power service on Brooking Circuit to existing residence on the current Section 3987 shall remain unchanged for the newly created Lot A.
2. A basic power supply 25kVA, 3 phase shall be established by PWC to the proposed Lot B.
3. The Landowner shall need to submit a Negotiated Connection application under Australian Energy Regulator (AER) compliance process for PWC's assessment on applicable electricity network upgrade and associated charge.

If you have any further queries, please contact Luke Nielsen on 8924 5195.

Yours sincerely

Thanh Tang
Manager Distribution Development
07 Nov 2025

PowerWater

Phone 1800 245 092
Web powerwater.com.au

Record number: D2025/404062
Container number: NE695/3987

Your ref: PA2025/0344

Eve-Marie Davie
Development Assessment Services
GPO Box 1680
Darwin NT 0801

Dear Eve

Re: Section 3987 (175) Brooking Circuit Virginia Hundred of Strangways

In response to your letter of the above proposal for the purpose of subdivision to create 2 lots

- Lot A (20,080m2, Zoned RL, Rural Living)
- Lot B (20,142 m2, Zoned RL, Rural Living)

Power and Water (PWC) advises the following with reference to electricity enquiries:

1. The current overhead power service on Brooking Circuit to existing residence on the current Section 3987 shall remain unchanged for the newly created Lot A.
2. A basic power supply 25kVA, 3 phase shall be established by PWC to the proposed Lot B.
3. The Landowner shall need to submit a Negotiated Connection application under Australian Energy Regulator (AER) compliance process for PWC's assessment on applicable electricity network upgrade and associated charge.

If you have any further queries, please contact Luke Nielsen on 8924 5195.

Yours sincerely

Thanh Tang
Manager Distribution Development
07 Nov 2025

PowerWater

Phone 1800 245 092
Web powerwater.com.au

Container No: LD695/3987

DIPL - Development Assessment Services
GPO Box 1680
Darwin NT 0801

Dear Eve-Marie,

RE: PA2025/0344 - Section 3987 Hundred of Strangways - 175 Brooking Circuit Virginia - Subdivision to create two lots

In response to your letter of the above proposal for development application purpose, Power and Water Corporation advises the following with reference to water and sewer enquiries:

1. Reticulated sewer services are currently unavailable in the area. The developer shall contact relevant authorities to discuss servicing requirements for the proposed development.

2. Only one water service is permitted for each proposed lot. All new services are constructed by the developer, at no cost to Power and Water.

3. Full lot fire coverage cannot be achieved from existing hydrants. Internal firefighting arrangements must be made to the satisfaction of NT Fire and Rescue Service.

4. PWC is working towards a water efficient future, through the implementation of water saving practices that provide potential financial savings to our customers. PWC invites you to visit the Living Water Smart website https://www.livingwatersmart.com.au/ to find out more on how to improve your developments, landscaping and irrigation.

5. All required works mentioned above must be carried out in accordance to Power and Water's Connection Code and at the developer's expense. A letter has been sent to the applicant outlining the fees and charges applicable for this development. All standard, quoted, as well as contribution charges will be valid for a period of 6 months from date of letter issue. Power and Water regularly reassess the charges for the development and advice developers accordingly of any changes.

6. Power and Water advises that the Water and Sewer Services Development Section (waterdevelopment@powerwater.com.au) and Power Network Engineering Section (powerdevelopment@powerwater.com.au)must be contacted via email a minimum of 1 month prior to construction works commencing.

If you have any further queries, please contact the undersigned on 8924 5226, or email waterdevelopment@powerwater.com.au

Yours sincerely

Craig Thomas

Craig Thomas
Services Development

10 April 2026

cc: Terry Nixon
email: nixonterry5@gmail.com

PowerWater

Phone 1800 245 092
Web powerwater.com.au

Container No: LD695/3987

DIPL - Development Assessment Services
GPO Box 1680
Darwin NT 0801

Dear Eve-Marie,

RE: PA2025/0344 - Section 3987 Hundred of Strangways - 175 Brooking Circuit Virginia - Subdivision to create two lots

In response to your letter of the above proposal for development application purpose, Power and Water Corporation advises the following with reference to water and sewer enquiries:

1. Reticulated sewer services are currently unavailable in the area. The developer shall contact relevant authorities to discuss servicing requirements for the proposed development.

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5. Power and Water advises that the Water and Sewer Services Development Section (waterdevelopment@powerwater.com.au) and Power Network Engineering Section (powerdevelopment@powerwater.com.au)must be contacted via email a minimum of 1 month prior to construction works commencing.

If you have any further queries, please contact the undersigned on 8924 5226, or email waterdevelopment@powerwater.com.au

Yours sincerely

SHemopo

Sarah Hemopo
Services Development

14 November 2025

cc: Terry Nixon
email: nixonterry5@gmail.com

NORTHERN TERRITORY GOVERNMENT
Department of **LANDS, PLANNING AND ENVIRONMENT**

Level 1
Goyder Centre
25 Chung Wah Terrace

Postal address
PO Box 496
Palmerston NT 0831

E DevelopmentAssessment.DLPE@nt.gov.au

T 08 8999 4446

10 April 2026

Ms Eve-Marie Davie
Development Assessment Services
Department of Lands, Planning and Environment
GPO Box 1680
DARWIN NT 0801

Our Ref: DLPE2026/0101
Your Ref: PA2025/0344

Dear Ms Davie

Re: PA2025/0344 - Subdivision to create 2 lots

The additional information provided for the above application has been assessed by the relevant divisions within the department, and the following comment is provided:

Land Resources Division

The Land Assessment Branch has re-assessed the development application PA2025/0344 against the Northern Territory (NT) '*Land Suitability Guidelines*' (NT LSG) with particular focus on drainage constraints. The Land Assessment Branch has reviewed the additional information and provides the following comment.

Lot A: Prior to the importation of fill, the proposed lot did not contain the required 1ha of land unconstrained by drainage. The proponents revised Land Suitability Assessment claims that not only has the fill remedied the drainage constraints but has also depicted the eastern portion of Lot A as being unconstrained by drainage, resulting in approximately 1.74ha of unconstrained land.

The Land Assessment Branch's original advice remains unchanged; the proposed Lot A does not contain 1ha of unconstrained land. Land Assessment Branch does not agree with the consultant's drainage assessment in accordance with NT LSG. With respect to the proponent's geotechnical report, the Land Assessment Branch is unable to provide advice regarding whether the geotechnical report has effectively alleviated the drainage constraints.

Lot B: The proposed lot contains a minimum of 1ha of land unconstrained by drainage.

Environmental Regulation Division

Based on the information provided, the proposal does not appear to trigger the licensing requirements of an Environment Protection Approval (EPA) under the *Waste Management and Pollution Control Act 1998* (NT) (WMPC Act). Activities requiring authorisation are listed in Schedule 2 of the WMPC Act.

Under the WMPC Act, all persons have statutory obligations to take all reasonable and practicable measures to prevent or minimise pollution and environmental harm, and to reduce the amount of waste generated. This is known as the General Environmental Duty, set out in section 12 of the WMPC Act. The proponent is responsible for ensuring that their activities comply with these obligations.

Guidelines to assist proponents to avoid environmental impacts are available on the Northern Territory Environment Protection Authority (NT EPA) website.[1]

The proponent is advised to take notice of this non-exhaustive list of environmental issues that should be considered to help satisfy General Environmental Duty:

1. **Dust**: The proponent must ensure that nuisance dust and/or nuisance airborne particles are not discharged or emitted beyond the boundaries of the premises.

2. **Noise:** The proponent must ensure that noise levels from the premises comply with the latest version of the NT EPA Northern Territory Noise Management Framework Guideline[2].

   If the proposal is situated where there are existing activities nearby that may already generate noise, please see the NT EPA advice on Recommended Land Use Separation Distances[3].

3. **Erosion and Sediment Control (ESC):** The proponent must ensure that pollution and/or environmental harm do not result from soil erosion.

   ESC measures must be employed prior to and throughout the construction stage of the development. Larger projects should plan, install and maintain ESC measures in accordance with the current International Erosion Control Association (IECA) Australasia guidelines[4].

   Where sediment basins are required by the development, the NT EPA recommends the use of at least Type B basins, unless prevented by site specific topography or other physical constraints.

   Basic advice for small development projects is provided by the NT EPA document: Guidelines to Prevent Pollution from Building Sites[5] and Keeping Our Stormwater Clean[6].

4. **Storage:** Where an Environmental Protection Approval or Environmental Protection Licence is required, the proponent must act in accordance with that authorisation.

   If an Environment Protection Approval or Environment Protection Licence is not required, the proponent must store liquids only in secure bunded areas in accordance with VIC EPA Publication 1698: Liquid storage and handling guidelines[7]. Where these guidelines are not relevant, the storage must be at least 110% of the total capacity of the largest vessel in the area.

5. **Site Contamination**: If the proposal relates to a change of land use or if the site is known to be contaminated, a contaminated land assessment may be required in accordance with the National Environment Protection (Assessment for Site Contamination) Measure (ASC NEPM). The proponent is encouraged to refer to the information provided on the NT EPA website[8,] and the NT Contaminated Land Guidelines[9].

[1] https://ntepa.nt.gov.au/publications-and-advice/environmental-management
[2] https://ntepa.nt.gov.au/__data/assets/pdf_file/0004/566356/noise_management_framework_guideline.pdf
[3] https://ntepa.nt.gov.au/__data/assets/pdf_file/0006/453192/guideline_recommended_land_separation_distances_oct.pdf
[4] https://www.austieca.com.au/publications/best-practice-erosion-and-sediment-control-bpesc-document
[5] https://ntepa.nt.gov.au/__data/assets/pdf_file/0010/284680/guideline_prevent_pollution_building_sites.pdf
[6] https://ntepa.nt.gov.au/__data/assets/pdf_file/0006/284676/guideline_keeping_stormwater_clean_builders_guide.pdf
[7] https://www.epa.vic.gov.au/about-epa/publications/1698
[8] https://ntepa.nt.gov.au/your-environment/contaminated-land
[9] https://ntepa.nt.gov.au/__data/assets/pdf_file/0020/434540/guideline_contaminated_land.pdf

6. **Waste Management - Import and Export of Fill**: The proponent must ensure all fill imported or exported as part of the activity must be certified virgin excavated natural material (VENM) in accordance with the NSW EPA guidelines[10].

   All imported fill material must be accompanied by details of its nature, origin, volume, testing and transportation details. All records must be retained and made available to authorised officers upon request. The proponent should also consider the following NT EPA fact sheet: Illegal Dumping - What You Need to Know[11].

7. **Odour or Smoke**: The proponent must ensure that nuisance odours or smoke are not emitted beyond the boundaries of the premises.

   If the proposal is situated where there are existing activities nearby that may already generate odour or smoke, please see the NT EPA advice on Recommended Land Use Separation Distances[12].

8. **Water:** The proponent must ensure stormwater is not polluted, refer to water management in the NT EPA guidelines to Prevent Pollution from Building Sites[13].

   If this activity requires the discharge of waste to water or could cause water to be polluted, then a waste discharge licence under the *Water Act* 1992 (NT) may be required. Please refer to the Guidelines[14].

Land Resources Division

Land Management Unit

The Land Management Unit has reviewed the additional information provided and confirms that its comment of 17 November 2025 remains unchanged.

Should you have any further queries regarding these comments, please contact the Development Coordination Branch by email DevelopmentAssessment.DLPE@nt.gov.au or phone (08) 8999 4446.

Yours sincerely

Maria Wauchope
Executive Director Land Resources

[10] https://www.epa.nsw.gov.au/your-environment/waste/classifying-waste/virgin-excavated-natural-material
[11] https://ntepa.nt.gov.au/__data/assets/pdf_file/0008/285740/factsheet_illegal_dumping_what_you_need_know.pdf
[12] https://ntepa.nt.gov.au/__data/assets/pdf_file/0006/453192/guideline_recommended_land_separation_distances_oct.pdf
[13] https://ntepa.nt.gov.au/_media/waste-and-pollution/pdf/guidelines/guideline_prevent_pollution_building_sites.pdf
[14] https://ntepa.nt.gov.au/__data/assets/pdf_file/0005/950603/guidelines-waste-discharge-licensing.pdf

NORTHERN TERRITORY GOVERNMENT
Department of **LANDS, PLANNING AND ENVIRONMENT**

Level 1
Goyder Centre
25 Chung Wah Terrace

Postal address
PO Box 496
Palmerston NT 0831

E DevelopmentAssessment.DLPE@nt.gov.au

T 08 8999 4446

17 November 2025

Ms Evie-Marie Davie
Development Assessment Services
Department of Lands, Planning and Environment
GPO Box 1680
DARWIN NT 0801

Our Ref: DLPE2025/0296
Your Ref: PA2025/0344

Dear Ms Davie

Re: PA2025/0344 Subdivision to create 2 lots

The above application has been assessed by the relevant environmental divisions within the department, and the following comments are provided:

Land Resources Division

Land Assessment Branch

The Land Assessment Branch has assessed the development application PA2025/0344 against the Northern Territory (NT) '*Land Suitability Guidelines*'. The Land Assessment Branch focused on drainage constraints. A site inspection was undertaken on 11/11/2025. The site inspection confirmed following:

Lot A
The proposed lot did not contain 1ha of land unconstrained by drainage prior to the fill being imported to the site. Approval has been obtained to fill the site, and the proponent now claims that the fill has remedied drainage constraints, providing an area of approximately 1.34ha of unconstrained land. The Land Assessment Branch is unable to provide advice regarding whether the fill has resolved drainage constraints. A geotechnical engineer would need to confirm the suitability of the filled land for development.

Lot B
The proposed lot contains a minimum of 1ha of land unconstrained by drainage.

Land Management Unit

Should the application be approved, the Land Management Unit recommends the inclusion of the following notes on the development permit.

Permit Note:

1. For the purposes of best practice land management and environmental protection it is recommended that:
   - prior to the commencement of works an Erosion and Sediment Control Plan (ESCP) is developed;
   - the ESCP is implemented throughout the construction phase including clearing and early works; and
   - all disturbed soil surfaces are stabilised against erosion at completion of works.
2. Resources regarding erosion and sediment control is available on the IECA website www.austieca.com.au and Land Management Factsheets available at https://nt.gov.au/environment/soil-land-vegetation. For further advice, contact the Development Coordination Branch: (08) 8999 4446.

Weed Management Branch

A desktop assessment of the NT Weeds Database for the application area, surrounding parcels and roads has revealed current and or previous data records of the following:

Common name	Botanical name	Declared
Gamba grass	*Andropogon gayanus*	Class B

All land in the NT is subject to the *Weeds Management Act 2001* (WM Act). The WM Act describes the legal requirements and responsibilities that apply to all persons, owners and occupiers of land regarding declared and potential weeds. General duties described in Division 1 of the WM Act include the requirement for owners or occupiers of land to take all reasonable measures to prevent land being infested with a declared weed and to prevent a declared weed from spreading.

Gamba grass is subject to a statutory weed management plan. Management obligations outlined in this plan are legally binding on all owners and occupiers. Management requirements and copies of the statutory weed management plans are available online[1].

Guidelines for the prevention of weed spread are outlined in '*Preventing Weed Spread is Everybody's Business*[2]', which highlights the areas of risk for all activities associated with weed spread. The document details the pathways through which weeds are spread and provides actions to reduce weed spread. Proponents seeking to develop land for any purpose should address these actions.

Further information regarding weed management requirements is available online[3], or alternatively contact the Weed Management Branch for further advice on (08) 8999 4567.

Should this development application be approved, the Weed Management Branch recommend the following note to be included on the Development Permit:

[1] https://nt.gov.au/environment/weeds/weed-management-planning
[2] https://denr.nt.gov.au/__data/assets/pdf_file/0011/257987/preventing-weed-spread.pdf.
[3] http://www.nt.gov.au/environment/weeds

Permit note:

All land in the Northern Territory is subject to the *Weeds Management Act 2001* (WM Act). The WM Act describes the legal requirements and responsibilities that apply to owners and occupiers of land regarding declared weeds. Division 1 general duties include the requirement to take all reasonable measures to prevent land being infested with a declared weed and to prevent a declared weed from spreading. There are additional duties including a prohibition on buying, selling, cultivating, moving or propagating any declared weed and the requirement to notify the Weed Management Branch of a declared weed not previously present on the land within 14 days of detection.

Gamba grass is subject to a statutory weed management plan. Management obligations outlined in this plan are legally binding on all owners and occupiers. Management requirements and copies of the statutory weed management plans are available online https://nt.gov.au/environment/weeds/weed-management-planning.

Further information regarding weed management is available on the DLPE website: https://nt.gov.au/environment/weeds, or alternatively contact the Weed Management Branch for further advice on (08) 8999 4567.

Environment and Heritage Division

Heritage Branch

A search has found that there are no known Aboriginal or Macassan archaeological places and objects within the subject site. The search has found that there are no nominated, provisionally declared or declared heritage places or objects within the subject site.

While there has been some significant ground disturbance work on the site, the likelihood of possible unrecorded Aboriginal or Macassan archaeological places has been assessed as possible. If ground disturbance works are planned to occur, advice can be sought from Heritage Branch to assist in the mitigation of impact to potential Aboriginal or Macassan archaeological places.

General advice

All provisionally declared and declared heritage places and objects are protected under the *Heritage Act 2011*; as are all Aboriginal or Macassan archaeological places and objects. Proponents should be aware that there is an obligation to notify in the event of the discovery of Aboriginal or Macassan archaeological places or objects.

Conditions of advice

This advice is based on the description of the works provided to the Heritage Branch. If the work expands or changes significantly seek further advice.

In preparing this advice, the Heritage Branch has referred to the NT Heritage Register and the Heritage Branch archaeological database which includes information about Aboriginal and Macassan archaeological places and objects in the NT. However, the database only includes information about known archaeological places. The fact that there are no known archaeological places recorded may be because no archaeological surveys have been conducted in that particular area and is not necessarily an indication they do not exist.

Should you have any further queries regarding these comments, please contact the Development Coordination Branch by email DevelopmentAssessment.DLPE@nt.gov.au or phone (08) 8999 4446.

Yours sincerely

Maria Wauchope
Executive Director Land Resources

NT FIRE & EMERGENCY SERVICES

Level 5 NAB House
71 Smith Street Darwin NT 0800

PO Box 37171
Winnellie NT 0821

E NTFES.StrategicServices@pfes.nt.gov.au

T 08 8948 9130

Our reference :04-SF25-2279

Development Assessment Services
Department of Lands, Planning and Environment
GPO Box 1680
Darwin NT 0801

Dear Development Assessment Services

Re: PA2025/0344 Section 03987 Hundred of Strangways, 175 Brooking Circuit, Virginia NT

The Northern Territory Fire and Emergency Services has assessed the information contained in the proposed planning scheme amendment and advises there are no objections to the proposal.

The applicant is reminded of their obligation relating to maintenance of firebreaks, in accordance with clause 3 of the *Northern Territory Fire and Emergency Regulations*.

3 Firebreaks

(1) The occupier or, if there is no occupier, the owner of land in an emergency response area must ensure a firebreak that complies with this regulation is created and maintained along the entire boundary of the land.

(2) The firebreak must:

(a) be at least 4 m wide; and

(b) consist of one or more of the following:

(i) bare earth

(ii) grass not exceeding 50 mm high

(iii) lawn or cultivated garden.

(3) However, the firebreak may contain trees if they do not:

(a) restrict fire-fighting vehicles being driven along the firebreak; or

(b) otherwise pose a direct or indirect danger by fire or other emergency to life or property.

If you have any questions or require further information, please contact Fire Safety Command, NT Fire and Rescue Service via email: fire.safety@pfes.nt.gov.au.

Yours sincerely

Krystel Harvey
Director Strategic Services
Northern Territory Fire and Emergency Services

10 November 2025