Combined Preliminary and Detailed Site Investigation

Green Renovation Works
Bayview Golf Course, Bayview, NSW

Final Report

P2309440JR04V01
September 2023
Prepared For Bayview Golf Club

environmental science & engineering

Project Details

Report Title	Combined Preliminary and Detailed Site Investigation: Green Renovation Works at Bayview Golf Course, Bayview, NSW
Client	Bayview Golf Club
Document	P2309440JR04V01
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Document History

Issue	Issue Date	Status	Description / Comment	Author	Reviewer	Approved
1	1/09/2023	Draft	Final Release	WX	BM	GT

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Abbreviations

AASS	**Actual acid sulfate soil**	**MBT**	**Monobutyltin**
ABC	**Ambient background concentrations**	**MNA**	Monitored natural attenuation
ACM	**Asbestos containing material**	**MPE**	Multi phase extraction
AEC	**Area of environmental concern**	**NAPL**	Non aqueous phase liquid
AF	**Asbestos fines**	**NATA**	National Association of Testing Authorities
AMP	**Asbestos Management Plan**	**ND**	No data
ANZECC	**Australia and New Zealand Environment Conservation Council**	**NEPC**	National Environment Protection Council
ANZG	**Australian and New Zealand Governments**	**NEPM**	National Environment Protection Measure
ASC NEPM	**National Environmental Protection (Assessment of Site Contamination) Measure (2013)**	**OCP**	Organochloride pesticides
ASS	**Acid sulfate soil**	**OEH**	NSW Office of Environment and Heritage
ASSMAC	**Acid Sulfate Soils Management Advisory Committee**	**OPP**	Organophosphorus pesticides
AST	**Above ground storage tank**	**PACM**	Potential asbestos containing material
BGL	**Below ground level**	**PAH**	Polycyclic aromatic hydrocarbons
BH	**Borehole**	**PASS**	Potential acid sulfate soil
BTEXN	**Benzene, toluene, ethylbenzene, xylene, naphthalene**	**PCB**	Polychlorinated biphenyl
CEMP	**Construction Environmental Management Plan**	**PCEMP**	Post Construction Environmental Management Plan
COC	**Chain of custody**	**PESA**	Preliminary Environmental Site Assessment
COPC	**Contaminants of potential concern**	**PFAS**	Per- and polyfluoroalkyl substances
DA	**Development application**	**PID**	Photoionisation detector
DBT	**Dibutyltin**	**ppb**	Parts per billion
DEC	**Department of Environment and Conservation**	**ppm**	Parts per million
DECC	**Department of Environment and Climate Change**	**PQL**	Practical quantitative limit (interchangeable with EQL and LOR)
DNAPL	**Dense non aqueous phase liquid**	**PSI**	Preliminary Site Investigation
DP	**Deposited Plan**	**QA/QC**	Quality assurance / quality control
DPI	**NSW Department of Primary Industry**	**RAC**	Remediation acceptance criteria
DPIW	**NSW Department of Primary Industry – Water**	**RAP**	Remedial Action Plan
DQI	**Data quality indicators**	**HHRA**	Human Health Risk Assessment
DQO	**Data quality objectives**	**RPD**	Relative percentage difference
DSI	**Detailed Site Investigation**	**SAC**	Site assessment criteria
EAC	**Ecological assessment criteria**	**SAQP**	Sampling and Analysis Quality Plan
EIL	**Ecological investigation level**	**SEPP**	State Environmental Planning Policy
EMP	**Environmental Management Plan**	**SIL**	Soil investigation level
EPA	**NSW Environmental Protection Authority**	**SOP**	Standard operating procedure
EQL	**Estimated quantitation limit (interchangeable with PQL and LOR)**	**SWL**	Standing water level
ESA	**Environmental Site Assessment**	**SWMS**	Safe Work Method Statement
ESL	**Ecological screening level**	**TB**	Trip blank
FA	**Fibrous asbestos**	**TBT**	Tributyl tin
GIL	**Groundwater investigation level**	**TCLP**	Toxicity characteristics leaching procedure
HIL	**Health investigation level**	**TEQ**	Toxic equivalency factor
HM	**Heavy metals**	**TP**	Test pit
HSL	**Health screening level**	**TPH**	Total petroleum hydrocarbons
IA	**Investigation area**	**TRH**	Total recoverable hydrocarbons
ISQG	**Interim Sediment Quality Guideline**	**TS**	Trip spike
ITP	**Inspection Testing Plan**	**UCL**	Upper confidence limit
LGA	**Local government area**	**UPSS**	Underground petroleum storage system
LNAPL	**Light non aqueous phase liquid**	**UST**	Underground storage tank
LOR	**Limit of reporting (interchangeable with EQL and PQL)**	**VHC**	Volatile halogenated compounds
MA	**Martens & Associates Pty Ltd**	**VOC**	Volatile organic compounds
mAHD	**Metres, Australian Height Datum**	**WHS**	Work health and safety
mbgl	**Metres below ground level**	**WHSP**	Work Health and Safety Plan

1 Introduction

1.1 Overview

This report, prepared by Martens and Associates (**MA**), documents a Combined Preliminary and Detailed Site Investigation (PSI & DSI) to support a Development Application (DA) for proposed renovation works to 12 greens to Northern Beaches Council (NBC) ('**the Council'**) at 52 Cabbage Tree Road and 1825 Pittwater Road, Bayview, NSW ('**the site**') on behalf of Bayview Golf Club (**'the Client'**).

The investigation area (**IA**) for this combined PSI and DSI are only within the areas of proposed renovation works for the 12 greens as shown in Map 02 of Attachment A.

1.2 Proposed Development

From the plans provided by the client (CC, 2023), we understand that works are proposed to upgrade 12 greens, requiring varying amounts of cut and fill across the works areas. It is understood that the maximum proposed excavation depth is 1.75 mbgl. Details regarding proposed works at each green complex are provided in Appendix B.

1.3 Previous Assessments

MA have completed a number of land contamination assessments for various sections of the wider site as part of various proposed development works including a seniors living development and flood mitigation and drainage works. The following reports have previously been completed:

- Martens & Associates (2017) Detailed Site Investigation: Proposed Flood Mitigation Earthworks – Bayview Golf Course, Bayview, NSW, Job No. P1706099JR03V01.
- Martens & Associates (2017) Remedial Action Plan: Proposed Flood Mitigation Earthworks – Bayview Golf Course, Bayview, NSW, Job No. P1706099JR05V01.

Previous investigations did not include any assessment of the current IA (12 greens proposed for upgrades) and therefore previous assessment results have not considered as part of this combined PSI and DSI.

1.4 Objectives

The objectives for this combined PSI and DSI include:

1. Provide an assessment of past investigations, IA uses based on a review of available historical records.
2. Assess the current conditions of the IA and surrounding land use via a detailed site walkover inspection.
3. Identify potential contamination sources / areas of environmental concern (**AEC**) and contaminants of potential concern (**COPC**)
4. Prepare a conceptual site model (**CSM**).
5. Quantify potential risks from contamination within the IA by undertaking a program of intrusive investigation, soil sampling and laboratory analysis.

6. Provide comment on the suitability of the IA for the proposed works, and where required, provide recommendations for additional investigations.

1.5 Scope of Work

The scope of works includes the following:

1. Review of available online mapping resources.
2. Review of available online hydrogeological and groundwater information.
3. Review of information relevant to the IA including available historical records, images and regulatory information relating to potential land contamination issues.
4. A walkover inspection to review current land use, potential contaminating activities and neighbouring land use.
5. Intrusive soil investigation at sampling points located within recognised AECs to observed existing soil conditions and collect representative soil samples.
6. Laboratory analysis of samples for COPC.
7. Preparation of a report in general accordance with the relevant sections of ASC NEPM (2013), NSW EPA (2017 and 2020) and SEPP (2021).

1.6 Reference Guidelines and Planning Instruments

This assessment was prepared in general accordance with the following guidelines and planning policies:

1. NSW DUAP (1998) Managing Land Contamination: Planning Guidelines
2. State Environmental Planning Policy (Resilience and Hazards) 2021.
3. ASC NEPC (1999, amended 2013) *National Environmental Protection (Assessment of Site Contamination) Measure* (referred to as ASC NEPM (2013)).
4. NSW EPA (2017) 3rd Ed. *Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme*.
5. NSW EPA (2022) *Sampling Design Guidelines – Part 1 Application*
6. NSW EPA (2020) *Consultants Reporting on Contaminated Land, Contaminated Land Guidelines*.
7. HEPA (2020) PFAS National Environmental Management Plan, Version 2.0.

2 IA and Site Background Information

2.1 IA and Site Identification and Environmental Settings

IA and Site identification details and environmental settings are summarised in Table 1. The location of the site and general surrounding area are shown in Appendix A.

Table 1: Site identification and environmental setting information

Item	Description / Comment
Site address	52 Cabbage Tree Road and 1825 Pittwater Road, Bayview, NSW
Lot / DP	Lot 1 in DP 662920 Lot 5 in DP 45114 Lot 191 in DP 1039481 Lot A in DP 339874 Lot 150 in DP 1003518 Lots 1, 2 and 3 in DP 986894 Lot 300 in DP 1139238 Lot 1 in DP 19161.
Approximate area of proposed development works (IA)	2.0856 ha (By calculation - QGIS)
Local Government Area	Northern Beaches Council
Zoning	RE2 – Private Recreation (Pittwater Local Environmental Plan 2014)
Current use	Golf Course
Proposed use	Golf Course
Geology	The published geological map covering this area indicates that the IA is predominantly underlain by Quaternary deposits: silty to peaty quartz sand, silt, and clay with ferruginous and humic cementation in places and common shell layers. The north western and south eastern portion is indicated to be underlain by Newport Formation and Garie Formation: interbedded laminate, shale, quartz, to lithic-quartz sandstone and clay pellet sandstone (Sydney 1:100 000 Geological Sheet 9130, 1st edition). The location of geological units within the site are presented in Appendix A (Map 05).
Soil landscape	Soil landscape mapping from eSPADE (NSW DPE, 2023) platform identified the following soil landscapes within the site: • Deep Creek Landscape at the central and western portion – deep (>200 cm) Podzols on well-drained terraces, Siliceous Sands on current floodplain and Humus Podzols in low lying areas. • Disturbed Terrain Landscape at the eastern portion – turfed fill areas commonly capped with up to 40 cm of sandy loam or up to 60 cm of compacted clay over fill or waste materials. • Erina Soil Landscape at the western and south eastern portion – moderately deep to deep Yellow Podzolic Soils on fine grained bedrock with Yellow Podzolic Soils and Yellow Earths on coarse grained parent material with Yellow Earths on footslopes and deep structured loams and Yellow Earths along drainage lines.

Item	Description / Comment
	• Watagan Soil Landscape at the north western portion – allow to deep (30–200 cm) Lithosols / Siliceous Sands and Yellow Podzolic Soils on sandstones; moderately deep (100–200 cm) Brown Podzolic Soils, Red Podzolic Soils and Gleyed Podzolic Soils on shale. • Tuggerah Soil Landscape at the southern portion – deep (>200 cm) Podzols on dunes and Podzols / Humus Podzol intergrades on swales. The location of mapped soil landscapes within the site are presented in Appendix A (Map 06).
Topography	Soil landscape mapping from eSPADE (NSW DPE, 2023) provide descriptions of topography for the following soil landscapes present within the site: • Deep Creek Soil Landscape – Level to gently undulating alluvial floodplain draining the Hawkesbury Sandstone. Local relief <5m, slopes <3%. Depositional floors of steeply dissected valleys of the Hornsby Plateau. Partially cleared tall open woodland and weed infested tall open forest and closed forest. • Disturbed Terrain Landscape – Level plain to hummocky terrain, extensively disturbed by human activity, including complete disturbance, removal or burial of soil. Local relief <10m, slopes <30%. Landfill includes soil, rock, building and waste materials. Original vegetation completely cleared, replaced with turf or grassland. • Erina Soil Landscape - Undulating to rolling rises and low hills with local relief <60 m and slopes <25%. Rounded narrow crests with moderately inclined slopes. Extensively cleared tall open-forest with open-heathland in exposed coastal areas. • Watagan Soil Landscape - Rolling to very steep hills and slopes. Local relief ranges from 50–220 m and slope gradients are >25%. Crests and ridges are convex and narrow (<300 m). Hillslopes are steep with talus slopes often containing sandstone boulders. Occasional narrow sandstone and colluvial benches are present. Slopes with gradients>70% often have cliffs and scarps >10 m high. In conclusion, the southern golf course is generally flat with slopes <3% and grades between 0 and 5 mAHD, apart for the south eastern portion which grades up to 22 m AHD with a northerly aspect. The northern golf course has steep slopes (up to 30%) with a southerly aspect and grades 5 and 46 mAHD. Mapping of topography for the site is provided in Appendix A (Map 03).
Surface hydrology	Depressions and swamps in the northern and eastern portions of the site collect water during rainfall events. Cahill Creek flows from the northern to the eastern portion of the site. The site generally drains generally centrally to an inlet which ultimately connects to Winnererremy Bay, Pittwater, located approximately 260 m north east of the site.
Surrounding land use	Land uses surrounding the Site includes: • North – Residential developments. • East – Pittwater High School. • South – Residential developments. • South east – Commercial and industrial developments. • West – Residential developments.

2.2 Hydrogeology and Groundwater Use

Review of WaterNSW Real-time Water Database identified 4 groundwater bores, either within the IA, or within 300 m of the IA. A summary of the available bore information provided on available records is provided in Table 2.

Table 2: Summary of groundwater bore records

Groundwater Bore Identification	Direction and Distance	Depth To Groundwater (mBGL)	Registered Use	Water Bearing Zone Substrate
GW111610	Southern portion of the site	1.2	Recreation	Silty sand fill
GW014463	Western portion of the site	1.5	Irrigation	Sand
GW106813	200 m north of the site	11.4	Domestic	Sandstone
GW108920	250 m north west of the site	13.0	Domestic	No records

MA's Geotechnical Investigation (2023) intrusive investigation observed groundwater inflow between 0.8 – 1.3 mBGL across the site. Intrusive works for this PSI / DSI did not encounter groundwater up to 1.2 mbgl.

Based on saturated soil depths and the existing 0.25 m contour site plan, a permanent water table is expected beneath the main golf course at a level of the order of 0.1 to 0.5 mAHD.

3 Preliminary Site Investigation

3.1 Historical Aerial Photography

A selection of historical aerial photographs covering the period 1940 to 2023 have been reviewed to provide an understanding of historical land use and activities within the IA and on surrounding land. A summary of observations made from historical aerial photography is provided in Table 3.

Table 3: Historical aerial photography observations.

Year	Golf Course and IA Observations	Observation on Surrounding Land
1940[1]	Much of the golf course land is grassed area with line of trees dividing fairways for golf course use. Existing dam and former structures observed at the eastern and south eastern portion of the golf course, respectively.	Areas to the north and east remain vegetated and undeveloped. Much of the land to the south west is cultivated and occupied by orchards, with some horticultural activities. Low density residential dwellings in all directions except to the east.
1951[1]	Some existing greens (1, 2, 4 and 13) were constructed within the IA.	Increased horticultural activities to the north and south west of the golf course. Increased residential structures to the south east.
1961[1]	Some clearing and replanting of trees at the central portion for the construction of all of the remaining greens, apart for the 3rd green, at central and western portion of the golf course.	Further increase in horticultural activities to the north, south west and south of the golf course. Further increase in residential structures to the south and south east.
1971[1]	Clearing of trees at the southern portion of the golf course.	Reduction in horticultural activities and clearing of vegetation to the south west of the golf course. Clearing of vegetation for the construction of residential structures and Pittwater High School to the north east and east of the golf course, respectively.
1978[1]	Dams constructed at the western and central western portions of the golf course.	Increase in residential structures to the east, south and south west, and additional structures constructed at Pittwater High School. Some clearing of vegetation to the north.
1986[1]	No notable changes.	Further clearing of vegetation for the construction of residential structures to the north of the golf course. Increase in residential structures all directions except for the north west and north east.
1994[1]	Clearing of trees at location of the existing 3rd green.	Increase in residential structures to the north and south.
2002[1]	Existing 3rd green was constructed within the IA	Increase in residential structures to the south west.
2005[1]	No notable changes.	No notable changes.
2010[2]	Former structures were demolished and existing amenities building constructed at the southeast portion of the site.	No notable changes.
2016[2]	Hotel / villas were constructed at the southeast portion of the site.	No notable changes.

Year	Golf Course and IA Observations	Observation on Surrounding Land
2023[2]	No notable changes.	No notable changes.

Notes:
1. Sourced from Spatial Service - NSW Department of Customer Service Historical Imagery Viewer.
2. Sourced from Nearmap (2023).

Copies of historical aerial photographs used for review purposes are provided in Appendix C.

3.2 Northern Beaches Council Development Records

Historical development record relevant to 1825 Pittwater Road was provided by Northern Beaches Council in Appendix C. Applications with potentially contaminating activities associated with the IA are summarised in Table 4.

Table 4: Northern Beaches Council DA Records.

Application ID	Year	Description
0730/98	1998	Landfill, earthworks and water storage landfill, earthworks & water storage
IF2/0190/97	1997	Landfill / earthworks landfill, earthworks and additional water storage
0343/94	1994	Dredging and earthworks construction of an access track and dredging of existing water storage dam

3.3 NSW EPA and Department of Defence Records

A review of NSW EPA and Department of Defence records was completed for the PSI using the following databases:

- Records of public notices of contaminated land under Section 58 of the *Contaminated Land Management Act 1997* (CLM Act).
- Records relating to contaminated land notified to NSW EPA under Section 60 of the CLM Act.
- Records relating to licensed activities, applications, notices, and audits under the *Protection of the Environment Operation Act 1997* (POEO Act).
- Records relating to sites listed under the NSW EPA per-and polyfluoroalkyl substances (PFAS) investigation program.
- Records relating to site being investigated and or managed by the Department of Defence for PFAS contamination.

Information obtained from these records is provided below in Table 5 and Appendix D.

Table 5: NSW EPA and Department of Defence Records

Records	Onsite	Offsite
Notices under Section 58 of the CLM Act 1997	No record	No record within 500 m
Duty to Report Contamination under Section 60 of the CLM Act 1997	No record	No record within 500 m
Records under the POEO Act 1997	No record	No record within 500 m
NSW EPA PFAS investigation program	No record	No record within 500 m.

Records	Onsite	Offsite
Department of Defence PFAS management and investigation program	No record	No record within 500 m

3.4 External Potentially Contaminating Activities

Review of available online mapping and business services registers relating to potential contaminating businesses and activities (e.g., service stations, fire stations, mechanics, dry cleaners, airports, etc.) located within ≤500 m of the IA was conducted for the PSI. The review did not identify locations within 500 m of the IA.

4 Site Walkover Inspection

An inspection of the wider golf course Site along with the 12 greens forming the IA was conducted by a Senior MA Environmental Consultant on 8 August 2023. Observations made during the inspection of the Site are provided below in Table 6.

Table 6: Summary of Site inspection observations

Item	Comment
Buildings and structures	Golf club and car park located at Lot 300 in DP 1139238 (south eastern portion of southern golf course). Maintenance sheds were located at Lot 2 in DP 531960 (northern portion of southern golf course).
Ground surfaces and pavements	Majority of the site was vegetated and developed for golf course purposes, with hardstand car park at the south eastern corner of the site. The ground surface of the IA considered of grass and bunkers as part of each green complex.
Fill material and soil stockpiles	Based on previous site wide investigations and site observations, the presence of fill material within the IA is considered likely.
Historic structures	No evidence of former structures were observed across entire IA.
Chemical storage	No evidence of oil storage (empty drum) was noted within the IA.
UPSS, USTs and ASTs[1]	No evidence of UPSS, USTs, and ASTs were observed during the wider site inspection nor within the IA.
Waste materials and storage	Sand and mulch stockpiles were observed near the maintenance sheds at Lot 2 in DP 531960. No storage or waste material was observed within the IA.
Odours and staining	No significant odours or staining were reported or observed during the inspection.
Hazardous building materials	No surficial PACM fragments were observed during the site inspection.
Electrical substation	No electrical substations observed within the wider site or IA.
Vegetation and phytotoxicity	Vegetation at the IA consisted mostly of manicured grass forming the green complex. All vegetation within the IA and across the wider site was observed to be generally in good condition. Evidence of potential phytotoxicity effects to vegetation was not observed.

Notes:

1. Underground petroleum storage systems (UPSS), underground storage tanks (USTs), and aboveground storage tanks (ASTs).

5 Conceptual Site Model

5.1 Areas of Environmental Concern

Our assessment of potential contamination sources / AECs and associated COPC for the IA was made for the site based on available site history, aerial photograph interpretation and observation made during the site walkover. Table 7 presents potential contamination sources and contaminants of potential concern for the IA.

Table 7: Potential contamination sources and contaminants of potential concern.

AEC	Potential for Contamination	COPC
AEC Golf Course Use	Application of pesticides, herbicides and heavy metals for pest control during use as a golf course.	HM, OCP / OPP, phenyl acid and triazine.
AEC Potential Fill Areas	Fill material may have been imported from unknown offsite sources. This is of particular significance if filling material was sourced from locations of heavy industry, is a by-product of industrial processes, or includes demolition debris contaminated with asbestos containing materials (ACM).	HM, TRH, BTEXN, PAH, OCP / OPP, PCBs and asbestos.

5.2 Potential Exposure Pathways and Receptors

A conceptual site model (CSM), based on the AEC and COPC identified in Table 7, and the associated exposure pathways to potential receptors are summarised in Table 8.

Table 8: Conceptual site model.

Item	Description
Affected Media and Mechanism of Contamination	Soil has been identified as potentially affected media. Potential mechanisms for contamination likely include 'top-down impacts' such as impacts to near surface soils from potential fill, site structures and former market garden use. Contamination from anthropogenic impacts (such as asbestos containing material or other building waste) may also be present within the site soil. **Groundwater** is not expected to be a media of interest requiring further investigation given that the proposed works are not resulting any substantial change to the current land use (i.e. a golf course) nor will there be any beneficial use of groundwater during or as a result of the proposed works.
Potential Exposure Pathways	*Human-health* • Ingestion • Dermal absorption • Inhalation (dust, vapours, ground gases) *Ecological* • Biota uptake and intake
Potential Receptors	*Human-health* • Future site users and visitors • Commercial / industrial workers (offsite) • Maintenance workers • Construction workers *Ecological* • Flora and fauna (onsite and offsite – hydraulically down-gradient)

5.3 CSM Discussion

Based on the source – exposure pathway – receptor linkage framework outlined above in Section 5.2, potential risks to receptors may exist at the site due to the potential AECs (sources of contamination) identified by the investigation. Based on the AECs identified by the PSI, potential areas of contamination and exposure pathways may exist at the site that present a potential risk to site receptors, and further intrusive site investigation for soil is required to quantify potential risks.

6 Sampling, Analysis and Quality Plan

6.1 Overview

A Sampling Analysis and Quality Plan (SAQP) has been developed to ensure that data collected for the DSI is representative of soil conditions, and provides a robust basis for assessment decisions. Preparation of the SAQP was completed in general accordance with NEPC (2013b) methodology and includes:

- Data quality objectives (DQO).
- Data quality indicators (DQI).
- Sampling methodologies and procedures.
- Field screening methods.
- Sample handling, preservation, and storage procedures.
- Analytical QA/QC.

The SAQP is summarised in the following sections.

6.2 Data Quality Objectives

DQO for the investigation are prepared as statements specifying the qualitative and quantitative data required to support project decisions. DQO have been prepared in general accordance with NEPC (2013b) and NSW EPA (2020) guidelines and are presented in Table 9.

Table 9: Data Quality Objectives

DQO Item	Commentary
1. State the Problem	The DSI is being conducted to characterise potential land contamination risks that may exist with the IA for the proposed greens works at Bayview Golf Course. The DSI will evaluate potential risks to future site receptors posed by COPCs associated with AECs that have been identified within the IA (see Section 5). A CSM has been developed for the investigation from information gathered by a desktop study, site inspection and laboratory analysis. The CSM outlines that potential source - exposure pathway – receptor linkages may exist at the Site which could result in potential exposure to receptors associated with the proposed land use. Given the potential risk to receptors posed by media that has been identified by the CSM, a program of soil sampling and laboratory analysis is required to characterise of the Site for CLM purposes. Any requirement for additional investigation or remediation will be discussed by this report.
2. Identifying the Decision(s) / Study Goals	The decisions required to be made for the DSI will be based on the following questions: • Is the environmental data collected for the project, suitable for assessing relevant land contamination exposure risks? • Are impacts from previous or current site use(s) present in IA soils that may pose a risk to human-health or the environment during residential (with access to soil) use of the IA? • Does the IA require further investigation, remediation, or management before applicable media can be considered suitable for the proposed development and land use?

DQO Item	Commentary
3. Identification of Inputs to the Decision	The inputs to the decisions include: • Proposed land use as present in the development plans. • The CSM developed for the investigation. • Sampling design employed to screen for potential risks posed by COPC. • Soil samples collected from sampling points. • Observations made during intrusive investigation and sample collection. • The measured physical and/or chemical parameters of the site media sampled (including field data and laboratory analytical results, where relevant). • Tier 1 assessment criteria adopted for the appraisal of potential contamination risks from Site media.
4. Study Boundary Definitions	The boundaries of the study are as follows: • Lateral - defined by the IA boundary (present in Appendix A) and the sampling points used for sample collection to screen for potential contamination. • Vertical – limited to the depth of soil samples collected at each sampling point. • Temporal – data collected during the investigation relates specifically to the date of sampling and access availability across the IA to undertake the field investigation. Constraints which may affect the completion of the field investigation include, access limitations for equipment and field personnel, the presence of above and below ground infrastructure / services, and hazards creating risks to health and safety.
5. Development of Decision Rules	The decision rules for this investigation are as follows: • The maximum soil concentration for the respective COPCs will be the key statistical parameter of interest. • If the maximum concentration for a respective COPC exceeds the adopted SAC, outlined in Section 6.4, further investigation or remediation will be required.
6. Specification of Limits on Decision Errors	Specific limits for this project will be in accordance with National and NSW EPA guidance. The null hypothesis for the soil investigation is: • The 95% Upper Confidence Limit (UCL) of the mean for chemicals of concern exceed land use criteria (presented in Section 6.4). The acceptance of the soil suitability will be based on the probability that: • The 95% UCL of the mean will satisfy the given site criterion. Therefore, there is a limit on the decision error of 5% that a conclusive statement may be incorrect. • The standard deviation of the results was less than 50% of the relevant Tier 1 investigation criterion. • No single result exceeds the land use criteria by 250% or more. Soil concentrations for COPCs that are below investigation criteria, made or approved by the NSW EPA, are treated as acceptable and indicative of soil quality being suitable for the proposed land use.

DQO Item	Commentary
7. Optimisation of Sampling Design	For the purposes of this investigation, a sampling approach has been adopted to screen for COPCs in identified AECs at the Site. To achieve this, a systematic sampling programme of 12 locations (undertaken at the recommended minimum sampling densities for site characterisation - grid-based sampling requirements of NSW EPA (2022)), has been adopted for soil screening purposes. This will include: • Soil investigation by the methods discussed in Section 6.5. • Collection of soil profile samples (including fill and natural soils where encountered) at each sampling location. • A selection of samples for analytical testing will be based on the soil units encountered at sampling locations and field observations made (including visual and olfactory evidence). Typically, at least one sample per location will be tested. • Analysis of samples for COPC identified by the CSM (Section 5.1) to assess the environmental condition of soils associated with AECs.

6.3 Data Quality Indicators

In accordance with the requirements of NSW EPA (2017), the investigation data set has been compared with DQI outlined in Table 10 to ensure that collected data meets the project needs and that DQO has been met.

Table 10: Data Quality Indicators

Assessment Measure (DQI)	Comment
Precision – a measure of the variability (or reproducibility) of data.	• Precision is assessed by calculating the relative percent difference (RPD) between field duplicates and primary samples. • Data precision is deemed acceptable where results are 0 - 10 x EQL or where RPDs <50% (10 - 30 x EQL) or <30% (>30 x EQL). • Exceedance of this range may still be considered acceptable where heterogeneous materials such as fill are sampled.
Accuracy – a measure of the closeness of reported data to the "true value".	Data accuracy is assessed by: • Field spikes and blanks. • Laboratory control samples.
Representativeness – the confidence that data are representative of each media present on the Site.	To ensure data representativeness the following field and laboratory procedures are followed: • Ensure that the design and implementation of the sampling program have been completed in accordance with MA standard operating procedures (SOP). • Trip blank and trip spike samples shall be used for volatiles during field sampling to ensure no cross contamination or laboratory artefacts. • Ensure that all laboratory hold times are met and that sample handling and transport are completed in accordance with the MA SOP.
Completeness – A measure of the amount of usable data from a data collection activity.	To ensure data set completeness, the following is required: • Confirmation that all sampling methodology was completed in general accordance with the MA SOP. • COC and receipt forms. • Results from all laboratory QA / QC samples (lab blanks, trip blank, trip spike, lab duplicates). • NATA accreditation stamp on all laboratory reports.

Assessment Measure (DQI)	Comment
Comparability - The confidence that data may be considered to be equivalent for each sampling and analytical event.	Data comparability is maintained by ensuring that: • All Site sampling events are undertaken following methodologies outlined in MA SOP and published guidelines. • NATA accredited laboratory methodologies shall be followed on all laboratory analysis.

6.4 Site Assessment Criteria

The SAC adopted for the investigation are listed in Table 11. Where laboratory double compositing of primary soil samples has occurred, the contaminant SAC has modified to half of the SAC value for screening purposes.

Table 11: Site Assessment Criteria.

Media	Adopted Guidelines	Applicability
Soil	ASC NEPM (2013)	Health investigation levels (HIL) NEPC (2013a) HIL C – Public open space (i.e. parks, play grounds, playing fields, ovals, secondary schools and foot path) Health screening levels (HSL) *Petroleum hydrocarbon HSLs* NEPC (2013a) HSL C – Recreational / Open space (coarse soils). *Asbestos HSLs* Assessed on a visual and detect / non-detect basis. Ecological Investigation Levels (EIL) Urban residential and public open space land use EILs have been derived by using the methodology prescribed in Schedule B1 of NEPC (2013a). EILs are calculated by using the Added Contaminant Levels (ACL) for respective contaminants presented in Table 1B(1), Table 1B(2), Table 1B(3), Table 1B(4) and Table 1B(5) from Schedule B1 of NEPC (2013). Ambient Background Concentrations (ABC) are also used for the calculation of EILs and are based on ABC concentrations for *NSW – old suburb / low traffic* settings, as tabulated in Schedule B5c of NEPC (2013c) for respective contaminants. The following physiochemical properties and considerations were calculated from laboratory analysis of 3 natural samples across the Site limited site-specific data: • pH: pH 5.6. • CEC: 4.17 cmol/kg. • Clay content: 5 %. • Contamination is considered aged (>2 years). The site-specific EIL calculations are presented in Appendix F. Ecological Screening Levels (ESL) NEPC (2013a) ESLs for TRH, BTEX, and benzo(α)pyrene (coarse textured soils) in urban residential and public open space land use settings. Management Limits NEPC (2013a) Management Limits (coarse textured soils) are adopted for assessment of TRH in residential, parkland, and public open space settings

6.5 Soil Investigation Methodology

The soil investigation and sampling methodology provide in Table 12 was completed to meet the project DQO.

Table 12: Investigation and sampling methodology

Activity	Detail / Comments
Fieldworks	Subsurface soil investigations were completed on 15 August 2023 by an experienced MA environmental consultant and involved: • Excavation of 24 surface samples (SS01 – SS24) using a clean shovel up to a maximum investigation depth of 0.2 mBGL and collection of soil samples. • Excavation of 12 boreholes (BH201 – BH212) using an electric auger up to a maximum investigation depth of 1.0 mBGL and collection of soil samples. • 12 x 500 mL asbestos fines (AF) / friable asbestos (FA) samples were collected in zip locked bags from the excavated boreholes for laboratory assessment for asbestos in soil in accordance with ASC NEPM (2013). • Laboratory double composting of 24 collected surface samples and laboratory analysis for 12 composites samples. • Laboratory analysis of 12 discrete soil samples. • Collection and laboratory analysis of 2 soil duplicate samples. Sampling locations are shown in Appendix A – Map 12.
Soil logging and field Observations	Soils were described in the field, with soil classifications and descriptions based on the Unified Soil Classification System (USCS) and Australian Standard AS 1726 – 2017 *Geotechnical site investigations*. Soils were also evaluated qualitatively for odour, visual evidence of contamination, and presence of anthropogenic inclusions. Soil descriptions and field observations are summarised in Section 7.1.
Soil sampling	Soil samples were collected by grab method, using unused, dedicated nitrile gloves. Samples were placed into laboratory supplied, acid washed, solvent rinsed, 250 mL glass jars, and filled with sufficient sample to minimise headspace to limit volatile loss, then sealed by a plastic lid. Blind field duplicates collected at a rate of 1 per 10 primary samples. Field duplicate samples were separated from respective primary samples and placed into glass jars. AF/FA soil samples were collected in zip locked bags.
Soil sample identification, storage, and handling	Sampling jars and zip locked bags were labelled with site specific nomenclature, including project number, sample location, sampling depth, date, and sampler initials. Sampling jars were stored in a refrigerated (ice-brick) cooler box and transported to Envirolab Services, a NATA accredited analytical laboratory, with an accompanying Chain of Custody (COC) document and laboratory supplied security seals. Laboratory analysis of 12 x 500 mL of soil samples collected in zip locked bags were dispatched to Australian Safer Environment and Technology for the analysis of AF/FA samples. Sample Receipt Advice (SRA) was provided by each laboratory, documenting sample conditions upon receipt at the laboratory. Copies of COC and SRA documents are presented in Appendix H.
Decontamination	The auger and shovel used for soil excavation purposes was decontaminated between sampling points by scrubbing with a solution of Decon 90, followed by rinsing with potable water.

6.6 Laboratory Analytical Suite

Laboratory analysis of soil samples was performed by Envirolab Services Pty Ltd, a NATA-accredited analytical laboratory. 24 surface samples were double composited by the laboratory prior to analysis (identified as CO1 to CO12).

A summary of the laboratory analyses conducted for the investigation is provided in Table 13.

Table 13: Summary of Soil Laboratory Analysis

COPC	Primary Samples Analysed	Composite Samples Analysed	QA/QC Samples Analysed
BTEXN	12	-	1 trip spike
TRH	12	-	1 trip blank
PAH	12	-	-
HM[1]	12	12	2 duplicates
OCP / OPP	12	12	-
Phenyl acid and triazine (Herbicides)	-	12	-
Asbestos in soil	12	-	-
AF/FA	12	-	-
pH and CEC	3	-	-

Notes

[1] HM – arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc.

Laboratory chain of custody (COC) documentation relating to the proposed analysis of samples is provided in Appendix H.

7 Investigation Results

7.1 Subsurface Conditions

Surface soil sampling was performed at each sampling location utilising manual hand tools. Soils observations from each sampling location indicated that fill material consisting of silty clayey sand to a maximum target depth of 0.2 mbgl.

Borehole soil sampling was performed at each sampling location utilising an electric auger. Soils observations from each sampling location indicated that fill consisting of silty and / or clayey sand was observed up to 1.0 mbgl, with alluvium and / or residual soil consisting of sandy and / or silty clay underlying fill material to a maximum target depth of 1.2 mbgl.

Groundwater or near surface intermittent water-bearing zones were not observed during intrusive investigation.

Sampling plan is provided in Appendix A (Map 12) and borehole logs are provided in Appendix E.

7.2 Field Observations

Field observations compiled during the intrusive investigation are summarised below:

- Olfactory evidence of contamination was not detected in soils during sampling at each test location.
- Visual evidence of contamination (i.e., slag, heavy staining, ash, charcoal, or coal wash rejects, etc.) in soil samples collected was not observed.
- Evidence of potential cement-fibre materials, potentially containing asbestos, were not observed in examined soils.

7.3 Soil Analytical Results

Samples collected from respective sampling locations were analysed for relevant COPC established by the CSM (Section 5) developed for the investigation. Laboratory analytical results obtained from the two sampling event completed at the Site were compared to SAC established for the investigation. A summary of these results is provided Table 14.

Table 14: Summary of Soil Analytical Results

Analyte	Results Compared to SAC
Heavy metals	HIL Laboratory results from analysed soil samples were reported below HIL-C. EIL Laboratory results for metals were reported below the EIL.
OCP/OPP	HIL Laboratory results from analysed soil samples were reported below HIL-C. EIL Laboratory results from analysed soil samples were reported below EIL criteria.

Analyte	Results Compared to SAC
TRH, **BTEXN**, **PAH**	HIL and HSL Laboratory results from analysed soil samples were reported below HSL-C criteria. EIL and ESL Laboratory results from analysed soil samples were reported below respective EIL and ESL criteria.
AF/FA	AF / FA was not detected in soil samples analysed by the analytical laboratory.
Phenyl Acid	HIL Laboratory results from analysed soil samples were reported below HIL-C.
Triazine (Herbicides)	HIL Laboratory results from analysed soil samples were reported below HIL-C.

Tabulated results showing laboratory establish contaminant concentrations for both composite and individual samples, alongside SAC, are present in Appendix F, while laboratory analytical reports are provided in Appendix H.

7.4 QA/QC Data Review

Field QA/QC data was collected in accordance with the project SAQP, as presented in Section 5. A review of both field and laboratory QA/QC procedures has been completed for the project and is presented in the data validation report in Appendix G.

Based on the review of QA/QC data, the overall quality of the field and analytical data obtained is considered to be of acceptable standard for interpretation.

8 Discussion and Conclusion

For the purposes of the proposed renovation works to 12 greens, this combined PSI and DSI has been completed by MA to evaluate potential land contamination associated with historical and current land use that may pose a potential risk to on and off site receptors.

Available site history information indicated that the land was used as under construction as a golf course prior to 1941 and most of the existing greens were constructed prior to 1961. The IA has remained its use as Bayview Golf Course to present day.

IA walkover did not identify any surficial forms (i.e. soil staining or odour) of contamination. Council records indicate that Bayview Golf Course underwent earthworks during the 90s which are considered potential sources of contamination.

A conceptual site model was developed for the site following the completion of the MA PSI's desktop review and visual site inspection, which identified the following AECs:

- Existing golf course use.
- Potential filled areas for the entire golf course.

In consideration of the identified AECs, there is a potential for the exposure pathway between contaminant and receptor to be complete, indicating there to be a risk of contamination within the IA. A soil sampling programme was therefore undertaken to further investigate these AECs via intrusive methods (surface sampling and borehole excavation) for visual assessment of asbestos and soil laboratory analysis of identified COPCs.

24 surface soil samples were collected to a maximum depth of 0.2 mBGL within the areas of proposed renovation works for the 12 greens (24 surface samples double composited - forming 12 composite samples). 12 boreholes were excavated via an electric auger to a maximum target depth of 1.2 mBGL at areas of potential fill. Soils at sampling locations were described fill material consisting of clayey and / or silty sands up to 1.0 mbgl, and alluvium and or residual soil material consisting of sandy and / or silty clays up to 1.2 mBGL. No visual evidence of potential contamination (i.e., PACM, odours or staining) was observed within subsurface soils.

Laboratory results of primary and composite samples were compared to human health and ecological assessment criteria based on residential (with accessible soil) land use. Laboratory analytical results for asbestos and all other COPCs were found at concentrations less than adopted SAC, indicating that contamination risk to human health and ecological receptors are considered low from potential exposure pathways via soil.

In light of the above, MA consider the IA to be suitable for green redevelopment works and no further contamination investigations are required.

We recommend that the following works are completed so that contamination risks remain low and acceptable during, and post construction works:

- Preparation and implementation of a Construction Environmental Management Plan (CEMP) for the construction phase of the project. The CEMP is to include protocols to address any unexpected finds which may be encountered during targeted excavation works for footings and other potential targeted minor excavation as part of the proposed development.

- If required, undertake a formal waste classification assessment to ensure that any spoil generated during excavation work is classified and disposed of in accordance with NSW EPA (2014) Waste Classification Guidelines.

9 Limitations

This combined PSI and DSI was undertaken in accordance with current industry standards.

It is important to note that no land contamination study can be considered to be a complete and exhaustive characterisation of a site nor can it be guaranteed that any assessment shall identify and characterise all areas of potential contamination or all past potentially contaminating land uses. This is particularly the case where onsite filling has occurred and site access was limited. Therefore, this report should not be read as a guarantee that only contamination identified shall be found on the site. Should material be exposed in future which appears to be contaminated, additional testing may be required to determine the implications for the site.

Martens & Associates Pty Ltd has undertaken this assessment for the purposes of assessing potential site contamination. No reliance on this report should be made for any other investigation or proposal. Martens & Associates Pty Ltd accepts no responsibility, and provides no guarantee regarding the characteristics of areas of the site not specifically studied in this investigation.

10 References

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11 Attachment A: Maps

Map	Title
Map 01	Overview
Map 02	Proposed Green Renovation Work Area
Map 03	Topography
Map 04	NSW Groundwater Bores
Map 05	Geology
Map 06	Soil Landscape
Map 07	Historical Aerial: 1940
Map 08	Historical Aerial: 1951
Map 09	Historical Aerial: 1961
Map 10	Historical Aerial: 1971
Map 11	Historical Aerial: 1978
Map 12	Historical Aerial: 1986
Map 13	Historical Aerial: 1994
Map 14	Historical Aerial: 2002
Map 15	Historical Aerial: 2005
Map 16	Historical Aerial: 2010
Map 17	Historical Aerial: 2016
Map 18	Historical Aerial: 2023
Map 19	Areas of Environmental Concern
Map 20	Investigation Plan

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Viewport

Notes:
- Aerial from Nearmap (2023)
- Cadastre from NSW DFSI Clip and Ship (2023)

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Map Title / Figure:
Overview

Map 01	Map
Bayview Golf Course, NSW	Site
Green Renovation Works	Project
Combined Preliminary and Detailed Site Investigation	Sub-Project
Bayview Golf Club	Client
01/09/2023	Date

Project No: P2309440 Map Set: MS02-R01 EPSG: 7856

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Viewport A

Notes:
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Map Title / Figure:
Proposed Green Renovation Work Area

Map 02	Map
Bayview Golf Course, NSW	Site
Green Renovation Works	Project
Combined Preliminary and Detailed Site Investigation	Sub-Project
Bayview Golf Club	Client
01/09/2023	Date

Project No: P2309440 Map Set: MS02-R01 EPSG: 7856

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Notes:
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- Cadastre from NSW DFSI Clip and Ship (2023)
- Contours from Elvis Lidar (2023)

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Map Title / Figure:
Topography

Map 03	Map
Bayview Golf Course, NSW	Site
Green Renovation Works	Project
Combined Preliminary and Detailed Site Investigation	Sub-Project
Bayview Golf Club	Client
01/09/2023	Date

Project No: P2309440 Map Set: MS02-R01 EPSG: 7856

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Viewport A

Notes:
- Aerial from Nearmap (2023)
- Groundwater bores from Bureau of Meteorology (2023)

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Map Title / Figure:
NSW Groundwater Bores

Map 04	Map
Bayview Golf Course, NSW	Site
Green Renovation Works	Project
Combined Preliminary and Detailed Site Investigation	Sub-Project
Bayview Golf Club	Client
01/09/2023	Date

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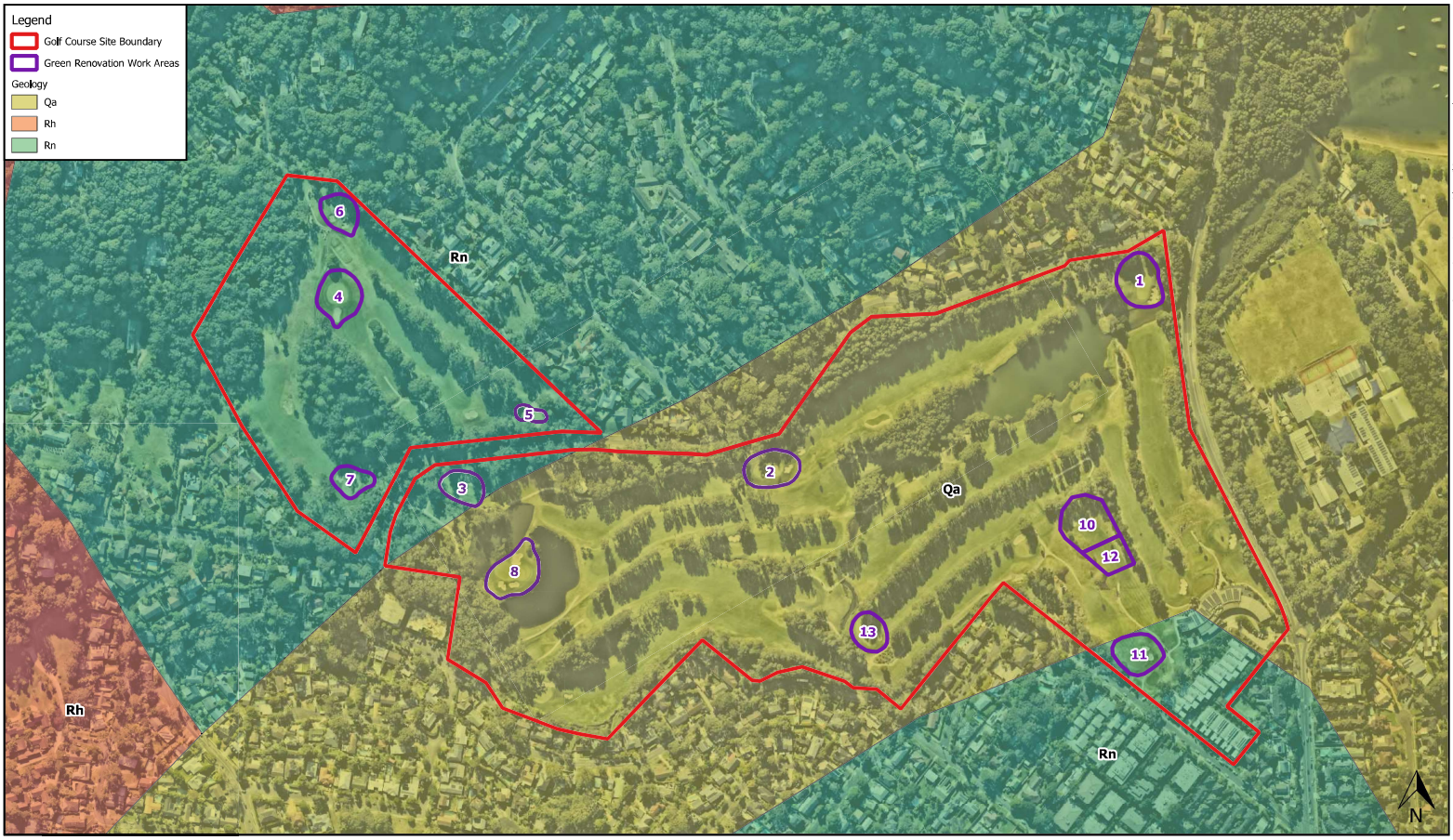

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Viewport A

Notes:
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- Geology map from Bryan J.H., 1966, Sydney 1:250 000 Geological Sheet SI/56-05, 3rd edition, Geological Survey of New South Wales, Sydney

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Map Title / Figure:
Geology

Map 05	Map
Bayview Golf Course, NSW	Site
Green Renovation Works	Project
Combined Preliminary and Detailed Site Investigation	Sub-Project
Bayview Golf Club	Client
01/09/2023	Date

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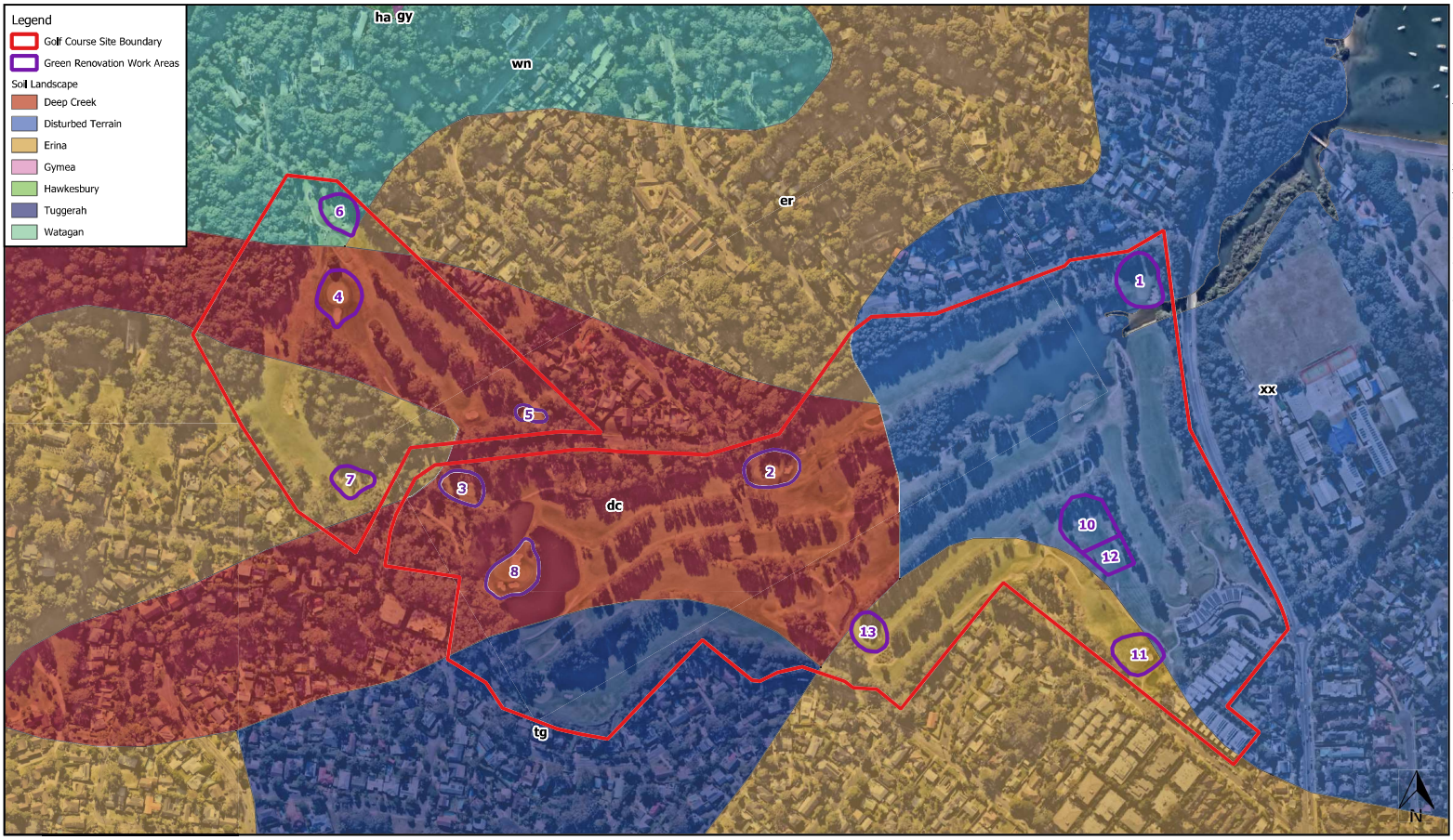

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Viewport A

Notes:
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- Soil Landscape from NSW SEED Portal (2023)

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Map Title / Figure:
Soil Landscape

Map 06	Map
Bayview Golf Course, NSW	Site
Green Renovation Works	Project
Combined Preliminary and Detailed Site Investigation	Sub-Project
Bayview Golf Club	Client
01/09/2023	Date

Project No: P2309440 Map Set: MS02-R01 EPSG: 7856

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Viewport A

Notes:
- Aerial from Nearmap (2023)

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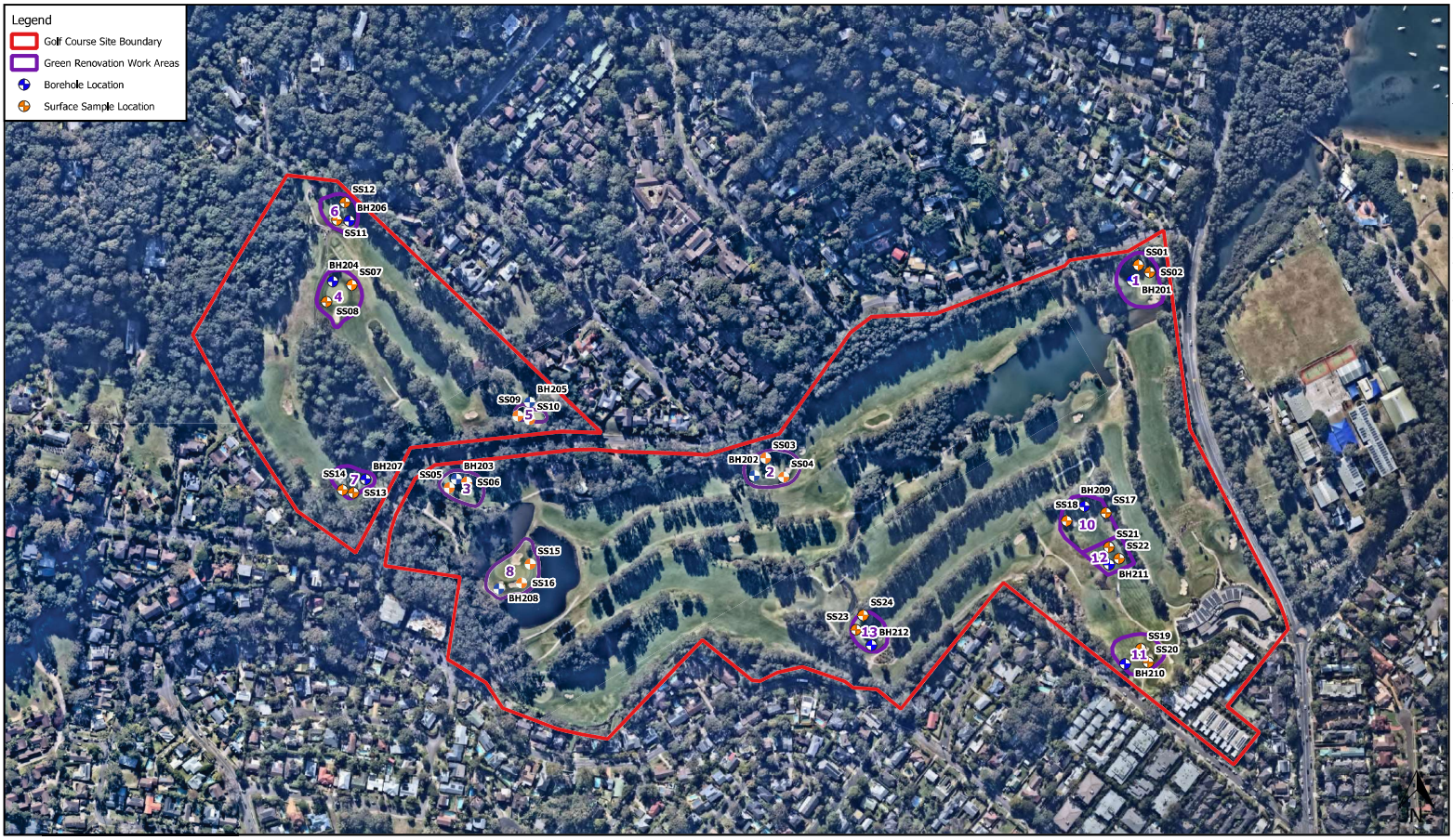
Map Title / Figure:
Areas of Environmental Concern

Map 19	Map
Bayview Golf Course, NSW	Site
Green Renovation Works	Project
Combined Preliminary and Detailed Site Investigation	Sub-Project
Bayview Golf Club	Client
01/09/2023	Date

Project No: P2309440 Map Set: MSO-A01 EPSG: 7856



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Viewport A

Notes:
- Aerial from Nearmap (2023)

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Map Title / Figure:
Investigation Plan

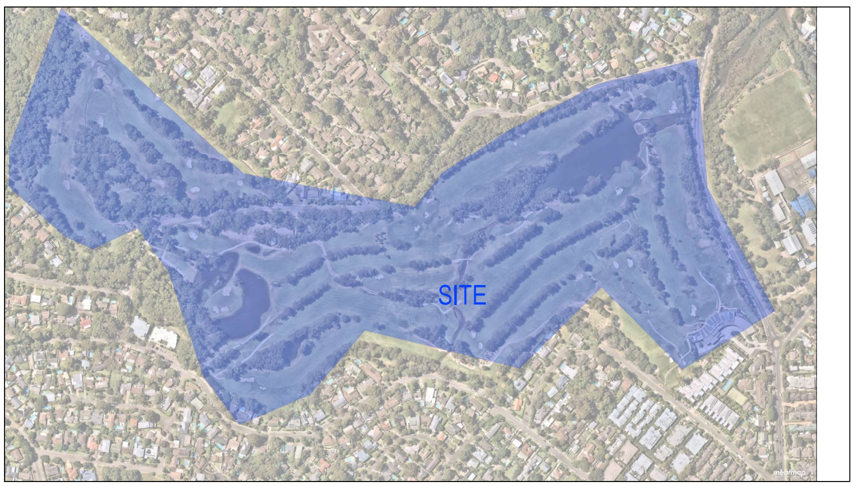
Map 20	Map
Bayview Golf Course, NSW	Site
Green Renovation Works	Project
Combined Preliminary and Detailed Site Investigation	Sub-Project
Bayview Golf Club	Client
01/09/2023	Date

Project No: P2309440 Map Set: MSO-A01 EPSG: 7856

12 Attachment B: Proposed Masterplan

SEDIMENT & EROSION CONTROL MANAGEMENT
BAYVIEW GOLF CLUB

DRAWING LIST	
DRAWING No.	DRAWING TITLE
C100	TITLE PAGE & LOCALITY PLAN
C110	ZONE MAP AREAS & GENERAL WORKS
C111	1ST GREEN DETAIL PLAN
C112	2ND GREEN DETAIL PLAN
C113	3RD GREEN DETAIL PLAN
C114	4TH GREEN DETAIL PLAN
C115	5TH GREEN DETAIL PLAN
C116	6TH GREEN DETAIL PLAN
C117	7TH GREEN DETAIL PLAN
C118	8TH GREEN DETAIL PLAN
C119	10TH GREEN DETAIL PLAN
C120	11TH GREEN DETAIL PLAN
C121	12TH GREEN DETAIL PLAN
C122	13TH GREEN DETAIL PLAN
C130	TYPICAL SEDIMENT & EROSION CONTROL DETAILS



LOCALITY PLAN
1825 PITTWATER ROAD, MONA VALE NSW, 2103, AUSTRALIA

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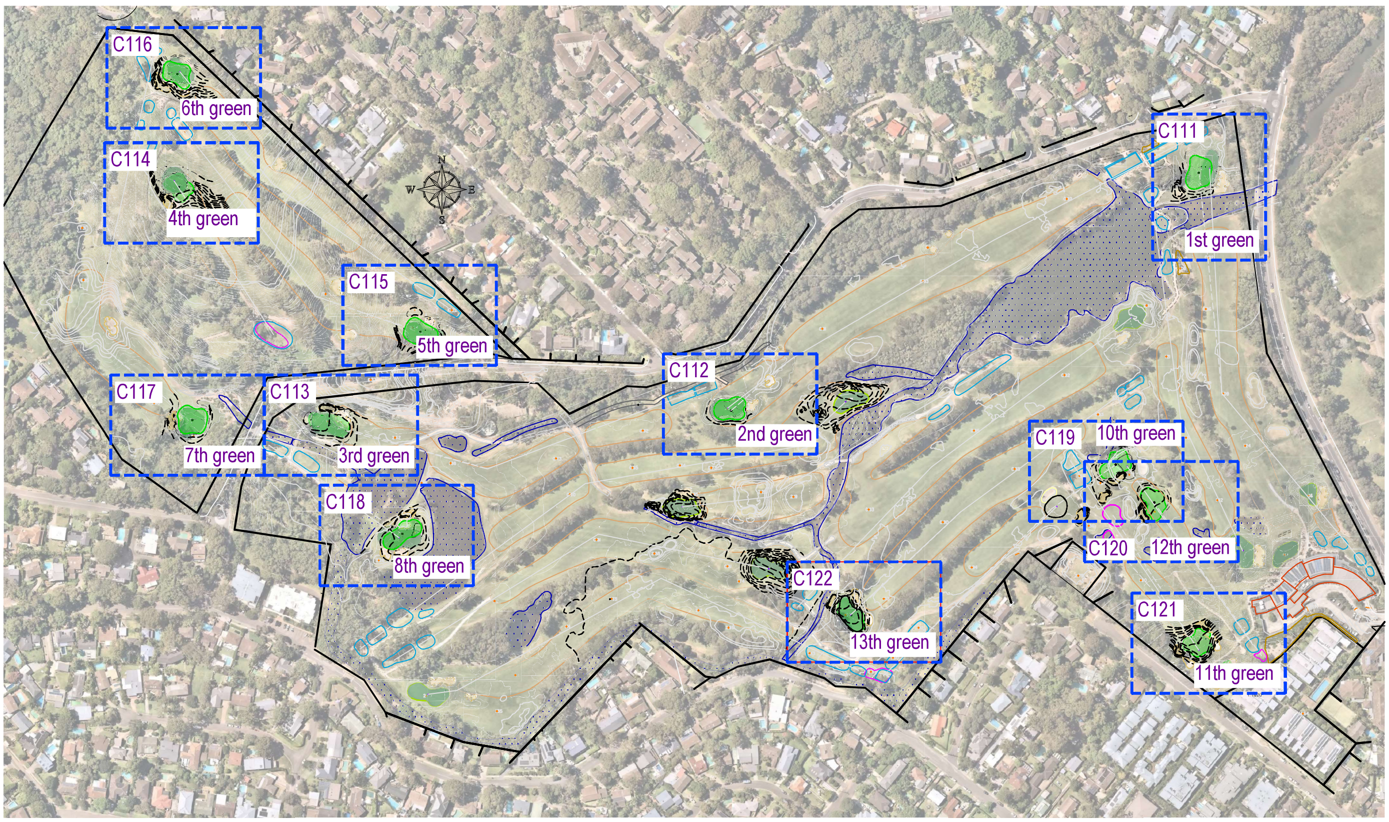

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ZONE MAP AREAS & GENERAL WORKS

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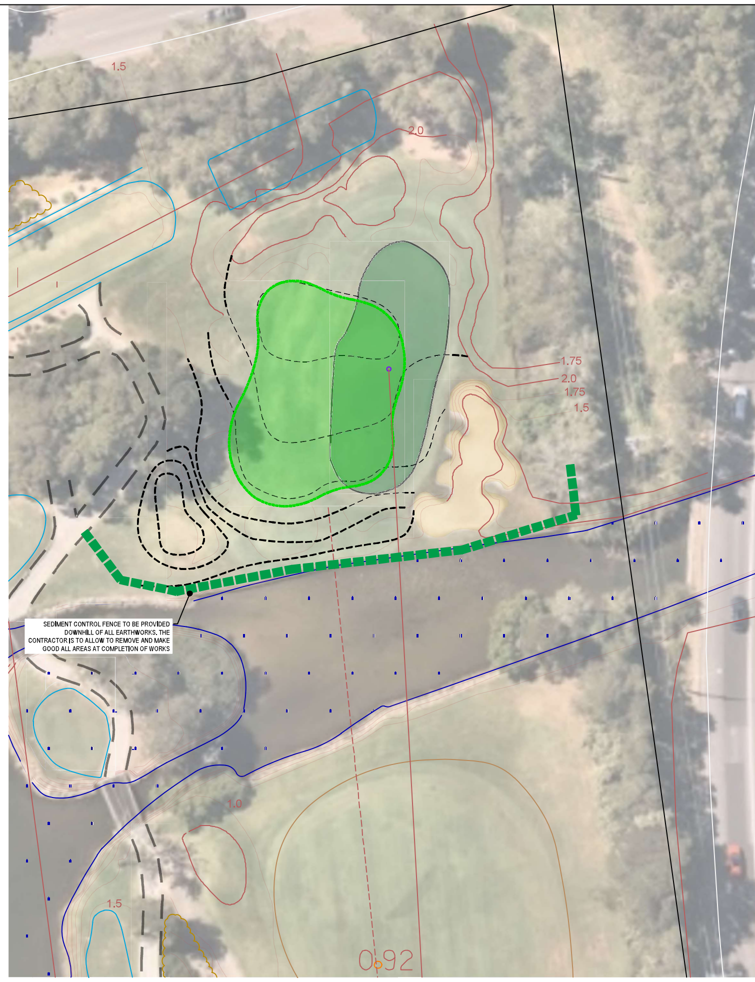

CUT AND FILL VOLUMES

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		1st	2nd	3rd	4th	5th	6th	7th	8th	10th	11th	12th	13th	
Final Surface v Existing Surface	Cut	0	-10	-10	-426	-2	-454	-8	-17	0	-517	0	0	-1444
	Fill	291	72	87	0	105	0	87	21	233	3	290	188	1377
	Balance	291	62	77	-426	103	-454	79	4	233	-514	290	188	-67

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1ST GREEN DETAIL PLAN

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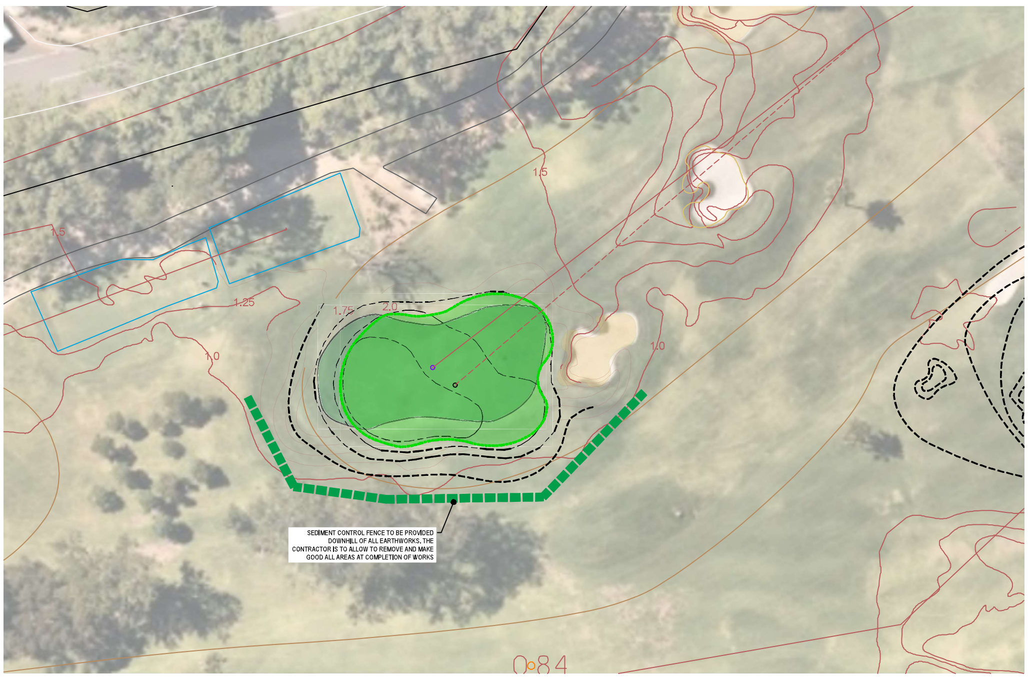

CUT AND FILL VOLUMES

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Final Surface v Existing Surface	Cut	0	-10	-10	-426	-2	-454	-8	-17	0	-517	0	0	-1444
	Fill	291	72	87	0	105	0	87	21	233	3	290	188	1377
	Balance	291	62	77	-426	103	-454	79	4	233	-514	290	188	-67

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SCALE 1:500 @ A3
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2ND GREEN DETAIL PLAN

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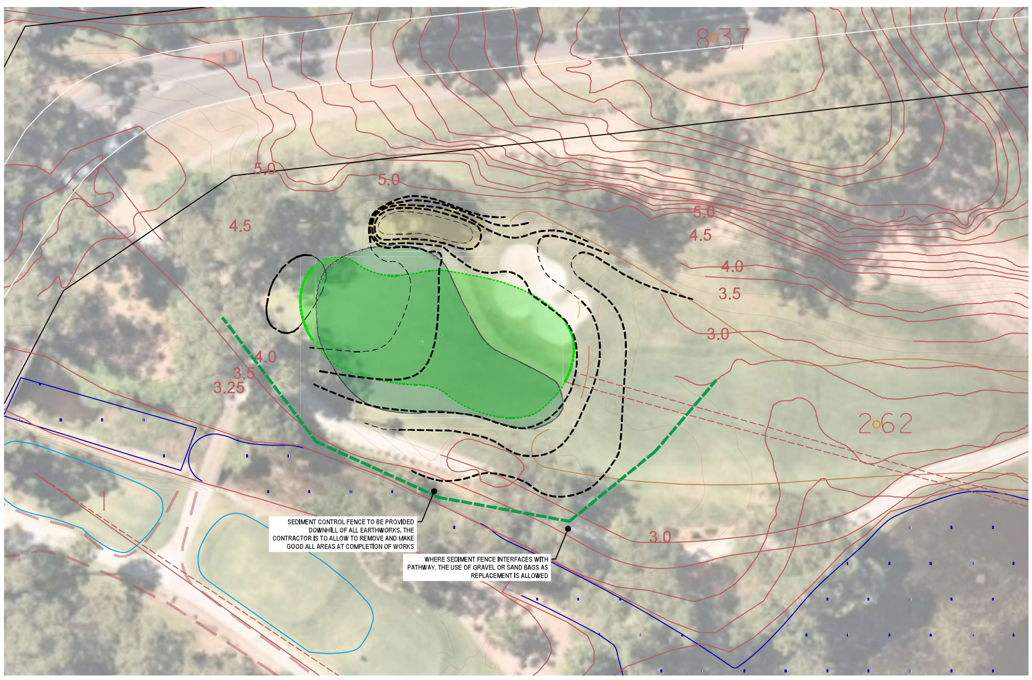

CUT AND FILL VOLUMES

Assessment Surfaces	Volumes m3	Hole												TOTAL m3
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	Fill	291	72	87	0	105	0	87	21	233	3	290	188	1377
	Balance	291	62	77	-426	103	-454	79	4	233	-514	290	188	-67

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SCALE 1:500 @ A3
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3RD GREEN DETAIL PLAN

JOB NUMBER:	SCALE @ A1	SHEET No	REV
23003	1:250	C113	A

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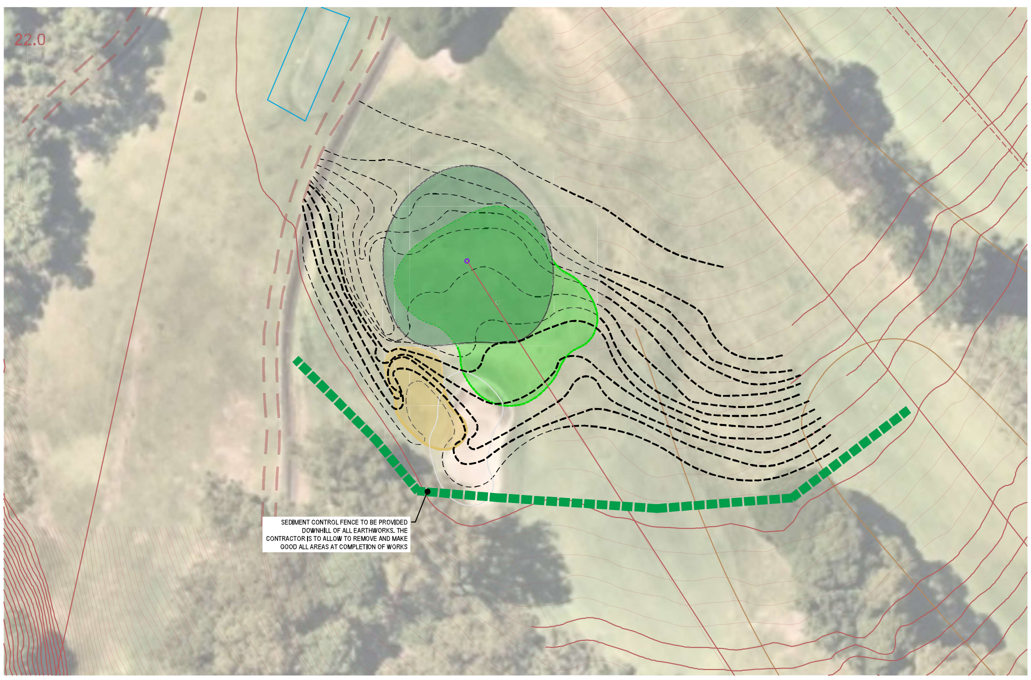
LEGEND

- PROPOSED SANDTRAP
- EXISTING GREEN
- PROPOSED GREEN
- EXISTING CONTOUR
- PROPOSED CONTOUR
- SEDIMENT FENCE



CUT AND FILL VOLUMES

Assessment Surfaces	Volumes m3	Hole												TOTAL m3
		1st	2nd	3rd	4th	5th	6th	7th	8th	10th	11th	12th	13th	
Final Surface v Existing Surface	Cut	0	-10	-10	-426	-2	-454	-8	-17	0	-517	0	0	-1444
	Fill	291	72	87	0	105	0	87	21	233	3	290	188	1377
	Balance	291	62	77	-426	103	-454	79	4	233	-514	290	188	-67

SCALE 1:250 @ A1
SCALE 1:500 @ A3
0 2.5 5 10 15 20 25 metres

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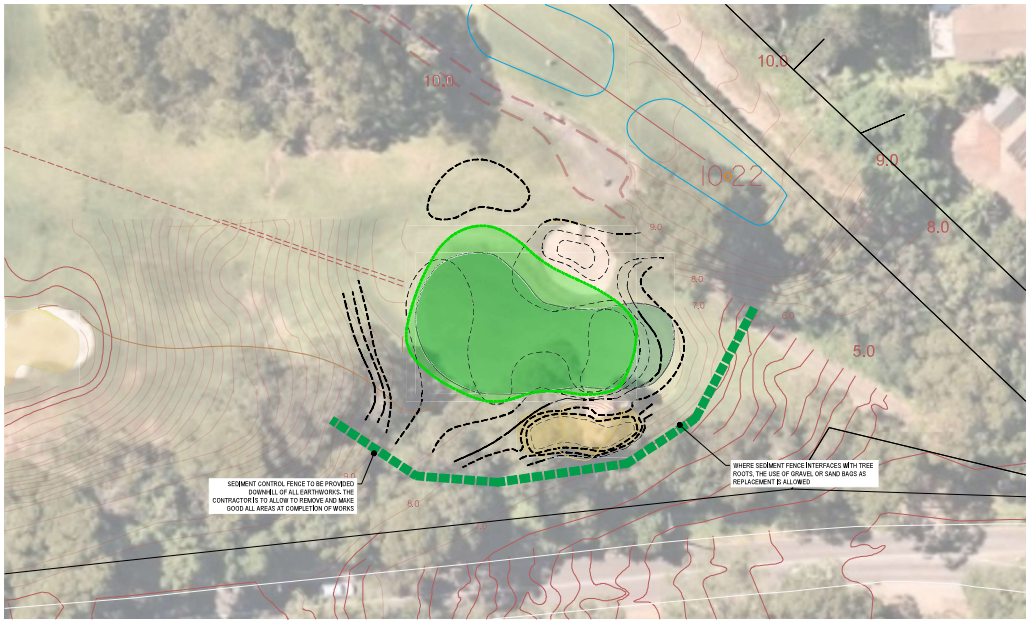
4TH GREEN DETAIL PLAN

JOB NUMBER:	SCALE @ A1	SHEET No	REV
23003	1:250	C114	A

LEGEND

- PROPOSED SANDTRAP
- EXISTING GREEN
- PROPOSED GREEN
- EXISTING CONTOUR
- PROPOSED CONTOUR
- SEDIMENT FENCE



CUT AND FILL VOLUMES

Assessment Surfaces	Volumes m3	Hole												TOTAL m3
		1st	2nd	3rd	4th	5th	6th	7th	8th	10th	11th	12th	13th	
Final Surface	Cut	0	-10	-10	-426	-2	-454	-8	-17	0	-517	0	0	-1444
v	Fill	291	72	87	0	105	0	87	21	233	3	290	188	1377
Existing Surface	Balance	291	62	77	-426	103	-454	79	4	233	-514	290	188	-67

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SCALE 1:250 @ A1
SCALE 1:500 @ A3
0 2.5 5 10 15 20 25 metres

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CLIENT
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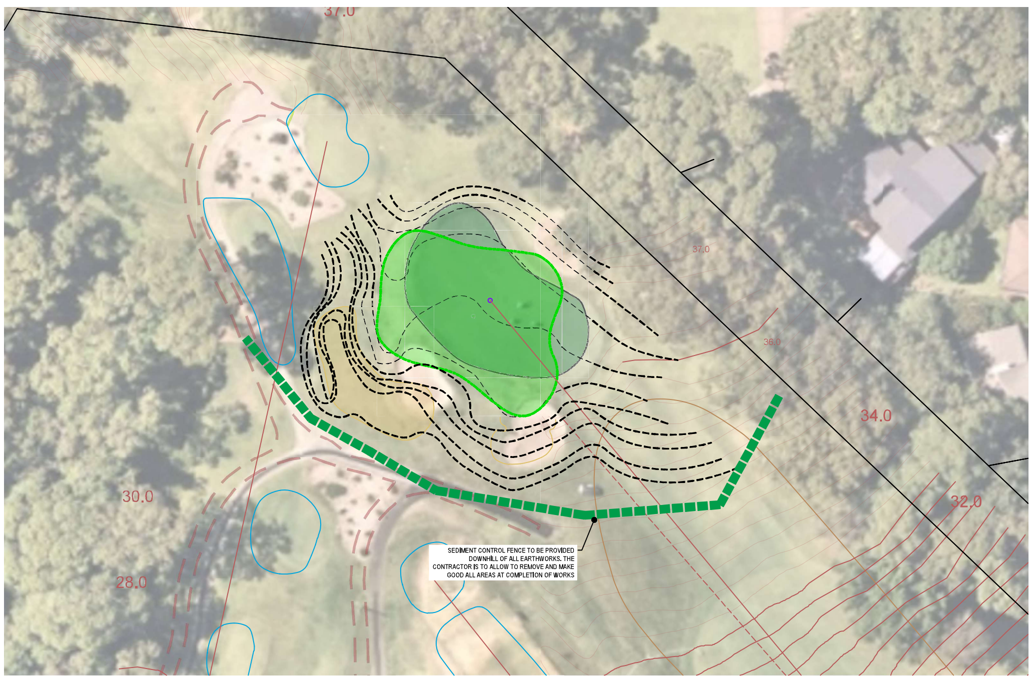
5TH GREEN DETAIL PLAN

JOB NUMBER	SCALE @ A1	SHEET No	REV
23003	1:250	C115	A

LEGEND

- PROPOSED SANDTRAP
- EXISTING GREEN
- PROPOSED GREEN
- EXISTING CONTOUR
- PROPOSED CONTOUR
- SEDIMENT FENCE



CUT AND FILL VOLUMES

Assessment Surfaces	Volumes m3	Hole												TOTAL m3
		1st	2nd	3rd	4th	5th	6th	7th	8th	10th	11th	12th	13th	
Final Surface v Existing Surface	Cut	0	-10	-10	-426	-2	-454	-8	-17	0	-517	0	0	-1444
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	Balance	291	62	77	-426	103	-454	79	4	233	-514	290	188	-67

SCALE 1:250 @ A1
SCALE 1:500 @ A3
0 2.5 5 10 15 20 25 metres

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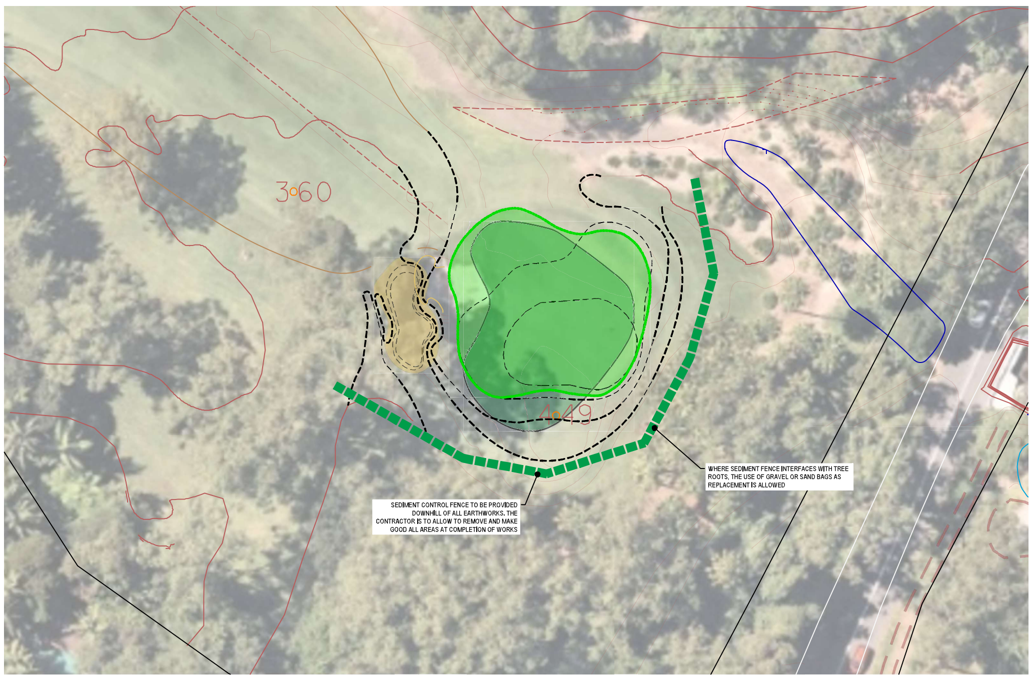
6TH GREEN DETAIL PLAN

JOB NUMBER:	SCALE @ A1	SHEET No	REV
23003	1:250	C116	A

LEGEND

- PROPOSED SANDTRAP
- EXISTING GREEN
- PROPOSED GREEN
- EXISTING CONTOUR
- PROPOSED CONTOUR
- SEDIMENT FENCE



CUT AND FILL VOLUMES

Assessment Surfaces	Volumes m3	Hole												TOTAL m3
		1st	2nd	3rd	4th	5th	6th	7th	8th	10th	11th	12th	13th	
Final Surface v Existing Surface	Cut	0	-10	-10	-426	-2	-454	-8	-17	0	-517	0	0	-1444
	Fill	291	72	87	0	105	0	87	21	233	3	290	188	1377
	Balance	291	62	77	-426	103	-454	79	4	233	-514	290	188	-67

SCALE 1:250 @ A1
SCALE 1:500 @ A3
0 2.5 5 10 15 20 25 metres

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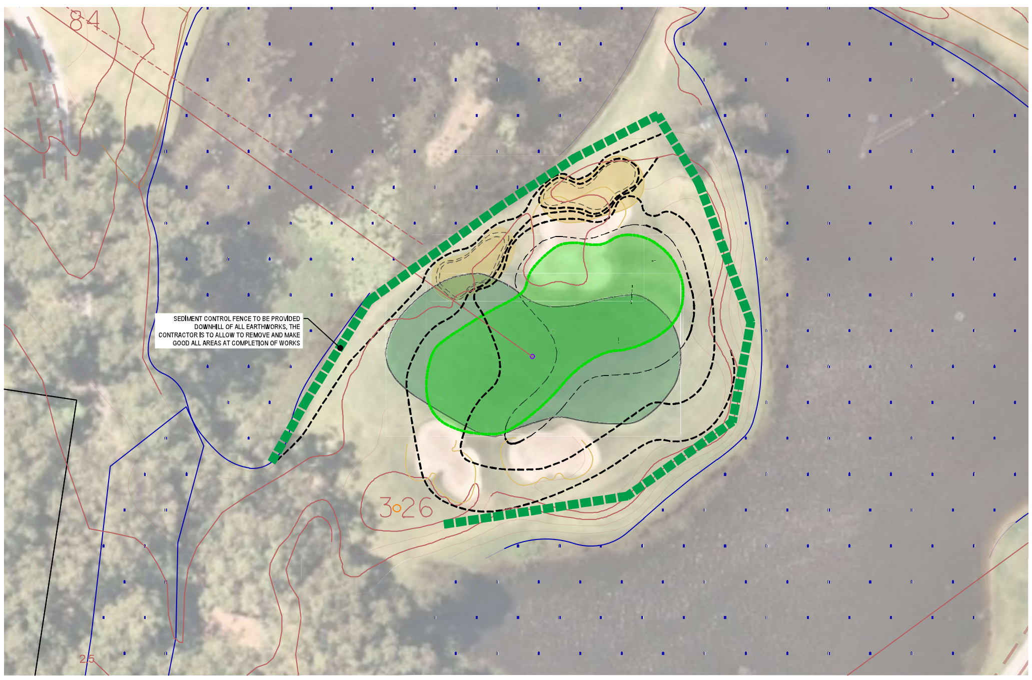
7TH GREEN DETAIL PLAN

JOB NUMBER:	SCALE @ A1	SHEET No	REV
23003	1:250	C117	A

LEGEND

- PROPOSED SANDTRAP
- EXISTING GREEN
- PROPOSED GREEN
- EXISTING CONTOUR
- PROPOSED CONTOUR
- SEDIMENT FENCE



CUT AND FILL VOLUMES

Assessment Surfaces	Volumes m3	Hole												TOTAL m3
		1st	2nd	3rd	4th	5th	6th	7th	8th	10th	11th	12th	13th	
Final Surface v Existing Surface	Cut	0	-10	-10	-426	-2	-454	-8	-17	0	-517	0	0	-1444
	Fill	291	72	87	0	105	0	87	21	233	3	290	188	1377
	Balance	291	62	77	-426	103	-454	79	4	233	-514	290	188	-67

SCALE 1:250 @ A1
SCALE 1:500 @ A3
0 2.5 5 10 15 20 25 metres

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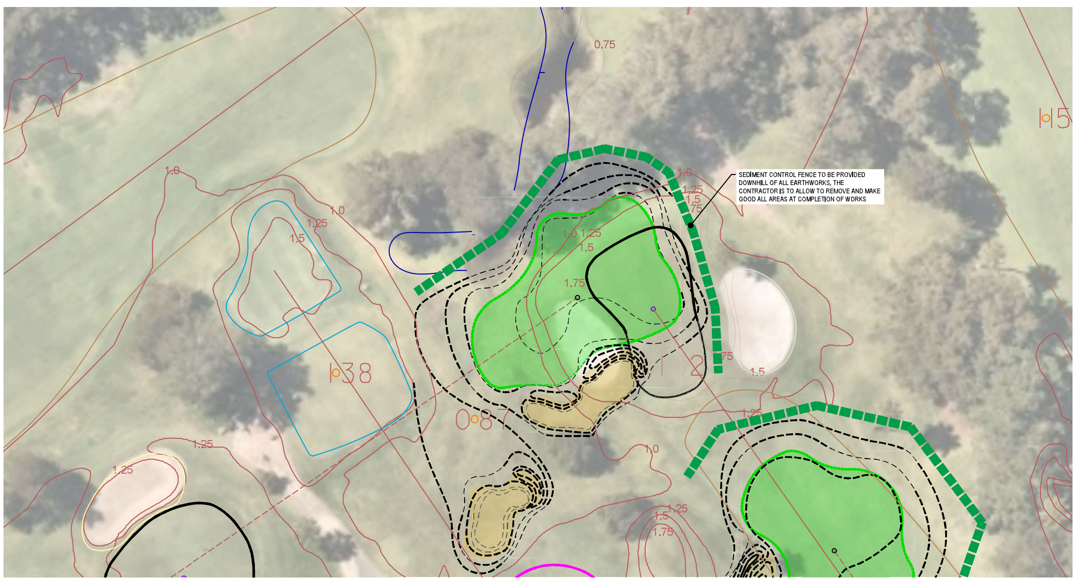
8TH GREEN DETAIL PLAN

JOB NUMBER:	SCALE @ A1	SHEET No	REV
23003	1:250	C118	A

LEGEND

- PROPOSED SANDTRAP
- EXISTING GREEN
- PROPOSED GREEN
- EXISTING CONTOUR
- PROPOSED CONTOUR
- SEDIMENT FENCE



CUT AND FILL VOLUMES

Assessment Surfaces	Volumes m3	Hole												TOTAL m3
		1st	2nd	3rd	4th	5th	6th	7th	8th	10th	11th	12th	13th	
Final Surface v Existing Surface	Cut	0	-10	-10	-426	-2	-454	-8	-17	0	-517	0	0	-1444
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	Balance	291	62	77	-426	103	-454	79	4	233	-514	290	188	-67

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SCALE 1:250 @ A1
SCALE 1:500 @ A3
0 2.5 5 10 15 20 25 metres

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10TH GREEN DETAIL PLAN

JOB NUMBER:	SCALE @ A1	SHEET No	REV
23003	1:250	C119	A

THIS TEXT TO BE PRINTED IN COLOUR

LEGEND

- PROPOSED SANDTRAP
- EXISTING GREEN
- PROPOSED GREEN
- EXISTING CONTOUR
- PROPOSED CONTOUR
- SEDIMENT FENCE

CUT AND FILL VOLUMES

Assessment Surfaces	Volumes m3	Hole												TOTAL m3
		1st	2nd	3rd	4th	5th	6th	7th	8th	10th	11th	12th	13th	
Final Surface v Existing Surface	Cut	0	-10	-10	-426	-2	-454	-8	-17	0	-517	0	0	-1444
	Fill	291	72	87	0	105	0	87	21	233	3	290	188	1377
	Balance	291	62	77	-426	103	-454	79	4	233	-514	290	188	-67

SCALE 1:250 @ A1
SCALE 1:500 @ A3
0 2.5 5 10 15 20 25 metres

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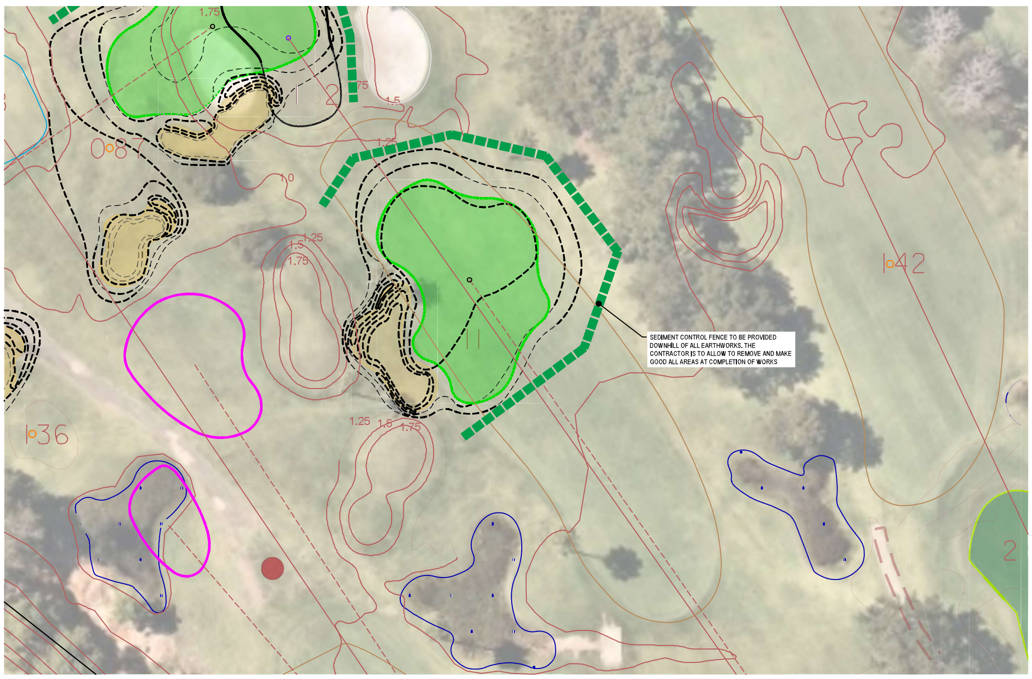
11TH GREEN DETAIL PLAN

JOB NUMBER:	SCALE @ A1	SHEET No	REV
23003	1:250	C120	A

LEGEND

- PROPOSED SANDTRAP
- EXISTING GREEN
- PROPOSED GREEN
- EXISTING CONTOUR
- PROPOSED CONTOUR
- SEDIMENT FENCE



CUT AND FILL VOLUMES

Assessment Surfaces	Volumes m3	Hole												TOTAL m3
		1st	2nd	3rd	4th	5th	6th	7th	8th	10th	11th	12th	13th	
Final Surface v Existing Surface	Cut	0	-10	-10	-426	-2	-454	-8	-17	0	-517	0	0	-1444
	Fill	291	72	87	0	105	0	87	21	233	3	290	188	1377
	Balance	291	62	77	-426	103	-454	79	4	233	-514	290	188	-67

SCALE 1:250 @ A1
SCALE 1:500 @ A3
0 2.5 5 10 15 20 25 metres

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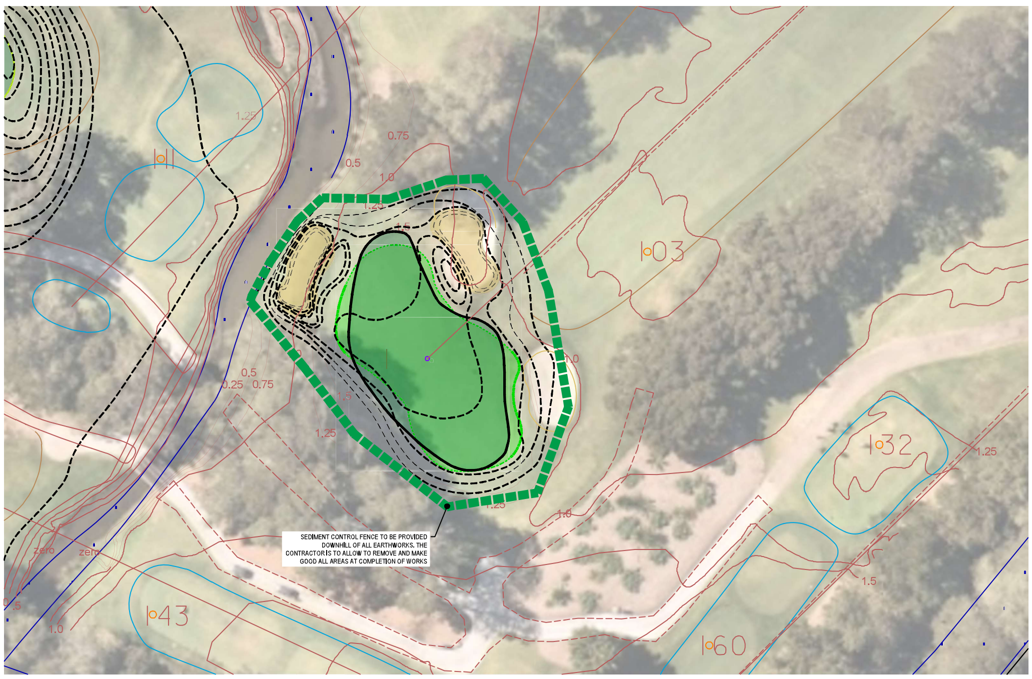
12TH GREEN DETAIL PLAN

JOB NUMBER:	SCALE @ A1	SHEET No	REV
23003	1:250	C121	A

LEGEND

- PROPOSED SANDTRAP
- EXISTING GREEN
- PROPOSED GREEN
- EXISTING CONTOUR
- PROPOSED CONTOUR
- SEDIMENT FENCE



CUT AND FILL VOLUMES

Assessment Surfaces	Volumes m3	Hole												TOTAL m3
		1st	2nd	3rd	4th	5th	6th	7th	8th	10th	11th	12th	13th	
Final Surface v Existing Surface	Cut	0	-10	-10	-426	-2	-454	-8	-17	0	-517	0	0	-1444
	Fill	291	72	87	0	105	0	87	21	233	3	290	188	1377
	Balance	291	62	77	-426	103	-454	79	4	233	-514	290	188	-67

SCALE 1:250 @ A1
SCALE 1:500 @ A3
0 2.5 5 10 15 20 25 metres

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13TH GREEN DETAIL PLAN

JOB NUMBER:	SCALE @ A1	SHEET No	REV
23003	1:250	C122	A

EROSION AND SEDIMENT CONTROL

GENERAL INSTRUCTIONS

1. THIS PLAN IS TO BE READ IN CONJUNCTION WITH THE ENGINEERING PLANS, AND ANY OTHER PLANS OR WRITTEN INSTRUCTIONS THAT MAY BE ISSUED AND RELATING TO DEVELOPMENT AT THE SUBJECT SITE.
2. THE SITE SUPERINTENDENT WILL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE LOCATED AS INSTRUCTED IN THIS SPECIFICATION.
3. ALL BUILDERS AND SUB-CONTRACTORS WILL BE INFORMED OF THEIR RESPONSIBILITIES IN MINIMISING THE POTENTIAL FOR SOIL EROSION AND POLLUTION TO DOWNSLOPE LANDS AND WATERWAYS.

CONSTRUCTION SEQUENCE

4. THE SOIL EROSION POTENTIAL ON THIS SITE SHALL BE MINIMISED. HENCE WORKS SHALL BE UNDERTAKEN IN THE FOLLOWING SEQUENCE :
   a. INSTALL SEDIMENT FENCES, TEMPORARY CONSTRUCTION EXIT AND SANDBAG KERB INLET SEDIMENT TRAP.
   b. UNDERTAKE SITE DEVELOPMENT WORKS IN ACCORDANCE WITH THE ENGINEERING PLANS. PHASE DEVELOPMENT SO THAT LAND DISTURBANCE IS CONFINED TO AREAS OF WORKABLE SIZE.

EROSION CONTROL

5. DURING WINDY CONDITIONS, LARGE, UNPROTECTED AREAS WILL BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL.
6. FINAL SITE LANDSCAPING WILL BE UNDERTAKEN AS SOON AS POSSIBLE AND WITHIN 20 WORKING DAYS FROM COMPLETION OF CONSTRUCTION ACTIVITIES.

FENCING

7. STOCKPILES WILL NOT BE LOCATED WITHIN 2 METRES OF HAZARD AREAS, INCLUDING LIKELY AREAS OF CONCENTRATED OR HIGH VELOCITY FLOWS SUCH AS WATERWAYS. WHERE THEY ARE BETWEEN 2 AND 5 METRES FROM SUCH AREAS, SPECIAL SEDIMENT CONTROL MEASURES SHOULD BE TAKEN TO MINIMISE POSSIBLE POLLUTION TO DOWNSLOPE WATERS, E.G. THROUGH INSTALLATION OF SEDIMENT FENCING.
8. ANY SAND USED IN THE CONCRETE CURING PROCESS (SPREAD OVER THE SURFACE) WILL BE REMOVED AS SOON AS POSSIBLE AND WITHIN 10 WORKING DAYS FROM PLACEMENT.
9. WATER WILL BE PREVENTED FROM ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS RELATIVELY SEDIMENT FREE, I.E. THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED AND/OR ANY LIKELY SEDIMENT HAS BEEN FILTERED THROUGH AN APPROVED STRUCTURE.
10. TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES WILL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE REHABILITATED.

OTHER MATTERS

11. ACCEPTABLE RECEPTORS WILL BE PROVIDED FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER.
12. RECEPTORS FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER ARE TO BE EMPTIED AS NECESSARY. DISPOSAL OF WASTE SHALL BE IN A MANNER APPROVED BY THE SITE SUPERINTENDENT.

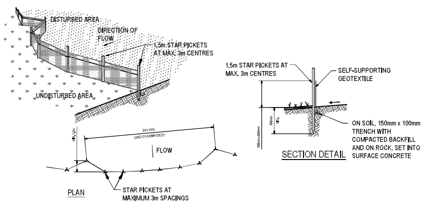
SITE INSPECTION & MAINTENANCE

13. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED AFTER RAINFALL EVENTS TO ENSURE THAT THEY OPERATE EFFECTIVELY. REPAIR AND OR MAINTENANCE SHALL BE UNDERTAKEN AS REQUIRED.

1. ALL STRIPPED TOPSOIL AND EARTHWORKS IS TO BE RELOCATED ON SITE AT THE DISCRETION OF THE CLIENT AND ARBORIST. FOR MATERIAL WHICH CANNOT BE RE-USED ON SITE, IT IS TO BE STOCKPILED AND REMOVED FROM SITE

SEDIMENT & EROSION CONTROL LEGEND

(green dashed line)	SEDIMENT FENCE
(sand bags)	SAND BAG SEDIMENT TRAP TO BE USED AT ALL CONSTRUCTED OR EXISTING PITS SAND BAG CAN BE USED FOR SUBSTITUTE TO SEDIMENT FENCE WHERE INSTALLATION OF STAKES IS NOT POSSIBLE SUCH AS ADJACENT TO TREES, IN ROCK OR AT INTERFACE WITH PATHWAYS



CONSTRUCTION NOTES
1. CONSTRUCT SEDIMENT FENCE AS CLOSE AS POSSIBLE TO PARALLEL TO THE CONTOURS OF THE SITE.
2. DRIVE 1.5m LONG STAR PICKETS INTO GROUND, 3 METERS APART.
3. DIG A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
4. BACKFILL TRENCH OVER BASE OF FABRIC.
5. FIX SELF-SUPPORTING GEOTEXTILE TO UPSLOPE SIDE OF POSTS WITH WIRE TIES OR AS RECOMMENDED BY GEOTEXTILE MANUFACTURER.
6. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.

SEDIMENT CONTROL FENCE

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TYPICAL SEDIMENT & EROSION CONTROL DETAILS

JOB NUMBER:	SCALE @ A1	SHEET No	REV
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13 Attachment C: Aerial Photograph

0 40 80 120 160 200 m

1:4000 @ A3

Viewport A

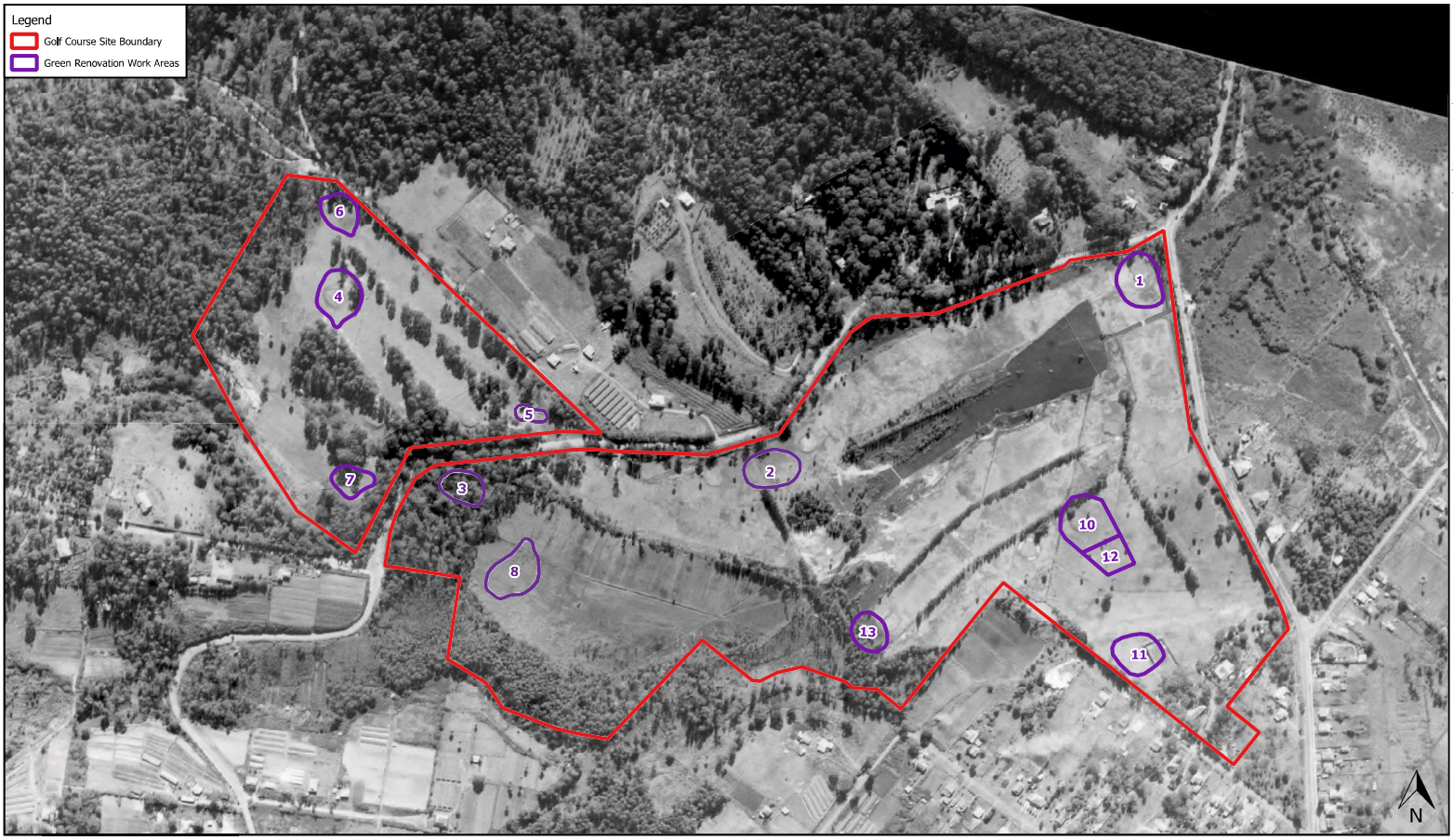
Notes:
- Aerial from Foundation Spatial Data - ICSM (1940)

martens
Environment | Water | Geotechnics | Civil | Projects

Map Title / Figure:
Historical Aerial: 1940

Map 07	Map
Bayview Golf Course, NSW	Site
Green Renovation Works	Project
Combined Preliminary and Detailed Site Investigation	Sub-Project
Bayview Golf Club	Client
01/09/2023	Date

Project No: P2309440 Map Set: MS02-R01 EPSG: 7856



0 40 80 120 160 200 m

1:4000 @ A3

Viewport A

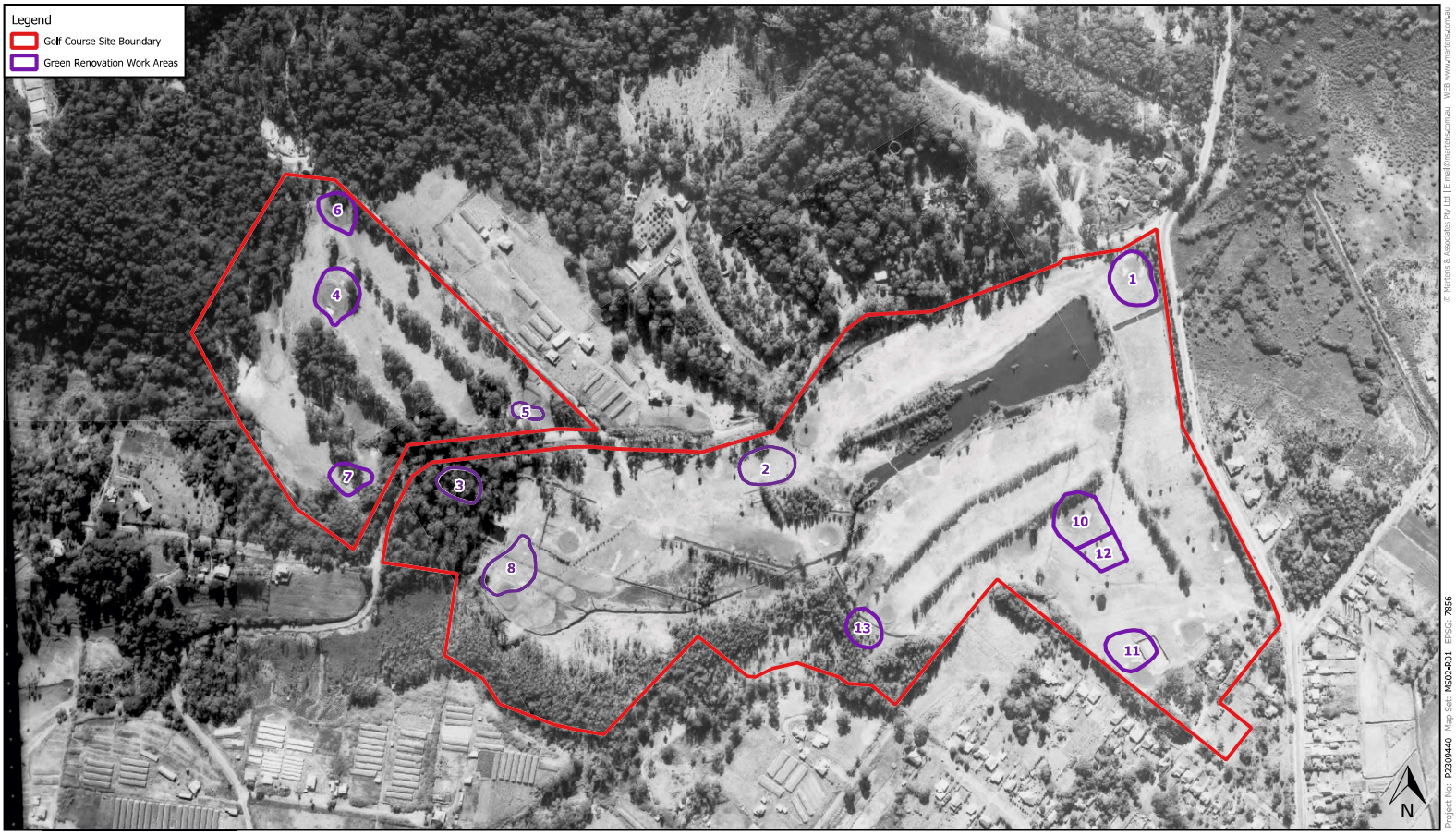
Notes:
- Aerial from NSW Spatial Services - HAPE (1951)

martens
Environment | Water | Geotechnics | Civil | Projects

Map Title / Figure:
Historical Aerial: 1951

Map 08	Map
Bayview Golf Course, NSW	Site
Green Renovation Works	Project
Combined Preliminary and Detailed Site Investigation	Sub-Project
Bayview Golf Club	Client
01/09/2023	Date

Project No: P2309440 Map Set: MS02-R01 EPSG: 7856



0 40 80 120 160 200 m

1:4000 @ A3

Viewport A

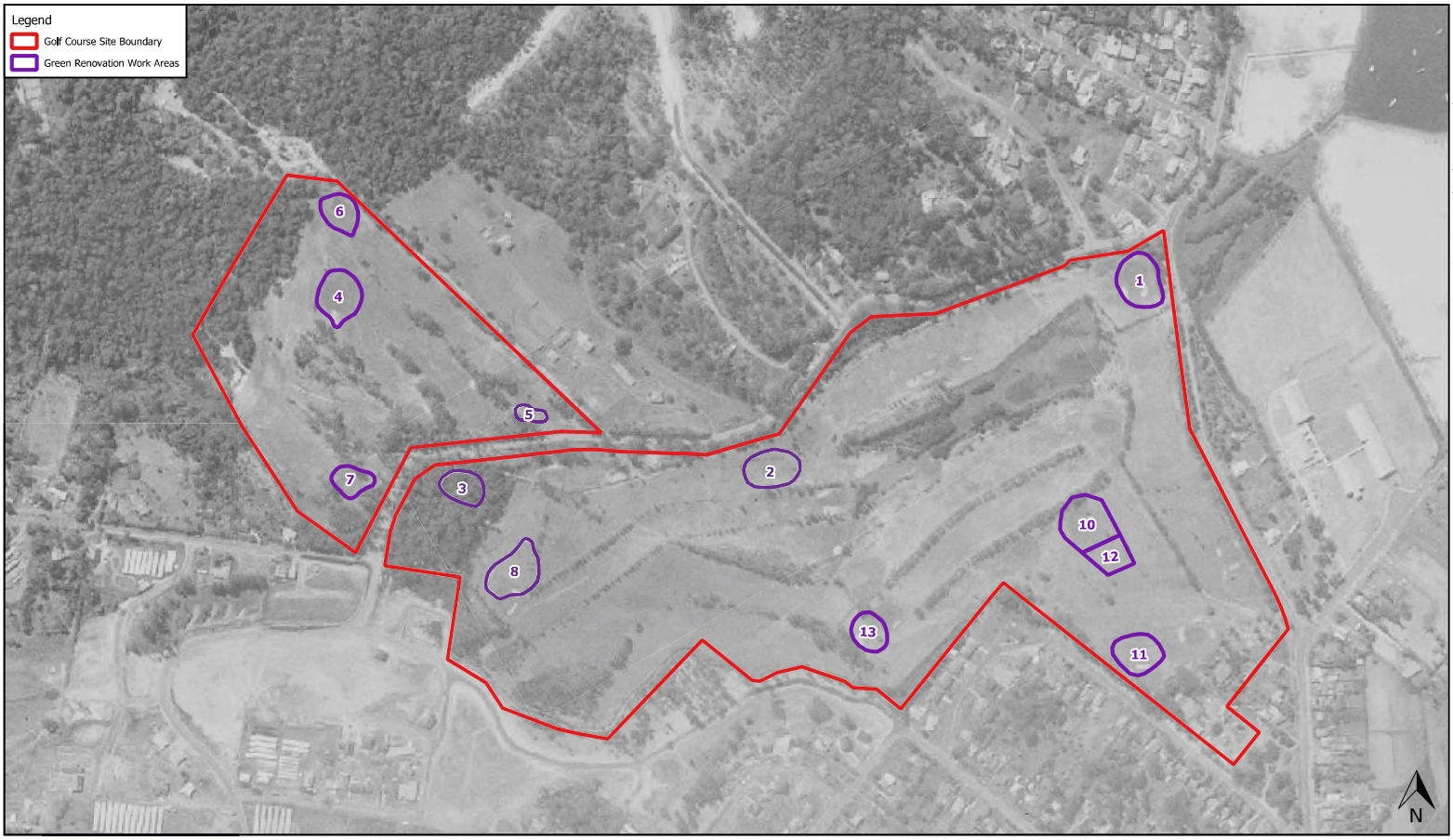
Notes:
- Aerial from NSW Spatial Services - HAPE (1961)

Map Title / Figure:
Historical Aerial: 1961

Map 09	Map
Bayview Golf Course, NSW	Site
Green Renovation Works	Project
Combined Preliminary and Detailed Site Investigation	Sub-Project
Bayview Golf Club	Client
01/09/2023	Date

martens
Environment | Water | Geotechnics | Civil | Projects

Project No: P2309440 Map Set: MS02-A01 EPSG: 7856



0 40 80 120 160 200 m

1:4000 @ A3

Viewport A

Notes:
- Aerial from NSW Spatial Services - HAPE (1971)

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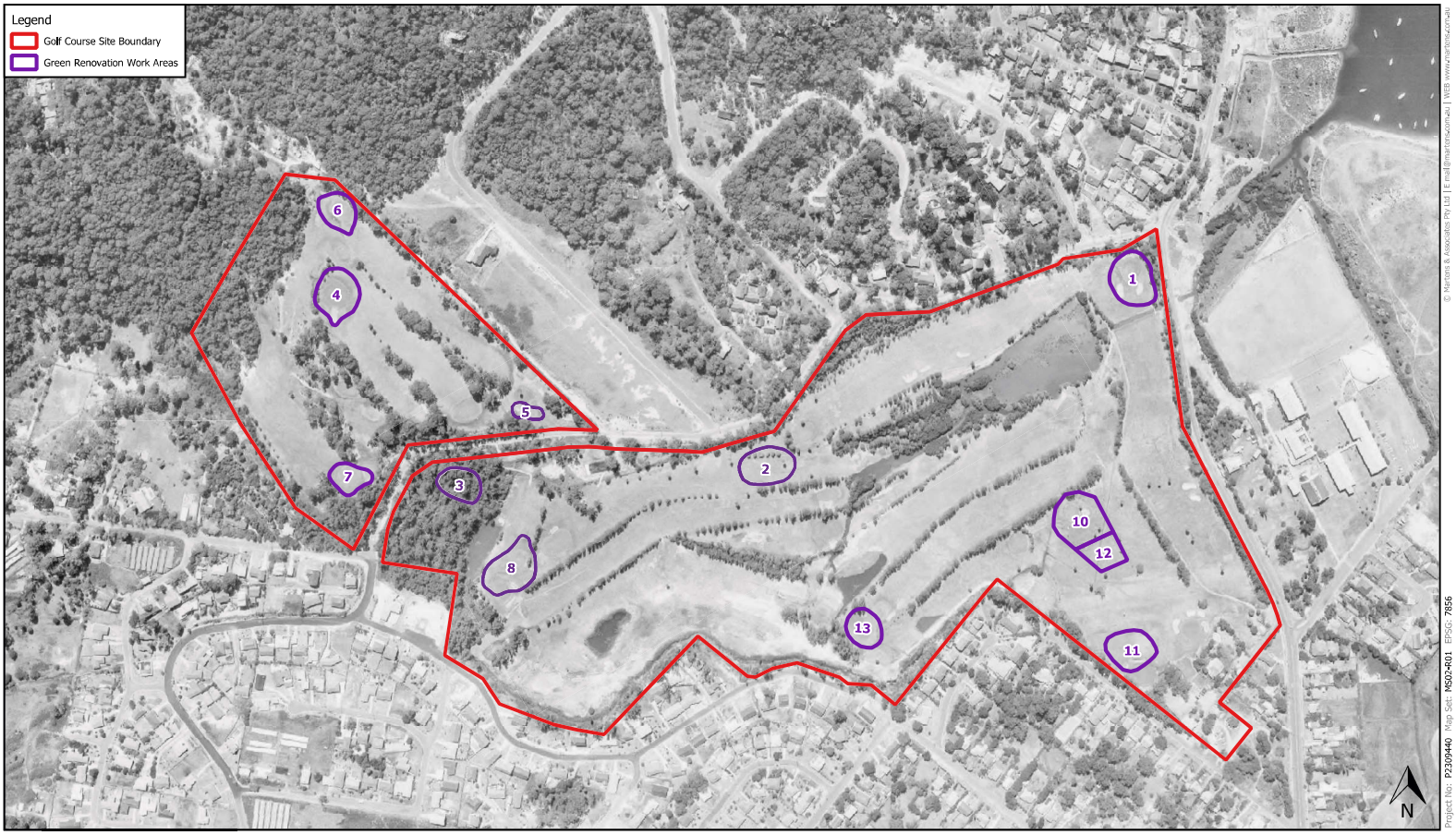
Map Title / Figure:
Historical Aerial: 1971

Map 10	Map
Bayview Golf Course, NSW	Site
Green Renovation Works	Project
Combined Preliminary and Detailed Site Investigation	Sub-Project
Bayview Golf Club	Client
01/09/2023	Date

Project No: P2309440 Map Set: MSO-A01 EPSG: 7856



0 40 80 120 160 200 m

1:4000 @ A3

Viewport A

Notes:
- Aerial from NSW Spatial Services - HAPE (1978)

Map Title / Figure:
Historical Aerial: 1978

Map 11	Map
Bayview Golf Course, NSW	Site
Green Renovation Works	Project
Combined Preliminary and Detailed Site Investigation	Sub-Project
Bayview Golf Club	Client
01/09/2023	Date

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Project No: P2309440 Map Set: MS02-A01 EPSG: 7856

0 40 80 120 160 200 m

1:4000 @ A3

Viewport A

Notes:
- Aerial from NSW Spatial Services - HAPE (1986)

Map Title / Figure:

Historical Aerial: 1986

Map 12	Map
Bayview Golf Course, NSW	Site
Green Renovation Works	Project
Combined Preliminary and Detailed Site Investigation	Sub-Project
Bayview Golf Club	Client
01/09/2023	Date

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Project No: P2309440 Map Set: MS02-A01 EPSG: 7856

0 40 80 120 160 200 m

1:4000 @ A3

Viewport A

Notes:
- Aerial from NSW Spatial Services - HAPE (1994)

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Map Title / Figure:
Historical Aerial: 1994

Map 13	Map
Bayview Golf Course, NSW	Site
Green Renovation Works	Project
Combined Preliminary and Detailed Site Investigation	Sub-Project
Bayview Golf Club	Client
01/09/2023	Date

Project No: P2309440 Map Set: MS02-A01 EPSG: 7856

0 40 80 120 160 200 m

1:4000 @ A3

Viewport A

Notes:
- Aerial from NSW Spatial Services - HAPE (2002)

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Map Title / Figure:
Historical Aerial: 2002

Map 14	Map
Bayview Golf Course, NSW	Site
Green Renovation Works	Project
Combined Preliminary and Detailed Site Investigation	Sub-Project
Bayview Golf Club	Client
01/09/2023	Date

Project No: P2309440 Map Set: MSO-A01 EPSG: 7856

0 40 80 120 160 200 m

1:4000 @ A3

Viewport A

Notes:
- Aerial from NSW Spatial Services - HAPE (2005)

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Map Title / Figure:
Historical Aerial: 2005

Map 15	Map
Bayview Golf Course, NSW	Site
Green Renovation Works	Project
Combined Preliminary and Detailed Site Investigation	Sub-Project
Bayview Golf Club	Client
01/09/2023	Date

Project No: P2309440 Map Set: MSO-A01 EPSG: 7856

0 40 80 120 160 200 m

1:4000 @ A3

Viewport A

Notes:
- Aerial from Nearmap (2010)

Map Title / Figure:
Historical Aerial: 2010

Map 16	Map
Bayview Golf Course, NSW	Site
Green Renovation Works	Project
Combined Preliminary and Detailed Site Investigation	Sub-Project
Bayview Golf Club	Client
01/09/2023	Date

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Project No: P2309440 Map Set: MS02-R01 EPSG: 7856

0 40 80 120 160 200 m

1:4000 @ A3

Viewport A

Notes:
- Aerial from Nearmap (2016)

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Map Title / Figure:
Historical Aerial: 2016

Map 17	Map
Bayview Golf Course, NSW	Site
Green Renovation Works	Project
Combined Preliminary and Detailed Site Investigation	Sub-Project
Bayview Golf Club	Client
01/09/2023	Date

Project No: P2309440 Map Set: MS02-R01 EPSG: 7856

0 40 80 120 160 200 m

1:4000 @ A3

Viewport A

Notes:
- Aerial from Nearmap (2023)

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Map Title / Figure:
Historical Aerial: 2023

Map 18	Map
Bayview Golf Course, NSW	Site
Green Renovation Works	Project
Combined Preliminary and Detailed Site Investigation	Sub-Project
Bayview Golf Club	Client
01/09/2023	Date

Project No: P2309440 Map Set: MSO-A01 EPSG: 7856

14 Attachment D: Desktop Contamination Searches

William Xu

From: Sue Davis <Sue.Davis@northernbeaches.nsw.gov.au>
Sent: Friday, 1 September 2023 2:13 PM
To: William Xu
Subject: Informal information request - Xu - 1825 Pittwater Road Bayview

Dear William,

Thank you for your GIPA application and follow-ups.

My apologies for the delay - we are currently working our way through a large backlog of information requests.

Please see below lists for the above property address in relation to your Informal GIPA Request lodged with Northern Beaches Council (NBC) – there are 4 lists, 2 of which are available online, via the below links (click on **Applications** tab).

List A - 1825 (& 1825A) Pittwater Road BAYVIEW (Past)

N0672/01	Remodelling and reconditioning
CC0744/99	replacement of existing barbeque kiosk at Bayview Golf Club
N1218/99	replacement of existing barbeque kiosk at Bayview Golf Club
84409	carpark ADD CARPARK SURFACE Apprv NO: 1186/94 16/12/94
72547	construction of fencing. Apprv NO: 981/94 24/10/94
9120/92	CARPARKING AND LANDSCAPING FOR GOLF COURSE Auth No: DU Consent No: 94/111
19271	ADD STORAGE SHED Apprv NO: 6053/92 18/ 5/92
15533	ADD excavation Apprv NO: 1966/91 18/ 9/91
0161/90	GOLF COURSE ALTERATIONS Auth No: DU Consent No: 00000 (REFUSED)
11981	ADD deck Apprv NO: 1256/90 19/ 6/90
0137/90	GOLF CLUB HOUSE EXTENSIONS Deck & pergola Auth No: DU Consent No: 90/170
2510	Pump shed ADD Apprv NO: 440/88 16/ 2/88
0527/96	additions of garage and deck additions to the dwelling. HB 3875/1825A 1

List B - Bayview Golf Course 1825 Pittwater Road

DA2023/0573	Renovation of eleven (11) of the existing golf course greens, construction of one (1) new green and removal of trees. APPLICATION RETURNED
R0002/05	rezoning from zone Residential 2(a) and part zone Private Recreation 6(b) to Residential 2(a) under Pittwater Local Environmental Plan 1993, and include in the "Dual Occupancy Map" and the "multi-unit housing map"
R0003/02	rezoning unzoned land to 6(b) Private Recreation
R0003/04	Rezoning Application and Development Application for a multi-unit housing development consisting of 26 dwellings with basement carparking and site landscaping at Bayview Golf Club
N0134/03	Construction of new golf club house, pro shop, carparking, site landscaping and associated works
R0001/03	Rezoning of land to Multiunit housing
0730/98	landfill, earthworks and water storage landfill, earthworks & water storage.
0472/98	brushwood fence erection of a brushwood fence.
IF2/0190/97	landfill/earthworks landfill, earthworks and additional water storage. Consent 98/70
0811/97	27m 1.8m high PVC fencing etc to Bayview Golf Club additional fencing to the Golf Club.
0606/97	skillion roof extension to store room skillion roof extension to exist store room.
IF1/0077/96	Black plastic coated chain wire fence to Pittwater Rd bound black plastic coated chain wire fence.
JF1/0280/95	chain wire fencing a fence.
0343/94	Dredging and earthworks construction of an access track and dredging of existing water storage dam.

List C is available with dates, via link: https://eservices.northernbeaches.nsw.gov.au/ePlanning/live/Public/XC.Track/SearchProperty.aspx?id=424627 - Bayview Golf Course 1825 Pittwater Road (current)

List D is available @ https://eservices.northernbeaches.nsw.gov.au/ePlanning/live/Public/XC.Track/SearchProperty.aspx?id=408707 - 1825A Pittwater Road BAYVIEW (Past)

Kind Regards,

Sue Davis
Information Access Officer

Information Access & Privacy
t 02 8495 5407 / 1300 434 434
e council@northernbeaches.nsw.gov.au
w northernbeaches.nsw.gov.au

From: Website-NoReply <website-noreply@northernbeaches.nsw.gov.au>
Sent: Tuesday, August 8, 2023 2:17 PM
To: Information Mgmt Duty Officer Mailbox <RecordsDutyOfficer@northernbeaches.nsw.gov.au>
Subject: Webform submission from: Informal information request form > Content

Thank you for your enquiry.

Your e-mail has been received by Northern Beaches Council and will be responded to within 20 business days, which is Council's standard response time.

Regards,
Northern Beaches Council

This is an automatically generated email, please do not reply to this message.

Submitted on Tue, 08/08/2023 - 02:17 pm
Submitted by user: Anonymous
Submitted values are:

REQUEST INFORMATION DETAILS

Please provide access to the following information:	Previous DA / CC / BA of Bayview Golf Course for the purpose of a contamination assessment. Email summary is fine with DA number, year of lodgment and description of DA,

PROPERTY INFORMATION

Address	1825 Pittwater Road
City	Bayview

Postal_code	2104
Are you the owner of this property?	No

CONTACT DETAILS

Name	William Xu
Company	Xu
Email	wxu@martens.com.au
Phone	0452316267
Same address as above?	No

CONTACT ADDRESS DETAILS

Address	Suite 201, 20 George Street
City	Hornsby
Postal_code	2077

DECLARATION

I agree	Yes

Search results

Your search for: Suburb: BAYVIEW
Notice Type: Preliminary Investigation Order
Date from: 11 Nov 1950
Date to: 07 Aug 2023

Search Again
Refine Search

did not find any records in our database.

If a site does not appear on the record it may still be affected by contamination. For example:

- Contamination may be present but the site has not been regulated by the EPA under the Contaminated Land Management Act 1997 or the Environmentally Hazardous Chemicals Act 1985.
- The EPA may be regulating contamination at the site through a licence or notice under the Protection of the Environment Operations Act 1997 (POEO Act).
- Contamination at the site may be being managed under the planning process.

Search TIP

To search for a specific site, search by LGA (local government area) and carefully review all sites listed.

... more search tips

More information about particular sites may be available from:

- The POEO public register
- The appropriate planning authority: for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act.

See What's in the record and What's not in the record.

If you want to know whether a specific site has been the subject of notices issued by the EPA under the CLM Act, we suggest that you search by Local Government Area only and carefully review the sites that are listed.
This public record provides information about sites regulated by the EPA under the Contaminated Land Management Act 1997, including sites currently and previously regulated under the Environmentally Hazardous Chemicals Act 1985. Your inquiry using the above search criteria has not matched any record of current or former regulation. You should consider searching again using different criteria. The fact that a site does not appear on the record does not necessarily mean that it is not affected by contamination. The site may have been notified to the EPA but not yet assessed, or contamination may be present but the site is not yet being regulated by the EPA. Further information about particular sites may be available from the appropriate planning authority, for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act. In addition the EPA may be regulating contamination at the site through a licence under the Protection of the Environment Operations Act 1997. You may wish to search the POEO public register.POEO public register

8 August 2023

Search results

Your search for: **General Search** with the following criteria

Suburb - Bayview

returned 0 result

Search Again

For business and industry

For local government

Contact us

131 555 (tel:131555)

Online (https://www.epa.nsw.gov.au/about-us/contact-us/feedback)

info@epa.nsw.gov.au (mailto:info@epa.nsw.gov.au)

EPA Office Locations (https://www.epa.nsw.gov.au/about-us/contact-us/locations)

WaterNSW

home | help | contact | customise

State Overview
State Overview

Rivers and Streams
favourites | search | download sites | find a site
⊞ Real Time Data - Rivers And ...

Daily River Reports
⊞ Daily River Reports

Dams
favourites | search | download sites | find a site
⊞ Real Time Data - Major Dams

Groundwater (Telemetered data)
favourites | search | download sites | find a site
⊞ Real Time Data - Bores

All Groundwater Site details
search | download sites | find a site | search by licence
⊞ All Groundwater Map

Meteorology
favourites | search | download sites | find a site

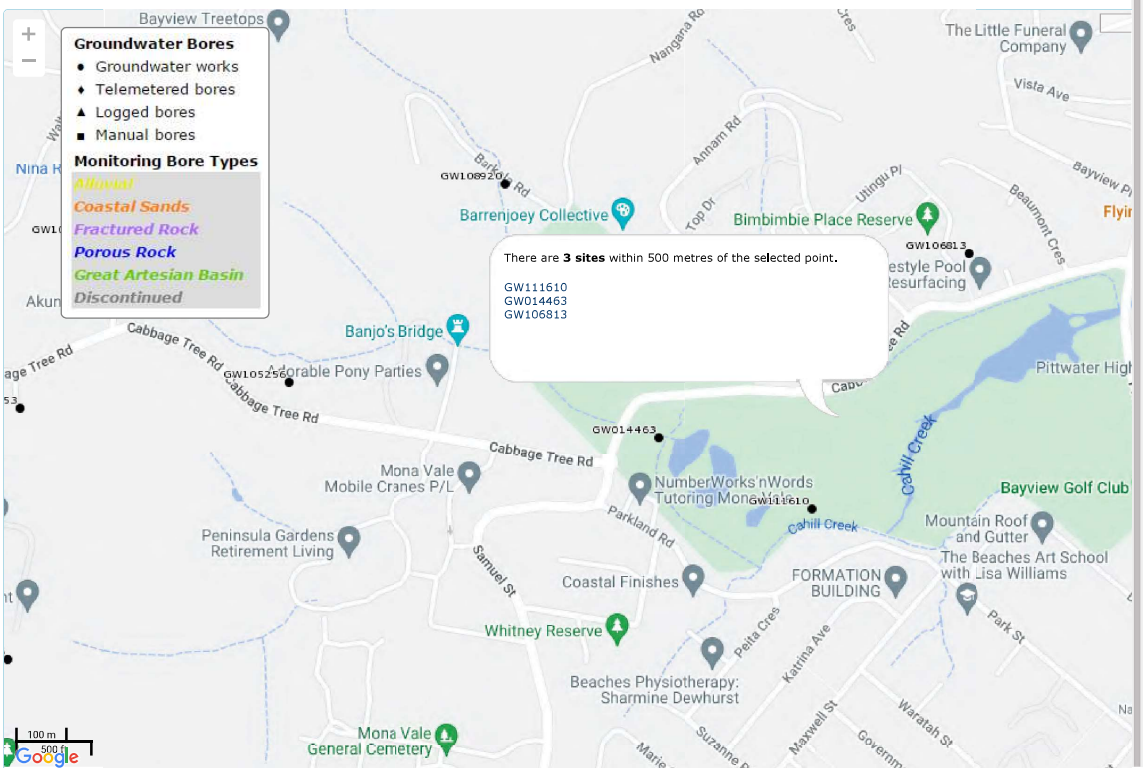
All Groundwater Site Details

ALL GROUNDWATER MAP

bookmark this page

All data times are Eastern Standard Time

Map | Info



contact WaterNSW

The NSW Government PFAS Investigation Program

View a map of the sites in NSW that may be contaminated with PFAS, learn how to reduce your exposure to these dangerous chemicals, and read about our investigation of the issue.

The EPA is leading an investigation program to assess the legacy of PFAS use across NSW. With the assistance of the NSW PFAS Technical Advisory Group, which includes NSW Health, Department of Primary Industries and the Office of Environment and Heritage, we provide impacted residents with tailored, precautionary dietary advice to help them reduce any exposure to PFAS.

Current investigations are focused on sites where it is likely that large quantities of PFAS have been used. The EPA is currently investigating PFAS at these sites:

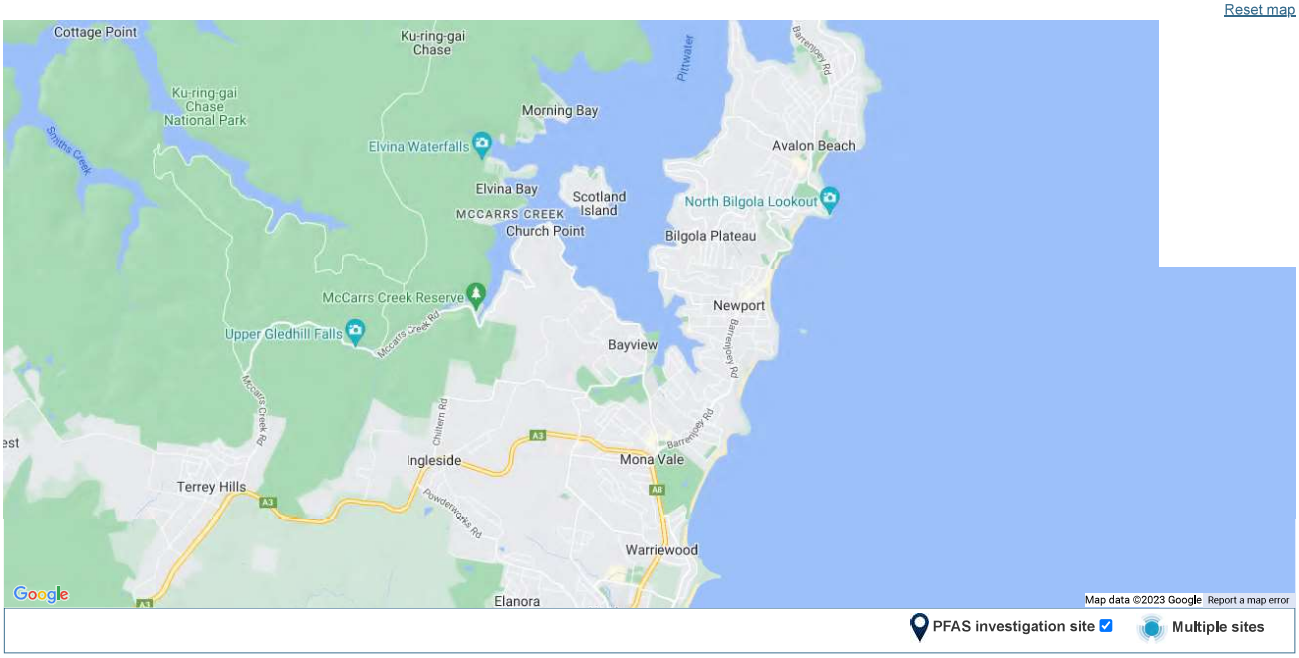
Map view | List view

Map view

Filter by: No filter set

Showing 0 of 50 sites

Reset map



Sampling and analysis

The EPA is collecting samples of soils and/or waters for analysis for PFAS. The EPA is also looking for exposure pathways that may increase people's contact with the chemicals, such as bore and surface water usage.

If significant levels are detected and human or ecological exposure is likely, a more detailed assessment will be undertaken.

The EPA will work with the occupiers and owners of these sites, or the responsible parties, to clean-up the site, where necessary.

Timeframes for the investigation

The initial investigations can take approximately six months, with further testing undertaken where required.

Test findings are made available throughout the investigations.

More information is available on the NSW EPA PFAS investigation process page.

Release of draft PFAS National Environmental Management Plan version 3

The PFAS National Environmental Management Plan (PFAS NEMP) provides a practical basis for nationally consistent environmental guidelines and standards for investigating, assessing and managing PFAS waste and contamination.

The Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) has now released the draft PFAS NEMP version 3.0 (NEMP 3.0).

NEMP 3.0 builds on previous versions and includes additional guidance on the following priority areas:

- Theme 1: PFAS family – international approaches to grouping of PFASs.
- Theme 2: Environmental data and monitoring - guidance on ambient monitoring data collection and land use classifications to enable comparability.
- Theme 3: Water-risk-based criteria and guidance for beneficial reuse of biosolids.
- Theme 4: Soil - guidance and standards around PFAS behaviour in soil, including leaching and associated ecological and human health guidance. It finalises and reviews two guideline values already in the NEMP and proposes two new guideline values for soil and one for wildlife diet.
- Theme 5: Resource recovery and waste - guidance on management of risks associated with PFAS in resource recovery products.
- Theme 6: Site specific guidance - guidance on principles and approaches to remediation and management; guidance on construction water; and guidance on estuarine, coastal and marine sediment.

Have your say on NEMP 3.0

You can provide feedback on NEMP 3.0 by lodging a submission online, or by attending a public consultation session.

You feedback will help to ensure that NEMP 3.0 is fit for purpose in continuing to provide useful and nationally consistent guidance and standards on PFAS contamination.

All feedback received will be considered by the National Chemicals Working Group before NEMP 3.0 is finalised. An ancillary document summarising the feedback and the responses made is expected to be published by DCCEEW.

Online consultation

Online public consultation is currently underway and will be available until **4pm AEDT 20 December 2022**.

You can find more information about submitting feedback online on the DCCEEW page .

NSW consultation session

We will publish more information about our public consultation session on this page when it becomes available.

Working with our stakeholders

The NSW Government is committed to working closely with all relevant government agencies, to closely monitor the progress of investigations, and to keep local communities informed. Government agencies include local councils, NSW Department of Primary Industries, NSW Health, NSW Food Authority, and where necessary the Commonwealth Department of Defence, and Commonwealth Department of Health.

In NSW the polluter pays for and manages any clean-up required. Although the NSW Government cannot regulate Defence sites, it has outlined expectations that Defence will carry out investigations in a timely manner that is consistent with the EPA's requirements and processes.

More information

- PFAS investigation program fact sheet (PDF 213KB)
- PFAS investigation program FAQs page
- NSW Department of Health
- For specific health inquiries call the NSW Department of Health on **1300 066 055**
- If you have any questions about the EPA's PFAS investigation program, please call the Environment Line on **131 555** or emailinfo@environment.nsw.gov.au

Page last updated 23 September 2022

Please consider the environment before printing.

15 Attachment E: Borehole Logs

CLIENT	Bayview Golf Club	COMMENCED	15/08/2023	COMPLETED	15/08/2023	**REF BH201**
PROJECT	Detailed Site Investigation	LOGGED	WX	CHECKED		Sheet 1 OF 1
SITE	Bayview Golf Club, Bayview, NSW.	GEOLOGY	Quartenary	VEGETATION	Grass	PROJECT NO. P2309440
EQUIPMENT	Hand Auger	LONGITUDE		RL SURFACE	m	DATUM AHD
EXCAVATION DIMENSIONS	ø80 mm x 1.20 m depth	LATITUDE		ASPECT	South	SLOPE <2%

Drilling					Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA		Not Encountered	0.5		0.0-0.2/S/1 D 0.00-0.20 m 0.4-0.6/S/1 D 0.40-0.60 m				FILL: Silty Clayey SAND; dark grey; with gravels; no soil, staining, odour or anthropogenic inclusions.	D		FILL
				0.80								
			1.0		0.8-1.0/S/1 D 0.80-1.00 m				Silty Sandy CLAY; dark brown and yellow brown; no soil, staining, odour or anthropogenic inclusions.			ALLUVIUM
				1.20					Hole Terminated at 1.20 m (Target depth reached)			
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									

EXCAVATION LOG TO BE READ IN CONJUCTION WITH ACCOMPANYING REPORT NOTES AND ABBREVIATIONS

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Suite 201, 20 George St. Hornsby, NSW 2077 Australia
Phone: (02) 9476 9999 Fax: (02) 9476 8767
mail@martens.com.au WEB: http://www.martens.com.au

Engineering Log - BOREHOLE

CLIENT	Bayview Golf Club	COMMENCED	15/08/2023	COMPLETED	15/08/2023	**REF BH202**
PROJECT	Detailed Site Investigation	LOGGED	WX	CHECKED		Sheet 1 OF 1
SITE	Bayview Golf Club, Bayview, NSW.	GEOLOGY	Quartenary	VEGETATION	Grass	PROJECT NO. P2309440
EQUIPMENT	Hand Auger	LONGITUDE		RL SURFACE	m	DATUM AHD
EXCAVATION DIMENSIONS	ø80 mm x 1.20 m depth	LATITUDE		ASPECT	South	SLOPE <2%

Drilling					Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA		Not Encountered	0.5		0.0-0.2/S/1 D 0.00-0.20 m			SM	FILL: Silty SAND; dark grey; with gravels; no soil, staining, odour or anthropogenic inclusions.	D		FILL
					0.4-0.6/S/1 D 0.40-0.60 m							
				0.80								
			1.0		0.8-1.0/S/1 D 0.80-1.00 m				Silty CLAY; yellow brown and pale grey; no soil, staining, odour or anthropogenic inclusions.			ALLUVIUM
				1.20					Hole Terminated at 1.20 m (Target depth reached)			
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									

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mail@martens.com.au WEB: http://www.martens.com.au

Engineering Log - BOREHOLE

CLIENT	Bayview Golf Club	COMMENCED	15/08/2023	COMPLETED	15/08/2023	**REF BH203**
PROJECT	Detailed Site Investigation	LOGGED	WX	CHECKED		Sheet 1 OF 1
SITE	Bayview Golf Club, Bayview, NSW.	GEOLOGY	Quartenary	VEGETATION	Grass	PROJECT NO. P2309440
EQUIPMENT	Hand Auger	LONGITUDE		RL SURFACE	m	DATUM AHD
EXCAVATION DIMENSIONS	ø80 mm x 0.80 m depth	LATITUDE		ASPECT	South	SLOPE <2%

Drilling					Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA		Not Encountered	0.5	0.50	0.0-0.2/S/1 D 0.00-0.20 m				FILL: Silty Clayey SAND; dark grey; with gravels; no soil, staining, odour or anthropogenic inclusions.	D		FILL
					0.5-0.7/S/1 D 0.50-0.70 m				Silty CLAY; dark brown; no soil, staining, odour or anthropogenic inclusions.			ALLUVIUM
				0.80					Hole Terminated at 0.80 m			0.80: Hand auger refusal.
			1.0									
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									

EXCAVATION LOG TO BE READ IN CONJUCTION WITH ACCOMPANYING REPORT NOTES AND ABBREVIATIONS

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Phone: (02) 9476 9999 Fax: (02) 9476 8767
mail@martens.com.au WEB: http://www.martens.com.au

Engineering Log - BOREHOLE

CLIENT	Bayview Golf Club	COMMENCED	15/08/2023	COMPLETED	15/08/2023	**REF BH204**
PROJECT	Detailed Site Investigation	LOGGED	WX	CHECKED		Sheet 1 OF 1
SITE	Bayview Golf Club, Bayview, NSW.	GEOLOGY	Quartenary	VEGETATION	Grass	PROJECT NO. P2309440
EQUIPMENT	Hand Auger	LONGITUDE		RL SURFACE	m	DATUM AHD
EXCAVATION DIMENSIONS	ø80 mm x 1.10 m depth	LATITUDE		ASPECT	South	SLOPE <2%

Drilling					Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA		Not Encountered	0.5	0.60	0.0-0.2/S/Dupe02 D 0.00-0.20 m				FILL: Silty Clayey SAND; dark grey; with gravels.	D		FILL
			1.0	1.10	0.7-0.9/S/1 D 0.70-0.90 m				Silty CLAY; dark yellow brown; no soil, staining, odour or anthropogenic inclusions.			RESIDUAL SOIL
									Hole Terminated at 1.10 m			1.10: Hand auger refusal.
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									

EXCAVATION LOG TO BE READ IN CONJUCTION WITH ACCOMPANYING REPORT NOTES AND ABBREVIATIONS

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Phone: (02) 9476 9999 Fax: (02) 9476 8767
mail@martens.com.au WEB: http://www.martens.com.au

Engineering Log - BOREHOLE

CLIENT	Bayview Golf Club	COMMENCED	15/08/2023	COMPLETED	15/08/2023	**REF BH205**
PROJECT	Detailed Site Investigation	LOGGED	WX	CHECKED		Sheet 1 OF 1
SITE	Bayview Golf Club, Bayview, NSW.	GEOLOGY	Quartenary	VEGETATION	Grass	PROJECT NO. P2309440
EQUIPMENT	Hand Auger	LONGITUDE		RL SURFACE	m	DATUM AHD
EXCAVATION DIMENSIONS	ø80 mm x 1.00 m depth	LATITUDE		ASPECT	North	SLOPE <2%

Drilling					Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA		Not Encountered	0.0		0.0-0.2/S/1 D 0.00-0.20 m				FILL: Silty Clayey SAND; dark grey; with gravels; no soil, staining, odour or anthropogenic inclusions.			FILL
			0.5	*0.50*	0.6-0.8/S/1 D 0.60-0.80 m				Silty CLAY; dark grey; no soil, staining, odour or anthropogenic inclusions.	D		ALLUVIUM
			1.0	*1.00*					Hole Terminated at 1.00 m (Target depth reached)			
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									

EXCAVATION LOG TO BE READ IN CONJUCTION WITH ACCOMPANYING REPORT NOTES AND ABBREVIATIONS

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Engineering Log - BOREHOLE

CLIENT	Bayview Golf Club	COMMENCED	15/08/2023	COMPLETED	15/08/2023	**REF BH206**
PROJECT	Detailed Site Investigation	LOGGED	WX	CHECKED		Sheet 1 OF 1
SITE	Bayview Golf Club, Bayview, NSW.	GEOLOGY	Quartenary	VEGETATION	Grass	PROJECT NO. P2309440
EQUIPMENT	Hand Auger	LONGITUDE		RL SURFACE	m	DATUM AHD
EXCAVATION DIMENSIONS	ø80 mm x 0.85 m depth	LATITUDE		ASPECT	South	SLOPE <2%

Drilling					Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA		Not Encountered	0.5	0.50	0.0-0.2/S/1 D 0.00-0.20 m				FILL: Silty Sandy CLAY; dark grey and brown; with gravels; no soil, staining, odour or anthropogenic inclusions.	D		FILL
					0.5-0.7/S/1 D 0.50-0.70 m				Silty CLAY; dark grey; no soil, staining, odour or anthropogenic inclusions.			RESIDUAL SOIL
				0.85					Hole Terminated at 0.85 m			0.85: Hand auger refusal.
			1.0									
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									

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CLIENT	Bayview Golf Club	COMMENCED	15/08/2023	COMPLETED	15/08/2023	**REF BH207**
PROJECT	Detailed Site Investigation	LOGGED	WX	CHECKED		Sheet 1 OF 1
SITE	Bayview Golf Club, Bayview, NSW.	GEOLOGY	Quartenary	VEGETATION	Grass	PROJECT NO. P2309440
EQUIPMENT	Hand Auger	LONGITUDE		RL SURFACE	m	DATUM AHD
EXCAVATION DIMENSIONS	ø80 mm x 1.00 m depth	LATITUDE		ASPECT	South	SLOPE <2%

Drilling					Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA		Not Encountered	0.0		0.0-0.2/S/1 D 0.00-0.20 m				FILL: Silty Clayey SAND; dark grey and brown; with gravels; no soil, staining, odour or anthropogenic inclusions.			FILL
			0.5	0.50	0.5-0.7/S/1 D 0.50-0.70 m				Silty Sandy CLAY; dark yellow brown.	D		RESIDUAL SOIL
			1.0	1.00					Hole Terminated at 1.00 m (Target depth reached)			
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									

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CLIENT	Bayview Golf Club	COMMENCED	15/08/2023	COMPLETED	15/08/2023	**REF BH208**
PROJECT	Detailed Site Investigation	LOGGED	WX	CHECKED		Sheet 1 OF 1
SITE	Bayview Golf Club, Bayview, NSW.	GEOLOGY	Quartenary	VEGETATION	Grass	PROJECT NO. P2309440
EQUIPMENT	Hand Auger	LONGITUDE		RL SURFACE	m	DATUM AHD
EXCAVATION DIMENSIONS	ø80 mm x 0.80 m depth	LATITUDE		ASPECT	South	SLOPE <2%

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA		Not Encountered	0.5	0.50	0.0-0.2/S/Dup01 D 0.00-0.20 m			SM	FILL: Silty SAND; dark grey; tiles observed; no soil staining or odour.	D		FILL
					0.5-0.7/S/1 D 0.50-0.70 m				Silty Sandy CLAY; dark grey; no soil, staining, odour or anthropogenic inclusions.			ALLUVIUM
			1.0	0.80					Hole Terminated at 0.80 m			0.80: Hand auger refusal.
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									

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CLIENT	Bayview Golf Club	COMMENCED	15/08/2023	COMPLETED	15/08/2023	**REF BH209**
PROJECT	Detailed Site Investigation	LOGGED	WX	CHECKED		Sheet 1 OF 1
SITE	Bayview Golf Club, Bayview, NSW.	GEOLOGY	Quartenary	VEGETATION	Grass	PROJECT NO. P2309440
EQUIPMENT	Hand Auger	LONGITUDE		RL SURFACE	m	DATUM AHD
EXCAVATION DIMENSIONS	ø80 mm x 1.00 m depth	LATITUDE		ASPECT	East	SLOPE <2%

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	*DEPTH* RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA		Not Encountered	0.5		0.0-0.2/S/1 D 0.00-0.20 m			SM	FILL: Silty SAND; dark grey; no soil, staining, odour or anthropogenic inclusions.	D		FILL
			1.0	*1.00*	0.8-1.0/S/1 D 0.80-1.00 m				Hole Terminated at 1.00 m			1.00: Hand auger refusal.
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									

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CLIENT	Bayview Golf Club	COMMENCED	15/08/2023	COMPLETED	15/08/2023	**REF BH210**
PROJECT	Detailed Site Investigation	LOGGED	WX	CHECKED		Sheet 1 OF 1
SITE	Bayview Golf Club, Bayview, NSW.	GEOLOGY	Quartenary	VEGETATION	Grass	PROJECT NO. P2309440
EQUIPMENT	Hand Auger	LONGITUDE		RL SURFACE	m	DATUM AHD
EXCAVATION DIMENSIONS	ø80 mm x 1.10 m depth	LATITUDE		ASPECT	North	SLOPE <2%

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA		Not Encountered	0.5	0.50	0.0-0.2/S/Dup03 D 0.00-0.20 m			SM	FILL: Silty SAND; dark grey; no soil, staining, odour or anthropogenic inclusions.			FILL
									Yellow brown.	D		
				0.80	0.8-1.0/S/1 D 0.80-1.00 m				Silty CLAY; dark grey, yellow brown.			ALLUVIUM
			1.0	1.10					Hole Terminated at 1.10 m			1.10: Hand auger refusal.
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									

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CLIENT	Bayview Golf Club	COMMENCED	15/08/2023	COMPLETED	15/08/2023	**REF BH211**
PROJECT	Detailed Site Investigation	LOGGED	WX	CHECKED		Sheet 1 OF 1
SITE	Bayview Golf Club, Bayview, NSW.	GEOLOGY	Quartenary	VEGETATION	Grass	PROJECT NO. P2309440
EQUIPMENT	Hand Auger	LONGITUDE		RL SURFACE	m	DATUM AHD
EXCAVATION DIMENSIONS	ø80 mm x 1.00 m depth	LATITUDE		ASPECT	East	SLOPE <2%

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA		Not Encountered	0.5	0.60	0.0-0.2/S/1 D 0.00-0.20 m			SM	FILL: Silty SAND; dark grey; no soil, staining, odour or anthropogenic inclusions.	D		FILL
					0.8-1.0/S/1 D 0.80-1.00 m				Yellow brown.			
			1.0	1.00					Hole Terminated at 1.00 m			1.00: Hand auger refusal.
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									

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CLIENT	Bayview Golf Club	COMMENCED	15/08/2023	COMPLETED	15/08/2023	**REF BH212**
PROJECT	Detailed Site Investigation	LOGGED	WX	CHECKED		Sheet 1 OF 1
SITE	Bayview Golf Club, Bayview, NSW.	GEOLOGY	Quartenary	VEGETATION	Grass	PROJECT NO. P2309440
EQUIPMENT	Hand Auger	LONGITUDE		RL SURFACE	m	DATUM AHD
EXCAVATION DIMENSIONS	ø80 mm x 1.00 m depth	LATITUDE		ASPECT	South	SLOPE <2%

Drilling					Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA		Not Encountered	0.5		0.0-0.2/S/1 D 0.00-0.20 m				FILL: Silty Sandy CLAY; dark grey; tile observed; no soil staining or odour.			FILL
					0.8-1.0/S/1 D 0.80-1.00 m							
			1.0	1.00					Hole Terminated at 1.00 m			1.00: Hand auger refusal.
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									

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16 Attachment F: Summary Tables

Field ID	Date	Naphthalene (VOC)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	C6-C10 Fraction (F1)	C6-C10 (F1 minus BTEX)	>C10-C16 Fraction (F2)	>C10-C16 Fraction (F2 minus Naphthalene)	>C16-C34 Fraction (F3)	>C34-C40 Fraction (F4)	>C10-C40 Fraction (Sum)
		BTEX							TRH						
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		1	0.2	0.5	1	2	1	1	25	25	50	50	100	100	50
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil									700		1,000		2,500	10,000	
NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Sand															
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space		170													
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil			50	85	70			105		180	120	120	300	2,800	
NEPM 2013 Table 1A(1) HILs Rec C Soil															
BH201/0-0.2	15 Aug 2023	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50
BH202/0-0.2	15 Aug 2023	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50
BH203/0-0.2	15 Aug 2023	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50
BH204/0-0.2	15 Aug 2023	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50
BH205/0-0.2	15 Aug 2023	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50
BH206/0-0.2	15 Aug 2023	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50
BH207/0-0.2	15 Aug 2023	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50
BH208/0-0.2	15 Aug 2023	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50
BH209/0-0.2	15 Aug 2023	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50
BH210/0-0.2	15 Aug 2023	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50
BH211/0-0.2	15 Aug 2023	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50
BH212/0-0.2	15 Aug 2023	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50

Field ID	Date	Benzo(b+j+k)fluoranthene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a) pyrene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Half)	Benzo(a)pyrene TEQ (LOR)	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of positives)
		PAH																		
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		0.2	0.1	0.1	0.1	0.1	0.05	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.5	0.5	0.05
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil																				
NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Sand																				
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space														170						
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil							0.7													
NEPM 2013 Table 1A(1) HILs Rec C Soil																	3	3	3	300
BH201/0-0.2	15 Aug 2023	0.2	<0.1	<0.1	<0.1	0.2	0.2	0.1	0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	0.3	<0.5	<0.5	<0.5	1.3
BH202/0-0.2	15 Aug 2023	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05
BH203/0-0.2	15 Aug 2023	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05
BH204/0-0.2	15 Aug 2023	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05
BH205/0-0.2	15 Aug 2023	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05
BH206/0-0.2	15 Aug 2023	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05
BH207/0-0.2	15 Aug 2023	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05
BH208/0-0.2	15 Aug 2023	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05
BH209/0-0.2	15 Aug 2023	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05
BH210/0-0.2	15 Aug 2023	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05
BH211/0-0.2	15 Aug 2023	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05
BH212/0-0.2	15 Aug 2023	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05

Statistics

Statistics	Naphthalene (VOC)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	C6-C10 Fraction (F1)	C6-C10 (F1 minus BTEX)	>C10-C16 Fraction (F2)	>C10-C16 Fraction (F2 minus Naphthalene)	>C16-C34 Fraction (F3)	>C34-C40 Fraction (F4)	>C10-C40 Fraction (Sum)
Number of Results	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<1**	**<0.2**	**<0.5**	**<1**	**<2**	**<1**	**<1**	**<25**	**<25**	**<50**	**<50**	**<100**	**<100**	**<50**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<1**	**<0.2**	**<0.5**	**<1**	**<2**	**<1**	**<1**	**<25**	**<25**	**<50**	**<50**	**<100**	**<100**	**<50**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.5**	**0.1**	**0.25**	**0.5**	**1**	**0.5**	**0.5**	**12**	**12**	**25**	**25**	**50**	**50**	**25**
Median Concentration *	**0.5**	**0.1**	**0.25**	**0.5**	**1**	**0.5**	**0.5**	**12.5**	**12.5**	**25**	**25**	**50**	**50**	**25**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Statistics	Benzo(b+j+k)fluoranthene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a) pyrene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Half)	Benzo(a)pyrene TEQ (LOR)	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of positives)
Number of Results	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**
Number of Detects	**1**	**0**	**0**	**0**	**1**	**1**	**1**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**
Minimum Concentration	**0.2**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.05**	**0.1**	**0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.5**	**<0.5**	**<0.5**	**<0.05**
Minimum Detect	**0.2**	**ND**	**ND**	**ND**	**0.2**	**0.2**	**0.1**	**0.1**	**ND**	**0.3**	**ND**	**ND**	**ND**	**ND**	**0.3**	**ND**	**ND**	**ND**	**1.3**
Maximum Concentration	**0.2**	**<0.1**	**<0.1**	**<0.1**	**0.2**	**0.2**	**0.1**	**0.1**	**<0.1**	**0.3**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**0.3**	**<0.5**	**<0.5**	**<0.5**	**1.3**
Maximum Detect	**0.2**	**ND**	**ND**	**ND**	**0.2**	**0.2**	**0.1**	**0.1**	**ND**	**0.3**	**ND**	**ND**	**ND**	**ND**	**0.3**	**ND**	**ND**	**ND**	**1.3**
Average Concentration *	**0.11**	**0.05**	**0.05**	**0.05**	**0.063**	**0.04**	**0.054**	**0.054**	**0.05**	**0.071**	**0.05**	**0.05**	**0.05**	**0.05**	**0.071**	**0.25**	**0.25**	**0.25**	**0.13**
Median Concentration *	**0.1**	**0.05**	**0.05**	**0.05**	**0.05**	**0.025**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.25**	**0.25**	**0.25**	**0.025**
Standard Deviation *	**0.029**	**0**	**0**	**0**	**0.043**	**0.051**	**0.014**	**0.014**	**0**	**0.072**	**0**	**0**	**0**	**0**	**0.072**	**0**	**0**	**0**	**0.37**
% of Detects	**8**	**0**	**0**	**0**	**8**	**8**	**8**	**8**	**0**	**8**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**8**
% of Non-Detects	**92**	**100**	**100**	**100**	**92**	**92**	**92**	**92**	**100**	**92**	**100**	**100**	**100**	**100**	**92**	**100**	**100**	**100**	**92**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

NEPM, NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil
2013, NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil
2013, NEPM 2013 Table 1A(1) HILs Rec C Soil

Field ID	Date	Asbestos fibres	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc
		Asbestos	**Metals**							
		Detect	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			4	0.4	1	1	1	0.1	1	1
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil										
NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Sand										
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space			100		320	95	1,100		25	250
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil										
NEPM 2013 Table 1A(1) HILs Rec C Soil			300	90	300	17,000	600	80	1,200	30,000
BH201/0-0.2	15 Aug 2023	0	6	<0.4	4	7	160	<0.1	2	57
BH202/0-0.2	15 Aug 2023	0	9	<0.4	7	15	14	<0.1	4	29
BH203/0-0.2	15 Aug 2023	0	8	<0.4	22	12	22	<0.1	11	36
BH204/0-0.2	15 Aug 2023	0	<4	0.6	9	14	11	2.1	19	32
BH205/0-0.2	15 Aug 2023	0	<4	<0.4	15	2	4	<0.1	<1	9
BH206/0-0.2	15 Aug 2023	0	8	0.4	10	4	25	2.1	2	30
BH207/0-0.2	15 Aug 2023	0	6	0.6	9	10	10	2.0	3	22
BH208/0-0.2	15 Aug 2023	0	5	<0.4	18	14	17	<0.1	3	37
BH209/0-0.2	15 Aug 2023	0	<4	<0.4	10	4	8	1.4	3	20
BH210/0-0.2	15 Aug 2023	0	5	<0.4	17	3	14	0.9	2	17
BH211/0-0.2	15 Aug 2023	0	<4	<0.4	7	7	8	<0.1	2	17
BH212/0-0.2	15 Aug 2023	0	<4	2	10	4	16	18	2	22
Statistics										
Number of Results		12	12	12	12	12	12	12	12	12
Number of Detects		12	7	4	12	12	12	6	11	12
Minimum Concentration		0	<4	0.4	4	2	4	<0.1	<1	9
Minimum Detect		0	5	0.4	4	2	4	0.9	2	9
Maximum Concentration		0	9	2	22	15	160	18	19	57
Maximum Detect		0	9	2	22	15	160	18	19	57
Average Concentration *		0	4.8	0.43	12	8	26	2.2	4.5	27
Median Concentration *		0	5	0.2	10	7	14	0.475	2.5	25.5
Standard Deviation *		0	2.7	0.52	5.3	4.8	43	5	5.3	13
% of Detects		100	58	33	100	100	100	50	92	100
% of Non-Detects		0	42	67	0	0	0	50	8	0

Field ID	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Sum of Endosulfan	Endrin	Endrin aldehyde	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor
	Organochlorine Pesticides																					
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil																						
NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Sand																						
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space										180												
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil																						
NEPM 2013 Table 1A(1) HILs Rec C Soil				10							400					340	20			10		400
BH201/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH202/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH203/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH204/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH205/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH206/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH207/0-0.2	0.3	<0.1	<0.1	<0.1	<0.1	0.7	0.6	<0.1	<0.1	<0.1	0.3	0.6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH208/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH209/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH210/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH211/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH212/0-0.2	0.3	<0.1	<0.1	<0.1	<0.1	4.0	2.4	<0.1	<0.1	<0.1	0.3	1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1
Statistics																						
Number of Results	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Number of Detects	2	0	0	0	0	3	3	0	0	0	2	3	0	0	0	0	0	0	0	0	1	0
Minimum Concentration	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Minimum Detect	0.3	ND	ND	ND	ND	0.1	0.2	ND	ND	ND	0.3	0.2	ND	ND	ND	ND	ND	ND	ND	ND	0.2	ND
Maximum Concentration	0.3	<0.1	<0.1	<0.1	<0.1	4	2.4	<0.1	<0.1	<0.1	0.3	1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1
Maximum Detect	0.3	ND	ND	ND	ND	4	2.4	ND	ND	ND	0.3	1	ND	ND	ND	ND	ND	ND	ND	ND	0.2	ND
Average Concentration *	0.092	0.05	0.05	0.05	0.05	0.44	0.3	0.05	0.05	0.05	0.092	0.19	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.062	0.05
Median Concentration *	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Standard Deviation *	0.097	0	0	0	0	1.1	0.68	0	0	0	0.097	0.3	0	0	0	0	0	0	0	0	0.043	0
% of Detects	17	0	0	0	0	25	25	0	0	0	17	25	0	0	0	0	0	0	0	0	8	0
% of Non-Detects	83	100	100	100	100	75	75	100	100	100	83	75	100	100	100	100	100	100	100	100	92	100

Field ID	Azinophos methyl	Bromophos-ethyl	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethion	Fenitrothion	Fenthion	Malathion	Methidathion	Methyl parathion	Mevinphos (Phosdrin)	Phorate	Ronnel
	Organophosphorous Pesticides																	
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil																		
NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Sand																		
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space																		
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil																		
NEPM 2013 Table 1A(1) HILs Rec C Soil			250															
BH201/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH202/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH203/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH204/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH205/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH206/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH207/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH208/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH209/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH210/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH211/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH212/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Statistics																		
Number of Results	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Median Concentration *	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Field ID	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	Fenamiphos	Mirex	Parathion
	PCBs								**Pesticides**		
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil											
NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Sand											
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space											
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil											
NEPM 2013 Table 1A(1) HILs Rec C Soil								1		20	
BH201/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH202/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH203/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH204/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH205/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH206/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH207/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH208/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH209/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH210/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH211/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH212/0-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Statistics											
Number of Results	12	12	12	12	12	12	12	12	12	12	12
Number of Detects	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Median Concentration *	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0
% of Detects	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

NEPM, NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil
2013, NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil
2013, NEPM 2013 Table 1A(1) HILs Rec C Soil

martens & Associates Pty Ltd

		Metals							
		Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		4	0.4	1	1	1	0.1	1	1
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space		50		160	47.5	550	1,100	12.5	125
NEPM 2013 Table 1A(1) HILs Rec C Soil		150	45	45	8500	300	40	600	15000
Field ID	**Date**								
Composite 1	15 Aug 2023	7	<0.4	4	7	29	<0.1	2	45
Composite 2	15 Aug 2023	8	<0.4	6	5	6	0.3	3	18
Composite 3	15 Aug 2023	<4	0.8	7	9	19	<0.1	3	36
Composite 4	15 Aug 2023	<4	1	7	6	20	2.3	2	51
Composite 5	15 Aug 2023	<4	<0.4	4	4	8	1.5	1	19
Composite 6	15 Aug 2023	<4	<0.4	4	4	7	0.4	2	18
Composite 7	15 Aug 2023	<4	0.6	6	5	7	2.5	2	19
Composite 8	15 Aug 2023	5	<0.4	7	5	15	<0.1	2	29
Composite 9	15 Aug 2023	<4	<0.4	6	6	9	0.3	2	25
Composite 10	15 Aug 2023	4	<0.4	9	8	18	0.4	5	32
Composite 11	15 Aug 2023	6	0.5	12	12	19	<0.1	3	32
Composite 12	15 Aug 2023	10	<0.4	11	6	11	<0.1	3	29
Statistics									
Number of Results		12	12	12	12	12	12	12	12
Number of Detects		6	4	12	12	12	7	12	12
Minimum Concentration		4	<0.4	4	4	6	<0.1	1	18
Minimum Detect		4	0.5	4	4	6	0.3	1	18
Maximum Concentration		10	1	12	12	29	2.5	5	51
Maximum Detect		10	1	12	12	29	2.5	5	51
Average Concentration *		4.3	0.38	6.9	6.4	14	0.66	2.5	29
Median Concentration *		3	0.2	6.5	6	13	0.3	2	29
Standard Deviation *		2.8	0.28	2.6	2.3	7.1	0.91	1	11
% of Detects		50	33	100	100	100	58	100	100
% of Non-Detects		50	67	0	0	0	42	0	0

	Organochlorine Pesticides										
	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space										90	
NEPM 2013 Table 1A(1) HILs Rec C Soil				5							200
Composite 1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1
Composite 4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 5	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	<0.1	<0.1	<0.1	<0.1
Composite 6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 7	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	0.3	<0.1	<0.1	<0.1	<0.1
Composite 8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 11	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 12	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Number of Results	12	12	12	12	12	12	12	12	12	12	12
Number of Detects	0	0	0	0	0	2	3	0	0	0	0
Minimum Concentration	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	<0.1	<0.1	<0.1	<0.1
Minimum Detect	ND	ND	ND	ND	ND	0.1	0.1	ND	ND	ND	ND
Maximum Concentration	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	0.3	<0.1	<0.1	<0.1	<0.1
Maximum Detect	ND	ND	ND	ND	ND	0.3	0.3	ND	ND	ND	ND
Average Concentration *	0.05	0.05	0.05	0.05	0.05	0.075	0.088	0.05	0.05	0.05	0.05
Median Concentration *	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Standard Deviation *	0	0	0	0	0	0.072	0.08	0	0	0	0
% of Detects	0	0	0	0	0	17	25	0	0	0	0
% of Non-Detects	100	100	100	100	100	83	75	100	100	100	100

	Organochlorine Pesticides										
	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Sum of Endosulfan	Endrin	Endrin aldehyde	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space											
NEPM 2013 Table 1A(1) HILs Rec C Soil					170	10			5		400
Composite 1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 5	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 6	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 7	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 11	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 12	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Number of Results	12	12	12	12	12	12	12	12	12	12	12
Number of Detects	3	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Minimum Detect	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Maximum Detect	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.071	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Median Concentration *	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Standard Deviation *	0.045	0	0	0	0	0	0	0	0	0	0
% of Detects	25	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	75	100	100	100	100	100	100	100	100	100	100

	Organophosphorous Pesticides								
	Azinophos methyl	Bromophos-ethyl	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Diazinon	Dichlorvos	Dimethoate	Disulfoton
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space									
NEPM 2013 Table 1A(1) HILs Rec C Soil			125						
Composite 1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 11	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 12	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Number of Results	12	12	12	12	12	12	12	12	12
Number of Detects	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Median Concentration *	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Standard Deviation *	0	0	0	0	0	0	0	0	0
% of Detects	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100

	Organophosphorous Pesticides									Pesticides		
	Ethion	Fenitrothion	Fenthion	Malathion	Methidathion	Methyl parathion	Mevinphos (Phosdrin)	Phorate	Ronnel	Fenamiphos	Mirex	Parathion
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space												
NEPM 2013 Table 1A(1) HILs Rec C Soil											10	
Composite 1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 11	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Composite 12	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Number of Results	12	12	12	12	12	12	12	12	12	12	12	12
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Median Concentration *	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

2013, NEPM 2013 Table 1A(1) HILs Rec C Soil

		NA		Phenols		Other		Herbicides										
		DCPA (Chlorthal) Diacid	Irgarol	2,6-D	Picloram	3,5-Dichlorobenzoic acid	Actril (Ioxynil)	Metribuzin	2,4,5-Trichlorophenoxy Acetic Acid	2,4,5-TP (Silvex)	Hedonal	2,4-Dichlorprop	2,4,6-Trichlorophenoxy-acetic acid	4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	2-Chlorophenoxyacetic acid	4-Chlorophenoxy acetic acid	Ametryn	Acifluorfen
		mg/kg	µg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		0.5	500	0.5	1	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2
NEPM 2013 Table 1A(1) HILs Rec C Soil					2850				400		650							
Field ID	**Date**																	
Composite 1	**15 Aug 2023**	<0.5	<500	<0.5	<1	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
Composite 2	**15 Aug 2023**	<0.5	<500	<0.5	<1	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
Composite 3	**15 Aug 2023**	<0.5	<500	<0.5	<1	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
Composite 4	**15 Aug 2023**	<0.5	<500	<0.5	<1	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
Composite 5	**15 Aug 2023**	<0.5	<500	<0.5	<1	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
Composite 6	**15 Aug 2023**	<0.5	<500	<0.5	<1	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
Composite 7	**15 Aug 2023**	<0.5	<500	<0.5	<1	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
Composite 8	**15 Aug 2023**	<0.5	<500	<0.5	<1	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
Composite 9	**15 Aug 2023**	<0.5	<500	<0.5	<1	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
Composite 10	**15 Aug 2023**	<0.5	<500	<0.5	<1	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
Composite 11	**15 Aug 2023**	<0.5	<500	<0.5	<1	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
Composite 12	**15 Aug 2023**	<0.5	<500	<0.5	<1	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
Statistics																		
Number of Results		12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Number of Detects		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration		<0.5	<500	<0.5	<1	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
Minimum Detect		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration		<0.5	<500	<0.5	<1	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
Maximum Detect		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *		0.25	250	0.25	0.5	0.25	0.5	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1
Median Concentration *		0.25	250	0.25	0.5	0.25	0.5	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1
Standard Deviation *		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *		0.25	250	0.25	0.5	0.25	0.5	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1
% of Detects		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

		Herbicides																		Organic
		Atrazine	Bentazone	Bromoxynil	Chloramben	Clopyralid	Cyanazine	Dicamba	Dinoseb	Fluroxypyr	Hexazinone	2-Methyl-4-chlorophenoxyacetic acid	2-Methyl-4-Chlorophenoxy Butanoic Acid	Mecoprop	Prometryn	Propazine	Simazine	Terbutryn	Triclopyr	Terbutylazine
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		0.5	1	0.5	1	0.5	0.5	0.5	1	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
NEPM 2013 Table 1A(1) HILs Rec C Soil		200										400	400	400						
Field ID	**Date**																			
Composite 1	**15 Aug 2023**	<0.5	<1	<0.5	<1	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Composite 2	**15 Aug 2023**	<0.5	<1	<0.5	<1	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Composite 3	**15 Aug 2023**	<0.5	<1	<0.5	<1	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Composite 4	**15 Aug 2023**	<0.5	<1	<0.5	<1	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Composite 5	**15 Aug 2023**	<0.5	<1	<0.5	<1	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Composite 6	**15 Aug 2023**	<0.5	<1	<0.5	<1	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Composite 7	**15 Aug 2023**	<0.5	<1	<0.5	<1	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Composite 8	**15 Aug 2023**	<0.5	<1	<0.5	<1	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Composite 9	**15 Aug 2023**	<0.5	<1	<0.5	<1	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Composite 10	**15 Aug 2023**	<0.5	<1	<0.5	<1	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Composite 11	**15 Aug 2023**	<0.5	<1	<0.5	<1	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Composite 12	**15 Aug 2023**	<0.5	<1	<0.5	<1	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Statistics																				
Number of Results		12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Number of Detects		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration		<0.5	<1	<0.5	<1	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Minimum Detect		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration		<0.5	<1	<0.5	<1	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Maximum Detect		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *		0.25	0.5	0.25	0.5	0.25	0.25	0.25	0.5	0.5	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Median Concentration *		0.25	0.5	0.25	0.5	0.25	0.25	0.25	0.5	0.5	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Standard Deviation *		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *		0.25	0.5	0.25	0.5	0.25	0.25	0.25	0.5	0.5	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
% of Detects		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Rec C Soil

Inputs
Select contaminant from list below
Cr_III
Below needed to calculate fresh and aged ACLs
Enter % clay (values from 0 to 100%)
5
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
7
or for aged ABCs only
Enter State (or closest State)
NSW
Enter traffic volume (high or low)
low

Outputs		
Land use	Cr III soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	120	110
Urban residential and open public spaces	200	320
Commercial and industrial	290	530

Inputs
Select contaminant from list below
Cu
Below needed to calculate fresh and aged ACLs
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)
4.17
Enter soil pH (calcium chloride method) (values from 1 to 14)
5.6
Enter organic carbon content (%OC) (values from 0 to 50%)
1
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
7
or for aged ABCs only
Enter State (or closest State)
NSW
Enter traffic volume (high or low)
low

Outputs		
Land use	Cu soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	40	45
Urban residential and open public spaces	60	95
Commercial and industrial	80	130

Inputs
Select contaminant from list below
Ni
Below needed to calculate fresh and aged ACLs
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)
4.17
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
7
or for aged ABCs only
Enter State (or closest State)
NSW
Enter traffic volume (high or low)
low

Outputs		
Land use	Ni soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	30	9
Urban residential and open public spaces	35	25
Commercial and industrial	40	40

Inputs
Select contaminant from list below
Zn
Below needed to calculate fresh and aged ACLs
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)
4.17
Enter soil pH (calcium chloride method) (values from 1 to 14)
5.6
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
7
or for aged ABCs only
Enter State (or closest State)
NSW
Enter traffic volume (high or low)
low

Outputs		
Land use	Zn soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	50	110
Urban residential and open public spaces	100	250
Commercial and industrial	140	340

17 Attachment G: Data Quality Assessment

Sample Handling

Lab Report	Sample Chain of Custody (COC) Procedures	Sample Preservation	Sample Receipt Notification Matches COC	Samples Analysed Within Holding Time
330569 – S	Pass	Pass	Pass	Pass

Precision / Accuracy

Lab Report	Analysed by NATA Laboratory	Trip Spike and Blank Used	Adequate Duplicates Analysed	Field Rinsate Analysed
330569 – S	Pass	Pass	Pass	NA

Trip spike and blank were reported within the acceptable recovery range.

Trip blank reported less than LOR for volatile analysis.

As dedicated sampling equipment were used during the investigation, no rinsate was required.

Duplicates and Laboratory QA / QC

Lab Report	Field RPD	Laboratory Surrogate Recovery	Laboratory Duplicate RPD	Lab Blank and Matrix Spike Recovery	Laboratory Control Sample
330569 – S	Pass	Pass	Pass	Pass	Pass

RPD control limits between primary sample BH208/0-0.2 and duplicate sample DUP01, and between primary samples BH210/0-0.2 and duplicate sample DUP02, both met acceptable RPD values for all heavy metals apart for copper and zinc, and chromium, respectively. Considering these high RPD values are likely attributed to the heterogeneous nature of fill material and that the exceeded concentrations are below the adopted SAC, the data is useable for this report.

	Lab Report Number		330569	330569		330569	330569	
	Field ID		BH208/0-0.2	DUP01		BH210/0-0.2	DUP03	
	Date		15 Aug 2023	15 Aug 2023		15 Aug 2023	15 Aug 2023	
	Matrix Type		Soil	Soil	RPD	Soil	Soil	RPD
	Unit	EQL						
Metals								
Arsenic	mg/kg	4	5	6	18	5	<4	22
Cadmium	mg/kg	0.4	<0.4	<0.4	0	<0.4	<0.4	0
Chromium (III+VI)	mg/kg	1	18	22	20	17	8	72
Copper	mg/kg	1	14	25	56	3	2	40
Lead	mg/kg	1	17	14	19	14	11	24
Mercury	mg/kg	0.1	<0.1	0.1	0	0.9	0.7	25
Nickel	mg/kg	1	3	3	0	2	1	67
Zinc	mg/kg	1	37	16	79	17	13	27

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**

****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: 81 (1 - 10 x EQL); 50 (10 - 30 x EQL); 30 (> 30 x EQL))**

*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory**

18 Attachment H: Laboratory Analytical Results, COC and Sample Receipt

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 330569

Client Details

Client	Martens & Associates Pty Ltd
Attention	William Xu
Address	Suite 201, 20 George St, Hornsby, NSW, 2077

Sample Details

Your Reference	**P2209440 - Bayview Golf Club NSW**
Number of Samples	55 Soil
Date samples received	15/08/2023
Date completed instructions received	15/08/2023

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	22/08/2023
Date of Issue	22/08/2023

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Asbestos Approved By
Analysed by Asbestos Approved Analyst: Stuart Chen
Authorised by Asbestos Approved Signatory: Matt Mansfield

Results Approved By
Diana Korniewicz, Chemist
Diego Bigolin, Inorganics Supervisor
Dragana Tomas, Senior Chemist
Hannah Nguyen, Metals Supervisor
Matt Mansfield, QHSE manager
Tim Toll, Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		330569-37	330569-38	330569-39	330569-40	330569-41
Your Reference	UNITS	BH201/0-0.2	BH202/0-0.2	BH203/0-0.2	BH204/0-0.2	BH205/0-0.2
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Composite Reference		-	-	-	-	-
Date extracted	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Date analysed	-	21/08/2023	21/08/2023	21/08/2023	21/08/2023	21/08/2023
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
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	%	92	90	95	91	88

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		330569-42	330569-43	330569-44	330569-45	330569-46
Your Reference	UNITS	BH206/0-0.2	BH207/0-0.2	BH208/0-0.2	BH209/0-0.2	BH210/0-0.2
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Composite Reference		-	-	-	-	-
Date extracted	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Date analysed	-	21/08/2023	21/08/2023	21/08/2023	21/08/2023	21/08/2023
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
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	92	84	83	92

vTRH(C6-C10)/BTEXN in Soil					
Our Reference		330569-47	330569-48	330569-54	330569-55
Your Reference	UNITS	BH211/0-0.2	BH212/0-0.2	Trip Spike	Trip Blank
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil
Composite Reference		-	-	-	-
Date extracted	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Date analysed	-	21/08/2023	21/08/2023	21/08/2023	21/08/2023
TRH C_6 - C_9	mg/kg	<25	<25	[NA]	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	[NA]	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	[NA]	<25
Benzene	mg/kg	<0.2	<0.2	106%	[NA]
Toluene	mg/kg	<0.5	<0.5	107%	[NA]
Ethylbenzene	mg/kg	<1	<1	108%	[NA]
m+p-xylene	mg/kg	<2	<2	108%	[NA]
o-Xylene	mg/kg	<1	<1	108%	[NA]
Naphthalene	mg/kg	<1	<1	[NA]	[NA]
Total +ve Xylenes	mg/kg	<1	<1	[NA]	[NA]
Surrogate aaa-Trifluorotoluene	%	92	96	90	88

svTRH (C10-C40) in Soil						
Our Reference		330569-37	330569-38	330569-39	330569-40	330569-41
Your Reference	UNITS	BH201/0-0.2	BH202/0-0.2	BH203/0-0.2	BH204/0-0.2	BH205/0-0.2
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Composite Reference		-	-	-	-	-
Date extracted	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Date analysed	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
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	75	78	77

svTRH (C10-C40) in Soil						
Our Reference		330569-42	330569-43	330569-44	330569-45	330569-46
Your Reference	UNITS	BH206/0-0.2	BH207/0-0.2	BH208/0-0.2	BH209/0-0.2	BH210/0-0.2
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Composite Reference		-	-	-	-	-
Date extracted	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Date analysed	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
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	75	75	72	69

svTRH (C10-C40) in Soil			
Our Reference		330569-47	330569-48
Your Reference	UNITS	BH211/0-0.2	BH212/0-0.2
Date Sampled		15/08/2023	15/08/2023
Type of sample		Soil	Soil
Composite Reference		-	-
Date extracted	-	16/08/2023	16/08/2023
Date analysed	-	16/08/2023	16/08/2023
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	%	66	76

PAHs in Soil						
Our Reference		330569-37	330569-38	330569-39	330569-40	330569-41
Your Reference	UNITS	BH201/0-0.2	BH202/0-0.2	BH203/0-0.2	BH204/0-0.2	BH205/0-0.2
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Composite Reference		-	-	-	-	-
Date extracted	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Date analysed	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.3	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.3	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.2	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.2	<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	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	1.3	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	114	117	116	122	115

PAHs in Soil						
Our Reference		330569-42	330569-43	330569-44	330569-45	330569-46
Your Reference	UNITS	BH206/0-0.2	BH207/0-0.2	BH208/0-0.2	BH209/0-0.2	BH210/0-0.2
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Composite Reference		-	-	-	-	-
Date extracted	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Date analysed	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<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	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	116	111	116	113	110

PAHs in Soil			
Our Reference		330569-47	330569-48
Your Reference	UNITS	BH211/0-0.2	BH212/0-0.2
Date Sampled		15/08/2023	15/08/2023
Type of sample		Soil	Soil
Composite Reference		-	-
Date extracted	-	16/08/2023	16/08/2023
Date analysed	-	16/08/2023	16/08/2023
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	113	111

Organochlorine Pesticides in soil						
Our Reference		330569-25	330569-26	330569-27	330569-28	330569-29
Your Reference	UNITS	Composite 1	Composite 2	Composite 3	Composite 4	Composite 5
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Composite Reference		1+2	3+4	5+6	7+8	9+10
Date extracted	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Date analysed	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	0.2	<0.1	0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	118	119	119	126	119

Organochlorine Pesticides in soil						
Our Reference		330569-30	330569-31	330569-32	330569-33	330569-34
Your Reference	UNITS	Composite 6	Composite 7	Composite 8	Composite 9	Composite 10
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Composite Reference		11+12	13+14	15+16	17+18	19+20
Date extracted	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Date analysed	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	0.3	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	0.3	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.1	0.2	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	120	119	122	121	118

Organochlorine Pesticides in soil						
Our Reference		330569-35	330569-36	330569-37	330569-38	330569-39
Your Reference	UNITS	Composite 11	Composite 12	BH201/0-0.2	BH202/0-0.2	BH203/0-0.2
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Composite Reference		21+22	23+24	-	-	-
Date extracted	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Date analysed	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	124	122	118	120	119

Organochlorine Pesticides in soil						
Our Reference		330569-40	330569-41	330569-42	330569-43	330569-44
Your Reference	UNITS	BH204/0-0.2	BH205/0-0.2	BH206/0-0.2	BH207/0-0.2	BH208/0-0.2
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Composite Reference		-	-	-	-	-
Date extracted	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Date analysed	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	0.6	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	0.1	0.7	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	0.3	<0.1
Dieldrin	mg/kg	<0.1	<0.1	0.2	0.6	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	0.3	<0.1
Surrogate TCMX	%	126	118	120	117	119

Organochlorine Pesticides in soil					
Our Reference		330569-45	330569-46	330569-47	330569-48
Your Reference	UNITS	BH209/0-0.2	BH210/0-0.2	BH211/0-0.2	BH212/0-0.2
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil
Composite Reference		-	-	-	-
Date extracted	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Date analysed	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023
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	0.2
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	2.4
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	4.0
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	0.3
Dieldrin	mg/kg	<0.1	<0.1	<0.1	1.0
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	0.3
Surrogate TCMX	%	117	116	119	116

Organophosphorus Pesticides in Soil						
Our Reference		330569-25	330569-26	330569-27	330569-28	330569-29
Your Reference	UNITS	Composite 1	Composite 2	Composite 3	Composite 4	Composite 5
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Composite Reference		1+2	3+4	5+6	7+8	9+10
Date extracted	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Date analysed	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	118	119	119	126	119

Organophosphorus Pesticides in Soil						
Our Reference		330569-30	330569-31	330569-32	330569-33	330569-34
Your Reference	UNITS	Composite 6	Composite 7	Composite 8	Composite 9	Composite 10
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Composite Reference		11+12	13+14	15+16	17+18	19+20
Date extracted	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Date analysed	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	120	119	122	121	118

Organophosphorus Pesticides in Soil						
Our Reference		330569-35	330569-36	330569-37	330569-38	330569-39
Your Reference	UNITS	Composite 11	Composite 12	BH201/0-0.2	BH202/0-0.2	BH203/0-0.2
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Composite Reference		21+22	23+24	-	-	-
Date extracted	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Date analysed	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	124	122	118	120	119

Organophosphorus Pesticides in Soil						
Our Reference		330569-40	330569-41	330569-42	330569-43	330569-44
Your Reference	UNITS	BH204/0-0.2	BH205/0-0.2	BH206/0-0.2	BH207/0-0.2	BH208/0-0.2
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Composite Reference		-	-	-	-	-
Date extracted	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Date analysed	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	126	118	120	117	119

Organophosphorus Pesticides in Soil					
Our Reference		330569-45	330569-46	330569-47	330569-48
Your Reference	UNITS	BH209/0-0.2	BH210/0-0.2	BH211/0-0.2	BH212/0-0.2
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil
Composite Reference		-	-	-	-
Date extracted	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Date analysed	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023
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 TCMX	%	117	116	119	116

PCBs in Soil						
Our Reference		330569-37	330569-38	330569-39	330569-40	330569-41
Your Reference	UNITS	BH201/0-0.2	BH202/0-0.2	BH203/0-0.2	BH204/0-0.2	BH205/0-0.2
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Composite Reference		-	-	-	-	-
Date extracted	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Date analysed	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	118	120	119	126	118

PCBs in Soil						
Our Reference		330569-42	330569-43	330569-44	330569-45	330569-46
Your Reference	UNITS	BH206/0-0.2	BH207/0-0.2	BH208/0-0.2	BH209/0-0.2	BH210/0-0.2
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Composite Reference		-	-	-	-	-
Date extracted	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Date analysed	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	120	117	119	117	116

PCBs in Soil			
Our Reference		330569-47	330569-48
Your Reference	UNITS	BH211/0-0.2	BH212/0-0.2
Date Sampled		15/08/2023	15/08/2023
Type of sample		Soil	Soil
Composite Reference		-	-
Date extracted	-	16/08/2023	16/08/2023
Date analysed	-	16/08/2023	16/08/2023
Aroclor 1016	mg/kg	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1
Surrogate TCMX	%	119	116

Acid Extractable metals in soil						
Our Reference		330569-25	330569-26	330569-27	330569-28	330569-29
Your Reference	UNITS	Composite 1	Composite 2	Composite 3	Composite 4	Composite 5
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Composite Reference		1+2	3+4	5+6	7+8	9+10
Date prepared	-	17/08/2023	17/08/2023	17/08/2023	17/08/2023	17/08/2023
Date analysed	-	21/08/2023	21/08/2023	21/08/2023	21/08/2023	21/08/2023
Arsenic	mg/kg	7	8	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	0.8	1	<0.4
Chromium	mg/kg	4	6	7	7	4
Copper	mg/kg	7	5	9	6	4
Lead	mg/kg	29	6	19	20	8
Mercury	mg/kg	<0.1	0.3	<0.1	2.3	1.5
Nickel	mg/kg	2	3	3	2	1
Zinc	mg/kg	45	18	36	51	19

Acid Extractable metals in soil						
Our Reference		330569-30	330569-31	330569-32	330569-33	330569-34
Your Reference	UNITS	Composite 6	Composite 7	Composite 8	Composite 9	Composite 10
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Composite Reference		11+12	13+14	15+16	17+18	19+20
Date prepared	-	17/08/2023	17/08/2023	17/08/2023	17/08/2023	17/08/2023
Date analysed	-	21/08/2023	21/08/2023	21/08/2023	21/08/2023	21/08/2023
Arsenic	mg/kg	<4	<4	5	<4	4
Cadmium	mg/kg	<0.4	0.6	<0.4	<0.4	<0.4
Chromium	mg/kg	4	6	7	6	9
Copper	mg/kg	4	5	5	6	8
Lead	mg/kg	7	7	15	9	18
Mercury	mg/kg	0.4	2.5	<0.1	0.3	0.4
Nickel	mg/kg	2	2	2	2	5
Zinc	mg/kg	18	19	29	25	32

Acid Extractable metals in soil						
Our Reference		330569-35	330569-36	330569-37	330569-38	330569-39
Your Reference	UNITS	Composite 11	Composite 12	BH201/0-0.2	BH202/0-0.2	BH203/0-0.2
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Composite Reference		21+22	23+24	-	-	-
Date prepared	-	17/08/2023	17/08/2023	17/08/2023	17/08/2023	17/08/2023
Date analysed	-	21/08/2023	21/08/2023	21/08/2023	21/08/2023	21/08/2023
Arsenic	mg/kg	6	10	6	9	8
Cadmium	mg/kg	0.5	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	12	11	4	7	22
Copper	mg/kg	12	6	7	15	12
Lead	mg/kg	19	11	160	14	22
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	3	3	2	4	11
Zinc	mg/kg	32	29	57	29	36

Acid Extractable metals in soil						
Our Reference		330569-40	330569-41	330569-42	330569-43	330569-44
Your Reference	UNITS	BH204/0-0.2	BH205/0-0.2	BH206/0-0.2	BH207/0-0.2	BH208/0-0.2
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Composite Reference		-	-	-	-	-
Date prepared	-	17/08/2023	17/08/2023	17/08/2023	17/08/2023	17/08/2023
Date analysed	-	21/08/2023	21/08/2023	21/08/2023	21/08/2023	21/08/2023
Arsenic	mg/kg	<4	<4	8	6	5
Cadmium	mg/kg	0.6	<0.4	0.4	0.6	<0.4
Chromium	mg/kg	9	15	10	9	18
Copper	mg/kg	14	2	4	10	14
Lead	mg/kg	11	4	25	10	17
Mercury	mg/kg	2.1	<0.1	2.1	2.0	<0.1
Nickel	mg/kg	19	<1	2	3	3
Zinc	mg/kg	32	9	30	22	37

Acid Extractable metals in soil						
Our Reference		330569-45	330569-46	330569-47	330569-48	330569-52
Your Reference	UNITS	BH209/0-0.2	BH210/0-0.2	BH211/0-0.2	BH212/0-0.2	DUP01
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Composite Reference		-	-	-	-	-
Date prepared	-	17/08/2023	17/08/2023	17/08/2023	17/08/2023	17/08/2023
Date analysed	-	21/08/2023	21/08/2023	21/08/2023	21/08/2023	21/08/2023
Arsenic	mg/kg	<4	5	<4	<4	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	2	<0.4
Chromium	mg/kg	10	17	7	10	22
Copper	mg/kg	4	3	7	4	25
Lead	mg/kg	8	14	8	16	14
Mercury	mg/kg	1.4	0.9	<0.1	18	0.1
Nickel	mg/kg	3	2	2	2	3
Zinc	mg/kg	20	17	17	22	16

Acid Extractable metals in soil				
Our Reference		330569-53	330569-56	330569-57
Your Reference	UNITS	DUP03	BH201/0-0.2 - [TRIPLICATE]	BH206/0-0.2 - [TRIPLICATE]
Date Sampled		15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil
Composite Reference		-	-	-
Date prepared	-	17/08/2023	17/08/2023	17/08/2023
Date analysed	-	21/08/2023	21/08/2023	21/08/2023
Arsenic	mg/kg	<4	6	7
Cadmium	mg/kg	<0.4	<0.4	<0.4
Chromium	mg/kg	8	5	13
Copper	mg/kg	2	7	4
Lead	mg/kg	11	46	21
Mercury	mg/kg	0.7	<0.1	2.0
Nickel	mg/kg	1	2	2
Zinc	mg/kg	13	81	26

Misc Inorg - Soil				
Our Reference		330569-49	330569-50	330569-51
Your Reference	UNITS	BH202/0.8-1.0	BH204/0.7-0.9	BH210/0.8-1.0
Date Sampled		15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil
Composite Reference		-	-	-
Date prepared	-	16/08/2023	16/08/2023	16/08/2023
Date analysed	-	16/08/2023	16/08/2023	16/08/2023
pH 1:5 soil:water	pH Units	7.2	5.6	8.6

CEC				
Our Reference		330569-49	330569-50	330569-51
Your Reference	UNITS	BH202/0.8-1.0	BH204/0.7-0.9	BH210/0.8-1.0
Date Sampled		15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil
Composite Reference		-	-	-
Date prepared	-	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	22/08/2023	22/08/2023	22/08/2023
Exchangeable Ca	meq/100g	2.9	2.9	1.6
Exchangeable K	meq/100g	0.2	0.2	<0.1
Exchangeable Mg	meq/100g	0.6	2.8	0.3
Exchangeable Na	meq/100g	<0.1	0.7	<0.1
Cation Exchange Capacity	meq/100g	3.8	6.7	2.0

Moisture						
Our Reference		330569-25	330569-26	330569-27	330569-28	330569-29
Your Reference	UNITS	Composite 1	Composite 2	Composite 3	Composite 4	Composite 5
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Composite Reference		1+2	3+4	5+6	7+8	9+10
Date prepared	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Date analysed	-	17/08/2023	17/08/2023	17/08/2023	17/08/2023	17/08/2023
Moisture	%	12	21	17	29	3.0

Moisture						
Our Reference		330569-30	330569-31	330569-32	330569-33	330569-34
Your Reference	UNITS	Composite 6	Composite 7	Composite 8	Composite 9	Composite 10
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Composite Reference		11+12	13+14	15+16	17+18	19+20
Date prepared	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Date analysed	-	17/08/2023	17/08/2023	17/08/2023	17/08/2023	17/08/2023
Moisture	%	22	16	24	32	18

Moisture						
Our Reference		330569-35	330569-36	330569-37	330569-38	330569-39
Your Reference	UNITS	Composite 11	Composite 12	BH201/0-0.2	BH202/0-0.2	BH203/0-0.2
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Composite Reference		21+22	23+24	-	-	-
Date prepared	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Date analysed	-	17/08/2023	17/08/2023	17/08/2023	17/08/2023	17/08/2023
Moisture	%	38	39	14	16	20

Moisture						
Our Reference		330569-40	330569-41	330569-42	330569-43	330569-44
Your Reference	UNITS	BH204/0-0.2	BH205/0-0.2	BH206/0-0.2	BH207/0-0.2	BH208/0-0.2
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Composite Reference		-	-	-	-	-
Date prepared	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Date analysed	-	17/08/2023	17/08/2023	17/08/2023	17/08/2023	17/08/2023
Moisture	%	30	23	24	17	20

Moisture						
Our Reference		330569-45	330569-46	330569-47	330569-48	330569-52
Your Reference	UNITS	BH209/0-0.2	BH210/0-0.2	BH211/0-0.2	BH212/0-0.2	DUP01
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Composite Reference		-	-	-	-	-
Date prepared	-	16/08/2023	16/08/2023	16/08/2023	16/08/2023	16/08/2023
Date analysed	-	17/08/2023	17/08/2023	17/08/2023	17/08/2023	17/08/2023
Moisture	%	17	20	32	15	18

Moisture		
Our Reference		330569-53
Your Reference	UNITS	DUP03
Date Sampled		15/08/2023
Type of sample		Soil
Composite Reference		-
Date prepared	-	16/08/2023
Date analysed	-	17/08/2023
Moisture	%	5.3

Asbestos ID - soils						
Our Reference		330569-37	330569-38	330569-39	330569-40	330569-41
Your Reference	UNITS	BH201/0-0.2	BH202/0-0.2	BH203/0-0.2	BH204/0-0.2	BH205/0-0.2
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Composite Reference		-	-	-	-	-
Date analysed	-	21/08/2023	21/08/2023	21/08/2023	21/08/2023	21/08/2023
Sample mass tested	g	Approx. 35g	Approx. 35g	Approx. 35g	Approx. 30g	Approx. 30g
Sample Description	-	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils						
Our Reference		330569-42	330569-43	330569-44	330569-45	330569-46
Your Reference	UNITS	BH206/0-0.2	BH207/0-0.2	BH208/0-0.2	BH209/0-0.2	BH210/0-0.2
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Composite Reference		-	-	-	-	-
Date analysed	-	21/08/2023	21/08/2023	21/08/2023	21/08/2023	21/08/2023
Sample mass tested	g	Approx. 35g	Approx. 30g	Approx. 35g	Approx. 30g	Approx. 30g
Sample Description	-	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils			
Our Reference		330569-47	330569-48
Your Reference	UNITS	BH211/0-0.2	BH212/0-0.2
Date Sampled		15/08/2023	15/08/2023
Type of sample		Soil	Soil
Composite Reference		-	-
Date analysed	-	21/08/2023	21/08/2023
Sample mass tested	g	Approx. 25g	Approx. 30g
Sample Description	-	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. 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.
Metals-020	Determination of various metals by ICP-AES.
Metals-020	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-OES analytical finish.
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.
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	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. 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 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.

Method ID	Methodology Summary
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.
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-9	330569-38
Date extracted	-			16/08/2023	37	16/08/2023	16/08/2023		16/08/2023	16/08/2023
Date analysed	-			21/08/2023	37	21/08/2023	21/08/2023		21/08/2023	21/08/2023
TRH C_6 - C_9	mg/kg	25	Org-023	<25	37	<25	<25	0	127	109
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	37	<25	<25	0	127	109
Benzene	mg/kg	0.2	Org-023	<0.2	37	<0.2	<0.2	0	124	108
Toluene	mg/kg	0.5	Org-023	<0.5	37	<0.5	<0.5	0	125	107
Ethylbenzene	mg/kg	1	Org-023	<1	37	<1	<1	0	121	103
m+p-xylene	mg/kg	2	Org-023	<2	37	<2	<2	0	133	114
o-Xylene	mg/kg	1	Org-023	<1	37	<1	<1	0	131	112
Naphthalene	mg/kg	1	Org-023	<1	37	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	89	37	92	97	5	98	86

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	47	16/08/2023	16/08/2023		[NT]	[NT]
Date analysed	-			[NT]	47	21/08/2023	21/08/2023		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	47	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	47	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	47	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	47	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	47	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	47	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	47	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	47	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	47	92	100	8	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	330569-38
Date extracted	-			16/08/2023	37	16/08/2023	16/08/2023		16/08/2023	16/08/2023
Date analysed	-			16/08/2023	37	16/08/2023	16/08/2023		16/08/2023	16/08/2023
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	37	<50	<50	0	110	99
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	37	<100	<100	0	94	87
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	37	<100	<100	0	100	70
TRH >C_{10}-C_{16}	mg/kg	50	Org-020	<50	37	<50	<50	0	110	99
TRH >C_{16}-C_{34}	mg/kg	100	Org-020	<100	37	<100	<100	0	94	87
TRH >C_{34}-C_{40}	mg/kg	100	Org-020	<100	37	<100	<100	0	100	70
Surrogate o-Terphenyl	%		Org-020	75	37	76	76	0	84	83

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	47	16/08/2023	16/08/2023		[NT]	[NT]
Date analysed	-			[NT]	47	16/08/2023	16/08/2023		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	47	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	47	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	47	<100	<100	0	[NT]	[NT]
TRH >C_{10}-C_{16}	mg/kg	50	Org-020	[NT]	47	<50	<50	0	[NT]	[NT]
TRH >C_{16}-C_{34}	mg/kg	100	Org-020	[NT]	47	<100	<100	0	[NT]	[NT]
TRH >C_{34}-C_{40}	mg/kg	100	Org-020	[NT]	47	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	47	66	79	18	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	330569-38
Date extracted	-			16/08/2023	37	16/08/2023	16/08/2023		16/08/2023	16/08/2023
Date analysed	-			16/08/2023	37	16/08/2023	16/08/2023		16/08/2023	16/08/2023
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	101	97
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	107	105
Fluorene	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	95	93
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	0.2	67	104	100
Anthracene	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	37	0.3	0.5	50	118	110
Pyrene	mg/kg	0.1	Org-022/025	<0.1	37	0.3	0.5	50	121	119
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	37	0.2	0.2	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	37	0.1	0.2	67	97	93
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	37	0.2	0.4	67	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	37	0.2	0.05	120	86	96
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	37	0.1	0.2	67	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	94	37	114	115	1	103	98

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	330569-41
Date extracted	-			[NT]	42	16/08/2023	16/08/2023		16/08/2023	16/08/2023
Date analysed	-			[NT]	42	16/08/2023	16/08/2023		16/08/2023	16/08/2023
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	99	99
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	107	105
Fluorene	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	95	95
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	102	102
Anthracene	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	112	112
Pyrene	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	117	121
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	95	95
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	42	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	42	<0.05	<0.05	0	90	100
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	42	116	115	1	99	100

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	47	16/08/2023	16/08/2023		[NT]	[NT]
Date analysed	-			[NT]	47	16/08/2023	16/08/2023		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	47	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	47	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	47	113	118	4	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	330569-38
Date extracted	-			16/08/2023	37	16/08/2023	16/08/2023		16/08/2023	16/08/2023
Date analysed	-			16/08/2023	37	16/08/2023	16/08/2023		16/08/2023	16/08/2023
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	102	100
HCB	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	102	110
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	121	133
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	99	101
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	92	96
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	111	113
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	110	112
Endrin	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	98	115
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	94	102
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	93	97
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	108	37	118	119	1	114	110

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	330569-41
Date extracted	-			[NT]	42	16/08/2023	16/08/2023		16/08/2023	16/08/2023
Date analysed	-			[NT]	42	16/08/2023	16/08/2023		16/08/2023	16/08/2023
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	100	102
HCB	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	106	104
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	127	133
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	99	103
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	92	100
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	42	0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	109	115
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	42	0.2	0.1	67	108	116
Endrin	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	102	121
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	98	106
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	87	101
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	42	120	117	3	113	111

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	47	16/08/2023	16/08/2023		[NT]	[NT]
Date analysed	-			[NT]	47	16/08/2023	16/08/2023		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	47	119	122	2	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	330569-38
Date extracted	-			16/08/2023	37	16/08/2023	16/08/2023		16/08/2023	16/08/2023
Date analysed	-			16/08/2023	37	16/08/2023	16/08/2023		16/08/2023	16/08/2023
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	107	113
Mevinphos	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	97	101
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	91	128
Malathion	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	97	130
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	102	110
Fenthion	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	89	138
Bromophos-ethyl	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	72	106
Phosalone	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	108	37	118	119	1	114	110

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	330569-41
Date extracted	-			[NT]	42	16/08/2023	16/08/2023		16/08/2023	16/08/2023
Date analysed	-			[NT]	42	16/08/2023	16/08/2023		16/08/2023	16/08/2023
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	111	113
Mevinphos	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	99	102
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	117	138
Malathion	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	114	134
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	104	112
Fenthion	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	124	127
Bromophos-ethyl	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	86	108
Phosalone	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	42	120	117	3	113	111

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	47	16/08/2023	16/08/2023		[NT]	[NT]
Date analysed	-			[NT]	47	16/08/2023	16/08/2023		[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Mevinphos	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Fenthion	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Phosalone	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	47	119	122	2	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	330569-38
Date extracted	-			16/08/2023	37	16/08/2023	16/08/2023		16/08/2023	16/08/2023
Date analysed	-			16/08/2023	37	16/08/2023	16/08/2023		16/08/2023	16/08/2023
Aroclor 1016	mg/kg	0.1	Org-021	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	<0.1	37	<0.1	<0.1	0	105	100
Aroclor 1260	mg/kg	0.1	Org-021	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	108	37	118	119	1	114	110

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	330569-41
Date extracted	-			[NT]	42	16/08/2023	16/08/2023		16/08/2023	16/08/2023
Date analysed	-			[NT]	42	16/08/2023	16/08/2023		16/08/2023	16/08/2023
Aroclor 1016	mg/kg	0.1	Org-021	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	[NT]	42	<0.1	<0.1	0	103	100
Aroclor 1260	mg/kg	0.1	Org-021	[NT]	42	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	[NT]	42	120	117	3	113	111

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	47	16/08/2023	16/08/2023		[NT]	[NT]
Date analysed	-			[NT]	47	16/08/2023	16/08/2023		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	[NT]	47	119	122	2	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	330569-38
Date prepared	-			17/08/2023	37	17/08/2023	17/08/2023		17/08/2023	17/08/2023
Date analysed	-			21/08/2023	37	21/08/2023	21/08/2023		21/08/2023	21/08/2023
Arsenic	mg/kg	4	Metals-020	<4	37	6	7	15	121	123
Cadmium	mg/kg	0.4	Metals-020	<0.4	37	<0.4	<0.4	0	113	115
Chromium	mg/kg	1	Metals-020	<1	37	4	4	0	120	122
Copper	mg/kg	1	Metals-020	<1	37	7	6	15	117	119
Lead	mg/kg	1	Metals-020	<1	37	160	42	117	117	120
Mercury	mg/kg	0.1	Metals-021	<0.1	37	<0.1	<0.1	0	93	94
Nickel	mg/kg	1	Metals-020	<1	37	2	2	0	116	120
Zinc	mg/kg	1	Metals-020	<1	37	57	52	9	116	108

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	330569-41
Date prepared	-			[NT]	42	17/08/2023	17/08/2023		17/08/2023	17/08/2023
Date analysed	-			[NT]	42	21/08/2023	21/08/2023		21/08/2023	21/08/2023
Arsenic	mg/kg	4	Metals-020	[NT]	42	8	9	12	122	123
Cadmium	mg/kg	0.4	Metals-020	[NT]	42	0.4	0.7	55	116	116
Chromium	mg/kg	1	Metals-020	[NT]	42	10	17	52	130	112
Copper	mg/kg	1	Metals-020	[NT]	42	4	4	0	118	122
Lead	mg/kg	1	Metals-020	[NT]	42	25	25	0	128	120
Mercury	mg/kg	0.1	Metals-021	[NT]	42	2.1	2.3	9	88	89
Nickel	mg/kg	1	Metals-020	[NT]	42	2	2	0	118	119
Zinc	mg/kg	1	Metals-020	[NT]	42	30	28	7	116	110

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	47	17/08/2023	17/08/2023		[NT]	[NT]
Date analysed	-			[NT]	47	21/08/2023	21/08/2023		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	47	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	47	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	47	7	7	0	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	47	7	7	0	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	47	8	9	12	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	47	2	2	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	47	17	22	26	[NT]	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	[NT]
Date prepared	-			16/08/2023	[NT]	[NT]	[NT]	[NT]	16/08/2023	[NT]
Date analysed	-			16/08/2023	[NT]	[NT]	[NT]	[NT]	16/08/2023	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	100	[NT]

QUALITY CONTROL: CEC						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	330569-50
Date prepared	-			22/08/2023	49	22/08/2023	22/08/2023		22/08/2023	22/08/2023
Date analysed	-			22/08/2023	49	22/08/2023	22/08/2023		22/08/2023	22/08/2023
Exchangeable Ca	meq/100g	0.1	Metals-020	<0.1	49	2.9	2.5	15	97	123
Exchangeable K	meq/100g	0.1	Metals-020	<0.1	49	0.2	0.2	0	115	114
Exchangeable Mg	meq/100g	0.1	Metals-020	<0.1	49	0.6	0.6	0	95	109
Exchangeable Na	meq/100g	0.1	Metals-020	<0.1	49	<0.1	<0.1	0	118	109

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 330569-37 for Pb. Therefore a triplicate result has been issued as laboratory sample number 330569-56.
- The laboratory RPD acceptance criteria has been exceeded for 330569-42 for Cr. Therefore a triplicate result has been issued as laboratory sample number 330569-57.

Asbestos: A portion of the supplied sample was sub-sampled for asbestos according to ASB-001 asbestos subsampling procedure. We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab/MPL recommends supplying 40-60g or 500ml of sample in its own container.
Note: Samples requested for asbestos testing were sub-sampled from jars provided by the client.

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SOIL ANALYSIS CHAIN OF CUSTODY FORM

Laboratory Testing													
Name	P2209440 – Bayview Golf Club, NSW												
Martens Contact Officer	William Xu					**Contact Email**	wxu@martens.com.au						
Sampling and Shipping	**Sample Date**	15 August 2023		**Dispatch Date**	15 August 2023		**Turnaround Time**		standard				
	Our Reference	P2209440COC02V01				**Shipping Method (X)**	**Hand**	X	**Post**		**Courier**		
	On Ice (X)	X	**No Ice (X)**		**Other (X)**								

Laboratory								
Name	EnviroLab							
Sample Delivery Address	12 Ashley Street, Chatswood							
Delivery Contact	**Name**		**Phone**	9910 6200	**Fax**		**Email**	samplereceipt@envirolabservices.com.au
Please Send Report By (X)	**Post**		**Fax**		**Email**	X	**Reporting Email Address**	wxu@martens.com.au bmcgiffin@martens.com.au gtaylor@martens.com.au

Sample	Composite	Sample	Composite	Sample	Composite
SS01 1	25 Composite 1	SS09 9	29 Composite 5	SS17 17	33 Composite 9
SS02 2		SS10 10		SS18 18	
SS03 3	26 Composite 2	SS11 11	30 Composite 6	SS19 19	34 Composite 10
SS04 4		SS12 12		SS20 20	
SS05 5	27 Composite 3	SS13 13	31 Composite 7	SS21 21	35 Composite 11
SS06 6		SS14 14		SS22 22	
SS07 7	28 Composite 4	SS15 15	32 Composite 8	SS23 23	36 Composite 12
SS08 8		SS16 16		SS24 24	

ENVIROLAB GROUP

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

Job No: 330569
Date Received: 15/8/23
Time Received: 1540
Received By: DC
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Head Office
Suite 201, Level 2, 20 George Street
Hornsby NSW 2077, Australia
Ph 02 9476 9999 **Fax** 02 9476 8767

> mail@martens.com.au
> www.martens.com.au
MARTENS & ASSOCIATES P/L
ABN 85 070 240 890 ACN 070 240 890

SOIL ANALYSIS CHAIN OF CUSTODY

	Item	Soil Sample ID	Combo 6a	pH and CEC	8HM	OC/OP Pesticides	TRH	BTEXN	Combo 3	HOLD
37	1	BH201/0-0.2	X							
38	2	BH202/0-0.2	X							
39	3	BH203/0-0.2	X							
40	4	BH204/0-0.2	X							
41	5	BH205/0-0.2	X							
42	6	BH206/0-0.2	X							
43	7	BH207/0-0.2	X							
44	8	BH208/0-0.2	X							
45	9	BH209/0-0.2	X							
46	10	BH210/0-0.2	X							
47	11	BH211/0-0.2	X							
48	12	BH212/0-0.2	X							
49	19	BH202/0.8-1.0		X						
50	20	BH204/0.7-0.9		X						
51	21	BH210/0.8-1.0		X						
	22	25 Comp 1			X	X				
	23	26 Comp 2			X	X				
	24	27 Comp 3			X	X				
	25	28 Comp 4			X	X				
	26	29 Comp 5			X	X				
	27	30 Comp 6			X	X				
	28	31 Comp 7			X	X			#330569	
	29	32 Comp 8			X	X			15/8/23	
	30	33 Comp 9			X	X			DL	
	31	34 Comp 10			X	X				
	32	35 Comp 11			X	X				
	33	36 Comp 12			X	X				

SOIL ANALYSIS CHAIN OF CUSTODY

	Item	Soil Sample ID	Combo 6a	pH and CEC	8HM	OC/OP Pesticides	TRH	BTEXN	Combo 3	HOLD
52	34	DUP01			X					
53	35	DUP03			X					
54	36	Trip Spike						X		
55	37	Trip Blank					X			

#330569
15 8/23
PL

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

SAMPLE RECEIPT ADVICE

Client Details

Client	Martens & Associates Pty Ltd
Attention	William Xu

Sample Login Details

Your reference	P2209440 - Bayview Golf Club NSW
Envirolab Reference	330569
Date Sample Received	15/08/2023
Date Instructions Received	15/08/2023
Date Results Expected to be Reported	22/08/2023

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	55 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	10
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metalsin soil	Misc Inorg - Soil	CEC	Asbestos ID - soils	On Hold
SS01											✓
SS02											✓
SS03											✓
SS04											✓
SS05											✓
SS06											✓
SS07											✓
SS08											✓
SS09											✓
SS10											✓
SS11											✓
SS12											✓
SS13											✓
SS14											✓
SS15											✓
SS16											✓
SS17											✓
SS18											✓
SS19											✓
SS20											✓
SS21											✓
SS22											✓
SS23											✓
SS24											✓
Composite 1				✓	✓		✓				
Composite 2				✓	✓		✓				
Composite 3				✓	✓		✓				
Composite 4				✓	✓		✓				
Composite 5				✓	✓		✓				
Composite 6				✓	✓		✓				
Composite 7				✓	✓		✓				
Composite 8				✓	✓		✓				

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metalsin soil	Misc Inorg - Soil	CEC	Asbestos ID - soils	On Hold
Composite 9				✓	✓		✓				
Composite 10				✓	✓		✓				
Composite 11				✓	✓		✓				
Composite 12				✓	✓		✓				
BH201/0-0.2	✓	✓	✓	✓	✓	✓	✓			✓	
BH202/0-0.2	✓	✓	✓	✓	✓	✓	✓			✓	
BH203/0-0.2	✓	✓	✓	✓	✓	✓	✓			✓	
BH204/0-0.2	✓	✓	✓	✓	✓	✓	✓			✓	
BH205/0-0.2	✓	✓	✓	✓	✓	✓	✓			✓	
BH206/0-0.2	✓	✓	✓	✓	✓	✓	✓			✓	
BH207/0-0.2	✓	✓	✓	✓	✓	✓	✓			✓	
BH208/0-0.2	✓	✓	✓	✓	✓	✓	✓			✓	
BH209/0-0.2	✓	✓	✓	✓	✓	✓	✓			✓	
BH210/0-0.2	✓	✓	✓	✓	✓	✓	✓			✓	
BH211/0-0.2	✓	✓	✓	✓	✓	✓	✓			✓	
BH212/0-0.2	✓	✓	✓	✓	✓	✓	✓			✓	
BH202/0.8-1.0								✓	✓		
BH204/0.7-0.9								✓	✓		
BH210/0.8-1.0								✓	✓		
DUP01							✓				
DUP03							✓				
Trip Spike	✓										
Trip Blank	✓										

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

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CERTIFICATE OF ANALYSIS 330569-A

Client Details

Client	Martens & Associates Pty Ltd
Attention	William Xu
Address	Suite 201, 20 George St, Hornsby, NSW, 2077

Sample Details

Your Reference	**P2209440 - Bayview Golf Club NSW**
Number of Samples	55 Soil
Date samples received	15/08/2023
Date completed instructions received	23/08/2023

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	29/08/2023
Date of Issue	29/08/2023

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Results Approved By
Dragana Tomas, Senior Chemist
Greta Petzold, Operation Manager

Authorised By
Nancy Zhang, Laboratory Manager

Phenoxy Acid Herbicides in Soil						
Our Reference		330569-A-25	330569-A-26	330569-A-27	330569-A-28	330569-A-29
Your Reference	UNITS	Composite 1	Composite 2	Composite 3	Composite 4	Composite 5
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	26/08/2023	26/08/2023	26/08/2023	26/08/2023	26/08/2023
Date analysed	-	28/08/2023	28/08/2023	28/08/2023	28/08/2023	28/08/2023
Clopyralid	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3,5-Dichlorobenzoic acid	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
o-chlorophenoxy acetic acid	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-CPA	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dicamba	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
MCPP	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
MCPA	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorprop	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-D	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Bromoxynil	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Triclopyr	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-TP	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-T	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
MCPB	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dinoseb	mg/kg	<1	<1	<1	<1	<1
2,4-DB	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ioxynil	mg/kg	<1	<1	<1	<1	<1
Picloram	mg/kg	<1	<1	<1	<1	<1
DCPA (Chlorthal) Diacid	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acifluorfen	mg/kg	<2	<2	<2	<2	<2
2,4,6-T	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-D	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Bentazon	mg/kg	<1	<1	<1	<1	<1
Chloramben	mg/kg	<1	<1	<1	<1	<1
Fluroxypyr	mg/kg	<1	<1	<1	<1	<1
Surrogate 2.4- DCPA	%	120	120	120	120	120

Phenoxy Acid Herbicides in Soil						
Our Reference		330569-A-30	330569-A-31	330569-A-32	330569-A-33	330569-A-34
Your Reference	UNITS	Composite 6	Composite 7	Composite 8	Composite 9	Composite 10
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	26/08/2023	26/08/2023	26/08/2023	26/08/2023	26/08/2023
Date analysed	-	28/08/2023	28/08/2023	28/08/2023	28/08/2023	28/08/2023
Clopyralid	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3,5-Dichlorobenzoic acid	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
o-chlorophenoxy acetic acid	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-CPA	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dicamba	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
MCPP	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
MCPA	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorprop	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-D	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Bromoxynil	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Triclopyr	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-TP	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-T	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
MCPB	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dinoseb	mg/kg	<1	<1	<1	<1	<1
2,4-DB	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ioxynil	mg/kg	<1	<1	<1	<1	<1
Picloram	mg/kg	<1	<1	<1	<1	<1
DCPA (Chlorthal) Diacid	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acifluorfen	mg/kg	<2	<2	<2	<2	<2
2,4,6-T	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-D	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Bentazon	mg/kg	<1	<1	<1	<1	<1
Chloramben	mg/kg	<1	<1	<1	<1	<1
Fluroxypyr	mg/kg	<1	<1	<1	<1	<1
Surrogate 2.4- DCPA	%	92	94	94	96	94

Phenoxy Acid Herbicides in Soil			
Our Reference		330569-A-35	330569-A-36
Your Reference	UNITS	Composite 11	Composite 12
Date Sampled		15/08/2023	15/08/2023
Type of sample		Soil	Soil
Date extracted	-	26/08/2023	26/08/2023
Date analysed	-	28/08/2023	28/08/2023
Clopyralid	mg/kg	<0.5	<0.5
3,5-Dichlorobenzoic acid	mg/kg	<0.5	<0.5
o-chlorophenoxy acetic acid	mg/kg	<0.5	<0.5
4-CPA	mg/kg	<0.5	<0.5
Dicamba	mg/kg	<0.5	<0.5
MCPP	mg/kg	<0.5	<0.5
MCPA	mg/kg	<0.5	<0.5
Dichlorprop	mg/kg	<0.5	<0.5
2,4-D	mg/kg	<0.5	<0.5
Bromoxynil	mg/kg	<0.5	<0.5
Triclopyr	mg/kg	<0.5	<0.5
2,4,5-TP	mg/kg	<0.5	<0.5
2,4,5-T	mg/kg	<0.5	<0.5
MCPB	mg/kg	<0.5	<0.5
Dinoseb	mg/kg	<1	<1
2,4-DB	mg/kg	<0.5	<0.5
Ioxynil	mg/kg	<1	<1
Picloram	mg/kg	<1	<1
DCPA (Chlorthal) Diacid	mg/kg	<0.5	<0.5
Acifluorfen	mg/kg	<2	<2
2,4,6-T	mg/kg	<0.5	<0.5
2,6-D	mg/kg	<0.5	<0.5
Bentazon	mg/kg	<1	<1
Chloramben	mg/kg	<1	<1
Fluroxypyr	mg/kg	<1	<1
Surrogate 2.4- DCPA	%	92	120

Triazine Herbicides in Soil						
Our Reference		330569-A-25	330569-A-26	330569-A-27	330569-A-28	330569-A-29
Your Reference	UNITS	Composite 1	Composite 2	Composite 3	Composite 4	Composite 5
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/08/2023	24/08/2023	24/08/2023	24/08/2023	24/08/2023
Date analysed	-	28/08/2023	28/08/2023	28/08/2023	28/08/2023	28/08/2023
Simazine	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Atrazine	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Propazine	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Terbuthylazine	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Metribuzin	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ametryn	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Prometryn	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Terbutryn	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Cyanazine	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Irgarol	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Hexazinone	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	96	97	99	104	96

Triazine Herbicides in Soil						
Our Reference		330569-A-30	330569-A-31	330569-A-32	330569-A-33	330569-A-34
Your Reference	UNITS	Composite 6	Composite 7	Composite 8	Composite 9	Composite 10
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/08/2023	24/08/2023	24/08/2023	24/08/2023	24/08/2023
Date analysed	-	28/08/2023	28/08/2023	28/08/2023	28/08/2023	28/08/2023
Simazine	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Atrazine	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Propazine	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Terbuthylazine	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Metribuzin	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ametryn	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Prometryn	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Terbutryn	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Cyanazine	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Irgarol	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Hexazinone	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	98	96	101	101	98

Triazine Herbicides in Soil			
Our Reference		330569-A-35	330569-A-36
Your Reference	UNITS	Composite 11	Composite 12
Date Sampled		15/08/2023	15/08/2023
Type of sample		Soil	Soil
Date extracted	-	24/08/2023	24/08/2023
Date analysed	-	28/08/2023	28/08/2023
Simazine	mg/kg	<0.5	<0.5
Atrazine	mg/kg	<0.5	<0.5
Propazine	mg/kg	<0.5	<0.5
Terbuthylazine	mg/kg	<0.5	<0.5
Metribuzin	mg/kg	<0.5	<0.5
Ametryn	mg/kg	<0.5	<0.5
Prometryn	mg/kg	<0.5	<0.5
Terbutryn	mg/kg	<0.5	<0.5
Cyanazine	mg/kg	<0.5	<0.5
Irgarol	mg/kg	<0.5	<0.5
Hexazinone	mg/kg	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	101	101

Method ID	Methodology Summary
Ext-061	Analysed by Envirolab Melbourne
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.

QUALITY CONTROL: Phenoxy Acid Herbicides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	330569-A-26
Date extracted	-			26/08/2023	25	26/08/2023	26/08/2023		26/08/2023	26/08/2023
Date analysed	-			28/08/2023	25	28/08/2023	28/08/2023		28/08/2023	28/08/2023
Clopyralid	mg/kg	0.5	Ext-061	<0.5	25	<0.5	<0.5	0	106	101
3,5-Dichlorobenzoic acid	mg/kg	0.5	Ext-061	<0.5	25	<0.5	<0.5	0	[NT]	[NT]
o-chlorophenoxy acetic acid	mg/kg	0.5	Ext-061	<0.5	25	<0.5	<0.5	0	[NT]	[NT]
4-CPA	mg/kg	0.5	Ext-061	<0.5	25	<0.5	<0.5	0	[NT]	[NT]
Dicamba	mg/kg	0.5	Ext-061	<0.5	25	<0.5	<0.5	0	[NT]	[NT]
MCPP	mg/kg	0.5	Ext-061	<0.5	25	<0.5	<0.5	0	[NT]	[NT]
MCPA	mg/kg	0.5	Ext-061	<0.5	25	<0.5	<0.5	0	[NT]	[NT]
Dichlorprop	mg/kg	0.5	Ext-061	<0.5	25	<0.5	<0.5	0	[NT]	[NT]
2,4-D	mg/kg	0.5	Ext-061	<0.5	25	<0.5	<0.5	0	92	89
Bromoxynil	mg/kg	0.5	Ext-061	<0.5	25	<0.5	<0.5	0	[NT]	[NT]
Triclopyr	mg/kg	0.5	Ext-061	<0.5	25	<0.5	<0.5	0	[NT]	[NT]
2,4,5-TP	mg/kg	0.5	Ext-061	<0.5	25	<0.5	<0.5	0	[NT]	[NT]
2,4,5-T	mg/kg	0.5	Ext-061	<0.5	25	<0.5	<0.5	0	110	105
MCPB	mg/kg	0.5	Ext-061	<0.5	25	<0.5	<0.5	0	[NT]	[NT]
Dinoseb	mg/kg	1	Ext-061	<1	25	<1	<1	0	[NT]	[NT]
2,4-DB	mg/kg	0.5	Ext-061	<0.5	25	<0.5	<0.5	0	[NT]	[NT]
Ioxynil	mg/kg	1	Ext-061	<1	25	<1	<1	0	[NT]	[NT]
Picloram	mg/kg	1	Ext-061	<1	25	<1	<1	0	[NT]	[NT]
DCPA (Chlorthal) Diacid	mg/kg	0.5	Ext-061	<0.5	25	<0.5	<0.5	0	[NT]	[NT]
Acifluorfen	mg/kg	2	Ext-061	<2	25	<2	<2	0	[NT]	[NT]
2,4,6-T	mg/kg	0.5	Ext-061	<0.5	25	<0.5	<0.5	0	[NT]	[NT]
2,6-D	mg/kg	0.5	Ext-061	<0.5	25	<0.5	<0.5	0	[NT]	[NT]
Bentazon	mg/kg	1	Ext-061	<1	25	<1	<1	0	[NT]	[NT]
Chloramben	mg/kg	1	Ext-061	<1	25	<1	<1	0	[NT]	[NT]
Fluroxypyr	mg/kg	1	Ext-061	<1	25	<1	<1	0	[NT]	[NT]
Surrogate 2.4- DCPA	%		Ext-061	120	25	120	120	0	124	118

QUALITY CONTROL: Triazine Herbicides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	330569-A-26
Date extracted	-			24/08/2023	25	24/08/2023	24/08/2023		24/08/2023	24/08/2023
Date analysed	-			28/08/2023	25	28/08/2023	28/08/2023		28/08/2023	28/08/2023
Simazine	mg/kg	0.5	Org-022/025	<0.5	25	<0.5	<0.5	0	[NT]	[NT]
Atrazine	mg/kg	0.5	Org-022/025	<0.5	25	<0.5	<0.5	0	98	94
Propazine	mg/kg	0.5	Org-022/025	<0.5	25	<0.5	<0.5	0	90	88
Terbuthylazine	mg/kg	0.5	Org-022/025	<0.5	25	<0.5	<0.5	0	[NT]	[NT]
Metribuzin	mg/kg	0.5	Org-022/025	<0.5	25	<0.5	<0.5	0	[NT]	[NT]
Ametryn	mg/kg	0.5	Org-022/025	<0.5	25	<0.5	<0.5	0	[NT]	[NT]
Prometryn	mg/kg	0.5	Org-022/025	<0.5	25	<0.5	<0.5	0	82	82
Terbutryn	mg/kg	0.5	Org-022/025	<0.5	25	<0.5	<0.5	0	[NT]	[NT]
Cyanazine	mg/kg	0.5	Org-022/025	<0.5	25	<0.5	<0.5	0	[NT]	[NT]
Irgarol	mg/kg	0.5	Org-022/025	<0.5	25	<0.5	<0.5	0	[NT]	[NT]
Hexazinone	mg/kg	0.5	Org-022/025	<0.5	25	<0.5	<0.5	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	95	25	96	97	1	93	98

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

Phenoy Acid Herbicides analysed by Envirolab Services Melbourne. Report No. 39291

Geoff Weir

From: William Xu <wxu@martens.com.au>
Sent: Wednesday, 23 August 2023 7:46 AM
To: Nancy Zhang; Ben McGiffin; Gray Taylor
Cc: Samplereceipt; Login; Customer Service
Subject: RE: Results for Registration 330569 P2209440 - Bayview Golf Club NSW

Nancy,

Can we get CO1 to CO12 tested for phenyl acid and triazine (herbicides) as well please, standard TAT?

Will

From: Nancy Zhang [mailto:NZhang@envirolab.com.au]
Sent: Tuesday, 22 August 2023 4:56 PM
To: martens@esdat.com.au; Ben McGiffin <bmcgiffin@martens.com.au>; Gray Taylor <gtaylor@martens.com.au>; William Xu <wxu@martens.com.au>; Accounts <accounts@martens.com.au>
Subject: Results for Registration 330569 P2209440 - Bayview Golf Club NSW

Please refer to attached for:
a copy of the Certificate of Analysis
a copy of the COC/paperwork received from you
ESDAT Extracts
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,

Nancy Zhang | Laboratory Manager, Sydney | Envirolab Services

Great Science. Great Service.

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

ENVIROLAB SERVICES

Related Parties empl LABTEC

Contaminated Land ● Trade Waste ● OHS ● Drinking Water ● Air Quality ● Asbestos ● PFAS ● Soil Vapours ● Microbiology
Methamphetamines & Other Drug Residue ● Acid Sulphate Soils (ASS) & Acid Mine Drainage (AMD)
Emerging Contaminants ● Forensic Toxicology ● Product Development

JAS-ANZ www.jas-anz.org/register

ISO 27001

NATA Accreditation Number 2901

AU: 1300 424 344 Sydney | Perth | Melbourne | Adelaide | Brisbane | Darwin NZ: + 64 (9) 526 5216 Auckland

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Reminder: **We have recently updated our prices on 1 August 2023. Please reach out to our Business Development team for more information.**

Please consider the environment before printing this email.

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

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

SAMPLE RECEIPT ADVICE

Client Details	
Client	Martens & Associates Pty Ltd
Attention	William Xu

Sample Login Details	
Your reference	P2209440 - Bayview Golf Club NSW
Envirolab Reference	330569-A
Date Sample Received	15/08/2023
Date Instructions Received	23/08/2023
Date Results Expected to be Reported	30/08/2023

Sample Condition	
Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	55 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	10
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments
Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

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

Sample ID	Phenoxy Acid Herbicidesin Soil	Triazine Herbicides in Soil	On Hold
SS01			✓
SS02			✓
SS03			✓
SS04			✓
SS05			✓
SS06			✓
SS07			✓
SS08			✓
SS09			✓
SS10			✓
SS11			✓
SS12			✓
SS13			✓
SS14			✓
SS15			✓
SS16			✓
SS17			✓
SS18			✓
SS19			✓
SS20			✓
SS21			✓
SS22			✓
SS23			✓
SS24			✓
Composite 1	✓	✓	
Composite 2	✓	✓	
Composite 3	✓	✓	
Composite 4	✓	✓	
Composite 5	✓	✓	
Composite 6	✓	✓	
Composite 7	✓	✓	
Composite 8	✓	✓	

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www.envirolab.com.au

Sample ID	Phenoxy Acid Herbicidesin Soil	Triazine Herbicides in Soil	On Hold
Composite 9	✓	✓	
Composite 10	✓	✓	
Composite 11	✓	✓	
Composite 12	✓	✓	
BH201/0-0.2			✓
BH202/0-0.2			✓
BH203/0-0.2			✓
BH204/0-0.2			✓
BH205/0-0.2			✓
BH206/0-0.2			✓
BH207/0-0.2			✓
BH208/0-0.2			✓
BH209/0-0.2			✓
BH210/0-0.2			✓
BH211/0-0.2			✓
BH212/0-0.2			✓
BH202/0.8-1.0			✓
BH204/0.7-0.9			✓
BH210/0.8-1.0			✓
DUP01			✓
DUP03			✓
Trip Spike			✓
Trip Blank			✓
BH201/0-0.2 - [TRIPLICATE]			✓
BH206/0-0.2 - [TRIPLICATE]			✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.