Thursday, 23 March 2017
DL2591_PJ0773

Mr Vince Hardy
Cityscape Planning Projects
PO Box 127
Glenbrook NSW 2773

Email: Vhardy@cityscape.net.au

Dear Sir,

Re: VENM QA Assessment – 259 West Wilchard Road, Castlereagh, NSW 2749

1.0 INTRODUCTION

DLA Environmental Services (DLA) was requested by Mr Vince Hardy of Cityscape Planning Projects (Cityscape) in collaboration with Mr Arthur Ashburn of Penrith Lakes Development Corporation (PLDC) to provide fill validation to Penrith City Council for land at 259 West Wilchard Road, Castlereagh, the subject of DA16/0498 for a proposed single storey masonry and tile dwelling lodged by Metricon Homes on 27 May 2016.

The land is Lot 1 in DP1181666 and is wholly within the Penrith Lakes Scheme.

Penrith City Council has requested this validation report to account for the placement of Virgin Excavated Natural Materials (VENM) in May and June 2016 and to verify the suitability of the filled land for a future land use consistent with Residential A in the National Environment Protection (Assessment of Site Consideration) Amendment Measure 2013 (No.1).

VENM import and landform works are approved under DA4/1998 pursuant to SEPP (Penrith Lakes Scheme) 1989 and the consent conditions of DA4/1998 as amended.

DLA conducted documentation review and quality assurance sampling on imported VENM in order to provide quality control as per the requirements of DA4/1998 for VENM importation at the Penrith Lakes site identified in the PLDC Importation Protocol (DLA 2016, Ref. DL2591_PJ0681).
At the time of this report the fill materials at the Site have been placed and compacted, with the batters topsoiled and completed with established grass cover present.

2.0 SITE DESCRIPTION

The Site is approximately 5.8 ha in area and is irregular in shape bound between Wilchards Road to the north and Castlereagh Road to the west and the site location is shown in **Figure 1**.

The land was previously assessed by DLA in November 2013 and the assessment reviewed by an accredited EPA site auditor in Site Audit Statement 0301-1319-5 issued on the 19 December 2013 to PLDC.

Fill placement occurred to the north-eastern corner of the land in May and June 2016 as shown in the aerial view to the design contours provided in **Figure 2**.

3.0 VENM IMPORTATION PROCEDURE

Prior to importation of VENM the contractor is required to provide environmental testing and classification to PLDC and all source sites are inspected by a PLDC representative and if deemed acceptable the source site is issued a validation number correlating to the source and placement of the material. The validation number is required to gain entry into the Site, with registration and material details for each truck importation recorded by the gate keeper.

Supervision for the importation was conducted by civil company Kingsfeld Pty Ltd with PLDC supervisors overseeing the importation procedure and providing visual checks to ensure VENM material complies with the import protocols and meets the approved descriptions and quantities.

In total approximately 8,000 tonnes of approved VENM material was imported to this lot from the approved source sites SUEZ at Kemps Creek and the NorthConnex tunnel project.

No contaminates of concern were identified during the import of the material. All materials met the acceptance criteria for VENM as detailed within the PLDC Importation Protocol and EPA guidelines.

4.0 VENM QUALITY ASSURANCE PROCEDURE

During importation from SUEZ Kemps Creek DLA conducted soil sampling and seventeen primary soil samples were collected from the Upper Castlereagh Placement Area or source sites. During the site inspections there were no signs of discoloration, staining, odours or foreign materials which would indicate potential contamination or signs that the materials were not VENM.

NortchConnex material was also imported to create a suitable working platform and also capping layer to complete Site filling. Ongoing monthly QA inspections and testing have been conducted in accordance with the Importation Protocol for this NorthConnex material, with the small volume of material placed in the West WIlchard fill area diverted from the Black Clay Pit fill area. All testing and inspection reports of Black Clay Pit fill materials have confirmed the material meets the approved waste classifications defining the material as VENM as well as meeting residential land use requirements.

Quality Assurance Sampling was performed in accordance with the PLDC VENM importation protocol.

Visual inspection of the Wilchards Road fill importation was provided during Level 1 geotechnical inspection by STS, ensuring all materials met the classification description and no foreign materials were observed. DLA provided a final Site inspection at the completion of filling activities with batter surfaces topsoiled and gassed.

The primary type of material collected for analysis has been provided in the sample description.

Refer to **Attachment 1** – Data Summary Table;
Attachment 2 – NATA Certified Analytical Report; and,
Attachment 3 – STS Daily Site Reports

5.0 LABORATORY QUALITY ASSURANCE

Soil samples for chemical analyses were generally collected in accordance with the Sampling Design Guidelines (NSW EPA, 1995), NEPM (NEPC, 2013) and AS4482.1-2005. Collected soil samples were immediately transferred to sample containers of appropriate composition (glass jars for chemical analysis, plastic bags for asbestos). Job number; sample identification number; sample details and date of sampling were recorded on sample labels affixed to the sample containers.

Samples were then placed immediately into a chilled esky to prevent the loss of potential volatile components. The soil samples were transported under standard DLA chain-of-custody protocols to Envirolab Services Pty Ltd a NATA accredited laboratory. All samples were stored and transported at temperatures below 4°C and within the relevant holding times.

Laboratory QA/QC assessments were carried out across all VENM QA sampling conducted at the material placement area on the 12th, 19th and 26th of May and at the source Site on the 19th of May. All sample analysis met the importation requirements, match the original approved VENM certificates and the Land Use Suitability requirements.

6.0 RESULTS

During site inspections DLA did not observe any visual indicators of contamination such as staining or discoloration and there were no odours. No foreign material was observed during the sample collection process. No contamination issues were identified in the document review.

All results were compliant with the PLDC importation criteria. There were no detections of BTEX, OC and OP pesticides or PCBs in any of the 17 samples analysed.

There were 15 samples which reported low ranges of PAH. This has been typical of previously collected data from the SUEZ site, with all concentrations complying with the PLDC importation requirements of being indicative of natural materials and within levels well established by previous works.

There were three detections of F2 (C10-C16) Hydrocarbons, with 80mg/kg the highest concentration reported from 160525-UCR-1 and two detections of F3 (C16-C34) with the highest being 150mg/kg from 160525-UCR-1. All other samples were below the limit of reporting for all other hydrocarbon fractions.

A summary of heavy metal concentrations has been provided in **Table 5.1** below. Heavy metals concentrations were considered to be consistent with natural background concentrations of VENM in Australia as well as compliant with the PLDC Importation Protocol.

Table 5.1 – Heavy Metals in the SUEZ VENM Material Assessment – May 2016

Parameter	Heavy Metals (mg/kg)							
	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn
Minimum	4.0	nd	3.0	20.0	10.0	0.10	12.0	41.0
Maximum	35.0	nd	11.0	49.0	21.0	0.20	26.0	340.0
Average (N=17)	10.0	N/A	5.7	36.5	13.8	0.13	17.1	77.8
Standard Deviation	7.4	N/A	2.4	9.2	3.3	0.06	4.0	68.6

nd = non detect
N/A = Not Applicable (insufficient data to generate a statistical value)

Refer to: **Appendix 1** – Data Summary Table; and
Appendix 2 – NATA Certified Analytical Report.

7.0 DISCUSSION

All samples analysed from SUEZ Kemps Creek and NorthConnex materials met the PLDC importation protocol criteria for all required analytes. All visual assessments did not identify any foreign material or variation of the material quality from the previously accepted classification documentation.

DLA are therefore of the opinion that the results indicate that only VENM materials have been placed within Lot 1 in DP1181666 at Wilchards Rd. All concentrations were also reported to comply with the Land Use Suitability requirements of the Site and do not represent a risk to human health or the environment.

All samples analysed from SUEZ Kemps Creek met the PLDC importation protocol criteria for BTEX, OC and OP Pesticides, PCBs and eight heavy metals. There were three samples which reported minor concentrations of F2 hydrocarbons and two samples which reported concentrations of F3 hydrocarbons. Low concentrations of total PAH were also identified in most soil samples collected.

All samples collected comprised predominantly of shale materials in the samples collected. All material has been sourced from the SUEZ Kemps Creek Site with an inspection conducted by DLA noting stockpiles of shales, stockpiles of clays and insitu shales. The site inspection noted all materials are VENM, with previous correspondence with the EPA stating materials on the site are VENM regardless on if they are stockpiled or insitu.

The presence of naturally occurring hydrocarbons and PAH has been supported by a literature review. Specific texts identified to support the presence of naturally occurring PAH and hydrocarbons in shale materials include:

- "*Identification and distribution of chrysene, methylchrysenes and their isomers in crude oils and rock extracts*" by Meijun Li, Shengbao Shi, T.-G. Wang, Published in Organic Geochemistry November 2014. The report identifies several potential naturally occurring processes which can result in PAHs to occur in sedimentary organic matter such as algal origin in the basal Triassic, interstellar mediums or diagenesis from biological precursors.
- *"Identifying naturally occurring hydrocarbons in shale when assessing site contamination"* by Edward K. C. Wu and Cheryl E. Halim, Published by Coffey Environments Pty Ltd. The report identified presence of naturally occurring hydrocarbons occurring in the Ashfield Shale within the Sydney Basin.

The concentrations of hydrocarbons and total PAH reported from the VENM quality assurance procedure therefore can be explained as being representative of natural background concentrations for all analysed contaminates of concern and therefore meet the requirements of the PLDC Importation Protocol.

DLA are therefore of the opinion that the results indicate that only natural VENM materials have been placed within Lot 1 in DP1181666 at Wilchards Rd. All concentrations were also reported to comply with the Land Use Suitability requirements of the Site and do not represent a significant risk to human health or the environment.

8.0 CONCLUSIONS

DLA have identified no potential sources of contamination within the material placed in the fill in the north eastern corner of Lot 1 in DP1181666 at Wilchards Road on the Penrith Lakes Site. The results of this investigation have confirmed that the material is Virgin Excavated Natural Materials as defined by Protection of the Environment Operations (Waste) Regulation 2014. Schedule 1, Section 50 of the Protection of the Environment Operations (POEO) Act 1997 defines VENM as natural material (such as clay, gravel, sand, soil or rock fines):

(a) "that has been excavated or quarried from areas that are not contaminated with manufactured chemicals, or with process residues, as a result of industrial, commercial, mining or agricultural activities, and
(b) that does not contain any sulfidic ores or soils or any other waste."

It is permissible that soils classified as virgin excavated natural material (VENM) may be used on any site in accordance with schedule 1, section 39(2)(e) of the POEO Act 1997; assuming compliance with all other laws that may require a Development Application or the permission of the land owner.

Based on the information reviewed, DLA have concluded that the materials assessed at the Site are natural and meet the definition of Virgin Excavated Natural Materials and consider them to be appropriate for engineered fill material on the Penrith Lakes Site.

No evidence can be found to infer chemical contamination by petroleum hydrocarbons, PAH, pesticides, PCBs or Heavy Metals at the Site. Chemical assessment of fill materials determined the Site complies with the NEPM 2013, Residential A land use screening levels and is suitable for the intended use.

If you have any questions please do not hesitate to contact us.

Yours faithfully,

DLA ENVIRONMENTAL SERVICES

Russell Jarman

Environmental Consultant

FIGURE 1 – SITE LOCATION - LOT 1 IN DP1181666 AT WILCHARDS ROAD

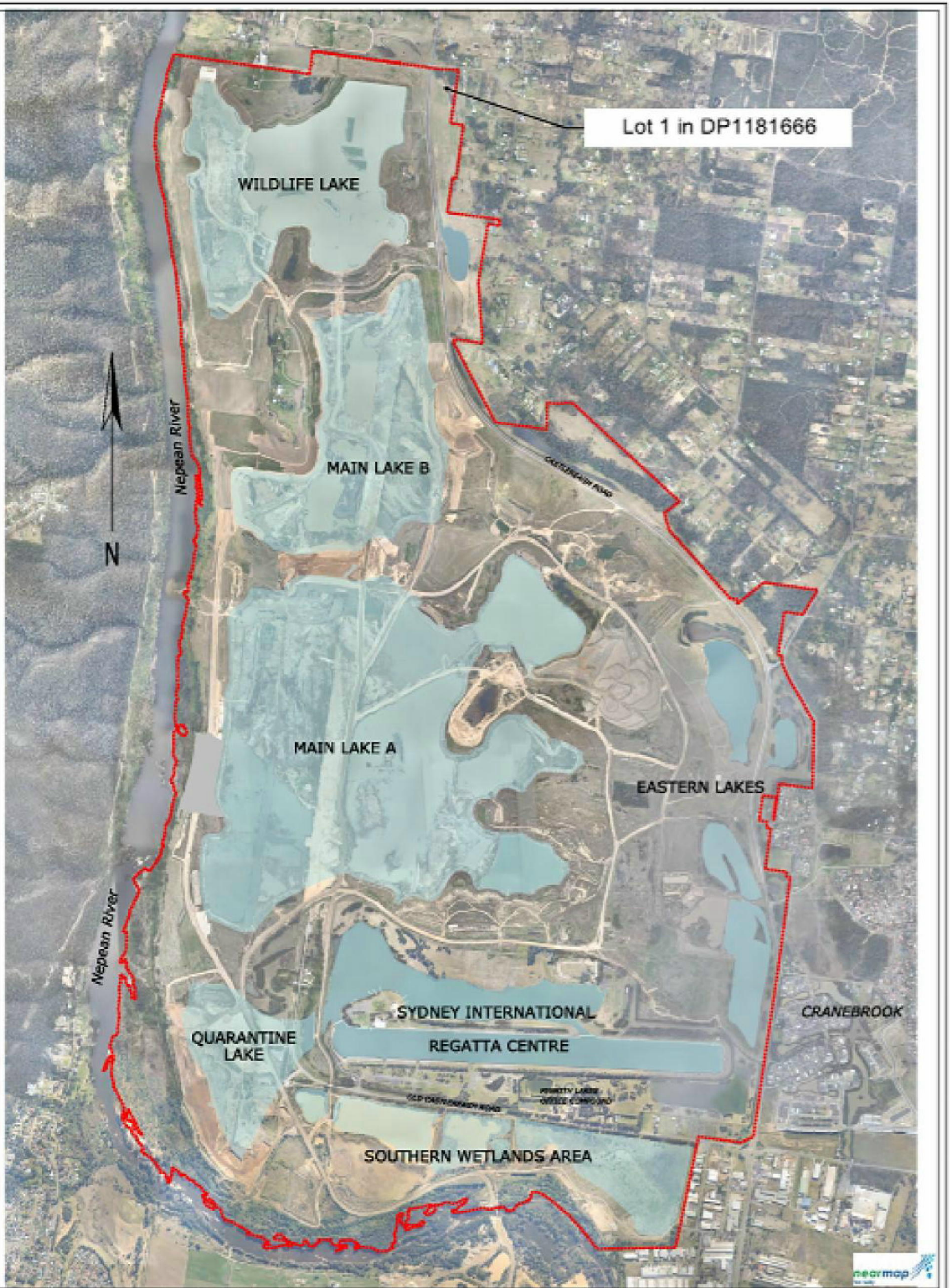


FIGURE 2 – FILL PLACEMENT AREA AND DESIGN CONTOURS

SEDIMENT CONTROL NOTES

1. ALL EROSION AND SEDIMENTATION CONTROL MEASURES, INCLUDING REVEGETATION AND STORAGE OF SOIL AND TOPSOIL, SHALL BE IMPLEMENTED TO THE STANDARDS OF THE SOIL CONSERVATION OF NSW AND INSPECTED REGULARLY BY THE SITE MANAGER.

2. ALL DRAINAGE WORKS SHALL BE CONSTRUCTED AND STABILIZED AS EARLY AS POSSIBLE DURING DEVELOPMENT.

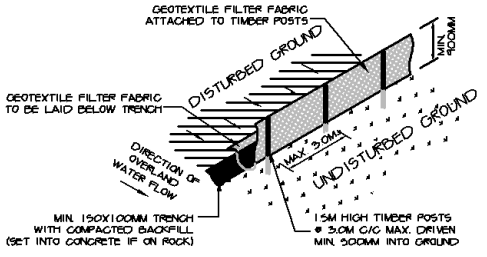
3. SEDIMENT TRAPS SHALL BE CONSTRUCTED AROUND ALL INLET PITS, CONSISTING OF 300MM WIDE X 300MM DEEP TRENCH.

4. ALL SEDIMENT BASINS AND TRAPS SHALL BE CLEANED WHEN THE STRUCTURES ARE A MAXIMUM OF 60% FULL OF SOIL MATERIALS, INCLUDING THE MAINTENANCE PERIOD

5. SOIL AND TOPSOIL STOCKPILES SHALL BE LOCATED AWAY FROM DRAINAGE LINES AND AREA WHERE WATER MAY CONCENTRATE. ALL ROADS AND FOOTPATHS TO BE SWEPT DAILY.

6. FILTER SHALL BE CONSTRUCTED BY STRETCHING A FILTER FABRIC (PROPEX OR APPROVED EQUIVALENT BETWEEN POST AT 3.0M CENTRES. FABRIC SHALL BE BURIED 150MM ALONG ITS LOWER EDGE.

7. DUST PREVENTION MEASURES TO BE MAINTAINED AT ALL TIMES.



SEDIMENT FENCE DETAIL

NOT TO SCALE

TEMPORARY SECURITY FENCING

TEMPORARY SECURITY FENCING TO THE PERIMETER OF BOUNDARY WHERE REQUIRED TO PREVENT PUBLIC ACCESS ONTO SITE.

CUT & FILL BATTERS

ALL GROUND LINES ARE APPROXIMATE. EXTENT OF CUT AND FILL BATTERS WILL BE DETERMINED ON SITE. SEDIMENT BARRIERS ARE TO BE CUSTOMISED SITE SPECIFIC

THE BOUNDARY POSITION IS APPROXIMATE ONLY AND SHOULD BE VERIFIED PRIOR TO ANY CONSTRUCTION WORKS.

NOTE: POSITION OF SEWER MAIN NOT YET AVAILABLE. REFER TO SYDNEY WATER DIAGRAM DATED 19/02/2016

APPROX. LOCATION OF SEDIMENT FENCE

CUT

GARAGE
75 MM STEPDOWN
F.F.L. 22.810
F.G.L. 22.500

DENVER 45
VOGUE
'H1' CLASS SLAB
F.F.L. 22.885
F.G.L. 22.500

FILL

MATERIAL STORAGE AREA

PORTABLE TOILET

WASTE STORAGE AREA
SEDIMENT FENCE AROUND WASTE MATERIALS

APPROX. LOCATION OF SEDIMENT FENCE

ALL WEATHER ACCESS POSITION LOCATED AT ENTRY OF DRIVEWAY

NORTH

MGA

LOT NO:	1
DEPOSITED PLAN:	1181666
COUNCIL / LGA:	PENRITH
SLAB CLASS:	H1
WIND SPEED:	N2

EROSION & SEDIMENT CONTROL PLAN

CONSTRUCTION PLAN

TEMPORARY FENCING:
BUILDER TO PROVIDE FENCING TO ANY UNFENCED BOUNDARIES (LOCAL AUTH. BYLAW)

ALL WEATHER ACCESS:
METRICON TO SUPPLY UP TO 5M SUITABLE ALL WEATHER ACCESS TO BUILDING PLATFORM DURING CONSTRUCTION

ASPECT SURVEY DATE: 26.02.16

CONTOUR INTERVALS: 200MM

LEVELS TO: AHD

metricon

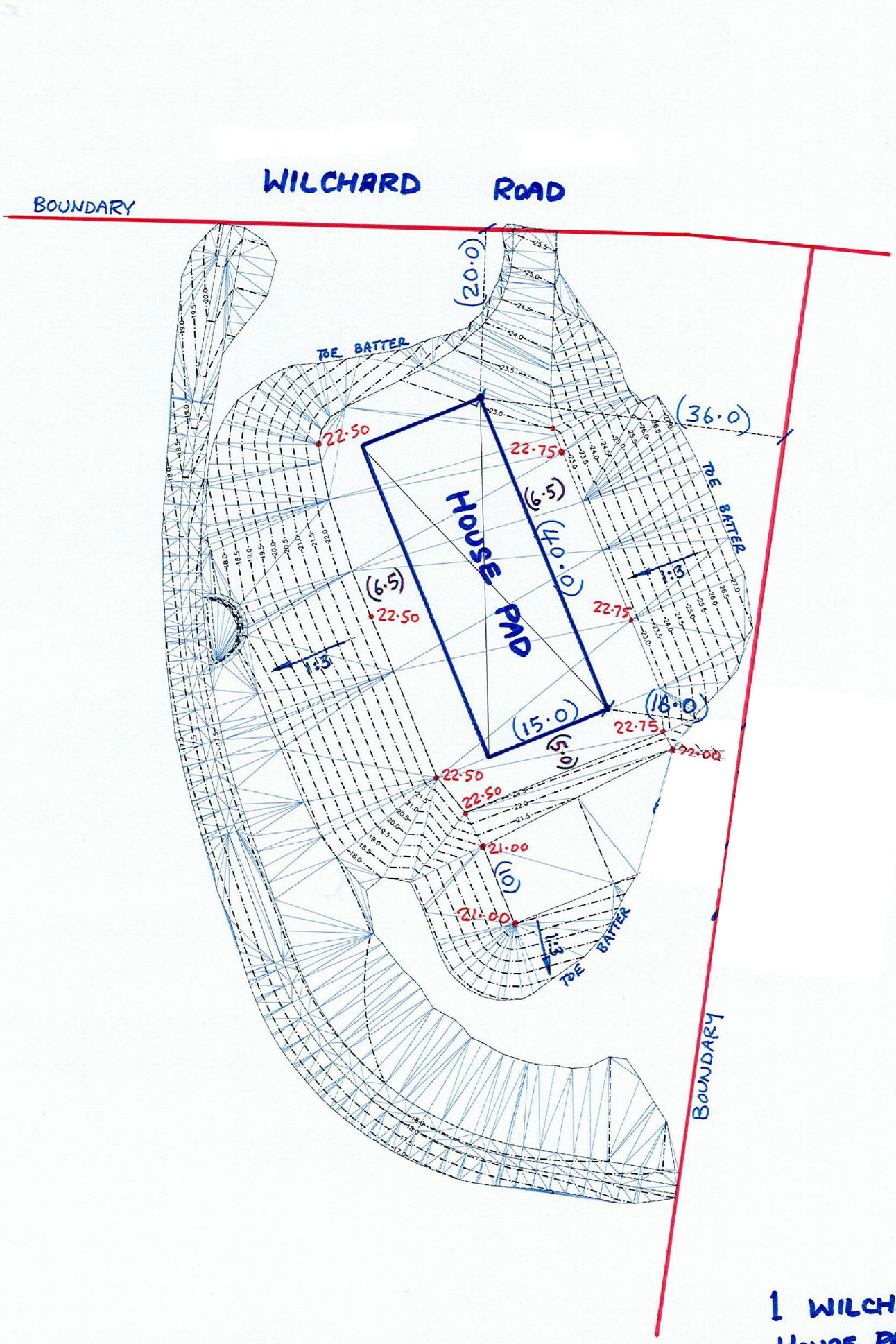
Build E, Level 4, 32 Lexington Dr, Baulkham Hills NSW 2153
P.O. Box 7510, Norwest Business Park NSW 2153
Tel: 02 8887 9000 Fax: 02 8079 5901
Contractor Licence No: 174 699
A.C.N. 005 108 752 www.metricon.com.au

ALLYN HOLDINGS PTY LTD
ATF THE KELLER FAMILY TRUST
LOT1, NO. 259 WEST WILCHARD ROAD
CASTLEREAGH

JOB No: 671572

DATE: 31.03.16	DRAWN: RZ
SCALE: 1:200	SHEET: 1A OF 9

UBD REF: SYD 123 A7



1 WILCHARD ROAD
HOUSE PAD AND
BUILDING PLATFORM

110088/SK 50

1:500

13/4/16

ATTACHMENT 1 – DATA SUMMARY TABLE

				NEPM (NEPC, 2013) Residential A Land Use Criteria (mg/kg)	HSL: 0.5, ESL: 50	HSL: 160, ESL: 85	HSL: 55, ESL: 70	HSL: 10, ESL: 105	3	C6-C10 HSL: 45, ESL: 180, ML: 700	>C10-C16 HSL: 110, ESL: 120, ML: 1,000	>C16-C34 HSL: NL, ESL: 300, ML: 2,500	>C34-C40 HSL: NL, ESL: 2,800, ML: 10,000
					BTEX - Sandy soils					TRH - Sandy soils			
Sample ID	Depth (m)	Date	Chemical Report	Soil Desciption	Benz	Toluen	EthylBe	Xylene	Naph	F1	F2	F3	F4
160512-UCR-1		12-May-16	146559	Weathered grey Shale	<0.1	<0.1	<0.1	<0.3	<0.1	<25	<25	<90	<120
160512-UCR-2		12-May-16	146559	Weathered grey Shale	<0.1	<0.1	<0.1	<0.3	<0.1	<25	<25	<90	<120
160512-UCR-3		12-May-16	146559	Weathered grey Shale	<0.1	<0.1	<0.1	<0.3	<0.1	<25	<25	<90	<120
160512-UCR-4		12-May-16	146559	Weathered grey Shale	<0.1	<0.1	<0.1	<0.3	<0.1	<25	<25	<90	<120
160512-UCR-5		12-May-16	146559	Weathered grey Shale	<0.1	<0.1	<0.1	<0.3	<0.1	<25	<25	<90	<120
KCK-S-IS1		19-May-16	147013	Weathered grey Shale -insitu	<0.1	<0.1	<0.1	<0.3	<0.1	<25	<25	**130.0**	<120
KCK-S-IS2		19-May-16	147013	Weathered grey Shale -insitu	<0.1	<0.1	<0.1	<0.3	<0.1	<25	<25	<90	<120
KCK-S-SP1		19-May-16	147013	Grey Silty Clays - stockpile	<0.1	<0.1	<0.1	<0.3	<0.1	<25	<25	<90	<120
KCK-S-SP2		19-May-16	147013	Grey Silty Clays - stockpile	<0.1	<0.1	<0.1	<0.3	<0.1	<25	<25	<90	<120
KCK-C-SP1		19-May-16	147013	Weathered grey Shale - stockpile	<0.1	<0.1	<0.1	<0.3	<0.1	<25	<25	<90	<120
KCK-C-SP1		19-May-16	147013	Weathered grey Shale - stockpile	<0.1	<0.1	<0.1	<0.3	<0.1	<25	<25	<90	<120
160519-UCR-1		19-May-16	147013	Weathered grey Shale	<0.1	<0.1	<0.1	<0.3	<0.1	<25	<25	<90	<120
160519-UCR-2		19-May-16	147013	Weathered grey Shale	<0.1	<0.1	<0.1	<0.3	<0.1	<25	<25	<90	<120
160519-UCR-3		19-May-16	147013	Weathered grey Shale	<0.1	<0.1	<0.1	<0.3	<0.1	<25	<25	<90	<120
160525-UCR-1		26-May-16	147537	Weathered grey Shale	<0.1	<0.1	<0.1	<0.3	<0.1	<25	**80.0**	**150.0**	<100
160525-UCR-2		26-May-16	147537	Weathered grey Shale	<0.1	<0.1	<0.1	<0.3	<0.1	<25	**56.0**	<100	<100
160525-UCR-3		26-May-16	147537	Weathered grey Shale	<0.1	<0.1	<0.1	<0.3	<0.1	<25	**53.0**	<100	<100
INTRA-LABORATORY DUPLICATES													
INTER-LABORATORY DUPLICATES													
STATISTICAL ANALYSIS													
Min					0.0	0.0	0.0	0.0	0.0	nd	nd	nd	nd
Max					0.0	0.0	0.0	0.0	0.0	nd	80.0	150.0	nd
Avg					n/a	n/a	n/a	n/a	n/a	n/a	63.0	140.0	n/a
Stdev					n/a	n/a	n/a	n/a	n/a	n/a	14.8	14.1	n/a
Procedure B Calculation					n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
95% UCL													

* Depth relates to Depth Below Surface Level -- Not Tested nd = Not Detected Above Laboratory LOR RED = Exceeds HIL Criteria

HIL: 3, ESL: 0.7							300			1	100	20	100	6,000	300	40	400	7,400
PAH	PAH							Pesticides			Heavy Metals							
BaP TEQ	Naphthalene	2-methylnaphthalene	1-methylnaphthalene	Phenanthrene	Benzo(a)anthracene	Chrysene	Total	OC	OP	PCB	As	Cd	Cr VI	Cu	Pb	Hg	Ni	Zn
<0.2	<0.1			**0.2**			**0.19**	nd	nd	nd	**6.0**	<0.4	**5.0**	**49.0**	**14.0**	<0.1	**23.0**	**76.0**
<0.2	<0.1			**0.2**			**0.18**	nd	nd	nd	**35.0**	<0.4	**7.0**	**43.0**	**14.0**	**0.10**	**16.0**	**66.0**
<0.2	<0.1			**0.1**			**0.13**	nd	nd	nd	**13.0**	<0.4	**4.0**	**44.0**	**15.0**	<0.1	**22.0**	**76.0**
<0.2	**0.1**			**0.3**			**0.41**	nd	nd	nd	**8.0**	<0.4	**6.0**	**39.0**	**11.0**	<0.1	**17.0**	**58.0**
<0.2	<0.1			**0.1**			**0.12**	nd	nd	nd	**6.0**	<0.4	**7.0**	**43.0**	**13.0**	<0.1	**17.0**	**66.0**
<0.2	<0.1			**0.3**			**0.30**	nd	nd	nd	**16.0**	<0.4	**3.0**	**28.0**	**12.0**	<0.1	**13.0**	**52.0**
<0.2	**0.1**			**0.3**			**0.47**	nd	nd	nd	<4	<0.4	**5.0**	**33.0**	**12.0**	<0.1	**20.0**	**65.0**
<0.2	<0.1			**0.4**			**0.45**	nd	nd	nd	**11.0**	<0.4	**4.0**	**49.0**	**18.0**	**0.20**	**26.0**	**340.0**
<0.2	<0.1			**0.4**			**0.39**	nd	nd	nd	**11.0**	<0.4	**4.0**	**49.0**	**17.0**	**0.10**	**21.0**	**84.0**
<0.2	<0.1			<0.1			NIL (+)VE	nd	nd	nd	**9.0**	<0.4	**11.0**	**23.0**	**19.0**	<0.1	**16.0**	**47.0**
<0.2	<0.1			<0.1			NIL (+)VE	nd	nd	nd	**6.0**	<0.4	**11.0**	**20.0**	**21.0**	<0.1	**12.0**	**41.0**
<0.2	**0.4**			**0.4**			**0.77**	nd	nd	nd	**9.0**	<0.4	**6.0**	**41.0**	**14.0**	<0.1	**18.0**	**74.0**
<0.2	**0.1**			**0.2**			**0.4**	nd	nd	nd	**8.0**	<0.4	**6.0**	**34.0**	**13.0**	<0.1	**15.0**	**59.0**
<0.2	**0.3**			**0.3**			**0.6**	nd	nd	nd	**8.0**	<0.4	**7.0**	**35.0**	**10.0**	<0.1	**14.0**	**54.0**
<0.2	<0.1			**0.7**	**0.3**	**0.3**	**1.5**	nd	nd	nd	**4.0**	<0.4	**3.0**	**26.0**	**10.0**	<0.1	**13.0**	**59.0**
<0.2	**0.1**			**0.6**	**0.2**	**0.2**	**1.3**	nd	nd	nd	**5.0**	<0.4	**4.0**	**28.0**	**10.0**	<0.1	**13.0**	**47.0**
<0.2	<0.1			**0.5**	**0.2**	**0.2**	**1.1**	nd	nd	nd	**5.0**	<0.4	**4.0**	**36.0**	**12.0**	<0.1	**15.0**	**59.0**
nd	0.1	0.0	0.0	0.1	0.2	0.2	0.1	nd	nd	nd	4.0	0.0	3.0	20.0	10.0	0.10	12.0	41.0
nd	0.4	0.0	0.0	0.7	0.3	0.3	1.5	nd	nd	nd	35.0	0.0	11.0	49.0	21.0	0.20	26.0	340.0
n/a	0.2	n/a	n/a	0.3	0.2	0.2	0.6	n/a	n/a	n/a	10.0	n/a	5.7	36.5	13.8	0.13	17.1	77.8
n/a	0.1	n/a	n/a	0.2	0.1	0.1	0.4	n/a	n/a	n/a	7.4	n/a	2.4	9.2	3.3	0.06	4.0	68.6
n/a	3.3	n/a	n/a	1.6	0.4	0.4	0.0	n/a	n/a	n/a	0.0	n/a	0.0	0.0	0.0	0.0	0.0	0.

* Depth relates to Depth Below Surface Level -- Not Tested nd = Not Detected Above Laboratory LO NL = Not Limiting **Bold** = Detected Above Laboratory LOR RED = Exceeds HIL Criteria

ATTACHMENT 2 – NATA CERTIFIED ANALYTICAL DATA

12 Ashley Street, Chatswood, NSW 2067
tel: +61 2 9910 6200

email: sydney@envirolab.com.au
envirolab.com.au

Envirolab Services Pty Ltd Sydney | ABN 37 112 535 645

CERTIFICATE OF ANALYSIS 147537

Client:

DLA Environmental Services Pty Ltd
Unit 3, 38 Leighton Pl
Hornsby
NSW 2077

Attention: Russell

Sample log in details:

Your Reference:	**DL2591**		
No. of samples:	6 Soils		
Date samples received / completed instructions received	30/05/16	/	30/05/16

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: / Issue Date:	6/06/16	/	1/06/16
Date of Preliminary Report:	Not Issued		

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Results Approved By:

Jacinta Hurst
Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	147537-1	147537-2	147537-3	147537-4	147537-5
Your Reference	---------- -	160526-BLP-1	160526-BLP-1A	160526-FB-1	160525-UCR-1	160525-UCR-2
Date Sampled	----------	26/05/2016	26/05/2016	26/05/2016	26/05/2016	26/05/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/05/2016	31/05/2016	31/05/2016	31/05/2016	31/05/2016
Date analysed	-	01/06/2016	01/06/2016	01/06/2016	01/06/2016	01/06/2016
TRHC6 - C9	mg/kg	<25	<25	<25	<25	<25
TRHC6 - C10	mg/kg	<25	<25	<25	<25	<25
vTPHC6 - C10 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
Surrogate aaa-Trifluorotoluene	%	112	103	97	101	125

vTRH(C6-C10)/BTEXN in Soil		
Our Reference:	UNITS	147537-6
Your Reference	---------- -	160525-UCR-3
Date Sampled	----------	26/05/2016
Type of sample		Soil
Date extracted	-	31/05/2016
Date analysed	-	01/06/2016
TRHC6 - C9	mg/kg	<25
TRHC6 - C10	mg/kg	<25
vTPHC6 - C10 less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
naphthalene	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	100

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	147537-1	147537-2	147537-3	147537-4	147537-5
Your Reference	----------	160526-BLP-1	160526-BLP-1A	160526-FB-1	160525-UCR-1	160525-UCR-2
	-					
Date Sampled	----------	26/05/2016	26/05/2016	26/05/2016	26/05/2016	26/05/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/05/2016	31/05/2016	31/05/2016	31/05/2016	31/05/2016
Date analysed	-	01/06/2016	01/06/2016	01/06/2016	01/06/2016	01/06/2016
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	57	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	150	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	80	56
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	80	56
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	<100	150	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	75	90	85	91	91

svTRH (C10-C40) in Soil		
Our Reference:	UNITS	147537-6
Your Reference	----------	160525-UCR-3
	-	
Date Sampled	----------	26/05/2016
Type of sample		Soil
Date extracted	-	31/05/2016
Date analysed	-	01/06/2016
TRHC$_{10}$ - C$_{14}$	mg/kg	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	53
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	53
TRH>C$_{16}$-C$_{34}$	mg/kg	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100
Surrogate o-Terphenyl	%	92

PAHs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- - ----------	147537-1 160526-BLP-1 26/05/2016 Soil	147537-2 160526-BLP-1A 26/05/2016 Soil	147537-3 160526-FB-1 26/05/2016 Soil	147537-4 160525-UCR-1 26/05/2016 Soil	147537-5 160525-UCR-2 26/05/2016 Soil
Date extracted	-	31/05/2016	31/05/2016	31/05/2016	31/05/2016	31/05/2016
Date analysed	-	31/05/2016	31/05/2016	31/05/2016	31/05/2016	31/05/2016
Naphthalene	mg/kg	0.2	0.3	<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	0.2	0.2	<0.1	0.7	0.6
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	0.3	0.2
Chrysene	mg/kg	<0.1	<0.1	<0.1	0.3	0.2
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
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
Total Positive PAHs	mg/kg	0.41	0.49	NIL (+)VE	1.5	1.3
Surrogate p-Terphenyl-d14	%	89	93	88	94	90

PAHs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- - ---------- 	147537-6 160525-UCR-3 26/05/2016 Soil
Date extracted	-	31/05/2016
Date analysed	-	31/05/2016
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	0.1
Phenanthrene	mg/kg	0.5
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	0.2
Chrysene	mg/kg	0.2
Benzo(b,j+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	0.09
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5
Total Positive PAHs	mg/kg	1.1
Surrogate p-Terphenyl-d14	%	95

Organochlorine Pesticides in soil						
Our Reference:	UNITS	147537-1	147537-2	147537-3	147537-4	147537-5
Your Reference	----------	160526-BLP-1	160526-BLP-1A	160526-FB-1	160525-UCR-1	160525-UCR-2
	-					
Date Sampled	----------	26/05/2016	26/05/2016	26/05/2016	26/05/2016	26/05/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/05/2018	31/05/2021	31/05/2026	31/05/2027	31/05/2028
Date analysed	-	31/05/2016	31/05/2016	31/05/2016	31/05/2016	31/05/2016
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-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
beta-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	<0.1
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
pp-DDD	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-DDT	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
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
Surrogate TCMX	%	86	87	85	86	83

Organochlorine Pesticides in soil		
Our Reference:	UNITS	147537-6
Your Reference	----------	160525-UCR-3
	-	
Date Sampled	----------	26/05/2016
Type of sample		Soil
Date extracted	-	31/05/2029
Date analysed	-	31/05/2016
HCB	mg/kg	<0.1
alpha-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	<0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	<0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
pp-DDD	mg/kg	<0.1
Endosulfan II	mg/kg	<0.1
pp-DDT	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Surrogate TCMX	%	83

Organophosphorus Pesticides						
Our Reference:	UNITS	147537-1	147537-2	147537-3	147537-4	147537-5
Your Reference	----------	160526-BLP-1	160526-BLP-1A	160526-FB-1	160525-UCR-1	160525-UCR-2
	-					
Date Sampled	----------	26/05/2016	26/05/2016	26/05/2016	26/05/2016	26/05/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/05/2018	31/05/2021	31/05/2026	31/05/2027	31/05/2028
Date analysed	-	31/05/2016	31/05/2016	31/05/2016	31/05/2016	31/05/2016
Azinphos-methyl (Guthion)	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
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	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
Dichlorvos	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
Ethion	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
Parathion	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
Surrogate TCMX	%	86	87	85	86	83

Organophosphorus Pesticides		
Our Reference:	UNITS	147537-6
Your Reference	----------	160525-UCR-3
	-	
Date Sampled	----------	26/05/2016
Type of sample		Soil
Date extracted	-	31/05/2029
Date analysed	-	31/05/2016
Azinphos-methyl (Guthion)	mg/kg	<0.1
Bromophos-ethyl	mg/kg	<0.1
Chlorpyriphos	mg/kg	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1
Diazinon	mg/kg	<0.1
Dichlorvos	mg/kg	<0.1
Dimethoate	mg/kg	<0.1
Ethion	mg/kg	<0.1
Fenitrothion	mg/kg	<0.1
Malathion	mg/kg	<0.1
Parathion	mg/kg	<0.1
Ronnel	mg/kg	<0.1
Surrogate TCMX	%	83

PCBs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- - ----------	147537-1 160526-BLP-1 26/05/2016 Soil	147537-2 160526-BLP-1A 26/05/2016 Soil	147537-3 160526-FB-1 26/05/2016 Soil	147537-4 160525-UCR-1 26/05/2016 Soil	147537-5 160525-UCR-2 26/05/2016 Soil
Date extracted	-	31/05/2018	31/05/2021	31/05/2026	31/05/2027	31/05/2028
Date analysed	-	31/05/2016	31/05/2016	31/05/2016	31/05/2016	31/05/2016
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
Surrogate TCLMX	%	86	87	85	86	83

PCBs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- - ----------	147537-6 160525-UCR-3 26/05/2016 Soil
Date extracted	-	31/05/2029
Date analysed	-	31/05/2016
Aroclor 1016	mg/kg	<0.1
Aroclor 1221	mg/kg	<0.1
Aroclor 1232	mg/kg	<0.1
Aroclor 1242	mg/kg	<0.1
Aroclor 1248	mg/kg	<0.1
Aroclor 1254	mg/kg	<0.1
Aroclor 1260	mg/kg	<0.1
Surrogate TCLMX	%	83

Acid Extractable metals in soil						
Our Reference:	UNITS	147537-1	147537-2	147537-3	147537-4	147537-5
Your Reference	----------	160526-BLP-1	160526-BLP-1A	160526-FB-1	160525-UCR-1	160525-UCR-2
	-					
Date Sampled	----------	26/05/2016	26/05/2016	26/05/2016	26/05/2016	26/05/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	30/05/2016	30/05/2016	30/05/2016	30/05/2016	30/05/2016
Date analysed	-	31/05/2016	31/05/2016	31/05/2016	31/05/2016	31/05/2016
Arsenic	mg/kg	5	6	<4	4	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	5	6	12	3	4
Copper	mg/kg	26	31	9	26	28
Lead	mg/kg	10	12	8	10	10
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	10	13	8	13	13
Zinc	mg/kg	42	59	26	59	47

Acid Extractable metals in soil		
Our Reference:	UNITS	147537-6
Your Reference	----------	160525-UCR-3
	-	
Date Sampled	----------	26/05/2016
Type of sample		Soil
Date prepared	-	30/05/2016
Date analysed	-	31/05/2016
Arsenic	mg/kg	5
Cadmium	mg/kg	<0.4
Chromium	mg/kg	4
Copper	mg/kg	36
Lead	mg/kg	12
Mercury	mg/kg	<0.1
Nickel	mg/kg	15
Zinc	mg/kg	59

Moisture Our Reference: Your Reference	UNITS ----------	147537-1 160526-BLP-1	147537-2 160526-BLP-1A	147537-3 160526-FB-1	147537-4 160525-UCR-1	147537-5 160525-UCR-2
Date Sampled	----------	26/05/2016	26/05/2016	26/05/2016	26/05/2016	26/05/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	30/05/2016	30/05/2016	30/05/2016	30/05/2016	30/05/2016
Date analysed	-	31/05/2016	31/05/2016	31/05/2016	31/05/2016	31/05/2016
Moisture	%	4.9	4.3	11	2.4	4.7

Moisture Our Reference: Your Reference	UNITS ----------	147537-6 160525-UCR-3
Date Sampled	----------	26/05/2016
Type of sample		Soil
Date prepared	-	30/05/2016
Date analysed	-	31/05/2016
Moisture	%	3.8

Method ID	Methodology Summary
Org-016	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-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	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-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'TEQ 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. 'TEQ 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. 'TEQ 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-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			31/05/2016	147537-1	31/05/2016 || 31/05/2016	LCS-2	31/05/2016
Date analysed	-			01/06/2016	147537-1	01/06/2016 || 01/06/2016	LCS-2	01/06/2016
TRHC$_6$ - C$_9$	mg/kg	25	Org-016	<25	147537-1	<25 || <25	LCS-2	72%
TRHC$_6$ - C$_{10}$	mg/kg	25	Org-016	<25	147537-1	<25 || <25	LCS-2	72%
Benzene	mg/kg	0.2	Org-016	<0.2	147537-1	<0.2 || <0.2	LCS-2	72%
Toluene	mg/kg	0.5	Org-016	<0.5	147537-1	<0.5 || <0.5	LCS-2	74%
Ethylbenzene	mg/kg	1	Org-016	<1	147537-1	<1 || <1	LCS-2	70%
m+p-xylene	mg/kg	2	Org-016	<2	147537-1	<2 || <2	LCS-2	73%
o-Xylene	mg/kg	1	Org-016	<1	147537-1	<1 || <1	LCS-2	71%
naphthalene	mg/kg	1	Org-014	<1	147537-1	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	111	147537-1	112 || 121 || RPD: 8	LCS-2	102%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			31/05/2016	147537-1	31/05/2016 || 31/05/2016	LCS-2	31/05/2016
Date analysed	-			01/06/2016	147537-1	01/06/2016 || 01/06/2016	LCS-2	01/06/2016
TRHC$_{10}$ - C$_{14}$	mg/kg	50	Org-003	<50	147537-1	<50 || <50	LCS-2	108%
TRHC$_{15}$ - C$_{28}$	mg/kg	100	Org-003	<100	147537-1	<100 || <100	LCS-2	89%
TRHC$_{29}$ - C$_{36}$	mg/kg	100	Org-003	<100	147537-1	<100 || <100	LCS-2	108%
TRH>C$_{10}$-C$_{16}$	mg/kg	50	Org-003	<50	147537-1	<50 || <50	LCS-2	108%
TRH>C$_{16}$-C$_{34}$	mg/kg	100	Org-003	<100	147537-1	<100 || <100	LCS-2	89%
TRH>C$_{34}$-C$_{40}$	mg/kg	100	Org-003	<100	147537-1	<100 || <100	LCS-2	108%
Surrogate o-Terphenyl	%		Org-003	76	147537-1	75 || 75 || RPD: 0	LCS-2	83%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			31/05/2016	147537-1	31/05/2016 || 31/05/2016	LCS-2	31/05/2016
Date analysed	-			31/05/2016	147537-1	31/05/2016 || 31/05/2016	LCS-2	31/05/2016
Naphthalene	mg/kg	0.1	Org-012	<0.1	147537-1	0.2 || 0.3 || RPD: 40	LCS-2	107%
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	147537-1	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	147537-1	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012	<0.1	147537-1	<0.1 || <0.1	LCS-2	103%
Phenanthrene	mg/kg	0.1	Org-012	<0.1	147537-1	0.2 || 0.2 || RPD: 0	LCS-2	112%
Anthracene	mg/kg	0.1	Org-012	<0.1	147537-1	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	147537-1	<0.1 || <0.1	LCS-2	109%
Pyrene	mg/kg	0.1	Org-012	<0.1	147537-1	<0.1 || <0.1	LCS-2	102%
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	147537-1	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012	<0.1	147537-1	<0.1 || <0.1	LCS-2	88%
Benzo(b,j +k)fluoranthene	mg/kg	0.2	Org-012	<0.2	147537-1	<0.2 || <0.2	[NR]	[NR]

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	147537-1	<0.05 || <0.05	LCS-2	108%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	147537-1	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	147537-1	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	147537-1	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012	98	147537-1	89 || 97 || RPD: 9	LCS-2	116%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			31/05/2018	147537-1	31/05/2018 || 31/05/2019	LCS-2	31/05/2018
Date analysed	-			31/05/2016	147537-1	31/05/2016 || 31/05/2016	LCS-2	31/05/2016
HCB	mg/kg	0.1	Org-005	<0.1	147537-1	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	147537-1	<0.1 || <0.1	LCS-2	98%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	147537-1	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	147537-1	<0.1 || <0.1	LCS-2	118%
Heptachlor	mg/kg	0.1	Org-005	<0.1	147537-1	<0.1 || <0.1	LCS-2	92%
delta-BHC	mg/kg	0.1	Org-005	<0.1	147537-1	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	147537-1	<0.1 || <0.1	LCS-2	94%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	147537-1	<0.1 || <0.1	LCS-2	89%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	147537-1	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	147537-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	147537-1	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	147537-1	<0.1 || <0.1	LCS-2	80%
Dieldrin	mg/kg	0.1	Org-005	<0.1	147537-1	<0.1 || <0.1	LCS-2	96%
Endrin	mg/kg	0.1	Org-005	<0.1	147537-1	<0.1 || <0.1	LCS-2	97%
pp-DDD	mg/kg	0.1	Org-005	<0.1	147537-1	<0.1 || <0.1	LCS-2	100%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	147537-1	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	147537-1	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	147537-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	147537-1	<0.1 || <0.1	LCS-2	88%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	147537-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%		Org-005	90	147537-1	86 || 86 || RPD: 0	LCS-2	89%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			31/05/2018	147537-1	31/05/2018 || 31/05/2019	LCS-2	31/05/2018
Date analysed	-			31/05/2016	147537-1	31/05/2016 || 31/05/2016	LCS-2	31/05/2016
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	147537-1	<0.1 || <0.1	[NR]	[NR]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	147537-1	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	147537-1	<0.1 || <0.1	LCS-2	88%
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	147537-1	<0.1 || <0.1	[NR]	[NR]
Diazinon	mg/kg	0.1	Org-008	<0.1	147537-1	<0.1 || <0.1	[NR]	[NR]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	147537-1	<0.1 || <0.1	LCS-2	86%
Dimethoate	mg/kg	0.1	Org-008	<0.1	147537-1	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	0.1	Org-008	<0.1	147537-1	<0.1 || <0.1	LCS-2	93%
Fenitrothion	mg/kg	0.1	Org-008	<0.1	147537-1	<0.1 || <0.1	LCS-2	97%
Malathion	mg/kg	0.1	Org-008	<0.1	147537-1	<0.1 || <0.1	LCS-2	77%
Parathion	mg/kg	0.1	Org-008	<0.1	147537-1	<0.1 || <0.1	LCS-2	100%
Ronnel	mg/kg	0.1	Org-008	<0.1	147537-1	<0.1 || <0.1	LCS-2	113%
Surrogate TCMX	%		Org-008	90	147537-1	86 || 86 || RPD: 0	LCS-2	87%

QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			31/05/2018	147537-1	31/05/2018 || 31/05/2019	LCS-2	31/05/2018
Date analysed	-			31/05/2016	147537-1	31/05/2016 || 31/05/2016	LCS-2	31/05/2016
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	147537-1	<0.1 || <0.1	[NR]	[NR]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	147537-1	<0.1 || <0.1	[NR]	[NR]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	147537-1	<0.1 || <0.1	[NR]	[NR]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	147537-1	<0.1 || <0.1	[NR]	[NR]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	147537-1	<0.1 || <0.1	[NR]	[NR]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	147537-1	<0.1 || <0.1	LCS-2	116%
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	147537-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		Org-006	90	147537-1	86 || 86 || RPD: 0	LCS-2	87%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			30/05/2016	147537-1	30/05/2016 || 30/05/2016	LCS-2	30/05/2016
Date analysed	-			31/05/2016	147537-1	31/05/2016 || 31/05/2016	LCS-2	31/05/2016
Arsenic	mg/kg	4	Metals-020	<4	147537-1	5 || 6 || RPD: 18	LCS-2	102%
Cadmium	mg/kg	0.4	Metals-020	<0.4	147537-1	<0.4 || <0.4	LCS-2	99%
Chromium	mg/kg	1	Metals-020	<1	147537-1	5 || 5 || RPD: 0	LCS-2	102%
Copper	mg/kg	1	Metals-020	<1	147537-1	26 || 30 || RPD: 14	LCS-2	101%
Lead	mg/kg	1	Metals-020	<1	147537-1	10 || 11 || RPD: 10	LCS-2	100%
Mercury	mg/kg	0.1	Metals-021	<0.1	147537-1	<0.1 || <0.1	LCS-2	104%
Nickel	mg/kg	1	Metals-020	<1	147537-1	10 || 14 || RPD: 33	LCS-2	96%
Zinc	mg/kg	1	Metals-020	<1	147537-1	42 || 56 || RPD: 29	LCS-2	98%

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	147537-2	31/05/2016
Date analysed	-	[NT]	[NT]	147537-2	01/06/2016
TRH C_6 - C_9	mg/kg	[NT]	[NT]	147537-2	107%
TRH C_6 - C_{10}	mg/kg	[NT]	[NT]	147537-2	107%
Benzene	mg/kg	[NT]	[NT]	147537-2	103%
Toluene	mg/kg	[NT]	[NT]	147537-2	106%
Ethylbenzene	mg/kg	[NT]	[NT]	147537-2	108%
m+p-xylene	mg/kg	[NT]	[NT]	147537-2	110%
o-Xylene	mg/kg	[NT]	[NT]	147537-2	106%
naphthalene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	[NT]	[NT]	147537-2	100%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	147537-2	31/05/2016
Date analysed	-	[NT]	[NT]	147537-2	01/06/2016
TRH C_{10} - C_{14}	mg/kg	[NT]	[NT]	147537-2	132%
TRH C_{15} - C_{28}	mg/kg	[NT]	[NT]	147537-2	124%
TRH C_{29} - C_{36}	mg/kg	[NT]	[NT]	147537-2	128%
TRH >C_{10}-C_{16}	mg/kg	[NT]	[NT]	147537-2	132%
TRH >C_{16}-C_{34}	mg/kg	[NT]	[NT]	147537-2	124%
TRH >C_{34}-C_{40}	mg/kg	[NT]	[NT]	147537-2	128%
Surrogate o-Terphenyl	%	[NT]	[NT]	147537-2	90%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	147537-2	31/05/2016
Date analysed	-	[NT]	[NT]	147537-2	31/05/2016
Naphthalene	mg/kg	[NT]	[NT]	147537-2	107%
Acenaphthylene	mg/kg	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	[NT]	[NT]	147537-2	106%
Phenanthrene	mg/kg	[NT]	[NT]	147537-2	112%
Anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	[NT]	[NT]	147537-2	107%
Pyrene	mg/kg	[NT]	[NT]	147537-2	114%
Benzo(a)anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	[NT]	[NT]	147537-2	88%
Benzo(b,j+k)fluoranthene	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	[NT]	[NT]	147537-2	103%
Indeno(1,2,3-c,d)pyrene	mg/kg	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	[NT]	[NT]	147537-2	126%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	147537-2	31/05/2022
Date analysed	-	[NT]	[NT]	147537-2	31/05/2016
HCB	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	[NT]	[NT]	147537-2	105%
gamma-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	[NT]	[NT]	147537-2	100%
Heptachlor	mg/kg	[NT]	[NT]	147537-2	94%
delta-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	[NT]	[NT]	147537-2	97%
Heptachlor Epoxide	mg/kg	[NT]	[NT]	147537-2	93%
gamma-Chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	[NT]	[NT]	147537-2	84%
Dieldrin	mg/kg	[NT]	[NT]	147537-2	101%
Endrin	mg/kg	[NT]	[NT]	147537-2	101%
pp-DDD	mg/kg	[NT]	[NT]	147537-2	106%
Endosulfan II	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	[NT]	[NT]	147537-2	86%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Methoxychlor	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%	[NT]	[NT]	147537-2	96%
QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	147537-2	31/05/2024
Date analysed	-	[NT]	[NT]	147537-2	31/05/2016
Azinphos-methyl (Guthion)	mg/kg	[NT]	[NT]	[NR]	[NR]
Bromophos-ethyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	mg/kg	[NT]	[NT]	147537-2	90%
Chlorpyriphos-methyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Diazinon	mg/kg	[NT]	[NT]	[NR]	[NR]
Dichlorvos	mg/kg	[NT]	[NT]	147537-2	96%
Dimethoate	mg/kg	[NT]	[NT]	[NR]	[NR]
Ethion	mg/kg	[NT]	[NT]	147537-2	102%
Fenitrothion	mg/kg	[NT]	[NT]	147537-2	86%
Malathion	mg/kg	[NT]	[NT]	147537-2	84%
Parathion	mg/kg	[NT]	[NT]	147537-2	99%
Ronnel	mg/kg	[NT]	[NT]	147537-2	124%
Surrogate TCMX	%	[NT]	[NT]	147537-2	89%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	147537-2	31/05/2024
Date analysed	-	[NT]	[NT]	147537-2	31/05/2016
Aroclor 1016	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1221	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1232	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1242	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1248	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1254	mg/kg	[NT]	[NT]	147537-2	115%
Aroclor 1260	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	147537-2	89%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	147537-2	30/05/2016
Date analysed	-	[NT]	[NT]	147537-2	31/05/2016
Arsenic	mg/kg	[NT]	[NT]	147537-2	88%
Cadmium	mg/kg	[NT]	[NT]	147537-2	85%
Chromium	mg/kg	[NT]	[NT]	147537-2	92%
Copper	mg/kg	[NT]	[NT]	147537-2	108%
Lead	mg/kg	[NT]	[NT]	147537-2	82%
Mercury	mg/kg	[NT]	[NT]	147537-2	102%
Nickel	mg/kg	[NT]	[NT]	147537-2	84%
Zinc	mg/kg	[NT]	[NT]	147537-2	75%

Report Comments:

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NR: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

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.

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: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-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.

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CERTIFICATE OF ANALYSIS 147013

Client:

DLA Environmental Services Pty Ltd
Unit 3, 38 Leighton Pl
Hornsby
NSW 2077

Attention: Russell

Sample log in details:

Your Reference:	**DL2591**		
No. of samples:	11 Soils		
Date samples received / completed instructions received	20/05/16	/	20/05/16

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: / Issue Date:	27/05/16	/	26/05/16
Date of Preliminary Report:	Not Issued		

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Results Approved By:

Jacinta Hurst
Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	147013-1	147013-2	147013-3	147013-4	147013-5
Your Reference	---------- -	KCK-S-IS1	KCK-S-IS2	KCK-S-SP1	KCK-S-SP2	KCK-C-SP1
Date Sampled	----------	19/05/2016	19/05/2016	19/05/2016	19/05/2016	19/05/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/05/2016	23/05/2016	23/05/2016	23/05/2016	23/05/2016
Date analysed	-	25/05/2016	25/05/2016	25/05/2016	25/05/2016	25/05/2016
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - 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
Surrogate aaa-Trifluorotoluene	%	98	94	97	96	95

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	147013-6	147013-7	147013-8	147013-9	147013-10
Your Reference	---------- -	KCK-C-SP1	160519-BCP-1	160519-FB-1	160519-UCR-1	160519-UCR-2
Date Sampled	----------	19/05/2016	19/05/2016	19/05/2016	19/05/2016	19/05/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/05/2016	23/05/2016	23/05/2016	23/05/2016	23/05/2016
Date analysed	-	25/05/2016	25/05/2016	25/05/2016	25/05/2016	25/05/2016
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - 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
Surrogate aaa-Trifluorotoluene	%	95	94	94	94	94

vTRH(C6-C10)/BTEXN in Soil		
Our Reference:	UNITS	147013-11
Your Reference	----------	160519-UCR-3
	-	
Date Sampled	----------	19/05/2016
Type of sample		Soil
Date extracted	-	23/05/2016
Date analysed	-	25/05/2016
TRHC$_6$ - C$_9$	mg/kg	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25
vTPH C$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
naphthalene	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	95

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	147013-1	147013-2	147013-3	147013-4	147013-5
Your Reference	----------	KCK-S-IS1	KCK-S-IS2	KCK-S-SP1	KCK-S-SP2	KCK-C-SP1
	-					
Date Sampled	----------	19/05/2016	19/05/2016	19/05/2016	19/05/2016	19/05/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/05/2016	23/05/2016	23/05/2016	23/05/2016	23/05/2016
Date analysed	-	23/05/2016	23/05/2016	23/05/2016	23/05/2016	23/05/2016
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	<100	<100
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	130	<100	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	83	71	88	88	86

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	147013-6	147013-7	147013-8	147013-9	147013-10
Your Reference	----------	KCK-C-SP1	160519-BCP-1	160519-FB-1	160519-UCR-1	160519-UCR-2
	-					
Date Sampled	----------	19/05/2016	19/05/2016	19/05/2016	19/05/2016	19/05/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/05/2016	23/05/2016	23/05/2016	23/05/2016	23/05/2016
Date analysed	-	23/05/2016	23/05/2016	23/05/2016	23/05/2016	23/05/2016
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	<100	<100
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
Surrogate o-Terphenyl	%	87	76	71	73	71

svTRH (C10-C40) in Soil		
Our Reference:	UNITS	147013-11
Your Reference	----------	160519-UCR-3
	-	
Date Sampled	----------	19/05/2016
Type of sample		Soil
Date extracted	-	23/05/2016
Date analysed	-	23/05/2016
$TRHC_{10}$ - C_{14}	mg/kg	<50
$TRHC_{15}$ - C_{28}	mg/kg	<100
$TRHC_{29}$ - C_{36}	mg/kg	<100
TRH >C_{10}-C_{16}	mg/kg	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50
TRH >C_{16}-C_{34}	mg/kg	<100
TRH >C_{34}-C_{40}	mg/kg	<100
Surrogate o-Terphenyl	%	76

PAHs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- - ---------- 	147013-1 KCK-S-IS1 19/05/2016 Soil	147013-2 KCK-S-IS2 19/05/2016 Soil	147013-3 KCK-S-SP1 19/05/2016 Soil	147013-4 KCK-S-SP2 19/05/2016 Soil	147013-5 KCK-C-SP1 19/05/2016 Soil
Date extracted	-	23/05/2016	23/05/2016	23/05/2016	23/05/2016	23/05/2016
Date analysed	-	23/05/2016	23/05/2016	23/05/2016	23/05/2016	23/05/2016
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	0.3	0.3	0.4	0.4	<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
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
Total Positive PAHs	mg/kg	0.30	0.47	0.45	0.39	NIL (+)VE
Surrogate p-Terphenyl-d14	%	91	98	99	99	103

PAHs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- - ----------	147013-6 KCK-C-SP1 19/05/2016 Soil	147013-7 160519-BCP-1 19/05/2016 Soil	147013-8 160519-FB-1 19/05/2016 Soil	147013-9 160519-UCR-1 19/05/2016 Soil	147013-10 160519-UCR-2 19/05/2016 Soil
Date extracted	-	23/05/2016	23/05/2016	23/05/2016	23/05/2016	23/05/2016
Date analysed	-	23/05/2016	23/05/2016	23/05/2016	23/05/2016	23/05/2016
Naphthalene	mg/kg	<0.1	<0.1	<0.1	0.4	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	0.4	0.2
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
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
Total Positive PAHs	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	0.77	0.36
Surrogate p-Terphenyl-d14	%	100	102	98	98	99

PAHs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- - ---------- 	147013-11 160519-UCR-3 19/05/2016 Soil
Date extracted	-	23/05/2016
Date analysed	-	23/05/2016
Naphthalene	mg/kg	0.3
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	0.3
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5
Total Positive PAHs	mg/kg	0.61
Surrogate p-Terphenyl-d14	%	102

Organochlorine Pesticides in soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- - ---------- 	147013-1 KCK-S-IS1 19/05/2016 Soil	147013-2 KCK-S-IS2 19/05/2016 Soil	147013-3 KCK-S-SP1 19/05/2016 Soil	147013-4 KCK-S-SP2 19/05/2016 Soil	147013-5 KCK-C-SP1 19/05/2016 Soil
Date extracted	-	23/05/2016	23/05/2016	23/05/2016	23/05/2016	23/05/2016
Date analysed	-	23/05/2016	23/05/2016	23/05/2016	23/05/2016	23/05/2016
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-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
beta-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	<0.1
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
pp-DDD	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-DDT	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
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
Surrogate TCMX	%	100	83	83	82	86

Organochlorine Pesticides in soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- - ---------- 	147013-6 KCK-C-SP1 19/05/2016 Soil	147013-7 160519-BCP-1 19/05/2016 Soil	147013-8 160519-FB-1 19/05/2016 Soil	147013-9 160519-UCR-1 19/05/2016 Soil	147013-10 160519-UCR-2 19/05/2016 Soil
Date extracted	-	23/05/2016	23/05/2016	23/05/2016	23/05/2016	23/05/2016
Date analysed	-	23/05/2016	23/05/2016	23/05/2016	23/05/2016	23/05/2016
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-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
beta-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	<0.1
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
pp-DDD	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-DDT	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
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
Surrogate TCMX	%	86	87	87	85	89

Organochlorine Pesticides in soil		
Our Reference:	UNITS	147013-11
Your Reference	----------	160519-UCR-3
	-	
Date Sampled	----------	19/05/2016
Type of sample		Soil
Date extracted	-	23/05/2016
Date analysed	-	23/05/2016
HCB	mg/kg	<0.1
alpha-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	<0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	<0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
pp-DDD	mg/kg	<0.1
Endosulfan II	mg/kg	<0.1
pp-DDT	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Surrogate TCMX	%	85

Organophosphorus Pesticides Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- - ----------	147013-1 KCK-S-IS1 19/05/2016 Soil	147013-2 KCK-S-IS2 19/05/2016 Soil	147013-3 KCK-S-SP1 19/05/2016 Soil	147013-4 KCK-S-SP2 19/05/2016 Soil	147013-5 KCK-C-SP1 19/05/2016 Soil
Date extracted	-	23/05/2016	23/05/2016	23/05/2016	23/05/2016	23/05/2016
Date analysed	-	23/05/2016	23/05/2016	23/05/2016	23/05/2016	23/05/2016
Azinphos-methyl (Guthion)	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
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	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
Dichlorvos	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
Ethion	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
Parathion	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
Surrogate TCMX	%	100	83	83	82	86

Organophosphorus Pesticides Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- - ----------	147013-6 KCK-C-SP1 19/05/2016 Soil	147013-7 160519-BCP-1 19/05/2016 Soil	147013-8 160519-FB-1 19/05/2016 Soil	147013-9 160519-UCR-1 19/05/2016 Soil	147013-10 160519-UCR-2 19/05/2016 Soil
Date extracted	-	23/05/2016	23/05/2016	23/05/2016	23/05/2016	23/05/2016
Date analysed	-	23/05/2016	23/05/2016	23/05/2016	23/05/2016	23/05/2016
Azinphos-methyl (Guthion)	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
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	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
Dichlorvos	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
Ethion	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
Parathion	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
Surrogate TCMX	%	86	87	87	85	89

Organophosphorus Pesticides		
Our Reference:	UNITS	147013-11
Your Reference	----------	160519-UCR-3
	-	
Date Sampled	----------	19/05/2016
Type of sample		Soil
Date extracted	-	23/05/2016
Date analysed	-	23/05/2016
Azinphos-methyl (Guthion)	mg/kg	<0.1
Bromophos-ethyl	mg/kg	<0.1
Chlorpyriphos	mg/kg	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1
Diazinon	mg/kg	<0.1
Dichlorvos	mg/kg	<0.1
Dimethoate	mg/kg	<0.1
Ethion	mg/kg	<0.1
Fenitrothion	mg/kg	<0.1
Malathion	mg/kg	<0.1
Parathion	mg/kg	<0.1
Ronnel	mg/kg	<0.1
Surrogate TCMX	%	85

PCBs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- - ----------	147013-1 KCK-S-IS1 19/05/2016 Soil	147013-2 KCK-S-IS2 19/05/2016 Soil	147013-3 KCK-S-SP1 19/05/2016 Soil	147013-4 KCK-S-SP2 19/05/2016 Soil	147013-5 KCK-C-SP1 19/05/2016 Soil
Date extracted	-	23/05/2016	23/05/2016	23/05/2016	23/05/2016	23/05/2016
Date analysed	-	23/05/2016	23/05/2016	23/05/2016	23/05/2016	23/05/2016
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
Surrogate TCLMX	%	100	83	83	82	86

PCBs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- - ----------	147013-6 KCK-C-SP1 19/05/2016 Soil	147013-7 160519-BCP-1 19/05/2016 Soil	147013-8 160519-FB-1 19/05/2016 Soil	147013-9 160519-UCR-1 19/05/2016 Soil	147013-10 160519-UCR-2 19/05/2016 Soil
Date extracted	-	23/05/2016	23/05/2016	23/05/2016	23/05/2016	23/05/2016
Date analysed	-	23/05/2016	23/05/2016	23/05/2016	23/05/2016	23/05/2016
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
Surrogate TCLMX	%	86	87	87	85	89

PCBs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- - ----------	147013-11 160519-UCR-3 19/05/2016 Soil
Date extracted	-	23/05/2016
Date analysed	-	23/05/2016
Aroclor 1016	mg/kg	<0.1
Aroclor 1221	mg/kg	<0.1
Aroclor 1232	mg/kg	<0.1
Aroclor 1242	mg/kg	<0.1
Aroclor 1248	mg/kg	<0.1
Aroclor 1254	mg/kg	<0.1
Aroclor 1260	mg/kg	<0.1
Surrogate TCLMX	%	85

Acid Extractable metals in soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- - ----------	147013-1 KCK-S-IS1 19/05/2016 Soil	147013-2 KCK-S-IS2 19/05/2016 Soil	147013-3 KCK-S-SP1 19/05/2016 Soil	147013-4 KCK-S-SP2 19/05/2016 Soil	147013-5 KCK-C-SP1 19/05/2016 Soil
Date prepared	-	23/05/2016	23/05/2016	23/05/2016	23/05/2016	23/05/2016
Date analysed	-	23/05/2016	23/05/2016	23/05/2016	23/05/2016	23/05/2016
Arsenic	mg/kg	16	<4	11	11	9
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	3	5	4	4	11
Copper	mg/kg	28	33	49	49	23
Lead	mg/kg	12	12	18	17	19
Mercury	mg/kg	<0.1	<0.1	0.2	0.1	<0.1
Nickel	mg/kg	13	20	26	21	16
Zinc	mg/kg	52	65	340	84	47

Acid Extractable metals in soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- - ----------	147013-6 KCK-C-SP1 19/05/2016 Soil	147013-7 160519-BCP-1 19/05/2016 Soil	147013-8 160519-FB-1 19/05/2016 Soil	147013-9 160519-UCR-1 19/05/2016 Soil	147013-10 160519-UCR-2 19/05/2016 Soil
Date prepared	-	23/05/2016	23/05/2016	23/05/2016	23/05/2016	23/05/2016
Date analysed	-	23/05/2016	23/05/2016	23/05/2016	23/05/2016	23/05/2016
Arsenic	mg/kg	6	5	5	9	8
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	11	5	7	6	6
Copper	mg/kg	20	26	33	41	34
Lead	mg/kg	21	14	18	14	13
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	12	5	12	18	15
Zinc	mg/kg	41	34	52	74	59

Acid Extractable metals in soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- - ----------	147013-11 160519-UCR-3 19/05/2016 Soil	147013-12 KCK-S-IS1-TRIPLICATE 19/05/2016 Soil
Date prepared	-	23/05/2016	23/05/2016
Date analysed	-	23/05/2016	23/05/2016
Arsenic	mg/kg	8	11
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	7	5
Copper	mg/kg	35	53
Lead	mg/kg	10	16
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	14	20
Zinc	mg/kg	54	77

Moisture Our Reference: Your Reference	UNITS ----------	147013-1 KCK-S-IS1	147013-2 KCK-S-IS2	147013-3 KCK-S-SP1	147013-4 KCK-S-SP2	147013-5 KCK-C-SP1
Date Sampled	----------	19/05/2016	19/05/2016	19/05/2016	19/05/2016	19/05/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/05/2016	23/05/2016	23/05/2016	23/05/2016	23/05/2016
Date analysed	-	24/05/2016	24/05/2016	24/05/2016	24/05/2016	24/05/2016
Moisture	%	7.1	7.9	4.3	4.9	5.9

Moisture Our Reference: Your Reference	UNITS ----------	147013-6 KCK-C-SP1	147013-7 160519-BCP-1	147013-8 160519-FB-1	147013-9 160519-UCR-1	147013-10 160519-UCR-2
Date Sampled	----------	19/05/2016	19/05/2016	19/05/2016	19/05/2016	19/05/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/05/2016	23/05/2016	23/05/2016	23/05/2016	23/05/2016
Date analysed	-	24/05/2016	24/05/2016	24/05/2016	24/05/2016	24/05/2016
Moisture	%	5.6	11	8.4	6.9	10

Moisture Our Reference: Your Reference	UNITS ----------	147013-11 160519-UCR-3
Date Sampled	----------	19/05/2016
Type of sample		Soil
Date prepared	-	23/05/2016
Date analysed	-	24/05/2016
Moisture	%	6.8

Misc Inorg - Soil						
Our Reference:	UNITS	147013-1	147013-2	147013-3	147013-4	147013-5
Your Reference	----------	KCK-S-IS1	KCK-S-IS2	KCK-S-SP1	KCK-S-SP2	KCK-C-SP1
	-					
Date Sampled	----------	19/05/2016	19/05/2016	19/05/2016	19/05/2016	19/05/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	24/05/2016	24/05/2016	24/05/2016	24/05/2016	24/05/2016
Date analysed	-	24/05/2016	24/05/2016	24/05/2016	24/05/2016	24/05/2016
pH 1:5 soil:water	pH Units	9.7	9.8	9.9	9.9	7.3

Misc Inorg - Soil						
Our Reference:	UNITS	147013-6	147013-7	147013-8	147013-9	147013-10
Your Reference	----------	KCK-C-SP1	160519-BCP-1	160519-FB-1	160519-UCR-1	160519-UCR-2
	-					
Date Sampled	----------	19/05/2016	19/05/2016	19/05/2016	19/05/2016	19/05/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	24/05/2016	24/05/2016	24/05/2016	24/05/2016	24/05/2016
Date analysed	-	24/05/2016	24/05/2016	24/05/2016	24/05/2016	24/05/2016
pH 1:5 soil:water	pH Units	6.9	6.2	9.4	9.9	9.9

Misc Inorg - Soil		
Our Reference:	UNITS	147013-11
Your Reference	----------	160519-UCR-3
	-	
Date Sampled	----------	19/05/2016
Type of sample		Soil
Date prepared	-	24/05/2016
Date analysed	-	24/05/2016
pH 1:5 soil:water	pH Units	9.8

Method ID	Methodology Summary
Org-016	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-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	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-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'TEQ 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. 'TEQ 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. 'TEQ 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-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.
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.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			23/05/2016	147013-1	23/05/2016 || 23/05/2016	LCS-10	23/05/2016
Date analysed	-			25/05/2016	147013-1	25/05/2016 || 25/05/2016	LCS-10	25/05/2016
TRHC$_{6}$ - C$_{9}$	mg/kg	25	Org-016	<25	147013-1	<25 || <25	LCS-10	94%
TRHC$_{6}$ - C$_{10}$	mg/kg	25	Org-016	<25	147013-1	<25 || <25	LCS-10	94%
Benzene	mg/kg	0.2	Org-016	<0.2	147013-1	<0.2 || <0.2	LCS-10	93%
Toluene	mg/kg	0.5	Org-016	<0.5	147013-1	<0.5 || <0.5	LCS-10	91%
Ethylbenzene	mg/kg	1	Org-016	<1	147013-1	<1 || <1	LCS-10	93%
m+p-xylene	mg/kg	2	Org-016	<2	147013-1	<2 || <2	LCS-10	96%
o-Xylene	mg/kg	1	Org-016	<1	147013-1	<1 || <1	LCS-10	88%
naphthalene	mg/kg	1	Org-014	<1	147013-1	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	102	147013-1	98 || 88 || RPD: 11	LCS-10	97%
QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			23/05/2016	147013-1	23/05/2016 || 23/05/2016	LCS-10	23/05/2016
Date analysed	-			23/05/2016	147013-1	23/05/2016 || 23/05/2016	LCS-10	23/05/2016
TRHC$_{10}$ - C$_{14}$	mg/kg	50	Org-003	<50	147013-1	<50 || <50	LCS-10	107%
TRHC$_{15}$ - C$_{28}$	mg/kg	100	Org-003	<100	147013-1	100 || <100	LCS-10	100%
TRHC$_{29}$ - C$_{36}$	mg/kg	100	Org-003	<100	147013-1	<100 || <100	LCS-10	92%
TRH>C$_{10}$-C$_{16}$	mg/kg	50	Org-003	<50	147013-1	<50 || <50	LCS-10	107%
TRH>C$_{16}$-C$_{34}$	mg/kg	100	Org-003	<100	147013-1	130 || <100	LCS-10	100%
TRH>C$_{34}$-C$_{40}$	mg/kg	100	Org-003	<100	147013-1	<100 || <100	LCS-10	92%
Surrogate o-Terphenyl	%		Org-003	78	147013-1	83 || 78 || RPD: 6	LCS-10	85%
QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			23/05/2016	147013-1	23/05/2016 || 23/05/2016	LCS-10	23/05/2016
Date analysed	-			23/05/2016	147013-1	23/05/2016 || 23/05/2016	LCS-10	23/05/2016
Naphthalene	mg/kg	0.1	Org-012	<0.1	147013-1	<0.1 || <0.1	LCS-10	100%
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	147013-1	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	147013-1	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012	<0.1	147013-1	<0.1 || <0.1	LCS-10	98%
Phenanthrene	mg/kg	0.1	Org-012	<0.1	147013-1	0.3 || 0.4 || RPD: 29	LCS-10	106%
Anthracene	mg/kg	0.1	Org-012	<0.1	147013-1	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	147013-1	<0.1 || <0.1	LCS-10	99%
Pyrene	mg/kg	0.1	Org-012	<0.1	147013-1	<0.1 || <0.1	LCS-10	106%
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	147013-1	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012	<0.1	147013-1	<0.1 || <0.1	LCS-10	83%
Benzo(b,j +k)fluoranthene	mg/kg	0.2	Org-012	<0.2	147013-1	<0.2 || <0.2	[NR]	[NR]

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	147013-1	<0.05 || <0.05	LCS-10	112%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	147013-1	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	147013-1	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	147013-1	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012	109	147013-1	91 || 107 || RPD: 16	LCS-10	118%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			23/05/2016	147013-1	23/05/2016 || 23/05/2016	LCS-10	23/05/2016
Date analysed	-			23/05/2016	147013-1	23/05/2016 || 23/05/2016	LCS-10	23/05/2016
HCB	mg/kg	0.1	Org-005	<0.1	147013-1	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	147013-1	<0.1 || <0.1	LCS-10	95%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	147013-1	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	147013-1	<0.1 || <0.1	LCS-10	86%
Heptachlor	mg/kg	0.1	Org-005	<0.1	147013-1	<0.1 || <0.1	LCS-10	96%
delta-BHC	mg/kg	0.1	Org-005	<0.1	147013-1	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	147013-1	<0.1 || <0.1	LCS-10	97%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	147013-1	<0.1 || <0.1	LCS-10	105%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	147013-1	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	147013-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	147013-1	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	147013-1	<0.1 || <0.1	LCS-10	101%
Dieldrin	mg/kg	0.1	Org-005	<0.1	147013-1	<0.1 || <0.1	LCS-10	84%
Endrin	mg/kg	0.1	Org-005	<0.1	147013-1	<0.1 || <0.1	LCS-10	101%
pp-DDD	mg/kg	0.1	Org-005	<0.1	147013-1	<0.1 || <0.1	LCS-10	105%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	147013-1	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	147013-1	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	147013-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	147013-1	<0.1 || <0.1	LCS-10	82%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	147013-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%		Org-005	91	147013-1	100 || 104 || RPD: 4	LCS-10	99%

Client Reference: DL2591

QUALITY CONTROL Organophosphorus Pesticides	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			23/05/2016	147013-1	23/05/2016 || 23/05/2016	LCS-10	23/05/2016
Date analysed	-			23/05/2016	147013-1	23/05/2016 || 23/05/2016	LCS-10	23/05/2016
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	147013-1	<0.1 || <0.1	[NR]	[NR]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	147013-1	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	147013-1	<0.1 || <0.1	LCS-10	83%
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	147013-1	<0.1 || <0.1	[NR]	[NR]
Diazinon	mg/kg	0.1	Org-008	<0.1	147013-1	<0.1 || <0.1	[NR]	[NR]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	147013-1	<0.1 || <0.1	LCS-10	88%
Dimethoate	mg/kg	0.1	Org-008	<0.1	147013-1	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	0.1	Org-008	<0.1	147013-1	<0.1 || <0.1	LCS-10	101%
Fenitrothion	mg/kg	0.1	Org-008	<0.1	147013-1	<0.1 || <0.1	LCS-10	88%
Malathion	mg/kg	0.1	Org-008	<0.1	147013-1	<0.1 || <0.1	LCS-10	84%
Parathion	mg/kg	0.1	Org-008	<0.1	147013-1	<0.1 || <0.1	LCS-10	84%
Ronnel	mg/kg	0.1	Org-008	<0.1	147013-1	<0.1 || <0.1	LCS-10	73%
Surrogate TCMX	%		Org-008	91	147013-1	100 || 104 || RPD: 4	LCS-10	88%

QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			23/05/2016	147013-1	23/05/2016 || 23/05/2016	LCS-10	23/05/2016
Date analysed	-			23/05/2016	147013-1	23/05/2016 || 23/05/2016	LCS-10	23/05/2016
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	147013-1	<0.1 || <0.1	[NR]	[NR]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	147013-1	<0.1 || <0.1	[NR]	[NR]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	147013-1	<0.1 || <0.1	[NR]	[NR]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	147013-1	<0.1 || <0.1	[NR]	[NR]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	147013-1	<0.1 || <0.1	[NR]	[NR]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	147013-1	<0.1 || <0.1	LCS-10	100%
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	147013-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		Org-006	91	147013-1	100 || 104 || RPD: 4	LCS-10	88%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			23/05/2016	147013-1	23/05/2016 || 23/05/2016	LCS-10	23/05/2016
Date analysed	-			23/05/2016	147013-1	23/05/2016 || 23/05/2016	LCS-10	23/05/2016
Arsenic	mg/kg	4	Metals-020	<4	147013-1	16 || 11 || RPD: 37	LCS-10	107%
Cadmium	mg/kg	0.4	Metals-020	<0.4	147013-1	<0.4 || <0.4	LCS-10	104%
Chromium	mg/kg	1	Metals-020	<1	147013-1	3 || 5 || RPD: 50	LCS-10	106%
Copper	mg/kg	1	Metals-020	<1	147013-1	28 || 42 || RPD: 40	LCS-10	106%
Lead	mg/kg	1	Metals-020	<1	147013-1	12 || 14 || RPD: 15	LCS-10	104%
Mercury	mg/kg	0.1	Metals-021	<0.1	147013-1	<0.1 || <0.1	LCS-10	100%
Nickel	mg/kg	1	Metals-020	<1	147013-1	13 || 23 || RPD: 56	LCS-10	101%
Zinc	mg/kg	1	Metals-020	<1	147013-1	52 || 90 || RPD: 54	LCS-10	104%
QUALITY CONTROL Misc Inorg - Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			[NT]	147013-1	24/05/2016 || 24/05/2016	LCS-1	24/05/2016
Date analysed	-			[NT]	147013-1	24/05/2016 || 24/05/2016	LCS-1	24/05/2016
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	147013-1	9.7 || 9.5 || RPD: 2	LCS-1	101%

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	147013-11	23/05/2016 || 23/05/2016	147013-2	23/05/2016
Date analysed	-	147013-11	25/05/2016 || 25/05/2016	147013-2	25/05/2016
TRHC$_6$ - C$_9$	mg/kg	147013-11	<25 || <25	147013-2	99%
TRHC$_6$ - C$_{10}$	mg/kg	147013-11	<25 || <25	147013-2	99%
Benzene	mg/kg	147013-11	<0.2 || <0.2	147013-2	97%
Toluene	mg/kg	147013-11	<0.5 || <0.5	147013-2	94%
Ethylbenzene	mg/kg	147013-11	<1 || <1	147013-2	98%
m+p-xylene	mg/kg	147013-11	<2 || <2	147013-2	102%
o-Xylene	mg/kg	147013-11	<1 || <1	147013-2	93%
naphthalene	mg/kg	147013-11	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	147013-11	95 || 93 || RPD: 2	147013-2	97%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	147013-11	23/05/2016 || 23/05/2016	147013-2	23/05/2016
Date analysed	-	147013-11	23/05/2016 || 23/05/2016	147013-2	23/05/2016
TRH C_{10} - C_{14}	mg/kg	147013-11	<50 || <50	147013-2	128%
TRH C_{15} - C_{28}	mg/kg	147013-11	<100 || <100	147013-2	132%
TRH C_{29} - C_{36}	mg/kg	147013-11	<100 || <100	147013-2	111%
TRH >C_{10}-C_{16}	mg/kg	147013-11	<50 || <50	147013-2	128%
TRH >C_{16}-C_{34}	mg/kg	147013-11	<100 || <100	147013-2	132%
TRH >C_{34}-C_{40}	mg/kg	147013-11	<100 || <100	147013-2	111%
Surrogate o-Terphenyl	%	147013-11	76 || 74 || RPD: 3	147013-2	71%
QUALITY CONTROL PAHs in Soil	**UNITS**	**Dup. Sm#**	**Duplicate Base + Duplicate + %RPD**	**Spike Sm#**	**Spike % Recovery**
Date extracted	-	147013-11	23/05/2016 || 23/05/2016	147013-2	23/05/2016
Date analysed	-	147013-11	23/05/2016 || 23/05/2016	147013-2	23/05/2016
Naphthalene	mg/kg	147013-11	0.3 || 0.4 || RPD: 29	147013-2	101%
Acenaphthylene	mg/kg	147013-11	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	147013-11	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	147013-11	<0.1 || <0.1	147013-2	100%
Phenanthrene	mg/kg	147013-11	0.3 || 0.3 || RPD: 0	147013-2	107%
Anthracene	mg/kg	147013-11	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	147013-11	<0.1 || <0.1	147013-2	101%
Pyrene	mg/kg	147013-11	<0.1 || <0.1	147013-2	108%
Benzo(a)anthracene	mg/kg	147013-11	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	147013-11	<0.1 || <0.1	147013-2	86%
Benzo(b,j+k)fluoranthene	mg/kg	147013-11	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	147013-11	<0.05 || <0.05	147013-2	111%
Indeno(1,2,3-c,d)pyrene	mg/kg	147013-11	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	147013-11	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	147013-11	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	147013-11	102 || 99 || RPD: 3	147013-2	124%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	147013-11	23/05/2016 || 23/05/2016	147013-2	23/05/2016
Date analysed	-	147013-11	23/05/2016 || 23/05/2016	147013-2	23/05/2016
HCB	mg/kg	147013-11	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	147013-11	<0.1 || <0.1	147013-2	77%
gamma-BHC	mg/kg	147013-11	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	147013-11	<0.1 || <0.1	147013-2	73%
Heptachlor	mg/kg	147013-11	<0.1 || <0.1	147013-2	72%
delta-BHC	mg/kg	147013-11	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	147013-11	<0.1 || <0.1	147013-2	83%
Heptachlor Epoxide	mg/kg	147013-11	<0.1 || <0.1	147013-2	74%
gamma-Chlordane	mg/kg	147013-11	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	147013-11	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	147013-11	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	147013-11	<0.1 || <0.1	147013-2	75%
Dieldrin	mg/kg	147013-11	<0.1 || <0.1	147013-2	79%
Endrin	mg/kg	147013-11	<0.1 || <0.1	147013-2	85%
pp-DDD	mg/kg	147013-11	<0.1 || <0.1	147013-2	68%
Endosulfan II	mg/kg	147013-11	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	147013-11	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	147013-11	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	147013-11	<0.1 || <0.1	147013-2	61%
Methoxychlor	mg/kg	147013-11	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%	147013-11	85 || 86 || RPD: 1	147013-2	102%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	147013-11	23/05/2016 || 23/05/2016	147013-2	23/05/2016
Date analysed	-	147013-11	23/05/2016 || 23/05/2016	147013-2	23/05/2016
Azinphos-methyl (Guthion)	mg/kg	147013-11	<0.1 || <0.1	[NR]	[NR]
Bromophos-ethyl	mg/kg	147013-11	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	147013-11	<0.1 || <0.1	147013-2	71%
Chlorpyriphos-methyl	mg/kg	147013-11	<0.1 || <0.1	[NR]	[NR]
Diazinon	mg/kg	147013-11	<0.1 || <0.1	[NR]	[NR]
Dichlorvos	mg/kg	147013-11	<0.1 || <0.1	147013-2	86%
Dimethoate	mg/kg	147013-11	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	147013-11	<0.1 || <0.1	147013-2	93%
Fenitrothion	mg/kg	147013-11	<0.1 || <0.1	147013-2	88%
Malathion	mg/kg	147013-11	<0.1 || <0.1	147013-2	70%
Parathion	mg/kg	147013-11	<0.1 || <0.1	147013-2	75%
Ronnel	mg/kg	147013-11	<0.1 || <0.1	147013-2	73%
Surrogate TCMX	%	147013-11	85 || 86 || RPD: 1	147013-2	84%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	147013-11	23/05/2016 || 23/05/2016	147013-2	23/05/2016
Date analysed	-	147013-11	23/05/2016 || 23/05/2016	147013-2	23/05/2016
Aroclor 1016	mg/kg	147013-11	<0.1 || <0.1	[NR]	[NR]
Aroclor 1221	mg/kg	147013-11	<0.1 || <0.1	[NR]	[NR]
Aroclor 1232	mg/kg	147013-11	<0.1 || <0.1	[NR]	[NR]
Aroclor 1242	mg/kg	147013-11	<0.1 || <0.1	[NR]	[NR]
Aroclor 1248	mg/kg	147013-11	<0.1 || <0.1	[NR]	[NR]
Aroclor 1254	mg/kg	147013-11	<0.1 || <0.1	147013-2	104%
Aroclor 1260	mg/kg	147013-11	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%	147013-11	85 || 86 || RPD: 1	147013-2	84%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	147013-11	23/05/2016 || 23/05/2016	147013-2	23/05/2016
Date analysed	-	147013-11	23/05/2016 || 23/05/2016	147013-2	23/05/2016
Arsenic	mg/kg	147013-11	8 || 8 || RPD: 0	147013-2	89%
Cadmium	mg/kg	147013-11	<0.4 || <0.4	147013-2	89%
Chromium	mg/kg	147013-11	7 || 7 || RPD: 0	147013-2	92%
Copper	mg/kg	147013-11	35 || 41 || RPD: 16	147013-2	106%
Lead	mg/kg	147013-11	10 || 14 || RPD: 33	147013-2	94%
Mercury	mg/kg	147013-11	<0.1 || <0.1	147013-2	94%
Nickel	mg/kg	147013-11	14 || 19 || RPD: 30	147013-2	87%
Zinc	mg/kg	147013-11	54 || 75 || RPD: 33	147013-2	113%

QUALITY CONTROL Misc Inorg - Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date prepared	-	147013-11	24/05/2016 || 24/05/2016
Date analysed	-	147013-11	24/05/2016 || 24/05/2016
pH 1:5 soil:water	pH Units	147013-11	9.8 || 9.9 || RPD: 1

Report Comments:

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 147013-1 for Ni and Zn. Therefore a triplicate result has been issued as laboratory sample number 147013-12.

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NR: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

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.

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: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-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.

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Envirolab Services Pty Ltd Sydney | ABN 37 112 535 645

CERTIFICATE OF ANALYSIS 146559

Client:

DLA Environmental Services Pty Ltd
Unit 3, 38 Leighton Pl
Hornsby
NSW 2077

Attention: Russell

Sample log in details:

Your Reference:	**DL2591_DLDC_VENM QA**
No. of samples:	8 Soils
Date samples received / completed instructions received	13/05/2016 / 13/05/2016

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: / Issue Date:	20/05/16 / 19/05/16
Date of Preliminary Report:	Not Issued

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Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	146559-1	146559-2	146559-3	146559-4	146559-5
Your Reference	---------- -	160512-UCR-1	160512-UCR-2	160512-UCR-3	160512-UCR-4	160512-UCR-5
Date Sampled	----------	12/05/2016	12/05/2016	12/05/2016	12/05/2016	12/05/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	16/05/2016	16/05/2016	16/05/2016	16/05/2016	16/05/2016
Date analysed	-	17/05/2016	17/05/2016	17/05/2016	17/05/2016	17/05/2016
TRHC6 - C9	mg/kg	<25	<25	<25	<25	<25
TRHC6 - C10	mg/kg	<25	<25	<25	<25	<25
vTPHC6 - C10 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
Surrogate aaa-Trifluorotoluene	%	92	92	81	87	82

vTRH(C6-C10)/BTEXN in Soil				
Our Reference:	UNITS	146559-6	146559-7	146559-8
Your Reference	---------- -	160512-FB-1	160512-FB-2	160512-FB-3
Date Sampled	----------	12/05/2016	12/05/2016	12/05/2016
Type of sample		Soil	Soil	Soil
Date extracted	-	16/05/2016	16/05/2016	16/05/2016
Date analysed	-	17/05/2016	17/05/2016	17/05/2016
TRHC6 - C9	mg/kg	<25	<25	<25
TRHC6 - C10	mg/kg	<25	<25	<25
vTPHC6 - C10 less BTEX (F1)	mg/kg	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	91	90	84

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	146559-1	146559-2	146559-3	146559-4	146559-5
Your Reference	---------- -	160512-UCR-1	160512-UCR-2	160512-UCR-3	160512-UCR-4	160512-UCR-5
Date Sampled	----------	12/05/2016	12/05/2016	12/05/2016	12/05/2016	12/05/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	16/05/2016	16/05/2016	16/05/2016	16/05/2016	16/05/2016
Date analysed	-	17/05/2016	17/05/2016	17/05/2016	17/05/2016	17/05/2016
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	<100	<100
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
Surrogate o-Terphenyl	%	77	77	84	84	84

svTRH (C10-C40) in Soil				
Our Reference:	UNITS	146559-6	146559-7	146559-8
Your Reference	---------- -	160512-FB-1	160512-FB-2	160512-FB-3
Date Sampled	----------	12/05/2016	12/05/2016	12/05/2016
Type of sample		Soil	Soil	Soil
Date extracted	-	16/05/2016	16/05/2016	16/05/2016
Date analysed	-	17/05/2016	17/05/2016	18/05/2016
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100
TRH >C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50
TRH >C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50
TRH >C$_{16}$-C$_{34}$	mg/kg	<100	<100	<100
TRH >C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100
Surrogate o-Terphenyl	%	79	73	75

PAHs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- - ---------- 	146559-1 160512-UCR-1 12/05/2016 Soil	146559-2 160512-UCR-2 12/05/2016 Soil	146559-3 160512-UCR-3 12/05/2016 Soil	146559-4 160512-UCR-4 12/05/2016 Soil	146559-5 160512-UCR-5 12/05/2016 Soil
Date extracted	-	16/05/2016	16/05/2016	16/05/2016	16/05/2016	16/05/2016
Date analysed	-	16/05/2016	16/05/2016	16/05/2016	16/05/2016	16/05/2016
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	0.2	0.2	0.1	0.3	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
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
Total Positive PAHs	mg/kg	0.19	0.18	0.13	0.41	0.12
Surrogate p-Terphenyl-d14	%	101	98	102	114	100

PAHs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- - ---------- 	146559-6 160512-FB-1 12/05/2016 Soil	146559-7 160512-FB-2 12/05/2016 Soil	146559-8 160512-FB-3 12/05/2016 Soil
Date extracted	-	16/05/2016	16/05/2016	16/05/2016
Date analysed	-	16/05/2016	16/05/2016	16/05/2016
Naphthalene	mg/kg	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	95	103	103

Organochlorine Pesticides in soil						
Our Reference:	UNITS	146559-1	146559-2	146559-3	146559-4	146559-5
Your Reference	----------	160512-UCR-1	160512-UCR-2	160512-UCR-3	160512-UCR-4	160512-UCR-5
	-					
Date Sampled	----------	12/05/2016	12/05/2016	12/05/2016	12/05/2016	12/05/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	16/05/2016	16/05/2016	16/05/2016	16/05/2016	16/05/2016
Date analysed	-	17/05/2016	17/05/2016	17/05/2016	17/05/2016	17/05/2016
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-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
beta-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	<0.1
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
pp-DDD	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-DDT	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
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
Surrogate TCMX	%	93	92	97	91	91

Organochlorine Pesticides in soil				
Our Reference:	UNITS	146559-6	146559-7	146559-8
Your Reference	----------	160512-FB-1	160512-FB-2	160512-FB-3
	-			
Date Sampled	----------	12/05/2016	12/05/2016	12/05/2016
Type of sample		Soil	Soil	Soil
Date extracted	-	16/05/2016	16/05/2016	16/05/2016
Date analysed	-	17/05/2016	17/05/2016	17/05/2016
HCB	mg/kg	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	93	91	93

Organophosphorus Pesticides Our Reference: Your Reference	UNITS ----------	146559-1 160512-UCR-1	146559-2 160512-UCR-2	146559-3 160512-UCR-3	146559-4 160512-UCR-4	146559-5 160512-UCR-5
Date Sampled	----------	12/05/2016	12/05/2016	12/05/2016	12/05/2016	12/05/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	16/05/2016	16/05/2016	16/05/2016	16/05/2016	16/05/2016
Date analysed	-	17/05/2016	17/05/2016	17/05/2016	17/05/2016	17/05/2016
Azinphos-methyl (Guthion)	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
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	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
Dichlorvos	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
Ethion	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
Parathion	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
Surrogate TCMX	%	93	92	97	91	91

Organophosphorus Pesticides Our Reference: Your Reference	UNITS ----------	146559-6 160512-FB-1	146559-7 160512-FB-2	146559-8 160512-FB-3
Date Sampled	----------	12/05/2016	12/05/2016	12/05/2016
Type of sample		Soil	Soil	Soil
Date extracted	-	16/05/2016	16/05/2016	16/05/2016
Date analysed	-	17/05/2016	17/05/2016	17/05/2016
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	93	91	93

PCBs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- - ---------- 	146559-1 160512-UCR-1 12/05/2016 Soil	146559-2 160512-UCR-2 12/05/2016 Soil	146559-3 160512-UCR-3 12/05/2016 Soil	146559-4 160512-UCR-4 12/05/2016 Soil	146559-5 160512-UCR-5 12/05/2016 Soil
Date extracted	-	16/05/2016	16/05/2016	16/05/2016	16/05/2016	16/05/2016
Date analysed	-	17/05/2016	17/05/2016	17/05/2016	17/05/2016	17/05/2016
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
Surrogate TCLMX	%	93	92	97	91	91

PCBs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- - ---------- 	146559-6 160512-FB-1 12/05/2016 Soil	146559-7 160512-FB-2 12/05/2016 Soil	146559-8 160512-FB-3 12/05/2016 Soil
Date extracted	-	16/05/2016	16/05/2016	16/05/2016
Date analysed	-	17/05/2016	17/05/2016	17/05/2016
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1
Surrogate TCLMX	%	93	91	93

Acid Extractable metals in soil						
Our Reference:	UNITS	146559-1	146559-2	146559-3	146559-4	146559-5
Your Reference	----------	160512-UCR-1	160512-UCR-2	160512-UCR-3	160512-UCR-4	160512-UCR-5
	-					
Date Sampled	----------	12/05/2016	12/05/2016	12/05/2016	12/05/2016	12/05/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	16/05/2016	16/05/2016	16/05/2016	16/05/2016	16/05/2016
Date analysed	-	16/05/2016	16/05/2016	16/05/2016	16/05/2016	16/05/2016
Arsenic	mg/kg	6	35	13	8	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	5	7	4	6	7
Copper	mg/kg	49	43	44	39	43
Lead	mg/kg	14	14	15	11	13
Mercury	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	23	16	22	17	17
Zinc	mg/kg	76	66	76	58	66

Acid Extractable metals in soil				
Our Reference:	UNITS	146559-6	146559-7	146559-8
Your Reference	----------	160512-FB-1	160512-FB-2	160512-FB-3
	-			
Date Sampled	----------	12/05/2016	12/05/2016	12/05/2016
Type of sample		Soil	Soil	Soil
Date prepared	-	16/05/2016	16/05/2016	16/05/2016
Date analysed	-	16/05/2016	16/05/2016	16/05/2016
Arsenic	mg/kg	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4
Chromium	mg/kg	13	13	14
Copper	mg/kg	12	8	8
Lead	mg/kg	10	9	8
Mercury	mg/kg	<0.1	<0.1	<0.1
Nickel	mg/kg	9	6	6
Zinc	mg/kg	30	17	16

Moisture Our Reference: Your Reference	UNITS ----------	146559-1 160512-UCR-1	146559-2 160512-UCR-2	146559-3 160512-UCR-3	146559-4 160512-UCR-4	146559-5 160512-UCR-5
Date Sampled	----------	12/05/2016	12/05/2016	12/05/2016	12/05/2016	12/05/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	16/05/2016	16/05/2016	16/05/2016	16/05/2016	16/05/2016
Date analysed	-	17/05/2016	17/05/2016	17/05/2016	17/05/2016	17/05/2016
Moisture	%	8.4	6.4	8.0	<0.1	11

Moisture Our Reference: Your Reference	UNITS ----------	146559-6 160512-FB-1	146559-7 160512-FB-2	146559-8 160512-FB-3
Date Sampled	----------	12/05/2016	12/05/2016	12/05/2016
Type of sample		Soil	Soil	Soil
Date prepared	-	16/05/2016	16/05/2016	16/05/2016
Date analysed	-	17/05/2016	17/05/2016	17/05/2016
Moisture	%	4.1	10	11

Method ID	Methodology Summary
Org-016	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-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	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-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'TEQ 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. 'TEQ 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. 'TEQ 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-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/05/2016	[NT]	[NT]	LCS-2	16/05/2016
Date analysed	-			17/05/2016	[NT]	[NT]	LCS-2	17/05/2016
TRHC$_{6}$ - C$_{9}$	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-2	98%
TRHC$_{6}$ - C$_{10}$	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-2	98%
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	LCS-2	102%
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	LCS-2	96%
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-2	94%
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	LCS-2	100%
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-2	91%
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	97	[NT]	[NT]	LCS-2	98%
QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/05/2016	[NT]	[NT]	LCS-2	16/05/2016
Date analysed	-			17/05/2016	[NT]	[NT]	LCS-2	17/05/2016
TRHC$_{10}$ - C$_{14}$	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-2	135%
TRHC$_{15}$ - C$_{28}$	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-2	118%
TRHC$_{29}$ - C$_{36}$	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-2	92%
TRH>C$_{10}$-C$_{16}$	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-2	135%
TRH>C$_{16}$-C$_{34}$	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-2	118%
TRH>C$_{34}$-C$_{40}$	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-2	92%
Surrogate o-Terphenyl	%		Org-003	80	[NT]	[NT]	LCS-2	95%
QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/05/2016	[NT]	[NT]	LCS-2	16/05/2016
Date analysed	-			16/05/2016	[NT]	[NT]	LCS-2	16/05/2016
Naphthalene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-2	108%
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-2	92%
Phenanthrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-2	103%
Anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-2	96%
Pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-2	92%
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-2	78%
Benzo(b,j +k)fluoranthene	mg/kg	0.2	Org-012	<0.2	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	[NT]	[NT]	LCS-2	113%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012	99	[NT]	[NT]	LCS-2	131%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/05/2016	[NT]	[NT]	LCS-2	16/05/2016
Date analysed	-			17/05/2016	[NT]	[NT]	LCS-2	17/05/2016
HCB	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-2	76%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-2	71%
Heptachlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-2	85%
delta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-2	77%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-2	76%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-2	76%
Dieldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-2	80%
Endrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-2	85%
pp-DDD	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-2	72%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-2	72%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%		Org-005	95	[NT]	[NT]	LCS-2	108%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/05/2016	[NT]	[NT]	LCS-2	16/05/2016
Date analysed	-			17/05/2016	[NT]	[NT]	LCS-2	17/05/2016
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-2	105%
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Diazinon	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-2	88%
Dimethoate	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Ethion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-2	115%
Fenitrothion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-2	98%
Malathion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-2	100%
Parathion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-2	106%
Ronnel	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-2	110%
Surrogate TCMX	%		Org-008	95	[NT]	[NT]	LCS-2	94%

QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/05/2016	[NT]	[NT]	LCS-2	16/05/2016
Date analysed	-			17/05/2016	[NT]	[NT]	LCS-2	17/05/2016
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	LCS-2	112%
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		Org-006	95	[NT]	[NT]	LCS-2	94%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			16/05/2016	[NT]	[NT]	LCS-2	16/05/2016
Date analysed	-			16/05/2016	[NT]	[NT]	LCS-2	16/05/2016
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	LCS-2	107%
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	LCS-2	95%
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	LCS-2	104%
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	LCS-2	107%
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	LCS-2	98%
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	LCS-2	89%
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	LCS-2	101%
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	LCS-2	101%

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	146559-1	16/05/2016
Date analysed	-	[NT]	[NT]	146559-1	17/05/2016
TRH C_6 - C_9	mg/kg	[NT]	[NT]	146559-1	102%
TRH C_6 - C_{10}	mg/kg	[NT]	[NT]	146559-1	102%
Benzene	mg/kg	[NT]	[NT]	146559-1	100%
Toluene	mg/kg	[NT]	[NT]	146559-1	97%
Ethylbenzene	mg/kg	[NT]	[NT]	146559-1	101%
m+p-xylene	mg/kg	[NT]	[NT]	146559-1	105%
o-Xylene	mg/kg	[NT]	[NT]	146559-1	97%
naphthalene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	[NT]	[NT]	146559-1	81%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	146559-1	16/05/2016
Date analysed	-	[NT]	[NT]	146559-1	17/05/2016
TRH C_{10} - C_{14}	mg/kg	[NT]	[NT]	146559-1	111%
TRH C_{15} - C_{28}	mg/kg	[NT]	[NT]	146559-1	86%
TRH C_{29} - C_{36}	mg/kg	[NT]	[NT]	146559-1	86%
TRH >C_{10} - C_{16}	mg/kg	[NT]	[NT]	146559-1	111%
TRH >C_{16} - C_{34}	mg/kg	[NT]	[NT]	146559-1	86%
TRH >C_{34} - C_{40}	mg/kg	[NT]	[NT]	146559-1	86%
Surrogate o-Terphenyl	%	[NT]	[NT]	146559-1	77%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	146559-1	16/05/2016
Date analysed	-	[NT]	[NT]	146559-1	16/05/2016
Naphthalene	mg/kg	[NT]	[NT]	146559-1	103%
Acenaphthylene	mg/kg	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	[NT]	[NT]	146559-1	86%
Phenanthrene	mg/kg	[NT]	[NT]	146559-1	95%
Anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	[NT]	[NT]	146559-1	90%
Pyrene	mg/kg	[NT]	[NT]	146559-1	87%
Benzo(a)anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	[NT]	[NT]	146559-1	75%
Benzo(b,j+k)fluoranthene	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	[NT]	[NT]	146559-1	103%
Indeno(1,2,3-c,d)pyrene	mg/kg	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	[NT]	[NT]	146559-1	123%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	146559-1	16/05/2016
Date analysed	-	[NT]	[NT]	146559-1	17/05/2016
HCB	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	[NT]	[NT]	146559-1	99%
gamma-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	[NT]	[NT]	146559-1	93%
Heptachlor	mg/kg	[NT]	[NT]	146559-1	100%
delta-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	[NT]	[NT]	146559-1	114%
Heptachlor Epoxide	mg/kg	[NT]	[NT]	146559-1	100%
gamma-Chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	[NT]	[NT]	146559-1	101%
Dieldrin	mg/kg	[NT]	[NT]	146559-1	106%
Endrin	mg/kg	[NT]	[NT]	146559-1	108%
pp-DDD	mg/kg	[NT]	[NT]	146559-1	94%
Endosulfan II	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	[NT]	[NT]	146559-1	92%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Methoxychlor	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%	[NT]	[NT]	146559-1	107%
QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	146559-1	16/05/2016
Date analysed	-	[NT]	[NT]	146559-1	17/05/2016
Azinphos-methyl (Guthion)	mg/kg	[NT]	[NT]	[NR]	[NR]
Bromophos-ethyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	mg/kg	[NT]	[NT]	146559-1	96%
Chlorpyriphos-methyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Diazinon	mg/kg	[NT]	[NT]	[NR]	[NR]
Dichlorvos	mg/kg	[NT]	[NT]	146559-1	83%
Dimethoate	mg/kg	[NT]	[NT]	[NR]	[NR]
Ethion	mg/kg	[NT]	[NT]	146559-1	115%
Fenitrothion	mg/kg	[NT]	[NT]	146559-1	81%
Malathion	mg/kg	[NT]	[NT]	146559-1	68%
Parathion	mg/kg	[NT]	[NT]	146559-1	96%
Ronnel	mg/kg	[NT]	[NT]	146559-1	100%
Surrogate TCMX	%	[NT]	[NT]	146559-1	90%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	146559-1	16/05/2016
Date analysed	-	[NT]	[NT]	146559-1	17/05/2016
Aroclor 1016	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1221	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1232	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1242	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1248	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1254	mg/kg	[NT]	[NT]	146559-1	112%
Aroclor 1260	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	146559-1	90%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	146559-1	16/05/2016
Date analysed	-	[NT]	[NT]	146559-1	16/05/2016
Arsenic	mg/kg	[NT]	[NT]	146559-1	109%
Cadmium	mg/kg	[NT]	[NT]	146559-1	79%
Chromium	mg/kg	[NT]	[NT]	146559-1	91%
Copper	mg/kg	[NT]	[NT]	146559-1	104%
Lead	mg/kg	[NT]	[NT]	146559-1	84%
Mercury	mg/kg	[NT]	[NT]	146559-1	95%
Nickel	mg/kg	[NT]	[NT]	146559-1	79%
Zinc	mg/kg	[NT]	[NT]	146559-1	87%

Report Comments:

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NR: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

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.

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: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-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.

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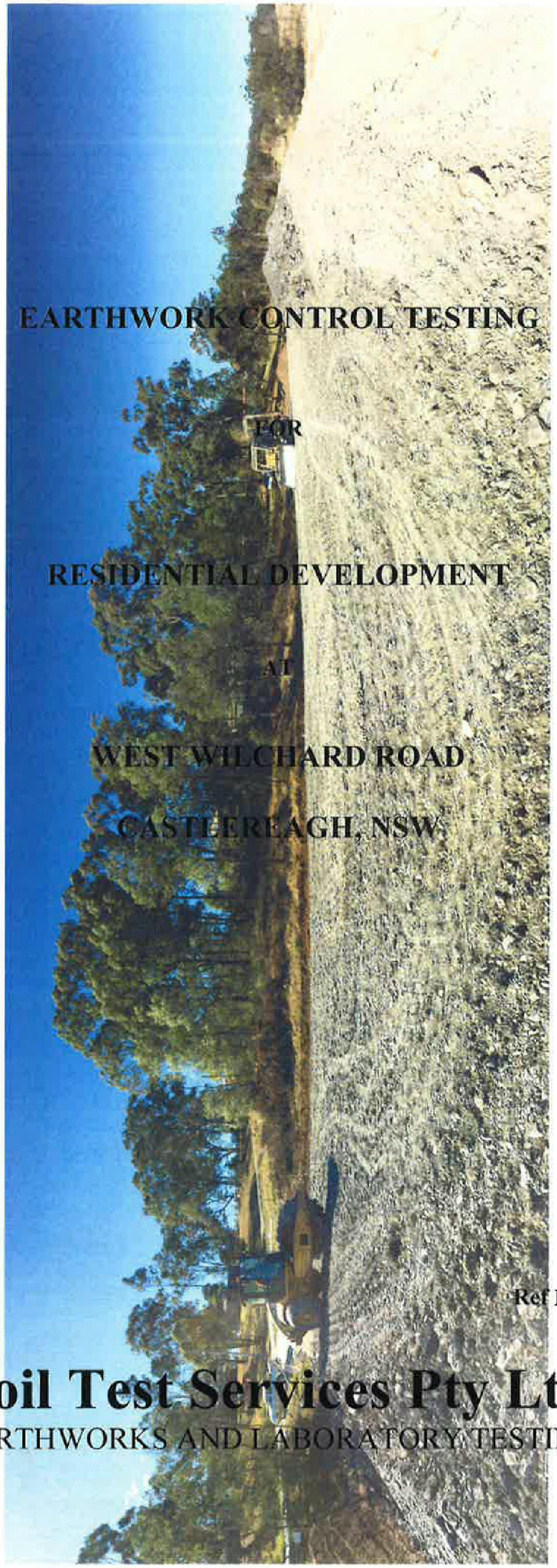
Version: 1, Version Date: 06/02/2018

ATTACHMENT 3 – STS DAILY SITE REPORTS



SOIL TEST SERVICES

EARTHWORK CONTROL TESTING

FOR

RESIDENTIAL DEVELOPMENT

AT

WEST WILCHARD ROAD

CASTLEREAGH, NSW

Ref No. L3884E

Soil Test Services Pty Ltd

EARTHWORKS AND LABORATORY TESTING

TABLE OF CONTENTS

Ref No. L3884E
Report Date 9/6/2016

115 Wicks Road
Macquarie Park, NSW 2113
Telephone: 02 9888 5000
Facsimile: 02 9888 5001

SOIL TEST SERVICES

ABN 43 002 145 173

9th June, 2016
Ref No: L3884E
File No.1

Allyn Holdings Pty Ltd
PO Box 51
GORDON NSW 2072

Dear Sirs,

RE: RESDENTIAL DEVELOPMENT
WEST WILCHARD ROAD
CASTLEREAGH NSW

Period Covered: 22nd April 2016 to 27th May 2016.
During the above period STS has performed earthwork control testing on the compacted fill layers.:

- STS has prepared the following attached Reports.
  - Site Stripping Report.
  - Daily Site Report numbers: 1 to 19.
  - Hilf Density Ratio Reports numbers: L3768E – 1 to 15.
  - Lot Approval Report numbers: L3768E – L1 to L15.

STS confirms that all the earthworks undertaken in the above stated period are documented in the above reports and have been undertaken in accordance with the Specification (PSM2541 email, dated 29th April 2016).

Should you require additional information please contact us.

Yours faithfully,
For and on behalf of
Soil Test Services Pty Ltd

(David Treweek)

SOIL TEST SERVICES

Panoramic views

Plate 1: Taken 29/4/2016

Plate 2 Taken 17/5/2016

Plate 3 Taken 27/5/2016

Site Stripping Report

SOIL TEST SERVICES

Project: Penrith Lakes	**Job No:** L3884E
Location: West Wilchard Road, Castlereagh	**Date:** 22/04/2016
Time of Arrival / Departure: 8:00 – 9:00am	**Test Request No:** N/A

Technician: Leonard Matrix		
Weather: Overcast / Mild		
Location: West Wilchard Road, Castlereagh		
Completion of Plot Plan: Yes (Attached)	**Area m²:** 4,214	**RL / Layer:** ≤ 22 to 16m
Subgrade Material Type: Exposed natural clays		
Sandy Silty Clays, Brown, Grey mottled orange brown, Moist		
Soft/ Unstable Areas: None found		
Pass/ Fail: Passed		

Comments:

On the 28th of April a request was made for a stripping inspection on behalf of PLDC Site engineer Arthur Ashburn to inspect a land allotment on the corner of West Wilchard road and land frontage along Castlereagh Road before the town of Castlereagh.

A visual inspection was made within the proposed fill boundaries pegged out upon arriving onsite. Pre-initial clearing work had been completed upon arrival with the removal of vegetation (mostly tall grasses) and small sapling trees. Two erosion control bund mounds were created from the overlying stripped silty sands.

The proposed fill area runs in front of a natural escarpment with an approx. 3 to 1 downslope and flattens to broad plain parallel along the bottom at approximately 1.5% fall towards Castlereagh Rd frontage. The stripped survey RL's deviate up to a maximum 6.5 metres. The escarpment is noted to be part of the outlier Nepean river formation with generous residual fine grained silty sands overlying the site; the erosion bunds now created from this material.

The site was deemed to be completely stripped of all deleterious material and majority of residual silty sands and topsoil. Small pockets of residual silty sands were present along the escarpment however were generally deemed insignificant, however further trimming was in progress. Natural orange brown and grey fine grained sandy clays were exposed to most of the stripped area. Clays were deemed to be supportive for the proposed fill embankment.

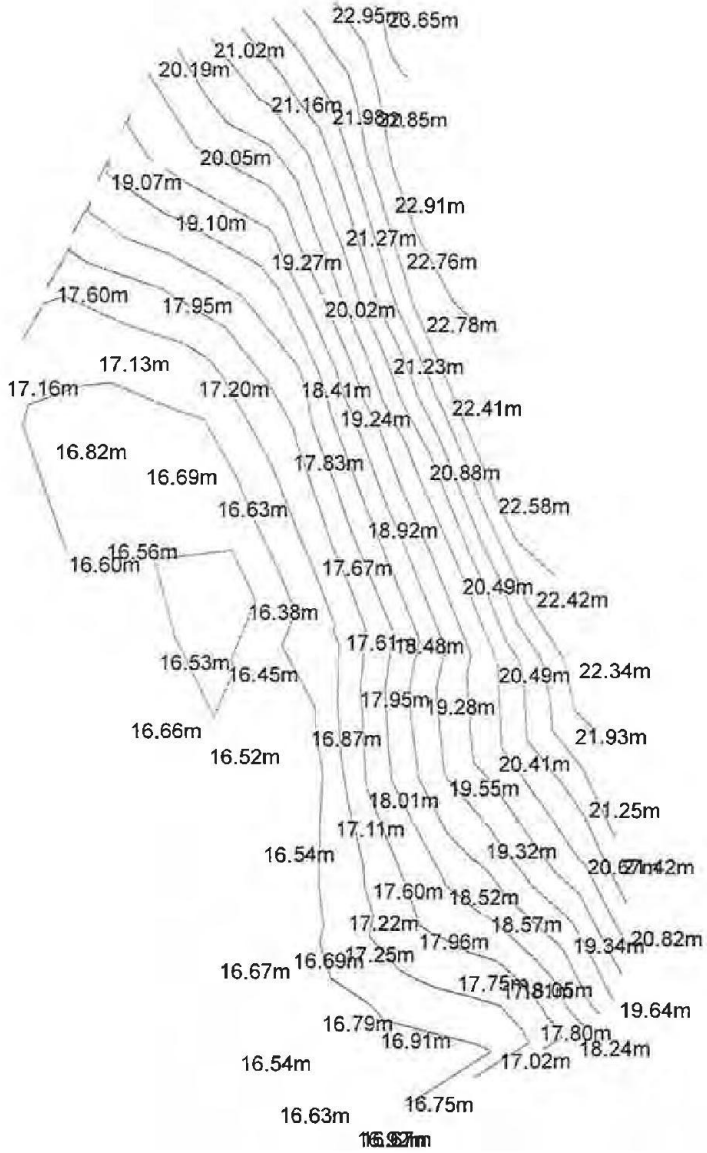
Kingsfeld site foreman Wayne () was informed after this inspection the area was suitable for fill operations to commence.

Verbal Report Given to: A. Ashburn (PLDC Project Engineer)	
Signed / Date: *L.Matrix*	22/04/2016

SOIL TEST SERVICES

Stripping Inspection Photos

18m



West Wilchard Road, Castlereagh

Comment :Strip Levels Inspection # 1 22/4/2016

Project : STS.BCP.170415

DAILY SITE REPORT

SOIL TEST SERVICES

PROJECT: Penrith Lakes Development
ADDRESS: West Wilchard Road, Castlereagh

JOB NO: L3884E
DATE: 22/04/2016
REPORT NO: 01
AS3798 – 2007: TESTING LEVEL:

1. **WEATHER**: OVERCAST to FINE / MILD

2. **MACHINERY ON SITE**

COMPACTORS: N/A
SCRAPERS: N/A
DUMP TRUCK: N/A
BOGIE TRUCKS: N/A

EXCAVATORS: N/A
BULLDOZERS: KOMATSU (D65EX)
WATERCARTS: N/A
OTHERS:

3. **EARTHWORKS IN PROGRESS**:

- Imported Crushed Sandstone, Black Clay Pit (Kingsfeld) 286t
- Commencement of first layer of import spec fill into the existing stripped floor of West Wilchard Rd Lot.
- Layer of up to 150mm thickness spread from Wilchard Rd entrance gate spreading downhill into the low floor and continued formation of a truck access track outside of the west fill boundary. Majority of sandstone fill was for purposes of a ground layer to provide one directional access inside & outside of future lot fill area.

4. **SUBGRADE APPROVAL: Below**

Area ID	Subgrade Approval Report No:	Comments
L37	L37 – WCH.001	Stripping Inspection & Report

5. **LOT APPROVAL: None**

Lot ID	Lot Approval Report No:	Comments

6. **SURVEY: None**

Type of survey:	Survey undertaken by:	Reference:

7. **INSTRUCTIONS RECEIVED ON SITE:**

- PLDC request to inspect the existing stripped floor area before commencement of fill operations today.
- Kingsfeld request to produce an initial GPS mapping of the stripped area & outlier boundary areas prior to filling with imported material.

8. **INSTRUCTIONS GIVEN ON SITE:**

- Advised Kingsfeld after initial site inspection that the site was suitable for fill operations to commence.

9. **OTHER COMMENTS:**

- Sandstone importing from stockpile at the top of the black clay pit was a 75 minus crushed rock and arriving in with consistent homogenous moisture content.

Signed: _____ Tech' Name: Leonard Matrix

DAILY SITE REPORT

SOIL TEST SERVICES

PROJECT: Penrith Lakes Development
ADDRESS: West Wilchard Road, Castlereagh

JOB NO: L3884E
DATE: 27/04/2016
REPORT NO: 02
AS3798 – 2007: TESTING LEVEL:

1. **WEATHER**: FINE / WARM

2. **MACHINERY ON SITE**

COMPACTORS: N/A
SCRAPERS: N/A
DUMP TRUCK: N/A
BOGIE TRUCKS: N/A

EXCAVATORS: N/A
BULLDOZERS: KOMATSU (D65EX)
WATERCARTS: N/A
OTHERS:

3. **EARTHWORKS IN PROGRESS**:

- Imported Crushed Sandstone, Black Clay Pit (Kingsfeld) 866t
- Layer of up to 150mm thickness spread from 20m inside Wilchard Rd gate entrance and spreading downhill in 2 thin layers overlying the lower floor as the first compaction layer. Layer was continued outside of the west boundary to extend a truck haul road to exit Castlereagh Rd.
- Half of the Sandstone spec fill was utilised outside of the Lot boundary area for purposes of truck haulage.

4. **SUBGRADE APPROVAL: Below**

Area ID	Subgrade Approval Report No:	Comments

5. **LOT APPROVAL: None**

Lot ID	Lot Approval Report No:	Comments

6. **SURVEY: None**

Type of survey:	Survey undertaken by:	Reference:

7. **INSTRUCTIONS RECEIVED ON SITE:**

8. **INSTRUCTIONS GIVEN ON SITE:**

9. **OTHER COMMENTS:**

- Sandstone importing -75mm ex-tunnel crush from stockpile at the top of the black clay pit.
- Material arriving homogenous and perceived to be approx. on or one percent above optimum moisture content.

Signed: L Matrix Tech' Name: Leonard Matrix

DAILY SITE REPORT

SOIL TEST SERVICES

PROJECT: Penrith Lakes Development
ADDRESS: West Wilchard Road, Castlereagh

JOB NO: L3884E
DATE: 28/04/2016
REPORT NO: 03
AS3798 – 2007: TESTING LEVEL:

1. **WEATHER**: FINE / WARM

2. **MACHINERY ON SITE**

COMPACTORS: N/A
SCRAPERS: N/A
DUMP TRUCK: N/A
BOGIE TRUCKS: N/A

EXCAVATORS: N/A
BULLDOZERS: KOMATSU (D65EX)
WATERCARTS: N/A
OTHERS: PADFOOT ROLLER

3. **EARTHWORKS IN PROGRESS**:

- Imported Tunnel Shale & Crushed Sandstone, (Kingsfeld Haulage) 403t
- New Spec fill layer started from 20m inside Wilchard Rd gate entrance and spreading imported material in a nominal 150mm thickness across the first layer sandstone; compacting with a single drum vibrating padfoot roller.

4. **SUBGRADE APPROVAL: Below**

Area ID	Subgrade Approval Report No:	Comments

5. **LOT APPROVAL: None**

Lot ID	Lot Approval Report No:	Comments
L1	L3884 – L1	Field Test No's: 1 & 2, First layer

6. **SURVEY: None**

Type of survey:	Survey undertaken by:	Reference:

7. **INSTRUCTIONS RECEIVED ON SITE:**

8. **INSTRUCTIONS GIVEN ON SITE:**

9. **OTHER COMMENTS:**

- Arrival of Shale material from the North Connex project believed to be produced from a machine trial-run. The shale is chipped and generally arrived less 100mm in dimension and of good moisture content for compaction. Four truck loads of the shale product arrived in late afternoon changing significantly in characteristics; Although it seemed chipped had increased maximum dimension exceeding 400mm but was irregularly flat in depth.
- Shale material was spread and a trial compaction with padfoot roller showed the shale rock as currently supplied breaks down fairly easily with clay content in the blend however will require future monitoring.

Signed: _____ Tech' Name: Leonard Matrix

DAILY SITE REPORT

SOIL TEST SERVICES

PROJECT: Penrith Lakes Development
ADDRESS: West Wilchard Road, Castlereagh

JOB NO: L3884E
DATE: 29/04/2016
REPORT NO: 04
AS3798 – 2007: TESTING LEVEL:

1. **WEATHER**: FINE / WARM

2. **MACHINERY ON SITE**

COMPACTORS: N/A
SCRAPERS: N/A
DUMP TRUCK: N/A
BOGIE TRUCKS: N/A

EXCAVATORS: N/A
BULLDOZERS: KOMATSU (D65EX)
WATERCARTS: N/A
OTHERS: PADFOOT ROLLER

3. **EARTHWORKS IN PROGRESS**:

- Imported Crushed Sandstone, (Kingsfeld Haulage) 62t
- Spec fill Crushed Sandstone delivered from stockpile at top of Black Clay Pit arrived in morning and placed over the Shale import from yesterday; placement continued as the second layer overlying the lower floor area of the existing escarpment.

4. **SUBGRADE APPROVAL: Below**

Area ID	Subgrade Approval Report No:	Comments

5. **LOT APPROVAL: None**

Lot ID	Lot Approval Report No:	Comments

6. **SURVEY: None**

Type of survey:	Survey undertaken by:	Reference:

7. **INSTRUCTIONS RECEIVED ON SITE:**

8. **INSTRUCTIONS GIVEN ON SITE:**

9. **OTHER COMMENTS:**

- Importing operations were halted after 9.30am onsite.

Signed: _____ Tech' Name: Leonard Matrix

DAILY SITE REPORT

SOIL TEST SERVICES

PROJECT: Penrith Lakes Development Corp
ADDRESS: Corner of West Wilchard Road & Castlereagh Roads
Castlereagh NSW 2749

JOB NO: L3884E
DATE: 05/05/2016
REPORT NO: 5
AS3798 – 2007: TESTING LEVEL:

1. **WEATHER**: FINE / COOL to WARM

2. **MACHINERY ON SITE**

COMPACTORS: N/A
SCRAPERS: N/A
DUMP TRUCK: N/A
BOGIE TRUCKS: N/A

EXCAVATORS: N/A
BULLDOZERS: D65EZ
WATERCARTS: ADCO TANKER
OTHERS: PADFOOT ROLLER

3. **EARTHWORKS IN PROGRESS**:

- Imported Ripped Shales (Mulgoa Quarries) from Kemps Creek.
- Spreading of a nominal 300mm compacted layer during the day for Platform Layer No.3.
- Imported ripped shales requiring moisture re-conditioning and pretreatment by compaction prior to spreading.
- Removal of >300mm oversize rock during pretreatment operation to facilitate further material breakdown by either compaction or ripping with dozer tynes.

4. **SUBGRADE APPROVAL: None**

Area ID	Subgrade Approval Report No:	Comments

5. **LOT APPROVAL:**

Lot ID	Lot Approval Report No:	Comments
L2	L3884E – L2	Field Test No's: 3 & 4

6. **SURVEY: None**

Type of survey:	Survey undertaken by:	Reference:

7. **INSTRUCTIONS RECEIVED ON SITE:**

8. **INSTRUCTIONS GIVEN ON SITE:**

9. **OTHER COMMENTS:**

- Importing of New Spec material source from Kemps Creek started yesterday by Mulgoa Quarries haulage.
- Material visually noted to be in a very dry state with occasional moist truck loads arriving. The ripped shales have variability in hardness and large boulder oversize present.
- The raw ripped material supplied to site requiring near full-time presence of a water cart and greater additional time will be required in pre-treatment of the material to make it conforming for site specification product.

Signed: _____ Tech' Name: Leonard Matrix

DAILY SITE REPORT

SOIL TEST SERVICES

PROJECT: Penrith Lakes Development Corp
ADDRESS: Corner of West Wilchard Road & Castlereagh Roads
Castlereagh NSW 2749

JOB NO: L3884E
DATE: 06/05/2016
REPORT NO: 6
AS3798 – 2007: TESTING LEVEL:

1. **WEATHER**: FINE / COOL to MILD

2. **MACHINERY ON SITE**

COMPACTORS: N/A
SCRAPERS: N/A
DUMP TRUCK: N/A
BOGIE TRUCKS: N/A

EXCAVATORS: N/A
BULLDOZERS: D65EZ
WATERCARTS: ADCO
OTHERS: PADFOOT ROLLER

3. **EARTHWORKS IN PROGRESS**:

- Imported Ripped Shales (Mulgoa Quarries) Kemps Creek
- Ripped shale delivered onsite requiring onsite moisture re-conditioning and compaction pre-treatment prior to spreading layer; Removal of greater than 300mm oversize rock while pre-treating material to facilitate further breakdown by compaction or by ripping operation.
- Benching into the side of existing escarpment for controlled fill layer.

4. **SUBGRADE APPROVAL: None**

Area ID	Subgrade Approval Report No:	Comments

5. **LOT APPROVAL: None**

Lot ID	Lot Approval Report No:	Comments

6. **SURVEY: None**

Type of survey:	Survey undertaken by:	Reference:

7. **INSTRUCTIONS RECEIVED ON SITE:**

- An onsite meeting with PLDC representative Mr Chad Jackson & PSM to discuss new apparent problems with the newly sourced ripped shale from Kemps creek. Also Kingsfeld Group are unable to consistently supply an onsite water cart for immediate & future fill operations due to limited or no availability when required.

8. **INSTRUCTIONS GIVEN ON SITE:**

9. **OTHER COMMENTS:**

- Imported material arriving onsite with little or no residual moisture content and oversize rock up to 600mm within the delivered material. Pre-treatment by compaction and wetting with water cart is mandatory.

Signed: _____ Tech' Name: Leonard Matrix

DAILY SITE REPORT

SOIL TEST SERVICES

PROJECT: Penrith Lakes Development Corp
ADDRESS: Corner of West Wilchard Road & Castlereagh Roads
Castlereagh NSW 2749

JOB NO: L3884E
DATE: 10/05/2016
REPORT NO: 7
AS3798 – 2007: TESTING LEVEL:

1. **WEATHER**: FINE / COOL to WARM

2. **MACHINERY ON SITE**

COMPACTORS: N/A
SCRAPERS: N/A
DUMP TRUCK: N/A
BOGIE TRUCKS: N/A

EXCAVATORS: N/A
BULLDOZERS: D65EZ
WATERCARTS: ONSITE TANKER
OTHERS: PADFOOT ROLLER

3. **EARTHWORKS IN PROGRESS**:

- Imported Ripped Shales (Mulgoa Quarries) Kemps Creek.
- Spreading of a nominal 300mm compacted layer during the day for Platform Layer No.4.
- Ripped shale delivered onsite requiring onsite moisture re-conditioning and compaction pre-treatment prior to spreading layer; Removal of oversize rock greater than 300mm during pre-treatment of the Ripped Shales by either compaction or ripping with dozer tynes to facilitate breakdown.
- Benching into the side of existing escarpment for controlled fill layer.

4. **SUBGRADE APPROVAL**: **None**

Area ID	Subgrade Approval Report No:	Comments

5. **LOT APPROVAL:**

Lot ID	Lot Approval Report No:	Comments
L3	L3884E – L3	Field Test No's: 5 & 6

6. **SURVEY**: **None**

Type of survey:	Survey undertaken by:	Reference:

7. **INSTRUCTIONS RECEIVED ON SITE:**

8. **INSTRUCTIONS GIVEN ON SITE:**

9. **OTHER COMMENTS:**

- Imported Ripped Shales arriving with variability of moisture content but generally very dry condition.
- Some truckloads arrived with Sandy Clay material from a different source but was deemed to be low reactive and gave the ripped shale material added binding. There were 3 to 4 truckloads during the day.

Signed: _____ Tech' Name: Leonard Matrix

DAILY SITE REPORT

SOIL TEST SERVICES

PROJECT: Penrith Lakes Development Corp
ADDRESS: Corner of West Wilchard Road & Castlereagh Roads
Castlereagh NSW 2749

JOB NO: L3884E
DATE: 12/05/2016
REPORT NO: 8
AS3798 – 2007: TESTING LEVEL

1. **WEATHER**: FINE / COOL to WARM

2. **MACHINERY ON SITE**

COMPACTORS: N/A
SCRAPERS: N/A
DUMP TRUCK: N/A
BOGIE TRUCKS: N/A

EXCAVATORS: N/A
BULLDOZERS: D65EZ
WATERCARTS: ONSITE TANKER
OTHERS: PADFOOT ROLLER

3. **EARTHWORKS IN PROGRESS**:

- Imported Ripped Shales (Mulgoa Quarries) Kemps Creek
- Spreading of a nominal 300mm compacted layer during the day for Platform Layer No.5
- Ripped shale delivered onsite requiring onsite moisture re-conditioning and further pre-treatment by padfoot roller prior to spreading layer over fill platform.
- Removal of oversize rock greater than 300mm oversize during the pre-treatment of the Ripped Shales by compaction or by ripping operation to facilitate breakdown.

4. **SUBGRADE APPROVAL: None**

Area ID	Subgrade Approval Report No:	Comments

5. **LOT APPROVAL:**

Lot ID	Lot Approval Report No:	Comments
L4	L3884E – L4	Field Test No's: 7 & 8

6. **SURVEY: None**

Type of survey:	Survey undertaken by:	Reference:

7. **INSTRUCTIONS RECEIVED ON SITE:**

8. **INSTRUCTIONS GIVEN ON SITE:**

9. **OTHER COMMENTS:**

- Ripped imported Shales arriving generally consistent in rock source however the raw product requires substantial time in moisture reconditioning and compaction pretreatment to acquire site specification requirements. These operations are noted to limit the overall time and turnover operations filling the platform.

Signed: L Matrix Tech' Name: Leonard Matrix

DAILY SITE REPORT

SOIL TEST SERVICES

PROJECT: Penrith Lakes Development Corp
ADDRESS: Corner of West Wilchard Road & Castlereagh Roads
Castlereagh NSW 2749

JOB NO: L3884E
DATE: 13/05/2016
REPORT NO: 9
AS3798 – 2007: TESTING LEVEL:

1. **WEATHER**: FINE / COOL to WARM

2. **MACHINERY ON SITE**

COMPACTORS: N/A
SCRAPERS: N/A
DUMP TRUCK: N/A
BOGIE TRUCKS: N/A

EXCAVATORS: N/A
BULLDOZERS: D65EZ
WATERCARTS: ONSITE TANKER
OTHERS: PADFOOT ROLLER

3. **EARTHWORKS IN PROGRESS**:

- Imported Ripped Shales (Mulgoa Quarries) Kemps Creek
- Spreading of a nominal 300mm compacted layer during the day for Platform Layer No.6
- Ripped shale delivered onsite requiring onsite moisture re-conditioning and further pre-treatment by padfoot roller prior to spreading layer over fill platform; Removal of oversize rock greater than 300mm during pre-treatment of the imported Shales by either compaction or ripping with dozer tynes to facilitate breakdown.
- Benching into the side of existing escarpment for binding fill layers.

4. **SUBGRADE APPROVAL: None**

Area ID	Subgrade Approval Report No:	Comments

5. **LOT APPROVAL:**

Lot ID	Lot Approval Report No:	Comments
L5	L3884E – L5	Field Test No's: 9 & 10

6. **SURVEY: None**

Type of survey:	Survey undertaken by:	Reference:

7. **INSTRUCTIONS RECEIVED ON SITE:**

8. **INSTRUCTIONS GIVEN ON SITE:**

9. **OTHER COMMENTS:**

- Imported Ripped Shales arriving onsite with substantially large oversize requiring removal during moisture re-conditioning operations.

Signed: _____ Tech' Name: Leonard Matrix

DAILY SITE REPORT

SOIL TEST SERVICES

PROJECT: Penrith Lakes Development Corp
ADDRESS: Corner of West Wilchard Road & Castlereagh Roads
Castlereagh NSW 2749

JOB NO: L3884E
DATE: 16/05/2016
REPORT NO: 10
AS3798 – 2007: TESTING LEVEL:

1. **WEATHER**: FINE / COOL to WARM

2. **MACHINERY ON SITE**

COMPACTORS: N/A
SCRAPERS: N/A
DUMP TRUCK: N/A
BOGIE TRUCKS: N/A

EXCAVATORS: N/A
BULLDOZERS: D65EZ
WATERCARTS: ONSITE TANKER
OTHERS: PADFOOT ROLLER

3. **EARTHWORKS IN PROGRESS**:

- Imported Ripped Shales (Mulgoa Quarries) Kemps Creek.
- Spreading of a nominal 300mm compacted layer during the day for Platform Layer No.7
- Ripped shale delivered onsite requiring onsite moisture re-conditioning with further pre-treatment by padfoot roller prior to spreading imported shale across the fill platform.
- Removal of oversize rock within the ripped shale greater than 300mm during pre-treatment by either compaction or ripping with dozer tynes to facilitate additional breakdown of materials.

4. **SUBGRADE APPROVAL: None**

Area ID	Subgrade Approval Report No:	Comments

5. **LOT APPROVAL:**

Lot ID	Lot Approval Report No:	Comments
L6	L3884E – L6	Field Test No's: 11 & 12

6. **SURVEY: None**

Type of survey:	Survey undertaken by:	Reference:

7. **INSTRUCTIONS RECEIVED ON SITE:**

8. **INSTRUCTIONS GIVEN ON SITE:**

9. **OTHER COMMENTS:**

- Imported Ripped Shale arriving onsite generally consistent with little or no in-situ moisture content requiring turnover of multiple water truck loads to recondition the material during pre-treatment with dozer.
- Field density testing is usually required each morning on layer spread and compacted the day before.
- One 300mm layer a day is being achieved due to the interaction and work required to place the imported ripped shale to meet the site specifications.

Signed: L Matrix Tech' Name: Leonard Matrix

DAILY SITE REPORT

SOIL TEST SERVICES

PROJECT: Penrith Lakes Development Corp
ADDRESS: Corner of West Wilchard Road & Castlereagh Roads
Castlereagh NSW 2749

JOB NO: L3884E
DATE: 17/05/2016
REPORT NO: 11
AS3798 – 2007: TESTING LEVEL:

1. **WEATHER**: FINE / COOL to WARM

2. **MACHINERY ON SITE**

COMPACTORS: N/A
SCRAPERS: N/A
DUMP TRUCK: N/A
BOGIE TRUCKS: N/A

EXCAVATORS: N/A
BULLDOZERS: D65EZ
WATERCARTS: ONSITE TANKER
OTHERS: PADFOOT ROLLER

3. **EARTHWORKS IN PROGRESS**:

- Imported Ripped Shales (Mulgoa Quarries) Kemps Creek.
- Spreading of a nominal 300mm compacted layer during the day for Platform Layer No.8
- Ripped shale delivered onsite requiring onsite moisture re-conditioning with further pre-treatment by padfoot roller prior to spreading imported shale across the fill platform.
- Pre-treatment and removal of oversize rock greater than 300mm by either further compaction or ripping with dozer tynes to facilitate additional breakdown.

4. **SUBGRADE APPROVAL: None**

Area ID	Subgrade Approval Report No:	Comments

5. **LOT APPROVAL:**

Lot ID	Lot Approval Report No:	Comments
L7	L3884E – L7	Field Test No's: 13 & 14

6. **SURVEY: None**

Type of survey:	Survey undertaken by:	Reference:

7. **INSTRUCTIONS RECEIVED ON SITE:**

8. **INSTRUCTIONS GIVEN ON SITE:**

- Requested ripping and removal of oversize shale rock within Layer 7 on the lower south-half of the fill platform in particular to the current batter side. Large oversize rock was discovered within the compacted layer after attempting to cut a test pad. Oversize was discovered up to 300mm in thickness that did not breakdown under compaction due to the high strength of rock.

9. **OTHER COMMENTS:**

- Onsite Instruction to remove a substantial amount of oversize discovered within the testing layer.
- An apparent gain in layer thickness was attributed with the oversize and requested to remove a further 100mm.

Signed: L Matrix Tech' Name: Leonard Matrix

DAILY SITE REPORT

SOIL TEST SERVICES

PROJECT: Penrith Lakes Development Corp
ADDRESS: Corner of West Wilchard Road & Castlereagh Roads
Castlereagh NSW 2749

JOB NO: L3884E
DATE: 18/05/2016
REPORT NO: 12
AS3798 – 2007: TESTING LEVEL:

1. **WEATHER**: FINE / COOL to WARM

2. **MACHINERY ON SITE**

COMPACTORS: N/A
SCRAPERS: N/A
DUMP TRUCK: N/A
BOGIE TRUCKS: N/A

EXCAVATORS: N/A
BULLDOZERS: D65EZ
WATERCARTS: ONSITE TANKER
OTHERS: PADFOOT ROLLER

3. **EARTHWORKS IN PROGRESS**:

- Imported Ripped Shales (Mulgoa Quarries) Kemps Creek
- Spreading of a nominal 300mm compacted layer during the day for Platform Layer No.9
- Ripped shale delivered onsite requiring onsite moisture re-conditioning with further compaction pre-treatment by padfoot roller; spreading the spec fill shale across the level fill platform.
- Pre-treatment and removal of oversize rock greater than 300mm by either further compaction or ripping with dozer tynes to facilitate additional breakdown.

4. **SUBGRADE APPROVAL**: **None**

Area ID	Subgrade Approval Report No:	Comments

5. **LOT APPROVAL:**

Lot ID	Lot Approval Report No:	Comments
L8	L3884E – L8	Field Test No's: 15 & 16

6. **SURVEY: None**

Type of survey:	Survey undertaken by:	Reference:

7. **INSTRUCTIONS RECEIVED ON SITE:**

8. **INSTRUCTIONS GIVEN ON SITE:**

9. **OTHER COMMENTS:**

- Ripped Shales arriving onsite with variable sourced rock; predominately Shale with some Sandstone inclusion.
- Truckloads tipping material onsite very dry and requiring watering into stockpile and turning over to achieve moisture content prior to spreading 300mm layer and compaction.

Signed: _____ Tech' Name: Leonard Matrix

DAILY SITE REPORT

SOIL TEST SERVICES

PROJECT: Penrith Lakes Development Corp
ADDRESS: Corner of West Wilchard Road & Castlereagh Roads
Castlereagh NSW 2749

JOB NO: L3884E
DATE: 19/05/2016
REPORT NO: 13
AS3798 – 2007: TESTING LEVEL:

1. **WEATHER**: FINE / COOL to WARM

2. **MACHINERY ON SITE**

COMPACTORS: N/A
SCRAPERS: N/A
DUMP TRUCK: N/A
BOGIE TRUCKS: N/A

EXCAVATORS: N/A
BULLDOZERS: D65EZ
WATERCARTS: ONSITE TANKER
OTHERS: PADFOOT ROLLER

3. **EARTHWORKS IN PROGRESS**:

- Imported Ripped Shales (Mulgoa Quarries) Kemps Creek
- Spreading of a nominal 300mm compacted layer for Platform Layer No.10 today.
- Imported Ripped shale delivering onsite requiring moisture re-conditioning; further pre-treatment of the ripped shales with a padfoot roller prior to spreading imported shale across the fill platform.
- Removal of large oversize rock greater than 300mm or further pre-treatment by compaction or ripping with dozer tynes to facilitate additional breakdown prior to spreading the fill layer.

4. **SUBGRADE APPROVAL: None**

Area ID	Subgrade Approval Report No:	Comments

5. **LOT APPROVAL:**

Lot ID	Lot Approval Report No:	Comments
L9	L3884E – L9	Field Test No's: 17 & 18

6. **SURVEY: None**

Type of survey:	Survey undertaken by:	Reference:

7. **INSTRUCTIONS RECEIVED ON SITE:**

8. **INSTRUCTIONS GIVEN ON SITE:**

9. **OTHER COMMENTS:**

- Ripped Shales continued pre-treatment with additional moisture content to achieve a workable compaction.
- Fill layers since generally Layer 2 have been monitored daily for general layer thickness; field density test locations are locally matched for interpretation of fill heights between layers and the onsite builder is updated.

Signed: L Matrix Tech' Name: Leonard Matrix

DAILY SITE REPORT

SOIL TEST SERVICES

PROJECT: Penrith Lakes Development Corp
ADDRESS: Corner of West Wilchard Road & Castlereagh Roads
Castlereagh NSW 2749

JOB NO: L3884E
DATE: 20/05/2016
REPORT NO: 14
AS3798 – 2007: TESTING LEVEL:

1. **WEATHER**: FINE / COOL to WARM

2. **MACHINERY ON SITE**

COMPACTORS: N/A
SCRAPERS: N/A
DUMP TRUCK: N/A
BOGIE TRUCKS: N/A

EXCAVATORS: N/A
BULLDOZERS: D65EZ
WATERCARTS: ONSITE TANKER
OTHERS: PADFOOT ROLLER

3. **EARTHWORKS IN PROGRESS**:

- Imported Ripped Shales (Mulgoa Quarries) Kemps Creek
- Spreading of a nominal 300mm compacted layer during the day for Platform Layer No.11
- Ripped shale delivered onsite &and stockpiled into rows for additional watering & moisture re-conditioning.
- Pre-treatment and removal of oversize rock greater than 300mm by further compaction and/or ripping with the dozer tynes to facilitate additional breakdown of material.
- A horizontal bench excavated into the side of the natural escarpment a further 1.0m for future fill layers.

4. **SUBGRADE APPROVAL: None**

Area ID	Subgrade Approval Report No:	Comments

5. **LOT APPROVAL:**

Lot ID	Lot Approval Report No:	Comments
L10	L3884E – L10	Field Test No's: 19 & 20

6. **SURVEY: None**

Type of survey:	Survey undertaken by:	Reference:

7. **INSTRUCTIONS RECEIVED ON SITE:**

8. **INSTRUCTIONS GIVEN ON SITE:**

9. **OTHER COMMENTS:**

- Imported Ripped Shales arriving onsite in a very dry state requiring substantial moisture conditioning.
- Imported Shale has large oversize generally breaks down under compaction. Shale rock above >300mm not breaking down under Padfoot roller are being pushed outside the fill layer.

Signed: _____ Tech' Name: Leonard Matrix

DAILY SITE REPORT

SOIL TEST SERVICES

PROJECT: Penrith Lakes Development Corp
ADDRESS: Corner of West Wilchard Road & Castlereagh Roads
Castlereagh NSW 2749

JOB NO: L3884E
DATE: 23/05/2016
REPORT NO: 15
AS3798 – 2007: TESTING LEVEL:

1. **WEATHER**: FINE / COOL to WARM

2. **MACHINERY ON SITE**

COMPACTORS: N/A
SCRAPERS: N/A
DUMP TRUCK: N/A
BOGIE TRUCKS: N/A

EXCAVATORS: N/A
BULLDOZERS: D65EZ
WATERCARTS: ONSITE TANKER
OTHERS: PADFOOT ROLLER

3. **EARTHWORKS IN PROGRESS**:

- Imported Ripped Shales (Mulgoa Quarries) Kemps Creek
- Spreading of a nominal 300mm compacted layer for fill Platform Layer No.12 today.
- Imported Ripped shales delivering onsite and stockpiled into rows for additional moisture re-conditioning.
- Pre-treatment and removal of oversize rock greater than 300mm by further compaction and/or ripping with the dozer tynes to facilitate additional breakdown of material.

4. **SUBGRADE APPROVAL: None**

Area ID	Subgrade Approval Report No:	Comments

5. **LOT APPROVAL:**

Lot ID	Lot Approval Report No:	Comments
L11	L3884E – L11	Field Test No's: 21 & 22

6. **SURVEY: None**

Type of survey:	Survey undertaken by:	Reference:

7. **INSTRUCTIONS RECEIVED ON SITE:**

8. **INSTRUCTIONS GIVEN ON SITE:**

9. **OTHER COMMENTS:**

- Imported ripped shales arrived today with more clay content in the source rock and a noted drop in field wet density values when tested. Moisture content has in general been within the required two percent range and layer has consistent compaction where tested.

Signed: L Matrix Tech' Name: Leonard Matrix

DAILY SITE REPORT

SOIL TEST SERVICES

PROJECT: Penrith Lakes Development Corp
ADDRESS: Corner of West Wilchard Road & Castlereagh Roads
Castlereagh NSW 2749

JOB NO: L3884E
DATE: 24/05/2016
REPORT NO: 16
AS3798 – 2007: TESTING LEVEL:

1. **WEATHER**: FINE / COOL

2. **MACHINERY ON SITE**

COMPACTORS: N/A
SCRAPERS: N/A
DUMP TRUCK: N/A
BOGIE TRUCKS: N/A

EXCAVATORS: N/A
BULLDOZERS: D65EZ
WATERCARTS: ONSITE TANKER
OTHERS: PADFOOT ROLLER

3. **EARTHWORKS IN PROGRESS**:

- Imported Ripped Shales (Mulgoa Quarries) Kemps Creek
- Spreading of a nominal 300mm compaction layer for fill Platform Layer No.13 today.
- Imported Ripped shales delivering onsite and stockpiled into rows for additional moisture re-conditioning.
- Removal of oversize rock greater than 300mm and pre-treatment by further padfoot compaction and/or ripping and turnover with dozer tynes to facilitate additional breakdown of material.
- Additional benching of the natural escarpment by 1.0m width for next layers of fill operation.

4. **SUBGRADE APPROVAL: None**

Area ID	Subgrade Approval Report No:	Comments

5. **LOT APPROVAL:**

Lot ID	Lot Approval Report No:	Comments
L12	L3884E – L12	Field Test No's: 23 & 24

6. **SURVEY: None**

Type of survey:	Survey undertaken by:	Reference:

7. **INSTRUCTIONS RECEIVED ON SITE:**

8. **INSTRUCTIONS GIVEN ON SITE:**

9. **OTHER COMMENTS:**

- Imported truckloads of the Ripped Shale arriving generally in a very dry state requiring pre-treatment with watering and turning over material multiple times prior to placement. Oversize arriving has been less than previous days with sandy fines increasing in some loads.

Signed: L Matrix Tech' Name: Leonard Matrix

DAILY SITE REPORT

SOIL TEST SERVICES

PROJECT: Penrith Lakes Development Corp
ADDRESS: Corner of West Wilchard Road & Castlereagh Roads
Castlereagh NSW 2749

JOB NO: L3884E
DATE: 25/05/2016
REPORT NO: 17
AS3798 – 2007: TESTING LEVEL:

1. **WEATHER**: FINE / COOL to WARM

2. **MACHINERY ON SITE**

COMPACTORS: N/A
SCRAPERS: N/A
DUMP TRUCK: N/A
BOGIE TRUCKS: N/A

EXCAVATORS: N/A
BULLDOZERS: D65EZ
WATERCARTS: ONSITE TANKER
OTHERS: PADFOOT ROLLER

3. **EARTHWORKS IN PROGRESS**:

- Imported Ripped Shales (Mulgoa Quarries) Kemps Creek
- Spreading of a nominal 300mm compaction layer for fill Platform Layer No.14 today.
- Imported Ripped shales delivering onsite and stockpiled into rows for additional moisture re-conditioning.
- Pre-treatment of oversize rock greater than 300mm by further ripping and turning over with dozer tynes and additional padfoot compaction to facilitate breakdown of oversize material.

4. **SUBGRADE APPROVAL: None**

Area ID	Subgrade Approval Report No:	Comments

5. **LOT APPROVAL:**

Lot ID	Lot Approval Report No:	Comments
L13	L3884E – L13	Field Test No's: 25 & 26

6. **SURVEY: None**

Type of survey:	Survey undertaken by:	Reference:

7. **INSTRUCTIONS RECEIVED ON SITE:**

- An instruction by PLDC requiring extended fill be placed to the northern corner of the existing platform due to design changes along the outside perimeter and to incorporate a non-structural garden residing close to the future driveway entrance at West Wilchard Rd. An additional approximate 3.0m additional width is required from bottom of newly formed embankment.

8. **INSTRUCTIONS GIVEN ON SITE:**

- A plan implemented with the builder onsite to pre-work the imported ripped shale arriving onsite typically like fill layers previous to re-conditioning and compaction; cut to fill this material into the extended embankment.

9. **OTHER COMMENTS:**

- Bench formation within the newly formed embankment is required to extent the toe-line further than current.
- It is believed this new extension has no structural bearing other than a Garden bed at finished fill levels.

Signed: _____ Tech' Name: Leonard Matrix

DAILY SITE REPORT

SOIL TEST SERVICES

PROJECT: Penrith Lakes Development Corp
ADDRESS: Corner of West Wilchard Road & Castlereagh Roads
Castlereagh NSW 2749

JOB NO: L3884E
DATE: 26/05/2016
REPORT NO: 18
AS3798 – 2007: TESTING LEVEL:

1. **WEATHER**: FINE / COOL to WARM

2. **MACHINERY ON SITE**

COMPACTORS: N/A
SCRAPERS: N/A
DUMP TRUCK: N/A
BOGIE TRUCKS: N/A

EXCAVATORS: N/A
BULLDOZERS: D65EZ
WATERCARTS: ONSITE TANKER
OTHERS: PADFOOT ROLLER

3. **EARTHWORKS IN PROGRESS**:

- Imported Ripped Shales (Mulgoa Quarries) Kemps Creek
- Spreading of a nominal 300mm compaction layer for fill Platform Layer No.14 today.
- Spreading and compaction into extension of embankment fill on the northwest corner to West Wilchard Rd.
- Pre-treatment of imported ripped shales placed into rows with additional watering and removal of oversize rock greater than 300mm; additional ripping and/or padfoot compaction to facilitate breakdown of oversize.

4. **SUBGRADE APPROVAL: None**

Area ID	Subgrade Approval Report No:	Comments

5. **LOT APPROVAL: None**

Lot ID	Lot Approval Report No:	Comments

6. **SURVEY: None**

Type of survey:	Survey undertaken by:	Reference:

7. **INSTRUCTIONS RECEIVED ON SITE:**

8. **INSTRUCTIONS GIVEN ON SITE:**

9. **OTHER COMMENTS:**

- The final embankment Layer No.14 is being placed to the nominated finished level of RL: 22.0m.
- Material placement into the extended embankment as advised yesterday was visually checked several times during the day to ensure benching was satisfactory to incorporate fill layers and sufficient width for padfoot roller. Material placement of newly imported ripped shale after prior pre-treatment with additional watering.

Signed: L Matrix Tech' Name: Leonard Matrix

DAILY SITE REPORT

SOIL TEST SERVICES

PROJECT: Penrith Lakes Development Corp
ADDRESS: Corner of West Wilchard Road & Castlereagh Roads
Castlereagh NSW 2749

JOB NO: L3884E
DATE: 27/05/2016
REPORT NO: 19
AS3798 – 2007: TESTING LEVEL:

1. **WEATHER**: FINE / COOL to WARM

2. **MACHINERY ON SITE**

COMPACTORS: N/A
SCRAPERS: N/A
DUMP TRUCK: N/A
BOGIE TRUCKS: N/A

EXCAVATORS: N/A
BULLDOZERS: D65EZ
WATERCARTS: ONSITE TANKER
OTHERS: PADFOOT ROLLER

3. **EARTHWORKS IN PROGRESS**:

- Imported Ripped Shales (Mulgoa Quarries) Kemps Creek
- Completion of compaction layer for the filled embankment platform today.
- Completion of the extended embankment batter towards the leading northwest corner parallel to the driveway entrance of West Wilchard Road.
- Additional pre-treatment of imported ripped shale with onsite watering and additional ripping and/or padfoot compaction to facilitate breakdown of any oversize greater than 300mm.

4. **SUBGRADE APPROVAL: None**

Area ID	Subgrade Approval Report No:	Comments

5. **LOT APPROVAL:**

Lot ID	Lot Approval Report No:	Comments
L14	L3884E – L14	Field Test No's: 27 & 28
L15	L3884E – L15	Field Test No's: 29 & 30

6. **SURVEY: None**

Type of survey:	Survey undertaken by:	Reference:

7. **INSTRUCTIONS RECEIVED ON SITE:**

8. **INSTRUCTIONS GIVEN ON SITE:**

9. **OTHER COMMENTS:**

- The final embankment fill Layer No.14 tested at nominated finished level RL: 22.0m.
- Material placement into the extended embankment batter on the northwest leading edge was filled rapidly with nominal 300mm layers and compacted. Two Field density test were placed subsequently at different layer levels with the last on finished level to ensure a level of uniform compaction was achieved.

Signed: _____ Tech' Name: Leonard Matrix

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SOIL TEST SERVICES

LOT APPROVAL REPORT

Client: Allyn Holdings Pty Ltd atf Keller Family Trust	Report number: L3884E – L1
Job number: L3884E	Report date: 9/6/2016
Project: Residential Development	Technician: Tom Finnegan
Location: Corner West Wilchard and Castlereagh Roads, Castlereagh	
LOT ID: L1	Hilf Density Ratio Report Number: L3768E – 1
Retest: No	Original report number:
Specification reference: PSM2541- Email dated 29 APRIL 2016	
Lot boundary survey reference: L1	
Material identification: SPEC FILL IMPORTED	
Deleterious material assessment: VISUALY ASSESED AS LESS THAN 0.5%	
Layer thickness: 300mm	
Accepted as a lot: Yes	Date: 28/4/2016
Approximate volume (m^3): 400	Number of tests required: 2
LOT APPROVAL: PASS Signed:	Date: 9/06/2016

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SOIL TEST SERVICES
ABN 43 002 145 173

Hilf Density Ratio Report

Client :	Allyn Holdings Pty Ltd atf Keller Family Trust	Report Number:	L3884E - 1
Job Number :	L3884E	Report Date:	31/05/2016
Project :	Penrith Lakes Development	Order Number:	Verbal
Location :	West Wilchard Road, Castlereagh	Test Method:	AS1289.5.7.1

Lab No :	645	646		
ID No :	1	2		
Lot No :	L1	L1		
Item No :	-	-		
Date/Time Tested :	28/04/2016	28/04/2016		
Material Source :	Imported	Imported		
For Use As :	SPEC Fill	SPEC Fill		
Sample Location :	Lot Platform E 284635 N 6271561 RL: 16.87m	Lot Platform E 284649 N 6271545 RL: 16.98m		
Test Depth (mm) :	300	300		
Max Size (mm) :	37.5	37.5		
Oversize Wet (%) :	11	16		
Fld. Wet Density (t/m³):	2.22	2.20		
Fld. Moisture Cont (%):	5.6	10.1		
PCWD (t/m³) :	2.27*	2.24*		
Moisture Variation (%):	2.0% (wet of omc)	2.0% (wet of omc)		
Compactive Effort :	Standard	Standard		
Hilf Density Ratio (%) :	98.0	98.5		
Min Hilf Dens Ratio (%)	98	98		
Remarks:	Test Methods: AS1289.5.8.1 & 2.1.1.			

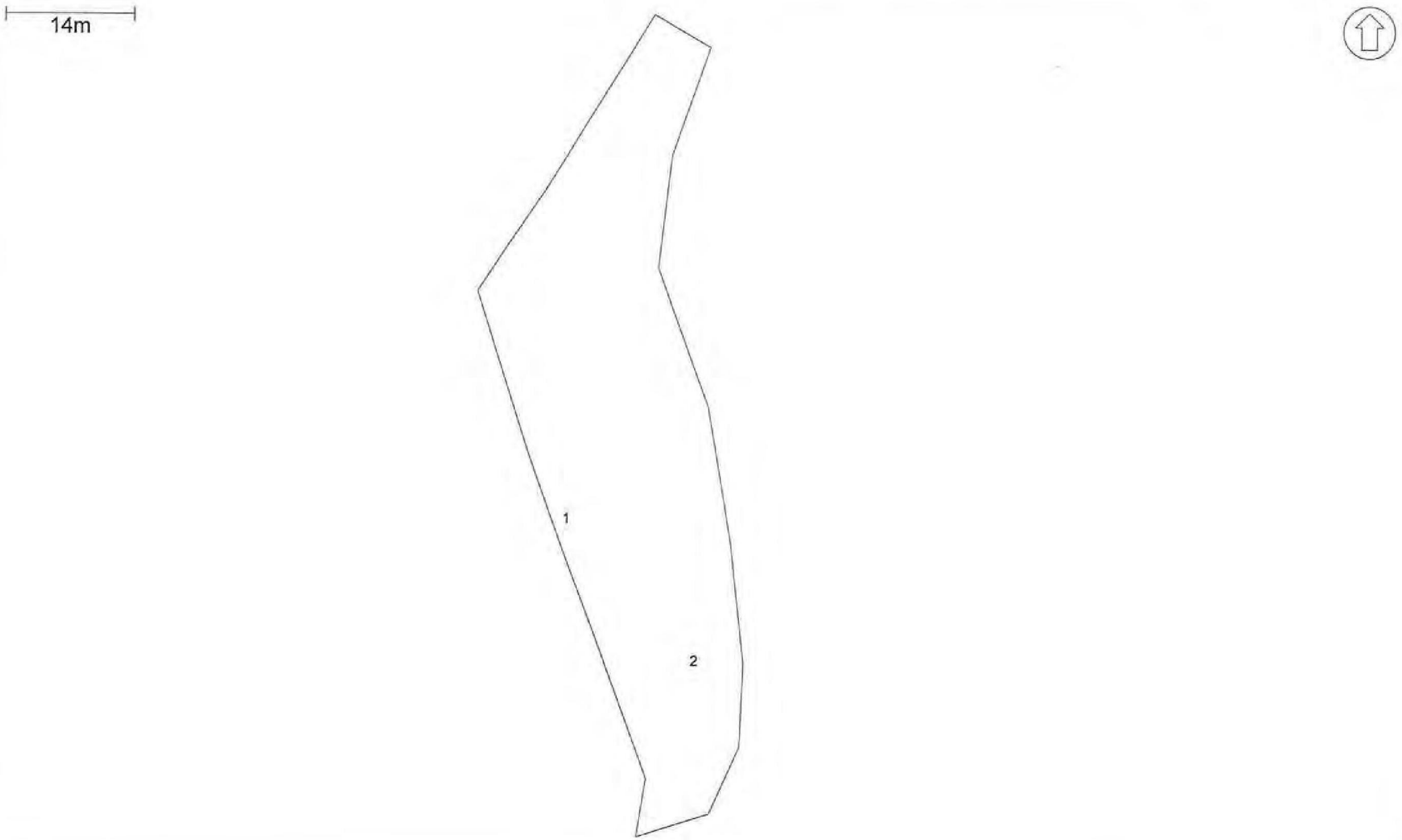
* Denotes "Adjusted for Oversize Material"

Lab Number:	Soil Description
645	SPEC FILL Gravelly Silty Sand, fine to medium grained, brown.
646	SPEC FILL Gravelly Silty Sand, fine to medium grained, brown.

NATA
NATA Accredited Laboratory Number:1327

APPROVED SIGNATORY
31/5/16
Authorised Signature / Date
(T. Finnegan)

Form Number:
REP HNUC-1



Comment :L3884E - West Wilchard Road (Fill Platform) Layer Lot No. (.

Project : STS.WWR.160527

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06/09/2016

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SOIL TEST SERVICES

LOT APPROVAL REPORT

Client: Allyn Holdings Pty Ltd atf Keller Family Trust
Job number: L3884E
Project: Residential Development
Location: Corner West Wilchard and Castlereagh Roads, Castlereagh

Report number: L3884E – L2
Report date: 9/6/2016
Technician: Tom Finnegan

LOT ID: L2

Hilf Density Ratio Report Number: L3768E – 2

Retest: No

Original report number:

Specification reference: PSM2541- Email dated 29 APRIL 2016

Lot boundary survey reference: L2

Material identification: SPEC FILL IMPORTED

Deleterious material assessment: VISUALY ASSESED AS LESS THAN 0.5%

Layer thickness: 300mm

Accepted as a lot: Yes

Date: 5/5/2016

Approximate volume (m^3): 400

Number of tests required: 2

LOT APPROVAL: PASS Signed: _____ Date: 9/06/2016

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Facsimile: 02 9888 5001

SOIL TEST SERVICES
ABN 43 002 145 173

Hilf Density Ratio Report

Client :	**Allyn Holdings Pty Ltd atf Keller Family Trust**	Report Number:	**L3884E - 2**
Job Number :	**L3884E**	Report Date:	**31/05/2016**
Project :	**Penrith Lakes Development**	Order Number:	**Verbal**
Location :	**West Wilchard Road, Castlereagh**	Test Method:	**AS1289.5.7.1**

Lab No :	651	652		
ID No :	3 **	4		
Lot No :	L2	L2		
Item No :	-	-		
Date/Time Tested :	05/05/2016	05/05/2016		
Material Source :	Imported	Imported		
For Use As :	SPEC Fill	SPEC Fill		
Sample Location :	Lot Platform E 284644 N 6271552 RL: 17.39m	Lot Platform E 284641 N 6271585 RL: 17.73m		
Test Depth (mm) :	300	300		
Max Size (mm) :	37.5	37.5		
Oversize Wet (%) :	23	10		
Fld. Wet Density (t/m³):	2.28	2.20		
Fld. Moisture Cont (%):	11.7	11.2		
PCWD (t/m³) :	2.33*	2.25*		
Moisture Variation (%):	2.0% (wet of omc)	2.0% (dry of omc)		
Compactive Effort :	Standard	Standard		
Hilf Density Ratio (%) :	98.0	98.0		
Min Hilf Dens Ratio (%)	98	98		
Remarks:	Test Methods: AS1289.5.8.1 & 2.1.1.			

* Denotes "Adjusted for Oversize Material"

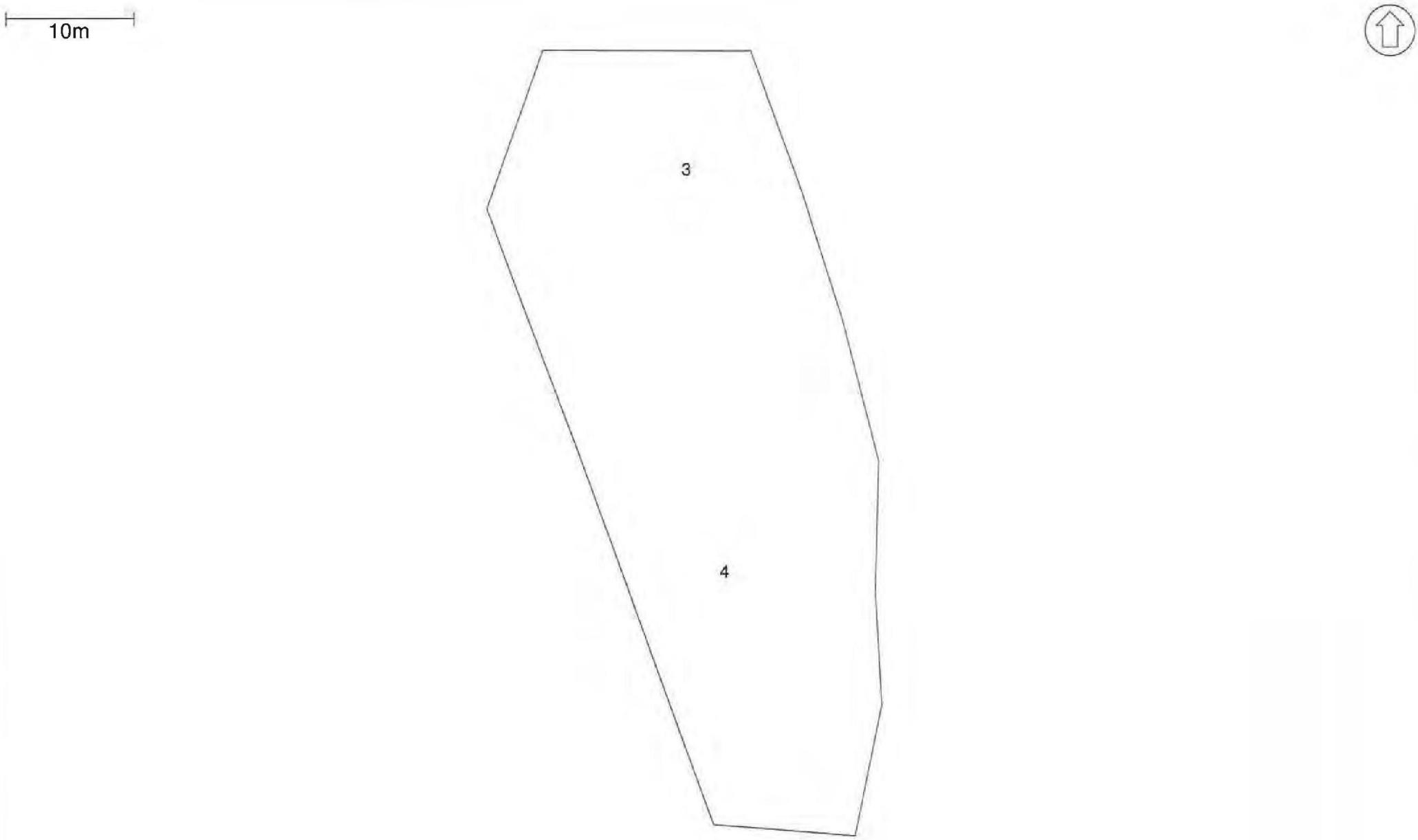
Lab Number:	Soil Description
651	SPEC FILL Gravelly Silty Clay, medium plasticity, grey.
652	SPEC FILL Gravelly Silty Clay, medium plasticity, grey.

** This test is not NATA endorsed due to the rock oversize.

NATA
NATA Accredited Laboratory Number:1327

APPROVED SIGNATORY
31/5/16
Authorised Signature / Date
(T. Flinnegan)

Form Number:
REP HNUC-1



Soil Testing Services Pty Ltd

Comment :L3884E - West Wilchard Road (Fill Platform) - Layer Lot No.2

Project : STS.WWR.160527

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SOIL TEST SERVICES

LOT APPROVAL REPORT

Client: Allyn Holdings Pty Ltd atf Keller Family Trust	Report number: L3884E – L3
Job number: L3884E	Report date: 9/6/2016
Project: Residential Development	Technician: Tom Finnegan
Location: Corner West Wilchard and Castlereagh Roads, Castlereagh	
LOT ID: L3	Hilf Density Ratio Report Number: L3768E – 3
Retest: No	Original report number:
Specification reference: PSM2541- Email dated 29 APRIL 2016	
Lot boundary survey reference: L3	
Material identification: SPEC FILL IMPORTED	
Deleterious material assessment: VISUALY ASSESED AS LESS THAN 0.5%	
Layer thickness: 300mm	
Accepted as a lot: Yes	Date: 10/5/2016
Approximate volume (m^3): 440	Number of tests required: 2
LOT APPROVAL: PASS Signed:	Date: 9/06/2016

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Telephone: 02 9888 5000
Facsimile: 02 9888 5001

SOIL TEST SERVICES
ABN 43 002 145 173

Hilf Density Ratio Report

Client :	Allyn Holdings Pty Ltd atf Keller Family Trust	Report Number:	L3884E - 3
Job Number :	L3884E	Report Date:	31/05/2016
Project :	Penrith Lakes Development	Order Number:	Verbal
Location :	West Wilchard Road, Castlereagh	Test Method:	AS1289.5.7.1

Lab No :	695	696		
ID No :	5 **	6		
Lot No :	L3	L3		
Item No :	-	-		
Date/Time Tested :	10/05/2016	10/05/2016		
Material Source :	Imported	Imported		
For Use As :	SPEC Fill	SPEC Fill		
Sample Location :	Fill Platform E 284653 N 6271573 RL: 17.91m	Fill Platform E 284649 N 6271539 RL: 17.63m		
Test Depth (mm) :	300	300		
Max Size (mm) :	37.5	37.5		
Oversize Wet (%) :	22	10		
Fld. Wet Density (t/m³):	2.29	2.33		
Fld. Moisture Cont (%):	7.9	9.0		
PCWD (t/m³) :	2.30*	2.25*		
Moisture Variation (%):	0.4% (dry of omc)	0.2% (dry of omc)		
Compactive Effort :	Standard	Standard		
Hilf Density Ratio (%) :	99.5	103.5		
Min Hilf Dens Ratio (%)	98	98		
Remarks:	Test Methods: AS1289.5.8.1 & 2.1.1.			

* Denotes "Adjusted for Oversize Material"

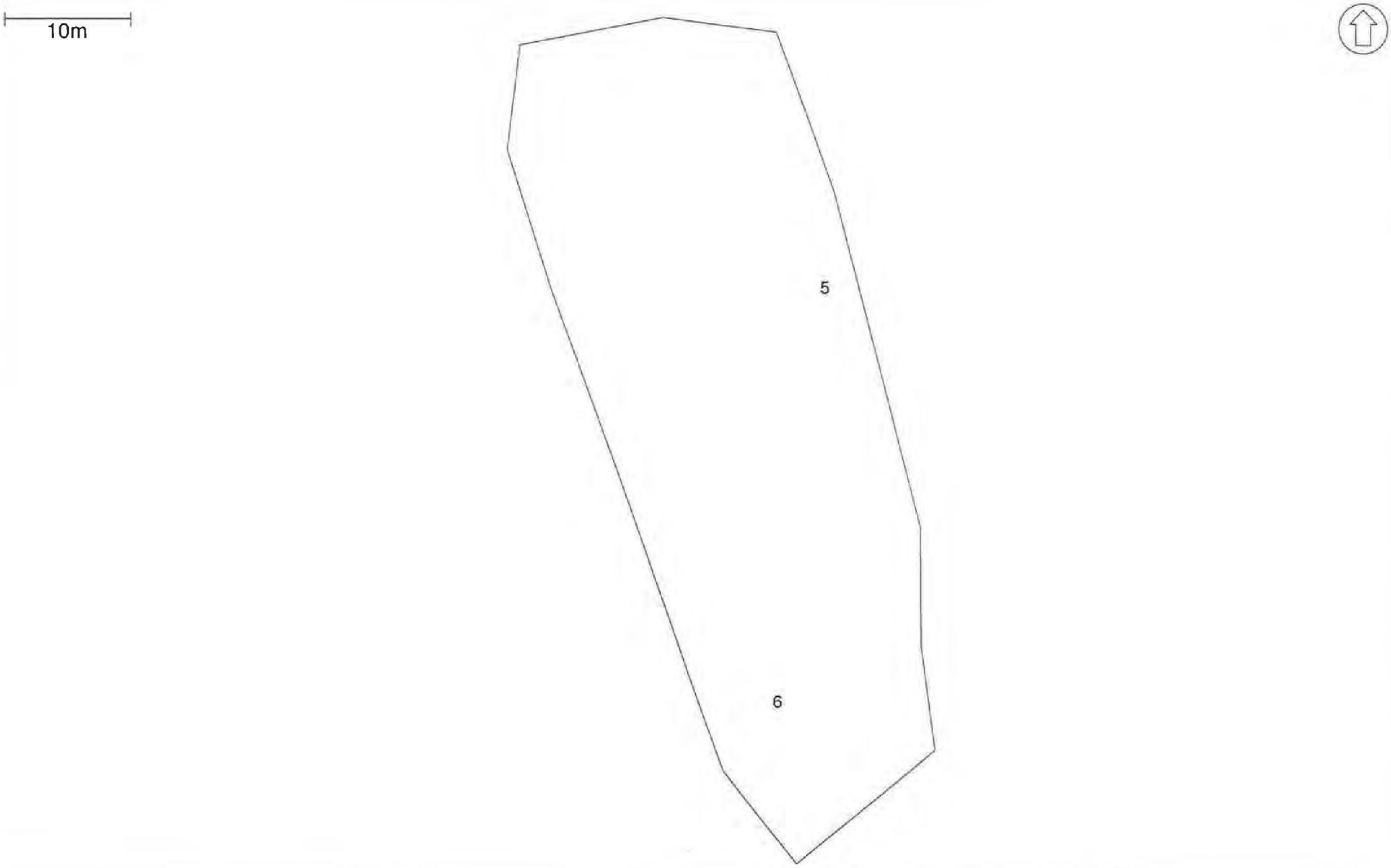
Lab Number:	Soil Description
695	SPEC FILL Gravelly Silty Clay, medium plasticity, grey.
696	SPEC FILL Gravelly Silty Clay, medium plasticity, grey.

** This test is not NATA endorsed due to the rock oversize.

NATA Accredited Laboratory Number:1327

APPROVED SIGNATORY
31/5/16
Authorised Signature / Date
(T. Finnegan)

Form Number:
REP HNUC-1



Soil Testing Services Pty Ltd

Comment :L3884E - West Wilchard Road (Fill Platform) - Layer Lot No.3

Project : STS.WWR.160527

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05/30/2016

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SOIL TEST SERVICES

LOT APPROVAL REPORT

Client: Allyn Holdings Pty Ltd atf Keller Family Trust
Job number: L3884E
Project: Residential Development
Location: Corner West Wilchard and Castlereagh Roads, Castlereagh

Report number: L3884E – L4
Report date: 9/6/2016
Technician: Tom Finnegan

LOT ID: L4

Hilf Density Ratio Report Number: L3768E – 4

Retest: No

Original report number:

Specification reference: PSM2541- Email dated 29 APRIL 2016

Lot boundary survey reference: L4

Material identification: SPEC FILL IMPORTED

Deleterious material assessment: VISUALY ASSESED AS LESS THAN 0.5%

Layer thickness: 300mm

Accepted as a lot: Yes

Date: 12/5/2016

Approximate volume (m^3): 460

Number of tests required: 2

LOT APPROVAL: PASS Signed: _____ Date: 9/06/2016

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Facsimile: 02 9888 5001

SOIL TEST SERVICES
ABN 43 002 145 173

Hilf Density Ratio Report

Client :	Allyn Holdings Pty Ltd atf Keller Family Trust	Report Number:	L3884E - 4
Job Number :	L3884E	Report Date:	31/05/2016
Project :	Penrith Lakes Development	Order Number:	Verbal
Location :	West Wilchard Road, Castlereagh	Test Method:	AS1289.5.7.1

Lab No :	684	685		
ID No :	7	8		
Lot No :	L4	L4		
Item No :	-	-		
Date/Time Tested :	12/05/2016	12/05/2016		
Material Source :	Imported	Imported		
For Use As :	SPEC Fill	SPEC Fill		
Sample Location :	West Wilchard Road (Platform Fill) E 284634 N 6271581 RL: 18.16m	West Wilchard Road (Platform Fill) E 284648 N 6271559 RL: 18.37m		
Test Depth (mm) :	300	300		
Max Size (mm) :	37.5	37.5		
Oversize Wet (%) :	20	18		
Fld. Wet Density (t/m³):	2.26	2.31		
Fld. Moisture Cont (%):	10.7	6.6		
PCWD (t/m³) :	2.27*	2.26*		
Moisture Variation (%):	0.2% (wet of omc)	1.7% (dry of omc)		
Compactive Effort :	Standard	Standard		
Hilf Density Ratio (%) :	99.5	102.0		
Min Hilf Dens Ratio (%)	98	98		
Remarks:	Test Methods: AS1289.5.8.1 & 2.1.1.			

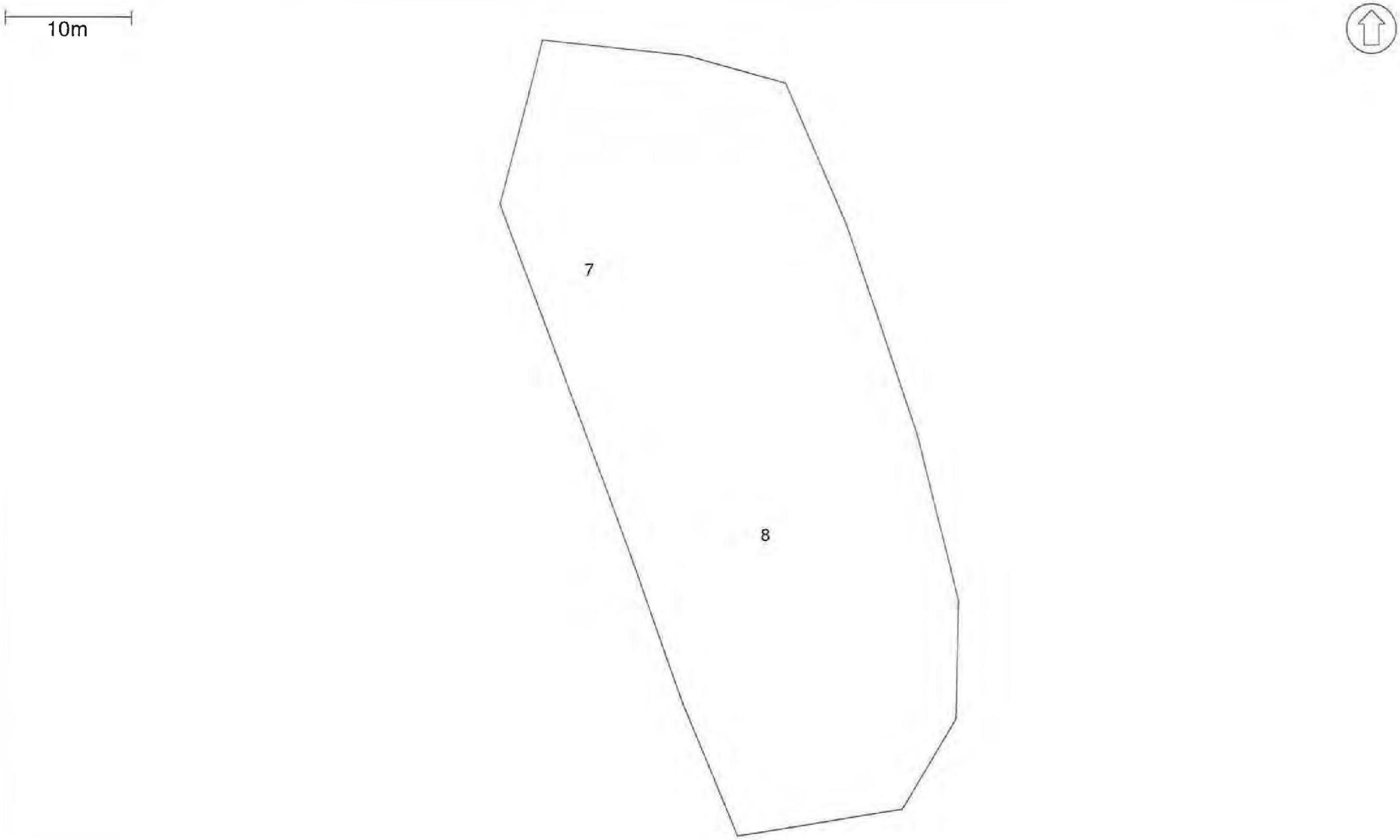
* Denotes "Adjusted for Oversize Material"

Lab Number:	Soil Description
684	SPEC FILL Gravelly Silty Clay, medium plasticity, dark brown.
685	SPEC FILL Gravelly Silty Clay, medium plasticity, dark grey.

NATA Accredited Laboratory Number:1327

APPROVED SIGNATORY 31/5/16
Authorised Signature / Date (T. Finnegan)

Form Number: REP HNUC-1



Soil Testing Services Pty Ltd

Comment :L3884E - West Wilchard Road (Fill Platform) - Layer Lot No.4

Project : STS.WWR.160527

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05/30/2016

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Facsimile: 02 9888 5001

SOIL TEST SERVICES

LOT APPROVAL REPORT

Client: Allyn Holdings Pty Ltd atf Keller Family Trust	Report number: L3884E – L5
Job number: L3884E	Report date: 9/6/2016
Project: Residential Development	Technician: Tom Finnegan
Location: Corner West Wilchard and Castlereagh Roads, Castlereagh	
LOT ID: L5	Hilf Density Ratio Report Number: L3768E – 5
Retest: No	Original report number:
Specification reference: PSM2541- Email dated 29 APRIL 2016	
Lot boundary survey reference: L5	
Material identification: SPEC FILL IMPORTED	
Deleterious material assessment: VISUALY ASSESED AS LESS THAN 0.5%	
Layer thickness: 300mm	
Accepted as a lot: Yes	Date: 13/5/2016
Approximate volume (m^3): 470	Number of tests required: 2
LOT APPROVAL: PASS Signed:	Date: 9/06/2016

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Telephone: 02 9888 5000
Facsimile: 02 9888 5001

SOIL TEST SERVICES
ABN 43 002 145 173

Hilf Density Ratio Report

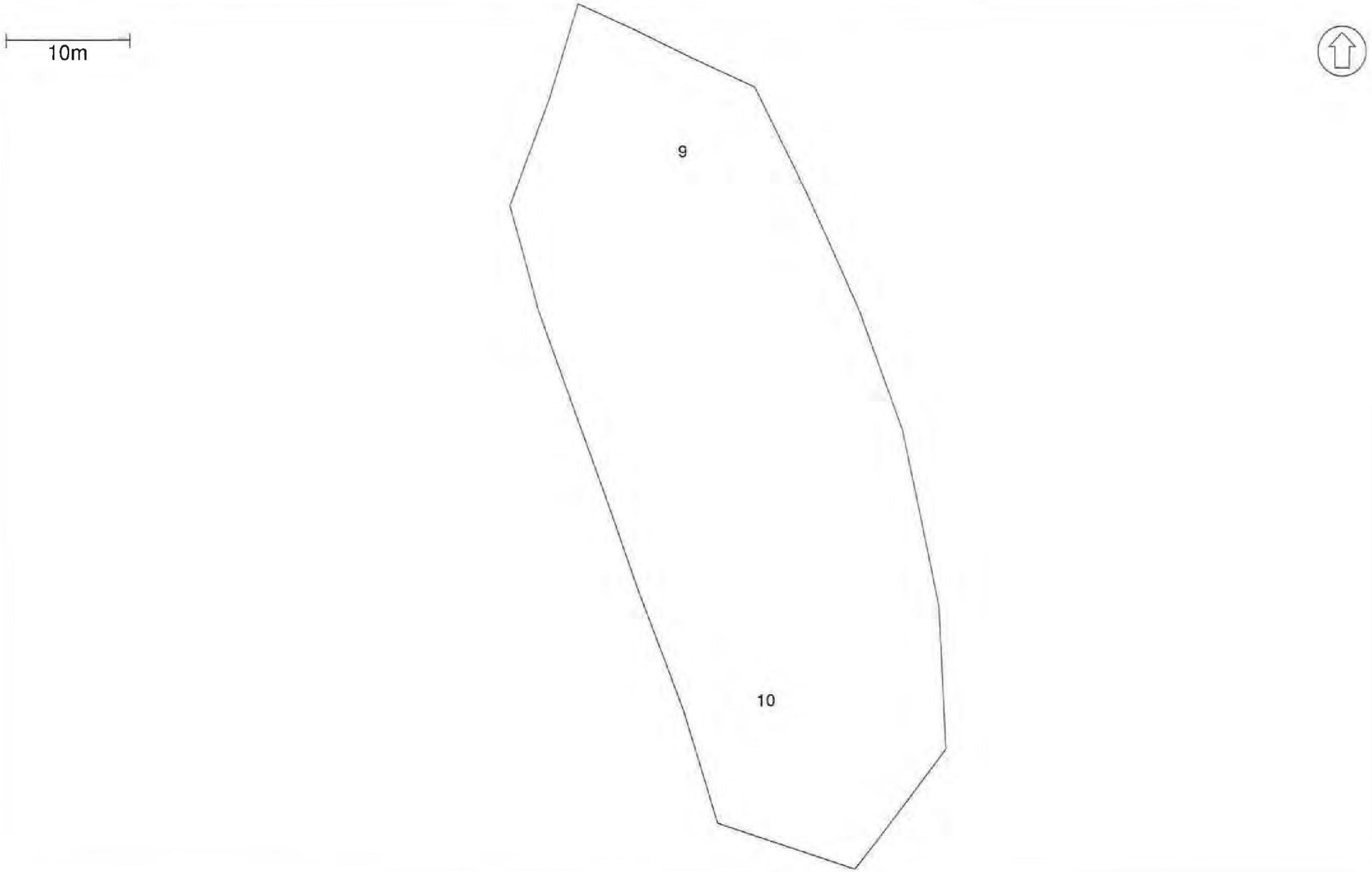
Client :	Allyn Holdings Pty Ltd atf Keller Family Trust	Report Number:	L3884E - 5
Job Number :	L3884E	Report Date:	31/05/2016
Project :	Penrith Lakes Development	Order Number:	Verbal
Location :	West Wilchard Road, Castlereagh	Test Method:	AS1289.5.7.1

Lab No :	697	698		
ID No :	9 **	10 **		
Lot No :	L5	L5		
Item No :	-	-		
Date/Time Tested :	13/05/2016	13/05/2016		
Material Source :	Imported	Imported		
For Use As :	SPEC Fill	SPEC Fill		
Sample Location :	Fill Platform E 285463 N 6271592 RL: 18.72m	Fill Platform E 285649 N 6271546 RL: 18.97m		
Test Depth (mm) :	300	300		
Max Size (mm) :	37.5	37.5		
Oversize Wet (%) :	28	23		
Fld. Wet Density (t/m³):	2.33	2.31		
Fld. Moisture Cont (%):	8.7	9.0		
PCWD (t/m³) :	2.36*	2.25*		
Moisture Variation (%):	0.1% (dry of omc)	0.7% (dry of omc)		
Compactive Effort :	Standard	Standard		
Hilf Density Ratio (%) :	99.0	103.0		
Min Hilf Dens Ratio (%)	98	98		
Remarks:	Test Methods: AS1289.5.8.1 & 2.1.1.			

* Denotes "Adjusted for Oversize Material"

Lab Number:	Soil Description
697	SPEC FILL Gravelly Silty Clay, medium plasticity, dark grey.
698	SPEC FILL Gravelly Silty Clay, medium plasticity, dark brown.

** This test is not NATA endorsed due to the rock oversize.



Soil Testing Services Pty Ltd

Comment :L3884E - West Wilchard Road (Fill Platform) - Layer Lot No.5

Project : STS.WWR.160527

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05/30/2016

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SOIL TEST SERVICES

LOT APPROVAL REPORT

Client: Allyn Holdings Pty Ltd atf Keller Family Trust
Job number: L3884E
Project: Residential Development
Location: Corner West Wilchard and Castlereagh Roads, Castlereagh

Report number: L3884E – L6
Report date: 9/6/2016
Technician: Tom Finnegan

LOT ID: L6

Hilf Density Ratio Report Number: L3768E – 6

Retest: No

Original report number:

Specification reference: PSM2541- Email dated 29 APRIL 2016

Lot boundary survey reference: L6

Material identification: SPEC FILL IMPORTED

Deleterious material assessment: VISUALY ASSESED AS LESS THAN 0.5%

Layer thickness: 300mm

Accepted as a lot: Yes

Date: 16/5/2016

Approximate volume (m^3): 480

Number of tests required: 2

LOT APPROVAL: PASS Signed: _____ Date: 9/06/2016

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SOIL TEST SERVICES
ABN 43 002 145 173

Hilf Density Ratio Report

Client :	Allyn Holdings Pty Ltd atf Keller Family Trust	Report Number:	L3884E - 6
Job Number :	L3884E	Report Date:	31/05/2016
Project :	Penrith Lakes Development	Order Number:	Verbal
Location :	West Wilchard Road, Castlereagh	Test Method:	AS1289.5.7.1

Lab No :	699	700		
ID No :	11	12		
Lot No :	L6	L6		
Item No :	-	-		
Date/Time Tested :	16/05/2016	16/05/2016		
Material Source :	Imported	Imported		
For Use As :	SPEC Fill	SPEC Fill		
Sample Location :	Fill Platform E 285641 N 6271567 RL: 19.20m	Fill Platform E 284654 N 6271583 RL: 19.37m		
Test Depth (mm) :	300	300		
Max Size (mm) :	37.5	37.5		
Oversize Wet (%) :	15	15		
Fld. Wet Density (t/m³):	2.17	2.20		
Fld. Moisture Cont (%):	13.0	6.9		
PCWD (t/m³) :	2.21*	2.25*		
Moisture Variation (%):	0.8% (wet of omc)	1.1% (dry of omc)		
Compactive Effort :	Standard	Standard		
Hilf Density Ratio (%) :	98.0	98.0		
Min Hilf Dens Ratio (%)	98	98		
Remarks:	Test Methods: AS1289.5.8.1 & 2.1.1.			

* Denotes "Adjusted for Oversize Material"

Lab Number:	Soil Description
699	SPEC FILL Gravelly Silty Clay, medium plasticity, brown.
700	SPEC FILL Gravelly Silty Clay, medium plasticity, brown.

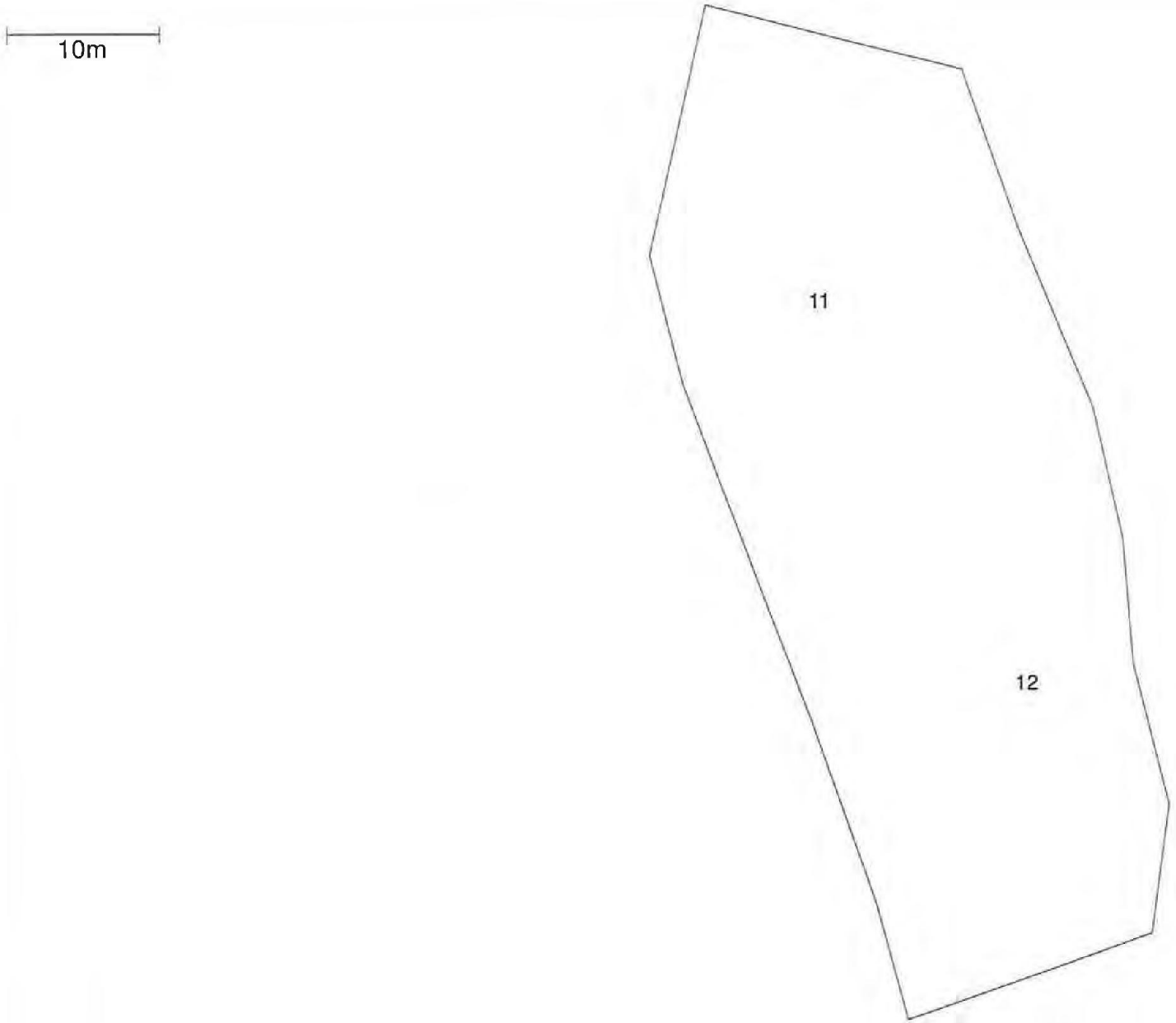
NATA Accredited Laboratory Number:1327

APPROVED SIGNATORY

31/5/16

Authorised Signature / Date
(T. Finnegan)

Form Number: REP HNUC-1



Soil Testing Services Pty Ltd

Comment :L3884E - West Wilchard Road (Fill Platform) - Layer Lot No.6

Project : STS.WWR.160527

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SOIL TEST SERVICES

LOT APPROVAL REPORT

Client: Allyn Holdings Pty Ltd atf Keller Family Trust Job number: L3884E Project: Residential Development Location: Corner West Wilchard and Castlereagh Roads, Castlereagh	Report number: L3884E – L7 Report date: 9/6/2016 Technician: Tom Finnegan
LOT ID: L7	Hilf Density Ratio Report Number: L3768E – 7
Retest: No	Original report number:

Specification reference: PSM2541- Email dated 29 APRIL 2016

Lot boundary survey reference: L7

Material identification: SPEC FILL IMPORTED

Deleterious material assessment: VISUALY ASSESED AS LESS THAN 0.5%

Layer thickness: 300mm

Accepted as a lot: Yes — Date: 17/5/2016

Approximate volume (m^3): 440 — Number of tests required: 2

LOT APPROVAL: PASS Signed: _____ Date: 9/06/2016

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SOIL TEST SERVICES
ABN 43 002 145 173

Hilf Density Ratio Report

Client :	Allyn Holdings Pty Ltd atf Keller Family Trust	Report Number:	L3884E - 7
Job Number :	L3884E	Report Date:	03/06/2016
Project :	Penrith Lakes Development	Order Number:	Verbal
Location :	West Wilchard Road, Castlereagh	Test Method:	AS1289.5.7.1

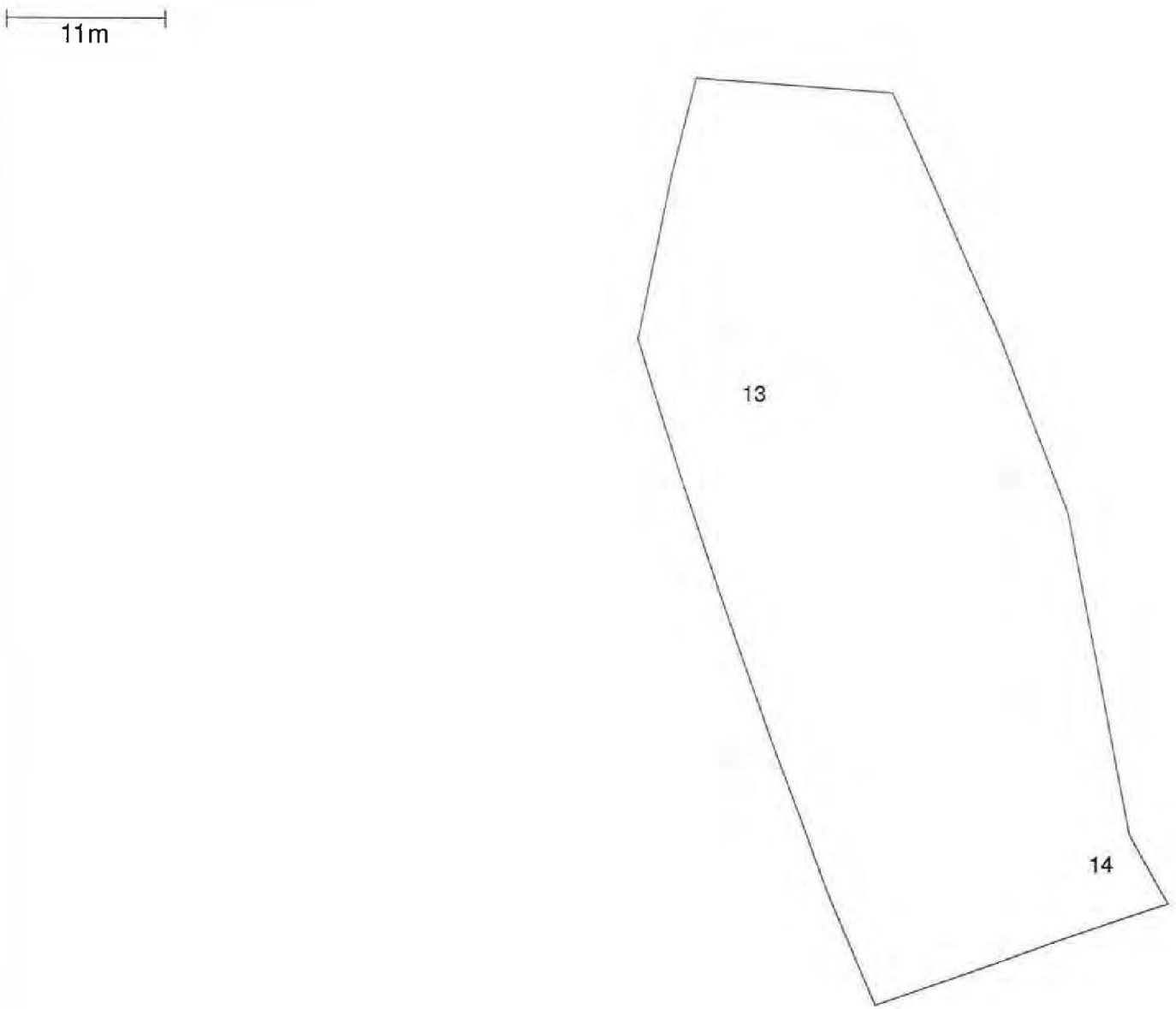
Lab No :	752	753		
ID No :	13 **	14 **		
Lot No :	L7	L7		
Item No :	-	-		
Date/Time Tested :	17/05/2016	17/05/2016		
Material Source :	Imported	Imported		
For Use As :	SPEC Fill	SPEC Fill		
Sample Location :	Fill Platform E 284638 N 6271582 RL: 19.61m	Fill Platform E 284663 N 6271548 RL: 19.80m		
Test Depth (mm) :	300	300		
Max Size (mm) :	37.5	37.5		
Oversize Wet (%) :	30	26		
Fld. Wet Density (t/m³):	2.25	2.32		
Fld. Moisture Cont (%):	7.3	10.3		
PCWD (t/m³) :	2.29*	2.32*		
Moisture Variation (%):	1.2% (dry of omc)	0.1% (dry of omc)		
Compactive Effort :	Standard	Standard		
Hilf Density Ratio (%) :	98.5	100.0		
Min Hilf Dens Ratio (%)	98	98		

Remarks: **Test Methods: AS1289.5.8.1 & 2.1.1.**

* **Denotes "Adjusted for Oversize Material"**

Lab Number:	Soil Description
752	SPEC FILL Gravelly Silty Clay, medium plasticity, dark grey.
753	SPEC FILL Gravelly Silty Clay, medium plasticity, dark grey.

** **This test is not NATA endorsed due to the rock oversize.**



Soil Testing Services Pty Ltd

Comment :L3884E - West Wilchard Road (Fill Platform) - Layer Lot No.7

Project : STS.WWR.160527

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05/30/2016

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SOIL TEST SERVICES

LOT APPROVAL REPORT

Client: Allyn Holdings Pty Ltd atf Keller Family Trust Job number: L3884E Project: Residential Development Location: Corner West Wilchard and Castlereagh Roads, Castlereagh	Report number: L3884E – L8 Report date: 9/6/2016 Technician: Tom Finnegan
LOT ID: L8	Hilf Density Ratio Report Number: L3768E – 8
Retest: No	Original report number:

Specification reference: PSM2541- Email dated 29 APRIL 2016

Lot boundary survey reference: L8

Material identification: SPEC FILL IMPORTED

Deleterious material assessment: VISUALY ASSESED AS LESS THAN 0.5%

Layer thickness: 300mm

Accepted as a lot: Yes — Date: 18/5/2016

Approximate volume (m^3): 480 — Number of tests required: 2

LOT APPROVAL: PASS Signed: _____ Date: 9/06/2016

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SOIL TEST SERVICES
ABN 43 002 145 173

Hilf Density Ratio Report

Client :	Allyn Holdings Pty Ltd atf Keller Family Trust	Report Number:	L3884E - 8
Job Number :	L3884E	Report Date:	03/06/2016
Project :	Penrith Lakes Development	Order Number:	Verbal
Location :	West Wilchard Road, Castlereagh	Test Method:	AS1289.5.7.1

Lab No :	754	755		
ID No :	15	16		
Lot No :	L8	L8		
Item No :	-	-		
Date/Time Tested :	18/05/2016	18/05/2016		
Material Source :	Imported	Imported		
For Use As :	SPEC Fill	SPEC Fill		
Sample Location :	Fill Platform E 284646 N 6271591 RL: 19.98m	Fill Platform E 284658 N 6271553 RL: 19.98m		
Test Depth (mm) :	300	300		
Max Size (mm) :	37.5	37.5		
Oversize Wet (%) :	18	18		
Fld. Wet Density (t/m³):	2.29	2.34		
Fld. Moisture Cont (%):	8.5	8.6		
PCWD (t/m³) :	2.25*	2.26*		
Moisture Variation (%):	1.0% (dry of omc)	0.7% (dry of omc)		
Compactive Effort :	Standard	Standard		
Hilf Density Ratio (%) :	101.5	103.5		
Min Hilf Dens Ratio (%)	98	98		
Remarks:	Test Methods: AS1289.5.8.1 & 2.1.1.			

* Denotes "Adjusted for Oversize Material"

Lab Number:	Soil Description
754	SPEC FILL Gravelly Silty Clay, medium plasticity, dark grey.
755	SPEC FILL Gravelly Silty Clay, medium plasticity, dark grey.

NATA Accredited Laboratory Number:1327

Accredited for compliance with ISO/IEC 17025.
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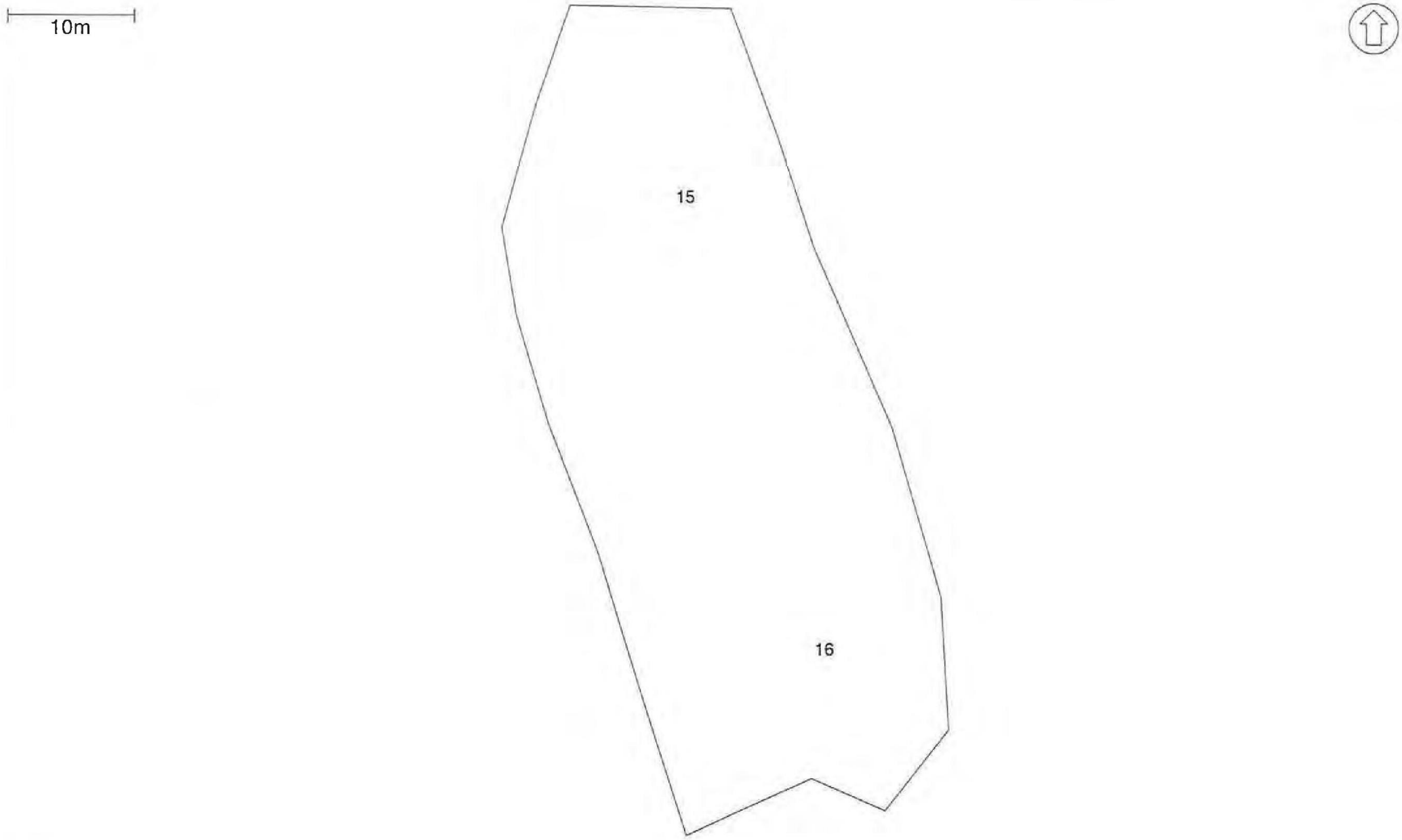
APPROVED SIGNATORY
3/6/16
Authorised Signature / Date
(T. Finnegan)

Form Number:
REP HNUC-1



Soil Testing Services Pty Ltd

Comment :L3884E - West Wilchard Road (Fill Platform) - Layer Lot No.8

Project : STS.WWR.160527

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SOIL TEST SERVICES

LOT APPROVAL REPORT

Client: Allyn Holdings Pty Ltd atf Keller Family Trust
Job number: L3884E
Project: Residential Development
Location: Corner West Wilchard and Castlereagh Roads, Castlereagh

Report number: L3884E – L9
Report date: 9/6/2016
Technician: Tom Finnegan

LOT ID: L9

Hilf Density Ratio Report Number: L3768E – 9

Retest: No

Original report number:

Specification reference: PSM2541- Email dated 29 APRIL 2016

Lot boundary survey reference: L9

Material identification: SPEC FILL IMPORTED

Deleterious material assessment: VISUALY ASSESED AS LESS THAN 0.5%

Layer thickness: 300mm

Accepted as a lot: Yes

Date: 19/5/2016

Approximate volume (m^3): 510

Number of tests required: 2

LOT APPROVAL: PASS Signed: _____ Date: 9/06/2016

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ABN 43 002 145 173

Hilf Density Ratio Report

Client :	Allyn Holdings Pty Ltd atf Keller Family Trust	Report Number:	L3884E - 9
Job Number :	L3884E	Report Date:	03/06/2016
Project :	Penrith Lakes Development	Order Number:	Verbal
Location :	West Wilchard Road, Castlereagh	Test Method:	AS1289.5.7.1

Lab No :	756	757		
ID No :	17	18		
Lot No :	L9	L9		
Item No :	-	-		
Date/Time Tested :	19/05/2016	19/05/2016		
Material Source :	Imported	Imported		
For Use As :	SPEC Fill	SPEC Fill		
Sample Location :	Fill Platform E 284637 N 6271581 RL: 20.32m	Fill Platform E 284662 N 6271560 RL: 20.41m		
Test Depth (mm) :	300	300		
Max Size (mm) :	37.5	37.5		
Oversize Wet (%) :	15	19		
Fld. Wet Density (t/m³):	2.22	2.26		
Fld. Moisture Cont (%):	8.1	8.2		
PCWD (t/m³) :	2.26*	2.22*		
Moisture Variation (%):	1.2% (dry of omc)	1.5% (dry of omc)		
Compactive Effort :	Standard	Standard		
Hilf Density Ratio (%) :	98.5	102.0		
Min Hilf Dens Ratio (%)	98	98		
Remarks:	Test Methods: AS1289.5.8.1 & 2.1.1.			

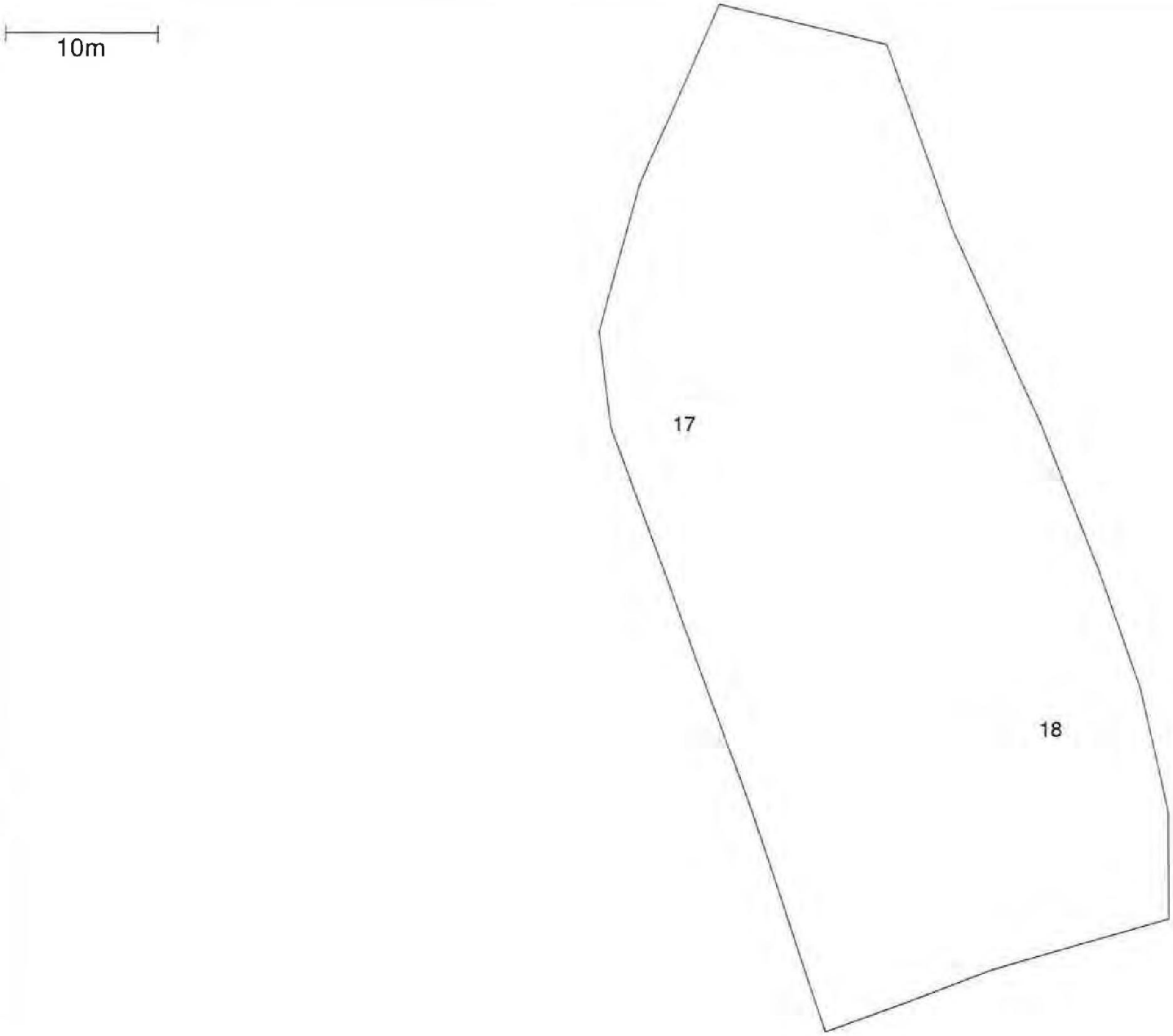
* Denotes "Adjusted for Oversize Material"

Lab Number:	Soil Description
756	SPEC FILL Gravelly Silty Clay, medium plasticity, dark grey.
757	SPEC FILL Gravelly Silty Clay, medium plasticity, brown.

NATA
NATA Accredited Laboratory Number:1327

APPROVED SIGNATORY
3/6/16
Authorised Signature / Date
(T. Finnegan)

Form Number:
REP HNUC-1



Soil Testing Services Pty Ltd

Comment :L3884E - West Wilchard Road (Fill Platform) - Layer Lot No.9

Project : STS.WWR.160527

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LOT APPROVAL REPORT

Client: Allyn Holdings Pty Ltd atf Keller Family Trust
Job number: L3884E
Project: Residential Development
Location: Corner West Wilchard and Castlereagh Roads, Castlereagh

Report number: L3884E – L10
Report date: 9/6/2016
Technician: Tom Finnegan

LOT ID: L10

Hilf Density Ratio Report Number: L3768E – 10

Retest: No

Original report number:

Specification reference: PSM2541- Email dated 29 APRIL 2016

Lot boundary survey reference: L10

Material identification: SPEC FILL IMPORTED

Deleterious material assessment: VISUALY ASSESED AS LESS THAN 0.5%

Layer thickness: 300mm

Accepted as a lot: Yes

Date: 20/5/2016

Approximate volume (m^3): 470

Number of tests required: 2

LOT APPROVAL: PASS Signed: _____ Date: 9/06/2016

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SOIL TEST SERVICES
ABN 43 002 145 173

Hilf Density Ratio Report

Client :	Allyn Holdings Pty Ltd atf Keller Family Trust	Report Number:	L3884E - 10
Job Number :	L3884E	Report Date:	03/06/2016
Project :	Penrith Lakes Development	Order Number:	Verbal
Location :	West Wilchard Road, Castlereagh	Test Method:	AS1289.5.7.1

Lab No :	758	759		
ID No :	19 **	20		
Lot No :	L10	L10		
Item No :	-	-		
Date/Time Tested :	20/05/2016	20/05/2016		
Material Source :	Imported	Imported		
For Use As :	SPEC Fill	SPEC Fill		
Sample Location :	Fill Platform E 284644 N 6271591 RL: 20.68m	Fill Platform E 284663 N 6271556 RL: 20.70m		
Test Depth (mm) :	300	300		
Max Size (mm) :	37.5	37.5		
Oversize Wet (%) :	25	17		
Fld. Wet Density (t/m³):	2.27	2.31		
Fld. Moisture Cont (%):	7.9	8.2		
PCWD (t/m³) :	2.23*	2.26*		
Moisture Variation (%):	1.5% (dry of omc)	1.4% (dry of omc)		
Compactive Effort :	Standard	Standard		
Hilf Density Ratio (%) :	101.5	102.0		
Min Hilf Dens Ratio (%)	98	98		
Remarks:	Test Methods: AS1289.5.8.1 & 2.1.1. ...			

* Denotes "Adjusted for Oversize Material"

Lab Number:	Soil Description
758	SPEC FILL Gravelly Silty Clay, medium plasticity, dark grey.
759	SPEC FILL Gravelly Silty Clay, medium plasticity, dark grey.

** This test is not NATA endorsed due to the rock oversize.

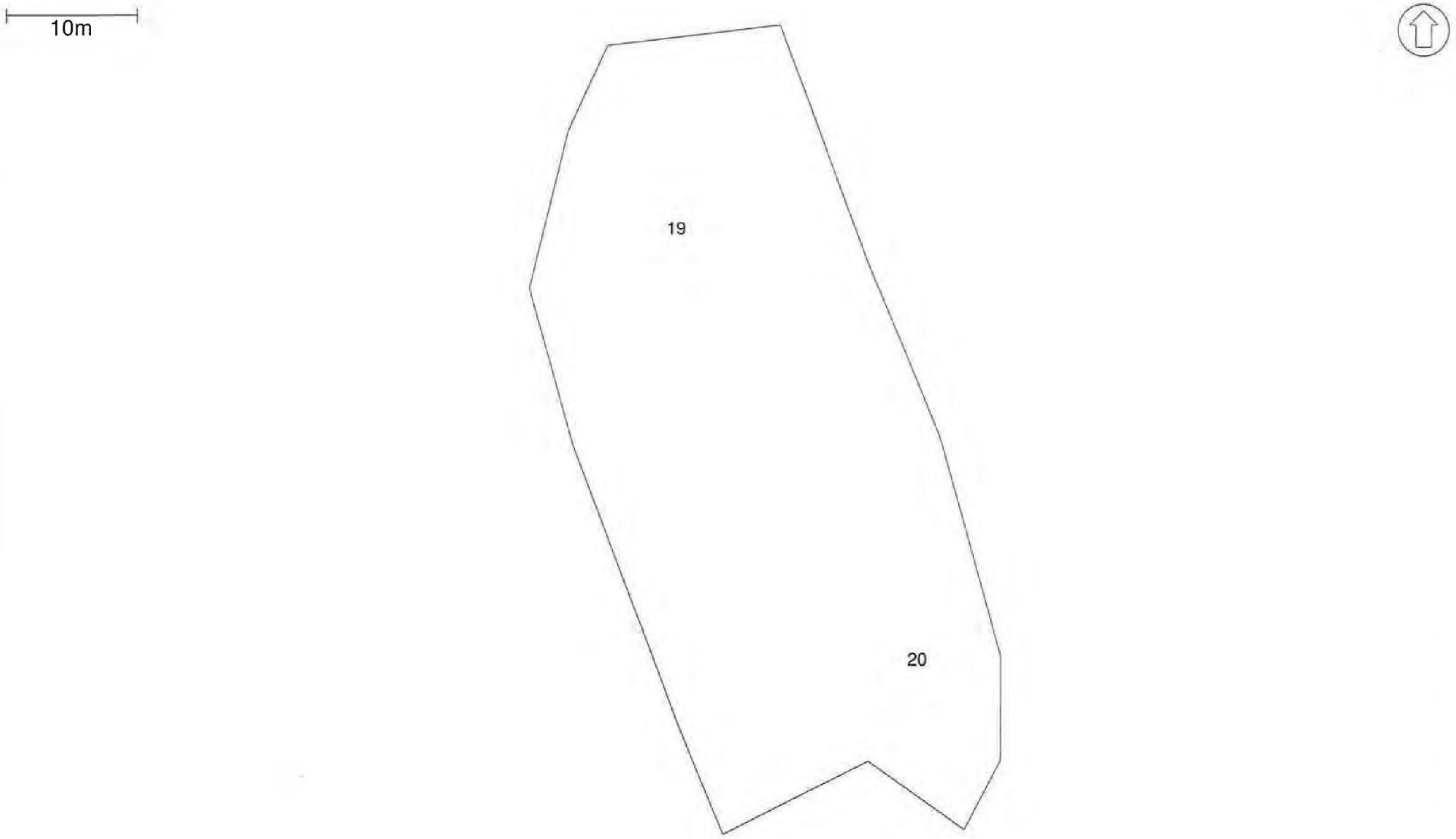
NATA Accredited Laboratory Number:1327

APPROVED SIGNATORY

3/6/16

Authorised Signature / Date
(T. Finnegan)

Form Number: REP HNUC-1



Soil Testing Services Pty Ltd

Comment :L3884E - West Wilchard Road (Fill Platform) - Layer Lot No.10

Project : STS.WWR.160527

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SOIL TEST SERVICES

LOT APPROVAL REPORT

Client: Allyn Holdings Pty Ltd atf Keller Family Trust
Job number: L3884E
Project: Residential Development
Location: Corner West Wilchard and Castlereagh Roads, Castlereagh

Report number: L3884E – L11
Report date: 9/6/2016
Technician: Tom Finnegan

LOT ID: L11

Hilf Density Ratio Report Number: L3768E – 11

Retest: No

Original report number:

Specification reference: PSM2541- Email dated 29 APRIL 2016

Lot boundary survey reference: L11

Material identification: SPEC FILL IMPORTED

Deleterious material assessment: VISUALY ASSESED AS LESS THAN 0.5%

Layer thickness: 300mm

Accepted as a lot: Yes

Date: 23/5/2016

Approximate volume (m^3): 420

Number of tests required: 2

LOT APPROVAL: PASS Signed: _____ Date: 9/06/2016

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SOIL TEST SERVICES
ABN 43 002 145 173

Hilf Density Ratio Report

Client :	Allyn Holdings Pty Ltd atf Keller Family Trust	Report Number:	L3884E - 11
Job Number :	L3884E	Report Date:	03/06/2016
Project :	Penrith Lakes Development	Order Number:	Verbal
Location :	West Wilchard Road, Castlereagh	Test Method:	AS1289.5.7.1

Lab No :	760	761		
ID No :	21 **	22		
Lot No :	L11	L11		
Item No :	-	-		
Date/Time Tested :	23/05/2016	23/05/2016		
Material Source :	Imported	Imported		
For Use As :	SPEC Fill	SPEC Fill		
Sample Location :	Fill Platform E 284642 N 6271587 RL: 21.01m	Fill Platform E 284658 N 6271563 RL: 21.07m		
Test Depth (mm) :	300	300		
Max Size (mm) :	37.5	37.5		
Oversize Wet (%) :	25	15		
Fld. Wet Density (t/m³):	2.28	2.26		
Fld. Moisture Cont (%):	7.7	6.9		
PCWD (t/m³) :	2.29*	2.26*		
Moisture Variation (%):	1.7% (dry of omc)	1.9% (dry of omc)		
Compactive Effort :	Standard	Standard		
Hilf Density Ratio (%) :	99.5	100.0		
Min Hilf Dens Ratio (%)	98	98		
Remarks:	Test Methods: AS1289.5.8.1 & 2.1.1.			

* Denotes "Adjusted for Oversize Material"

Lab Number:	Soil Description
760	SPEC FILL Gravelly Silty Clay, medium plasticity, dark grey.
761	SPEC FILL Gravelly Silty Clay, medium plasticity, brown.

** This test is not NATA endorsed due to the rock oversize.

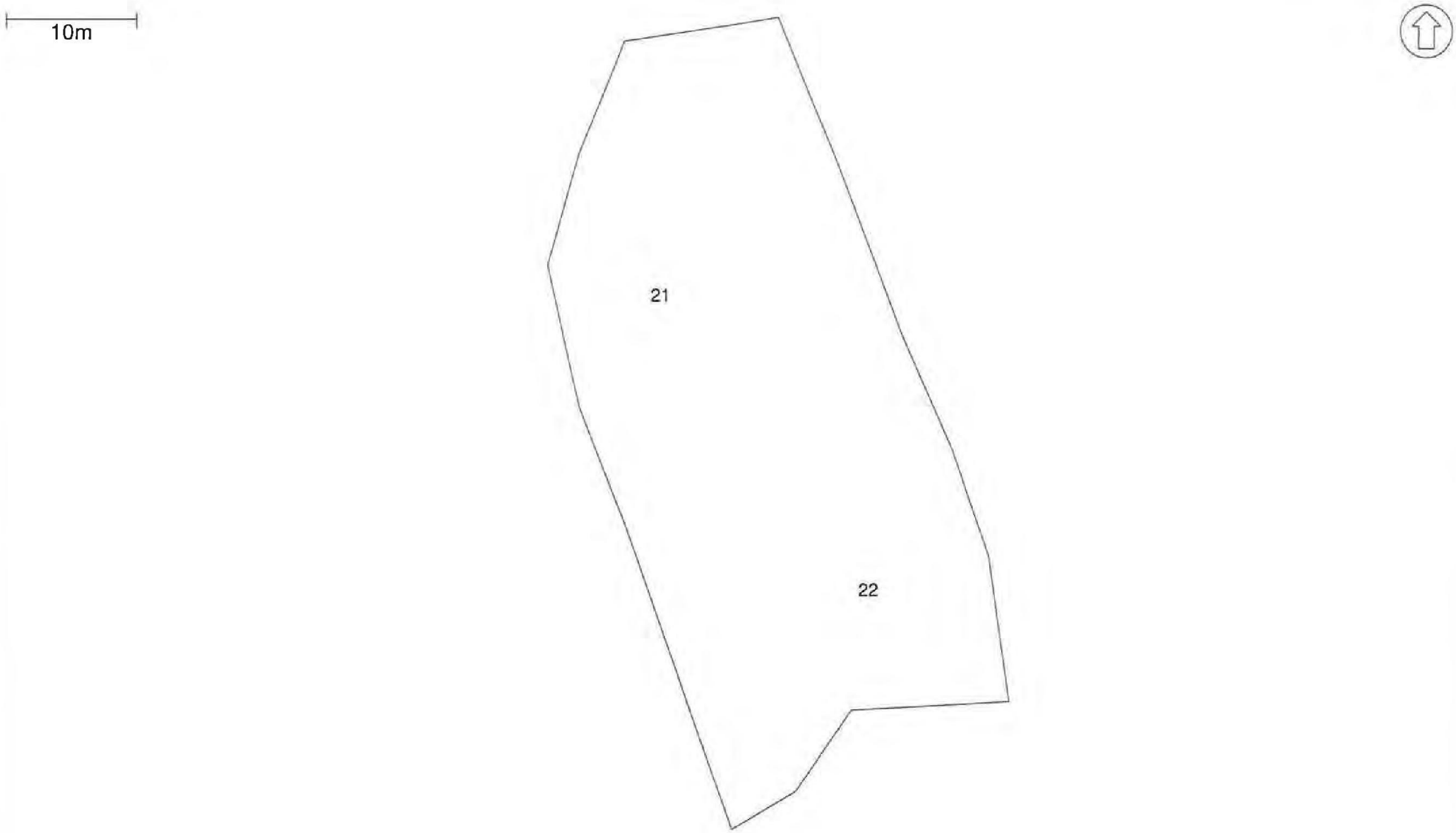
NATA Accredited Laboratory Number:1327

APPROVED SIGNATORY

3/6/16

Authorised Signature / Date
(T. Finnegan)

Form Number:
REP HNUC-1



Soil Testing Services Pty Ltd

Comment :L3884E - West Wilchard Road (Fill Platform) - Layer Lot No.11

Project : STS.WWR.160527

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SOIL TEST SERVICES

LOT APPROVAL REPORT

Client: Allyn Holdings Pty Ltd atf Keller Family Trust
Job number: L3884E
Project: Residential Development
Location: Corner West Wilchard and Castlereagh Roads, Castlereagh

Report number: L3884E – L12
Report date: 9/6/2016
Technician: Tom Finnegan

LOT ID: L12

Hilf Density Ratio Report Number: L3768E – 12

Retest: No

Original report number:

Specification reference: PSM2541- Email dated 29 APRIL 2016

Lot boundary survey reference: L12

Material identification: SPEC FILL IMPORTED

Deleterious material assessment: VISUALY ASSESED AS LESS THAN 0.5%

Layer thickness: 300mm

Accepted as a lot: Yes

Date: 24/5/2016

Approximate volume (m^3): 440

Number of tests required: 2

LOT APPROVAL: PASS Signed: _____ Date: 9/06/2016

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SOIL TEST SERVICES
ABN 43 002 145 173

Hilf Density Ratio Report

Client :	**Allyn Holdings Pty Ltd atf Keller Family Trust**	Report Number:	**L3884E - 12**
Job Number :	**L3884E**	Report Date:	**03/06/2016**
Project :	**Penrith Lakes Development**	Order Number:	**Verbal**
Location :	**West Wilchard Road, Castlereagh**	Test Method:	**AS1289.5.7.1**

Lab No :	762	763		
ID No :	23	24		
Lot No :	L12	L12		
Item No :	-	-		
Date/Time Tested :	24/05/2016	24/05/2016		
Material Source :	Imported	Imported		
For Use As :	SPEC Fill	SPEC Fill		
Sample Location :	Fill Platform E 284658 N 6271591 RL: 21.33m	Fill Platform E 284646 N 6271565 RL: 21.59m		
Test Depth (mm) :	300	300		
Max Size (mm) :	37.5	37.5		
Oversize Wet (%) :	20	17		
Fld. Wet Density (t/m³):	2.29	2.22		
Fld. Moisture Cont (%):	6.2	7.6		
PCWD (t/m³) :	2.29*	2.19*		
Moisture Variation (%):	2.2% (dry of omc)	2.8% (dry of omc)		
Compactive Effort :	Standard	Standard		
Hilf Density Ratio (%) :	100.0	101.5		
Min Hilf Dens Ratio (%)	98	98		
Remarks:	**Test Methods: AS1289.5.8.1 & 2.1.1.**			

* **Denotes "Adjusted for Oversize Material"**

Lab Number:	Soil Description
762	**SPEC FILL Gravelly Silty Clay, medium plasticity, dark grey.**
763	**SPEC FILL Gravelly Silty Clay, medium plasticity, grey.**

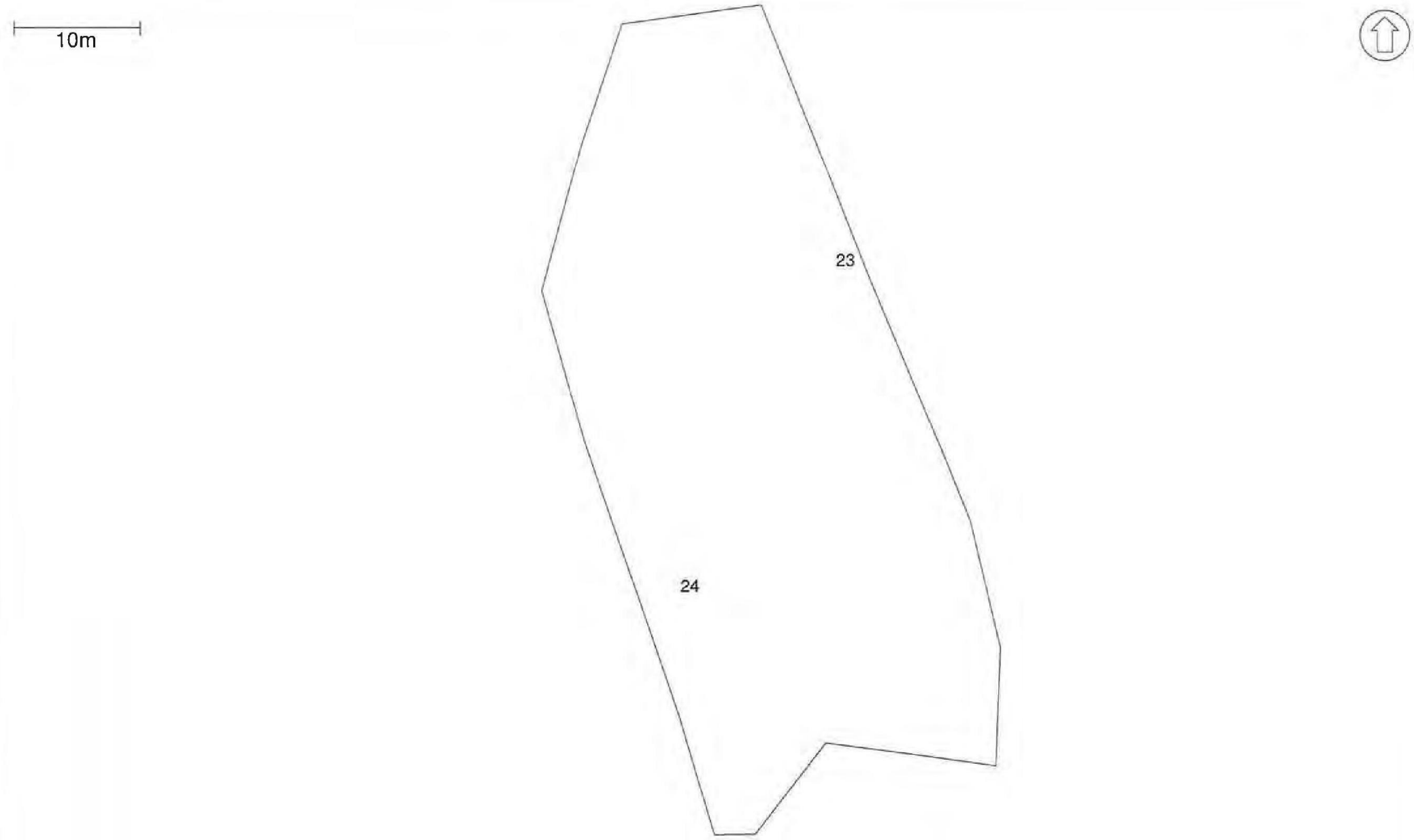
NATA Accredited Laboratory Number:1327

APPROVED SIGNATORY

3/6/16

Authorised Signature / Date
(T. Finnegan)

Form Number:
REP HNUC-1



Soil Testing Services Pty Ltd

Comment :L3884E - West Wilchard Road (Fill Platform) - Layer Lot No.12

Project : STS.WWR.160527

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05/30/2016

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Telephone: 02 9888 5000
Facsimile: 02 9888 5001

SOIL TEST SERVICES

LOT APPROVAL REPORT

Client: Allyn Holdings Pty Ltd atf Keller Family Trust	Report number: L3884E – L13
Job number: L3884E	Report date: 9/6/2016
Project: Residential Development	Technician: Tom Finnegan
Location: Corner West Wilchard and Castlereagh Roads, Castlereagh	
LOT ID: L13	Hilf Density Ratio Report Number: L3768E – 13
Retest: No	Original report number:
Specification reference: PSM2541- Email dated 29 APRIL 2016	
Lot boundary survey reference: L13	
Material identification: SPEC FILL IMPORTED	
Deleterious material assessment: VISUALY ASSESED AS LESS THAN 0.5%	
Layer thickness: 300mm	
Accepted as a lot: Yes	Date: 25/5/2016
Approximate volume (m^3): 420	Number of tests required: 2
LOT APPROVAL: FAIL Signed:	Date: 9/06/2016

Note: This Minor Failure was not retested as further layers had been placed prior to lab results being available

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SOIL TEST SERVICES
ABN 43 002 145 173

Hilf Density Ratio Report

Client :	Allyn Holdings Pty Ltd atf Keller Family Trust	Report Number:	L3884E - 13
Job Number :	L3884E	Report Date:	09/06/2016
Project :	Penrith Lakes Development	Order Number:	Verbal
Location :	West Wilchard Road, Castlereagh	Test Method:	AS1289.5.7.1

Lab No :	766	767		
ID No :	25 **	26		
Lot No :	L13	L13		
Item No :	-	-		
Date/Time Tested :	25/05/2016	25/05/2016		
Material Source :	Imported	Imported		
For Use As :	SPEC Fill	SPEC Fill		
Sample Location :	Fill Platform E 284641 N 6271591 RL: 21.69m	Fill Platform E 284666 N 6271569 RL: 21.66m		
Test Depth (mm) :	300	300		
Max Size (mm) :	37.5	37.5		
Oversize Wet (%) :	22	18		
Fld. Wet Density (t/m³):	2.23	2.28		
Fld. Moisture Cont (%):	7.3	9.6		
PCWD (t/m³) :	2.27*	2.31*		
Moisture Variation (%):	0.6% (dry of omc)	0.1% (dry of omc)		
Compactive Effort :	Standard	Standard		
Hilf Density Ratio (%) :	98.0	99.0		
Min Hilf Dens Ratio (%)	98	98		
Remarks:	Test Methods: AS1289.5.8.1 & 2.1.1.			

* Denotes "Adjusted for Oversize Material"

Lab Number:	Soil Description
766	SPEC FILL Gravelly Silty Clay, medium plasticity, dark grey.
767	SPEC FILL Gravelly Silty Clay, medium plasticity, dark grey.

** This test is not NATA endorsed due to the rock oversize.

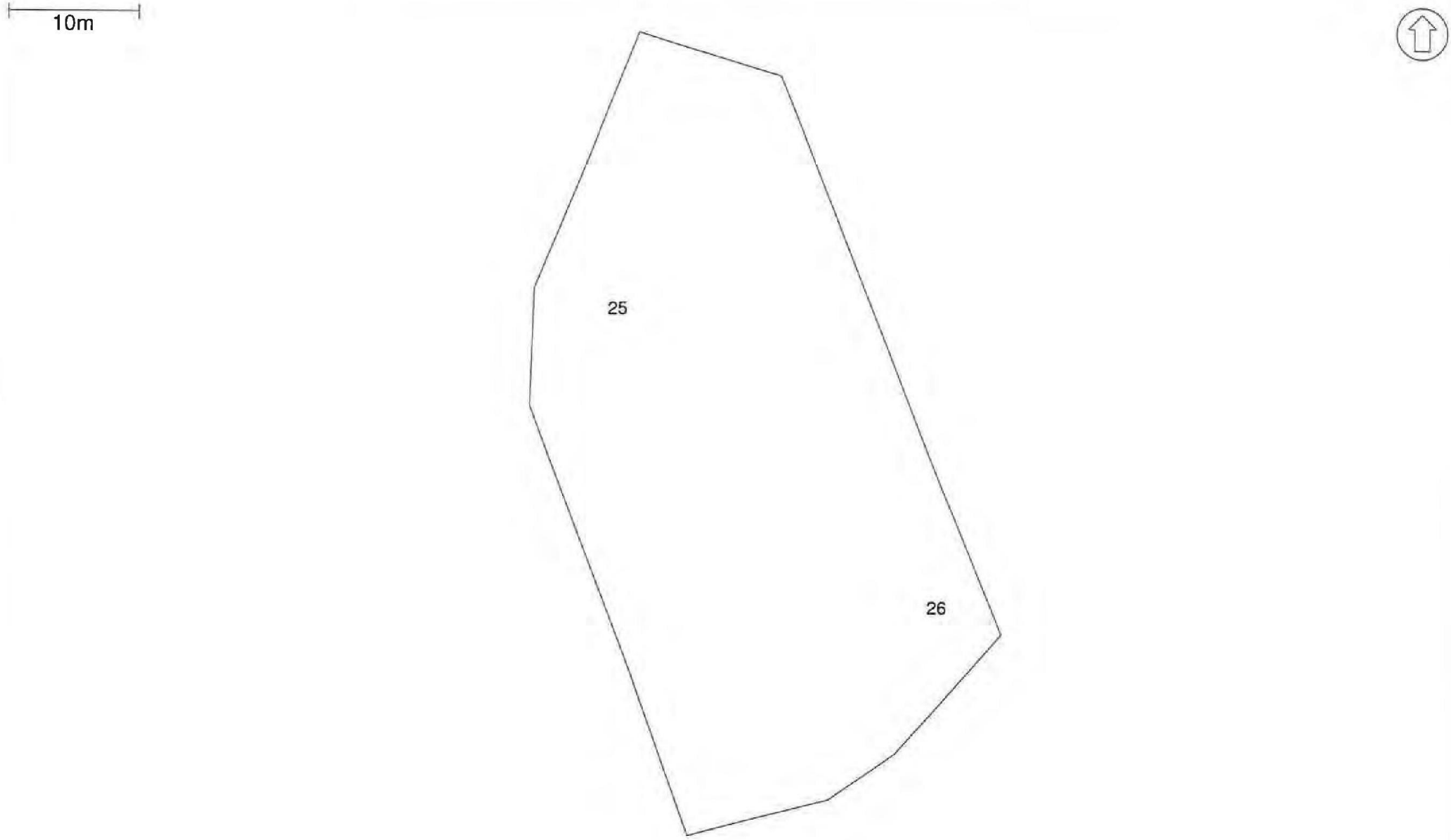
NATA Accredited Laboratory Number:1327

APPROVED SIGNATORY

5/6/16

Authorised Signature / Date
(T. Finnegan)

Form Number:
REP HNUC-1



Soil Testing Services Pty Ltd

Comment :L3884E - West Wilchard Road (Fill Platform) - Layer Lot No.13

Project : STS.WWR.160527

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05/30/2016

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SOIL TEST SERVICES

LOT APPROVAL REPORT

Client: Allyn Holdings Pty Ltd atf Keller Family Trust	Report number: L3884E – L14
Job number: L3884E	Report date: 9/6/2016
Project: Residential Development	Technician: Tom Finnegan
Location: Corner West Wilchard and Castlereagh Roads, Castlereagh	
LOT ID: L14	Hilf Density Ratio Report Number: L3768E – 14
Retest: No	Original report number:
Specification reference: PSM2541- Email dated 29 APRIL 2016	
Lot boundary survey reference: L14	
Material identification: SPEC FILL IMPORTED	
Deleterious material assessment: VISUALY ASSESED AS LESS THAN 0.5%	
Layer thickness: 300mm	
Accepted as a lot: Yes	Date: 27/5/2016
Approximate volume (m^3): 420	Number of tests required: 2
LOT APPROVAL: FAIL Signed:	Date: 9/06/2016

Note: This Minor Failure was not retested as further layers had been placed prior to lab results being available

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SOIL TEST SERVICES
ABN 43 002 145 173

Hilf Density Ratio Report

Client :	Allyn Holdings Pty Ltd atf Keller Family Trust	Report Number:	L3884E - 14
Job Number :	L3884E	Report Date:	09/06/2016
Project :	Penrith Lakes Development	Order Number:	Verbal
Location :	West Wilchard Road, Castlereagh	Test Method:	AS1289.5.7.1

Lab No :	768	769		
ID No :	27	28 **		
Lot No :	L14	L14		
Item No :	-	-		
Date/Time Tested :	27/05/2016	27/05/2016		
Material Source :	Imported	Imported		
For Use As :	SPEC Fill	SPEC Fill		
Sample Location :	Fill Platform E 284638 N 6271588 RL: 22.00m	Fill Platform E 284663 N 6271573 RL: 22.02m		
Test Depth (mm) :	300	300		
Max Size (mm) :	37.5	37.5		
Oversize Wet (%) :	20	25		
Fld. Wet Density (t/m³):	2.24	2.33		
Fld. Moisture Cont (%):	6.5	6.9		
PCWD (t/m³) :	2.27*	2.30*		
Moisture Variation (%):	1.3% (dry of omc)	0.5% (dry of omc)		
Compactive Effort :	Standard	Standard		
Hilf Density Ratio (%) :	98.5	101.5		
Min Hilf Dens Ratio (%)	98	98		
Remarks:	Test Methods: AS1289.5.8.1 & 2.1.1.			

* Denotes "Adjusted for Oversize Material"

Lab Number:	Soil Description
768	SPEC FILL Gravelly Silty Clay, medium plasticity, dark grey.
769	SPEC FILL Gravelly Silty Clay, medium plasticity, dark grey.

** This test is not NATA endorsed due to the rock oversize.

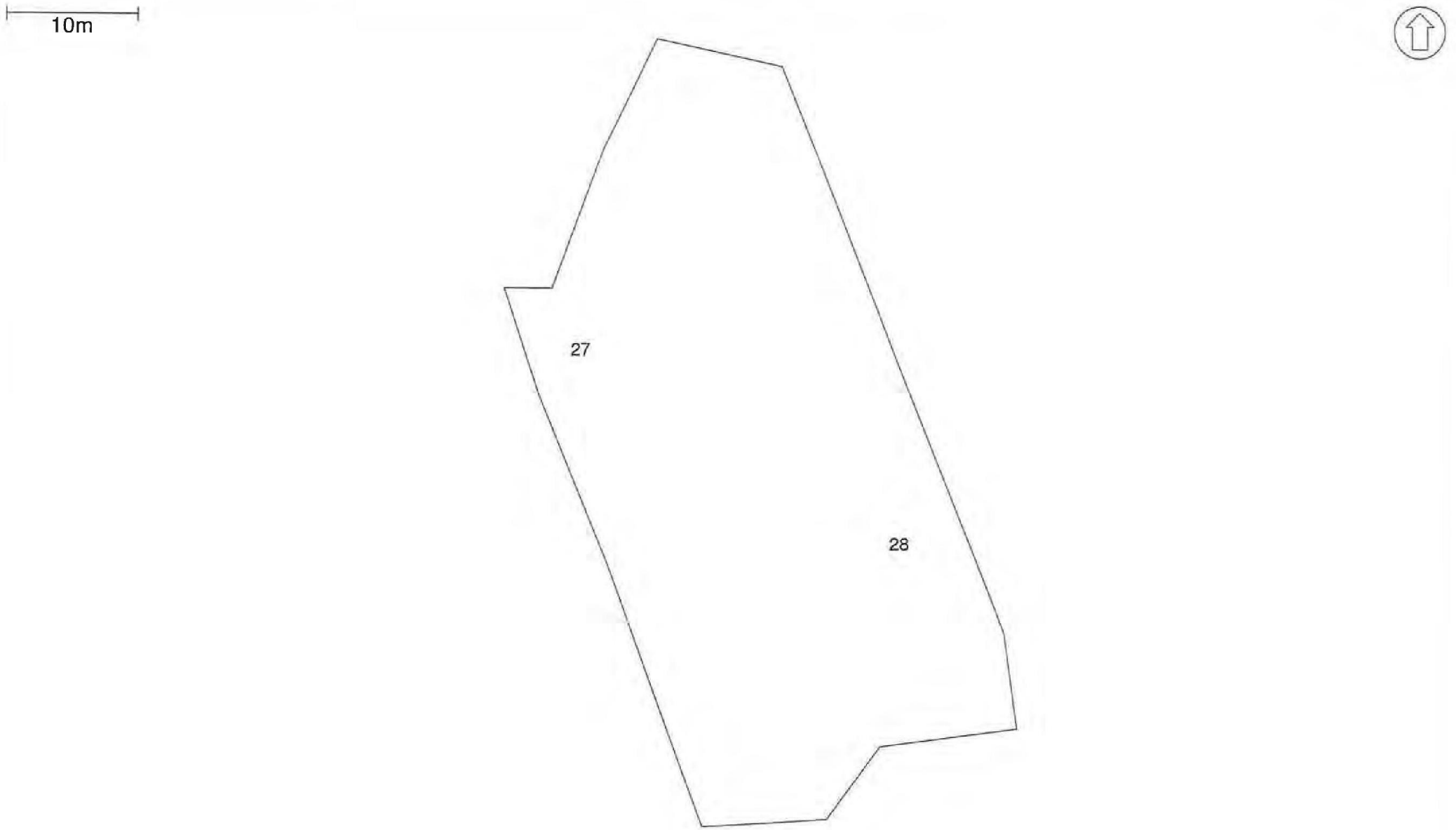
NATA Accredited Laboratory Number:1327

APPROVED SIGNATORY

9/6/16

Authorised Signature / Date
(T. Finnegan)

Form Number:
REP HNUC-1



Soil Testing Services Pty Ltd

Comment :L3884E - West Wilchard Road (Fill Platform) - Layer Lot No.14

Project : STS.WWR.160527

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05/30/2016

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SOIL TEST SERVICES

LOT APPROVAL REPORT

Client: Allyn Holdings Pty Ltd atf Keller Family Trust	Report number: L3884E – L15
Job number: L3884E	Report date: 9/6/2016
Project: Residential Development	Technician: Tom Finnegan
Location: Corner West Wilchard and Castlereagh Roads, Castlereagh	
LOT ID: L15	Hilf Density Ratio Report Number: L3768E – 15
Retest: No	Original report number:
Specification reference: PSM2541- Email dated 29 APRIL 2016	
Lot boundary survey reference: L15	
Material identification: SPEC FILL IMPORTED	
Deleterious material assessment: VISUALY ASSESED AS LESS THAN 0.5%	
Layer thickness: 300mm	
Accepted as a lot: Yes	Date: 27/5/2016
Approximate volume (m^3): 60	Number of tests required: 2
LOT APPROVAL: PASS Signed:	Date: 9/06/2016

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SOIL TEST SERVICES
ABN 43 002 145 173

Hilf Density Ratio Report

Client :	Allyn Holdings Pty Ltd atf Keller Family Trust	Report Number:	L3884E - 15
Job Number :	L3884E	Report Date:	09/06/2016
Project :	Penrith Lakes Development	Order Number:	Verbal
Location :	West Wilchard Road, Castlereagh	Test Method:	AS1289.5.7.1

Lab No :	770	771		
ID No :	29	30 **		
Lot No :	L15	L15		
Item No :	-	-		
Date/Time Tested :	27/05/2016	27/05/2016		
Material Source :	Imported	Imported		
For Use As :	SPEC Fill	SPEC Fill		
Sample Location :	Fill Platform Extension E 284639 N 6271607 RL: 20.95m	Fill Platform Extension E 284637 N 6271597 RL: 22.02m		
Test Depth (mm) :	300	300		
Max Size (mm) :	37.5	37.5		
Oversize Wet (%) :	18	24		
Fld. Wet Density (t/m³):	2.25	2.35		
Fld. Moisture Cont (%):	6.3	6.0		
PCWD (t/m³) :	2.28*	2.35*		
Moisture Variation (%):	1.4% (dry of omc)	1.1% (dry of omc)		
Compactive Effort :	Standard	Standard		
Hilf Density Ratio (%) :	98.5	100.0		
Min Hilf Dens Ratio (%)	98	98		
Remarks:	Test Methods: AS1289.5.8.1 & 2.1.1.			

* Denotes "Adjusted for Oversize Material"

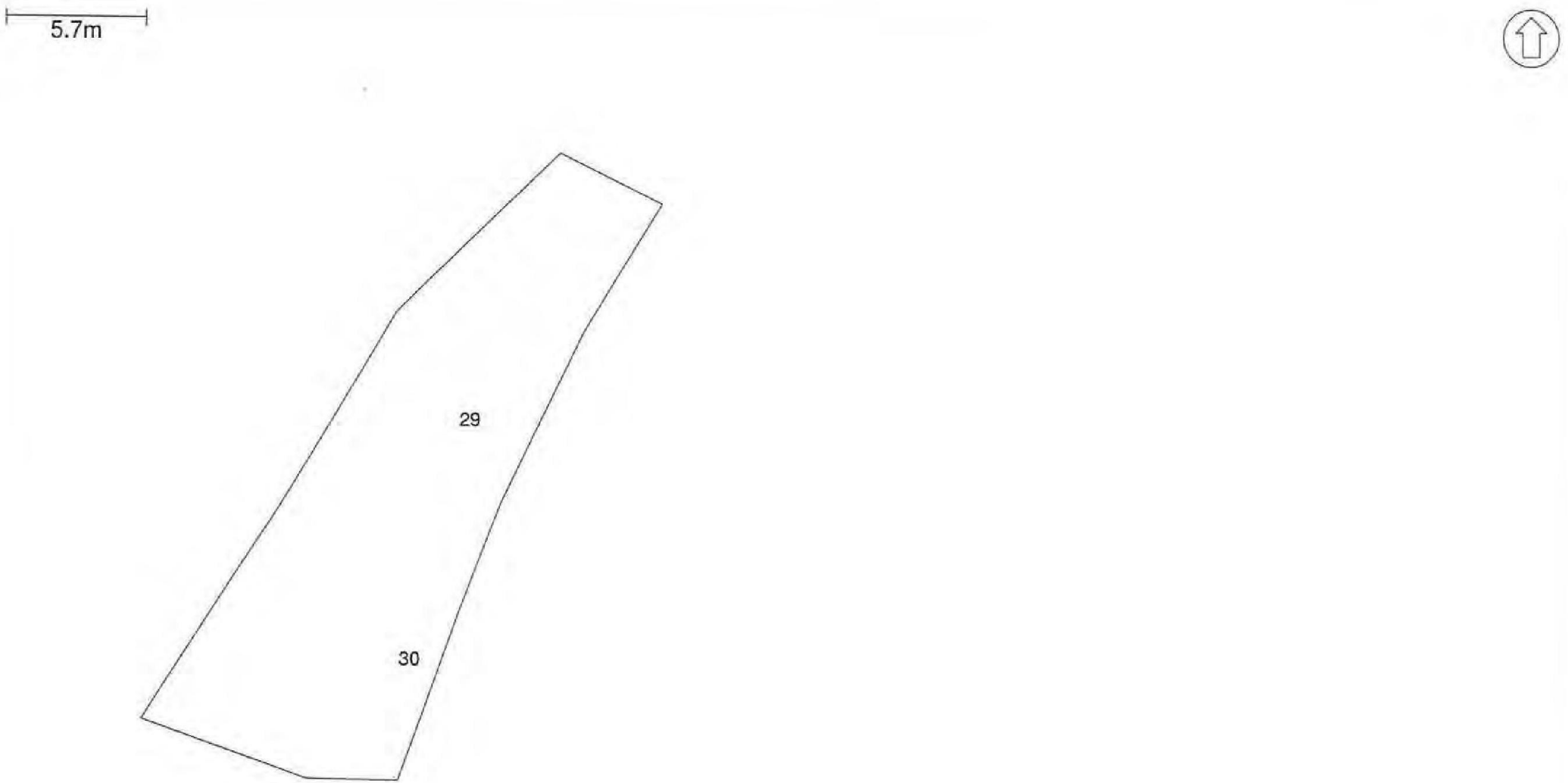
Lab Number:	Soil Description
770	SPEC Gravelly FILL Silty Clay, medium plasticity, dark grey.
771	SPEC FILL Gravelly Silty Clay, medium plasticity, dark grey.

** This test is not NATA endorsed due to the rock oversize.

NATA
NATA Accredited Laboratory Number:1327

APPROVED SIGNATORY
9/6/16
Authorised Signature / Date
(T. Finnegan)

Form Number:
REP HNUC-1



Soil Testing Services Pty Ltd

Comment :L3884E - West Wilchard Road (Fill Platform) - Layer Lot No.15

Project : STS.WWR.160527

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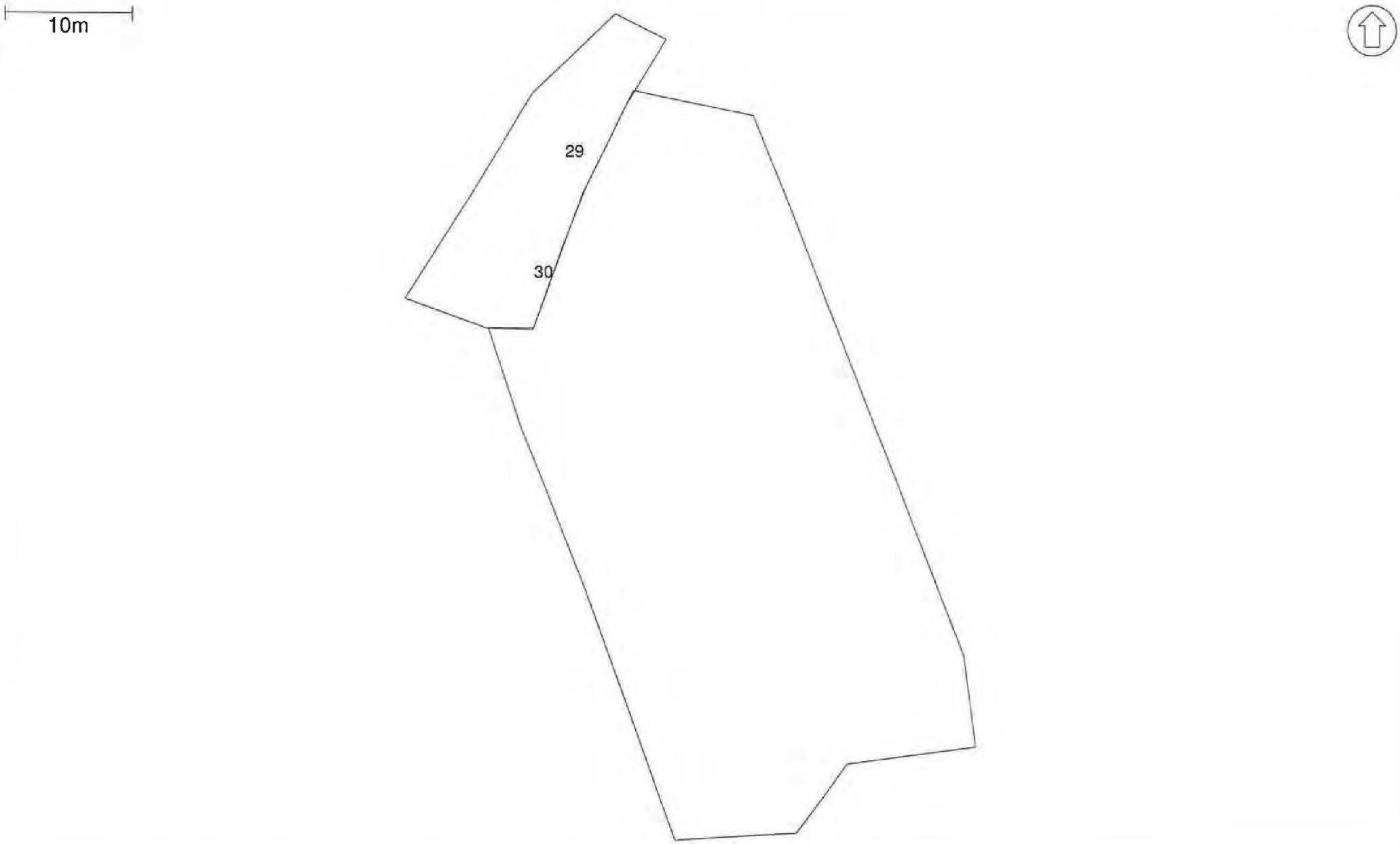

Soil Testing Services Pty Ltd

Comment :L3884E - West Wilchard Road (Fill Platform) - Layer Lot No.15_Vers,2

Project : STS.WWR.160527

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