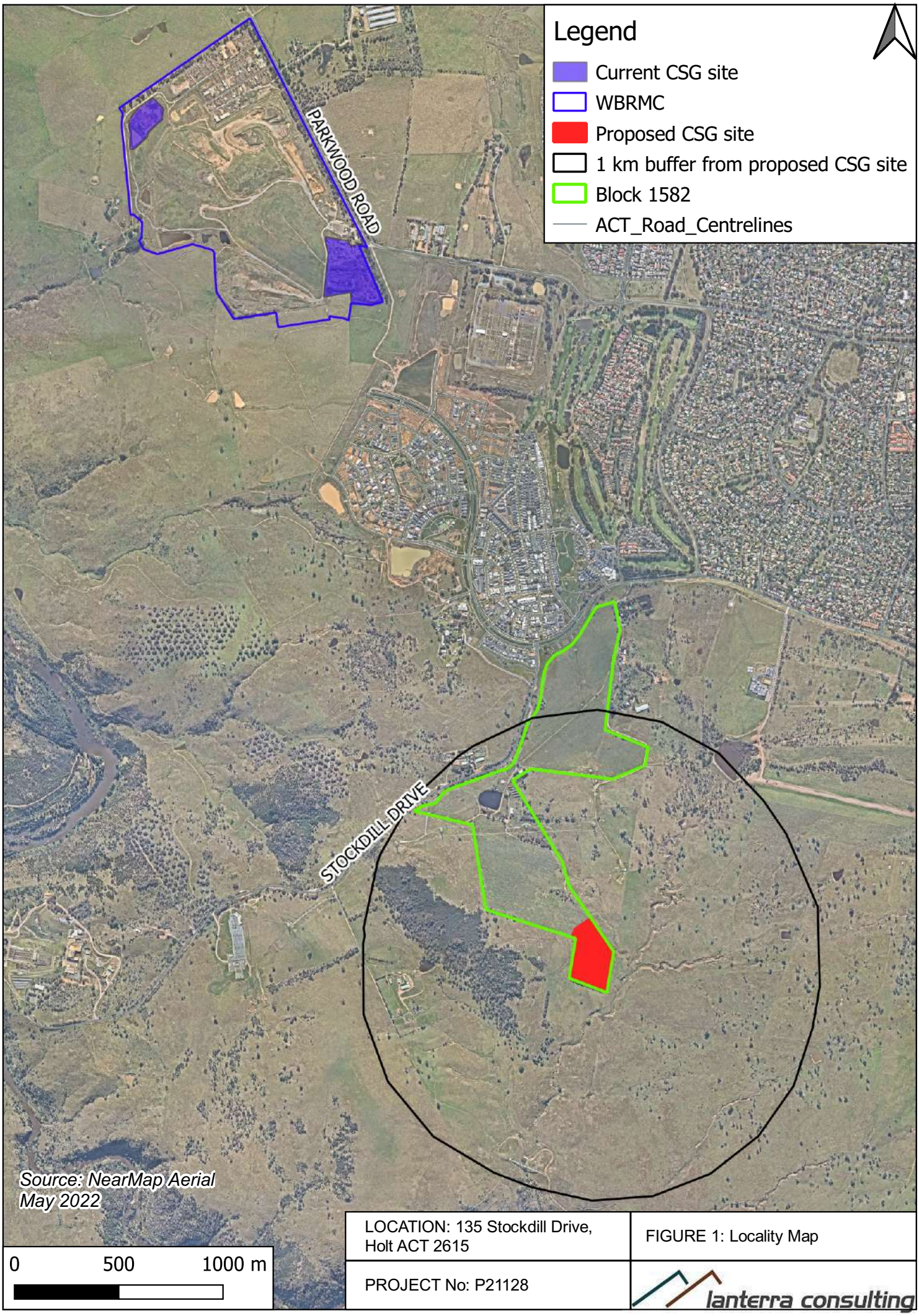
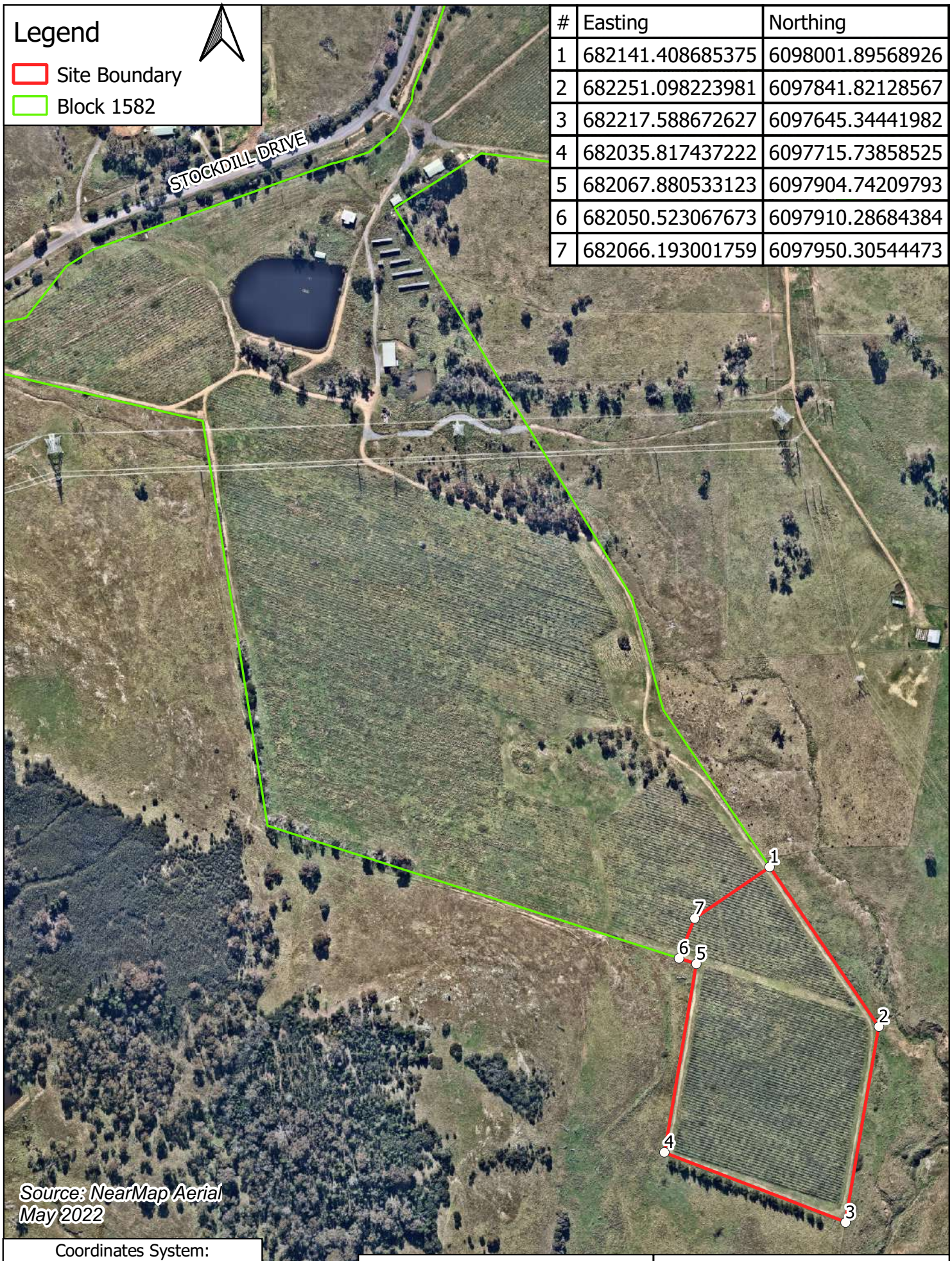
Appendix A

Figures



LOCATION: 135 Stockdill Drive, Holt ACT 2615	FIGURE 1: Locality Map
PROJECT No: P21128	lanterra consulting



#	Easting	Northing
1	682141.408685375	6098001.89568926
2	682251.098223981	6097841.82128567
3	682217.588672627	6097645.34441982
4	682035.817437222	6097715.73858525
5	682067.880533123	6097904.74209793
6	682050.523067673	6097910.28684384
7	682066.193001759	6097950.30544473

Coordinates System:
MGA 55 Zone 2020

LOCATION: 135 Stockdill Drive, Holt ACT 2615

FIGURE 2: Site Layout

PROJECT No: P21128

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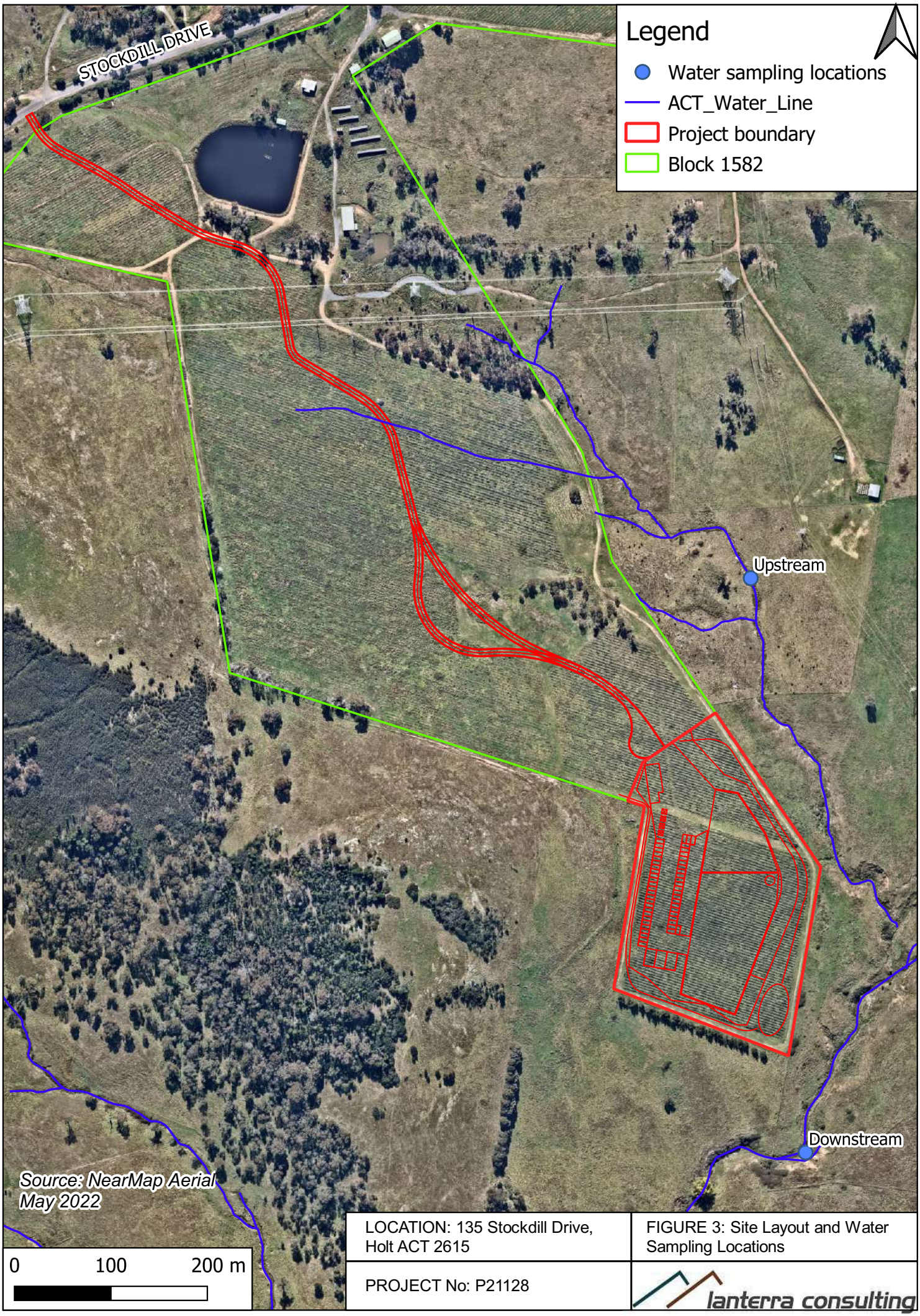

LOCATION: 135 Stockdill Drive, Holt ACT 2615	FIGURE 3: Site Layout and Water Sampling Locations
PROJECT No: P21128	lanterra consulting

Appendix A: Figure 4A - CSG Proposed Development Layout

Plot Date: 8-Apr-22, 9:57 AM File: H:\21\21-000475\6_Model\Civil3D\21-000475-D005.dwg User:Byju Mathew

	FIRST ISSUE	DESIGN	DRAWN	CHECK	APPROVED	DATE
		AKM	BM	CEL	CEL	08/04/2022
AMENDMENTS						

AMENDMENT DETAILS

0 25 50 75 100 125 150 175 200
SCALE 1:2500 (A1) SCALE 1:5000 (A3)

WAE No. ---

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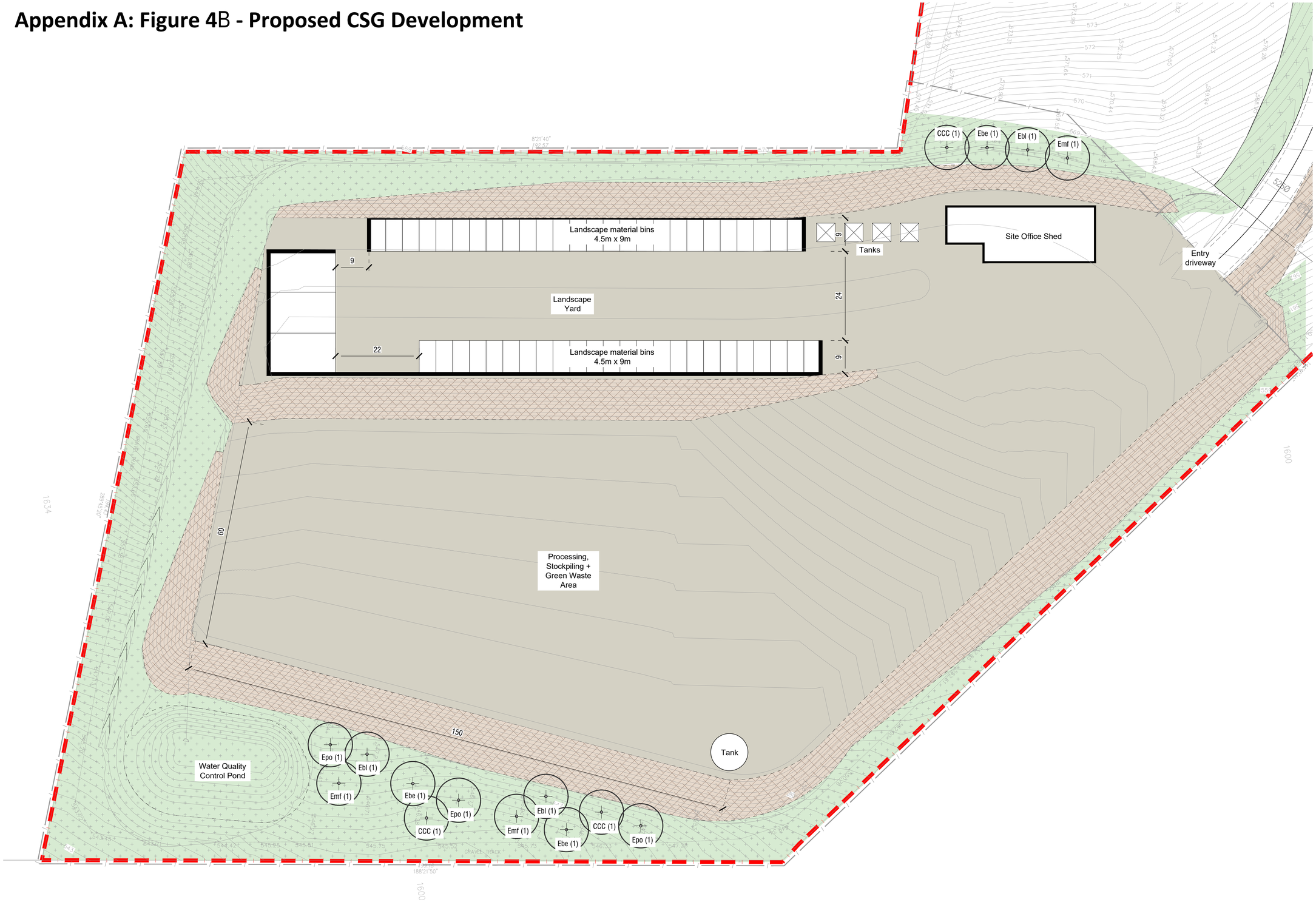
SITE PLAN

21-000475 D005 ---

Appendix A: Figure 4B - Proposed CSG Development



LEGEND

BOUNDARIES

- SITE BOUNDARY

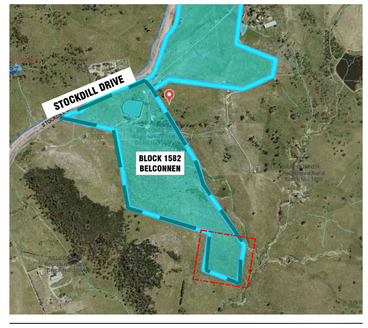
PROPOSED PLANTING

- TREES

PROPOSED SURFACES - PERMEABLE

- DRYLAND GRASS
  To TCCS Standards
- STABILISED BATTER (1:2 GRADE)
  Refer Engineer's Drawings
- EXISTING SITE SURFACE
  Regraded and compacted - refer Engineer

KEY PLAN



SCALE
1:500 @A1

REV	DESCRIPTION	DATE	DWN	CHK
A	FOR APPROVAL	08.04.22	MD	SK

CLIENT
Ginninderry

ENGINEER
calibre

CONSULTANT
Place Logic
Urban Design |
Landscape Architecture
www.placelogic.com.au |
ABN 25 619 179 743

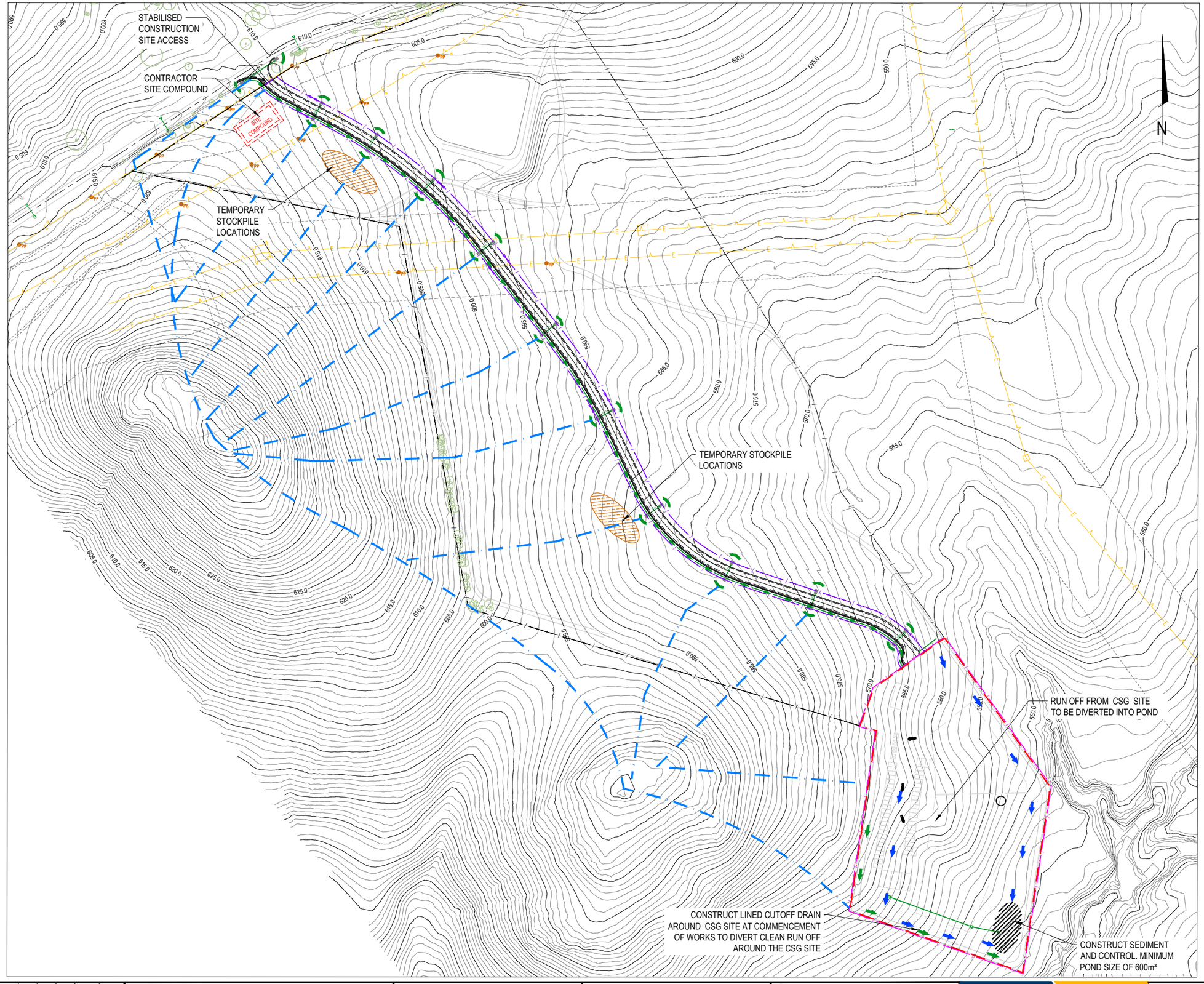
LANDSCAPE PLAN (2 of 2)

PROJECT
21-321 Canberra Sand & Gravel
Block 1582 Belconnen, ACT

ISSUE: DEVELOPMENT APPLICATION
REV.: A

L402

Appendix A: Figure 4C - Erosion and Sediment Control Plan



LEGEND

- SF — SILT FENCE
- SW — STORMWATER, HEADWALL
- GRASSED SWALE
- 575.0 — EXISTING CONTOURS @ 1m INTERVALS
- TEMPORARY FENCE (1800mm HIGH MESH)
- EXISTING FENCE
- E — ELECTRICITY HV OVERHEAD
- CATCHMENT BOUNDARIES
- OVERLAND FLOW PATH
- CUTOFF DRAIN FOR CSG SITE RUNOFF
- EXISTING DAM
- SEDIMENT BASIN
- STOCKPILE
- SITE COMPOUND
- HAY BALE
- EXISTING TREE

NOTES

1. THIS DRAWING IS A CONCEPT PLAN ONLY. A POLLUTION CONTROL PLAN WILL NEED TO BE DESIGNED TO COMPLY WITH THE REQUIREMENTS OF THE ENVIRONMENT PROTECTION ACT 1997 AND THE "ENVIRONMENT PROTECTION GUIDELINES FOR CONSTRUCTION AND LAND DEVELOPMENT IN THE ACT", EPA MARCH 2011.
2. VARIATIONS TO APPROVED CONCEPTS AND PROPOSALS ARE TO BE ENDORSED BY ENVIRONMENT PROTECTION AUTHORITY PRIOR TO IMPLEMENTATION.
3. THE CONTRACTOR MUST ENTER INTO AN ENVIRONMENT PROTECTION AGREEMENT WITH THE ENVIRONMENT PROTECTION AUTHORITY.
4. SEDIMENTATION POND LOCATION SHALL BE APPROVED BY SUPERINTENDENT PRIOR TO ITS CONSTRUCTION.
5. NO SPOIL TO BE REMOVED FROM SITE UNLESS APPROVED BY EPA.
6. FOR DETAILS OF STORMWATER NETWORK REFER STORMWATER MASTER PLANS ON 21-000475-D060.
7. REFER TO TREE MANAGEMENT PLAN FOR MANAGEMENT DETAILS OF THE TREES TO BE RETAINED.
8. ENVIRONMENTAL PROTECTION MEASURES INCLUDING STABILISED ACCESS POINTS, DUST SUPERESSION,RECYCLING OF WATER, ARE TO BE MAINTAINED AT ALL TIMES AND AN APPROPRIATE MAINTENANCE SCHEDULE SHALL BE PROVIDED PRIOR TO COMMENCEMENT OF WORKS.
9. FOR ALL IMPORTED FILL MATERIAL, THE DETAILS OF ORIGIN AND QUANTITY ARE TO BE RECORDED AND PROVIDED TO ENVIRONMENT ACT PRIOR TO COMMENCEMENT OF EARTHWORKS.
10. TEMPORARY FENCING SHALL BE PLACED AROUND ALL EXISTING TREES TO BE RETAINED PRIOR COMMENCEMENT OF WORKS.
11. ERECT 1.8m HIGH TEMPORARY FENCE PANELS AROUND WORKS AREA BEFORE COMMENCEMENT OF WORKS.

Plot Date: 8-Apr-22, 9:57 AM File: H:\21\21-000475\6_Model\Civil3D\21-000475-D100.dwg User:Byju Mathew

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AMENDMENTS					

AMENDMENT DETAILS

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SCALE 1:2000 (A1) SCALE 1:4000 (A3)

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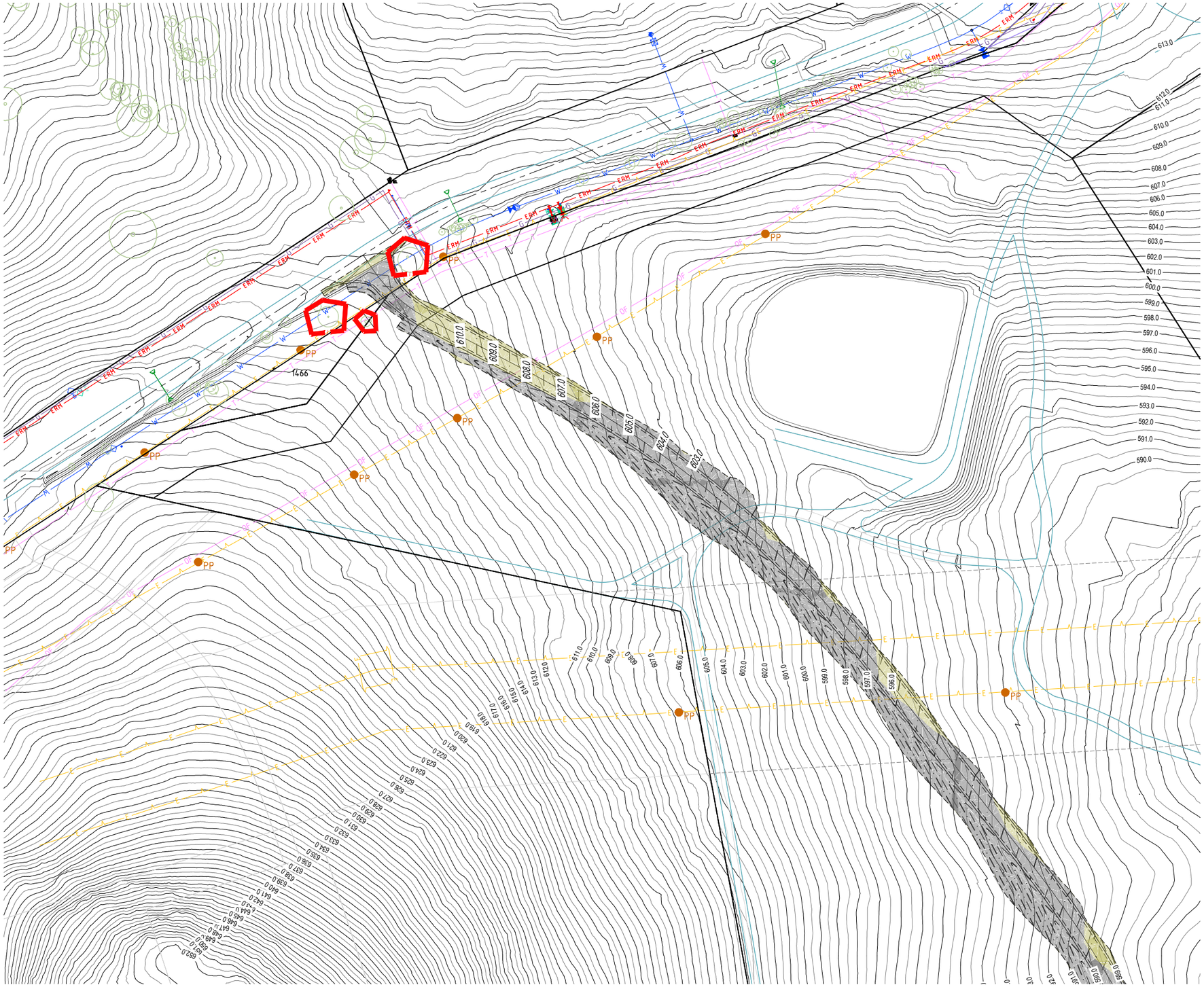
CONCEPT SEDIMENT AND EROSION CONTROL PLAN

21-000475 D100 ---

Appendix A: Figure 4D - Grading Plan



LEGEND

- GRADING LIMITS
- FILL
- CUT
- 567.0 — DESIGN CONTOUR (CONTOUR INTERVAL 0.2m)
- 567.0 — EXISTING CONTOUR (CONTOUR INTERVAL 0.2m)
- RETAINING WALL (REFER TO TYPICAL DETAILS ON DRAWING21-000475-xxx)
- SWALE DRAIN
- TREE TO BE RETAINED
- TREE TO BE REMOVED
- TREE PROTECTION FENCE
- STAGE BOUNDARY
- ESTATE BOUNDARY
- CUTOFF DRAIN FOR CLEAR WATER DIVERSION
- CUTOFF DRAIN FOR CSG SITE RUNOFF

N

NOTES

1. PRIOR TO COMMENCING EARTHWORKS STRIP TOPSOIL FOR INSPECTION BY SUPERINTENDENT. HOLD POINT. SURFACE TO BE INSPECTED FOR PRE EXISTING FILL.
2. SILTY SOILS UNDERLYING THE TOPSOIL IS TO BE REMOVED IN ROAD SUGRADES.
3. GENERALLY DISTURBED AREAS ARE TO BE TOPSOILED UP TO 150mm THICKNESS WITH SITE TOPSOIL AND GRASSED. BLOCKS ARE TO BE TOPSOILED 200mm THICKNESS.
4. FILL FROM EXCAVATIONS WHICH MEETS THE REQUIREMENT FOR CONTROLLED FILL SHALL BE PLACED ON BLOCKS TO THE FULL DEPTH OF FILL.
5. STOCKPILES OF TOPSOIL ARE NOT TO BE LEFT ON COMPLETION OF WORKS.
6. WHERE DIRECTED BY THE SUPERINTENDENT PLACE CONTROLLED FILL ON BLOCKS AND ORDINARY FILL IN ROAD RESERVES TO UTILISE ALL SURPLUS SPOIL MATERIAL FROM THE SITE.
7. FILL ON BLOCKS SHALL BE CONTROLLED FILL PLACED TO LEVEL 1 CONTROL TO AS3598.

SURVEY PROVIDED BY
DATE OF SURVEY

	DESIGN	DRAWN	CHECK	APPROVED	DATE
FIRST ISSUE	AKM	BM			08/04/2022
AMENDMENTS					

AMENDMENT DETAILS

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SCALE 1:1000 (A1) SCALE 1:2000 (A3)

WAE No. ---

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GRADING PLAN

SHEET 1 OF 5

21-000475 D120 ---

Plot Date: 8-Apr-22, 9:57 AM File: H:\2121-000475\6_ModelCivil3D\21-000475-D120.dwg User:Byju Mathew

Appendix A: Figure 4D - Grading Plan

FIRST ISSUE	DESIGN	DRAWN	CHECK	APPROVED	DATE
	AKM	BM			08/04/2022

AMENDMENTS

AMENDMENT DETAILS

0 10 20 30 40 50 60 70 80
SCALE 1:1000 (A1) SCALE 1:2000 (A3)

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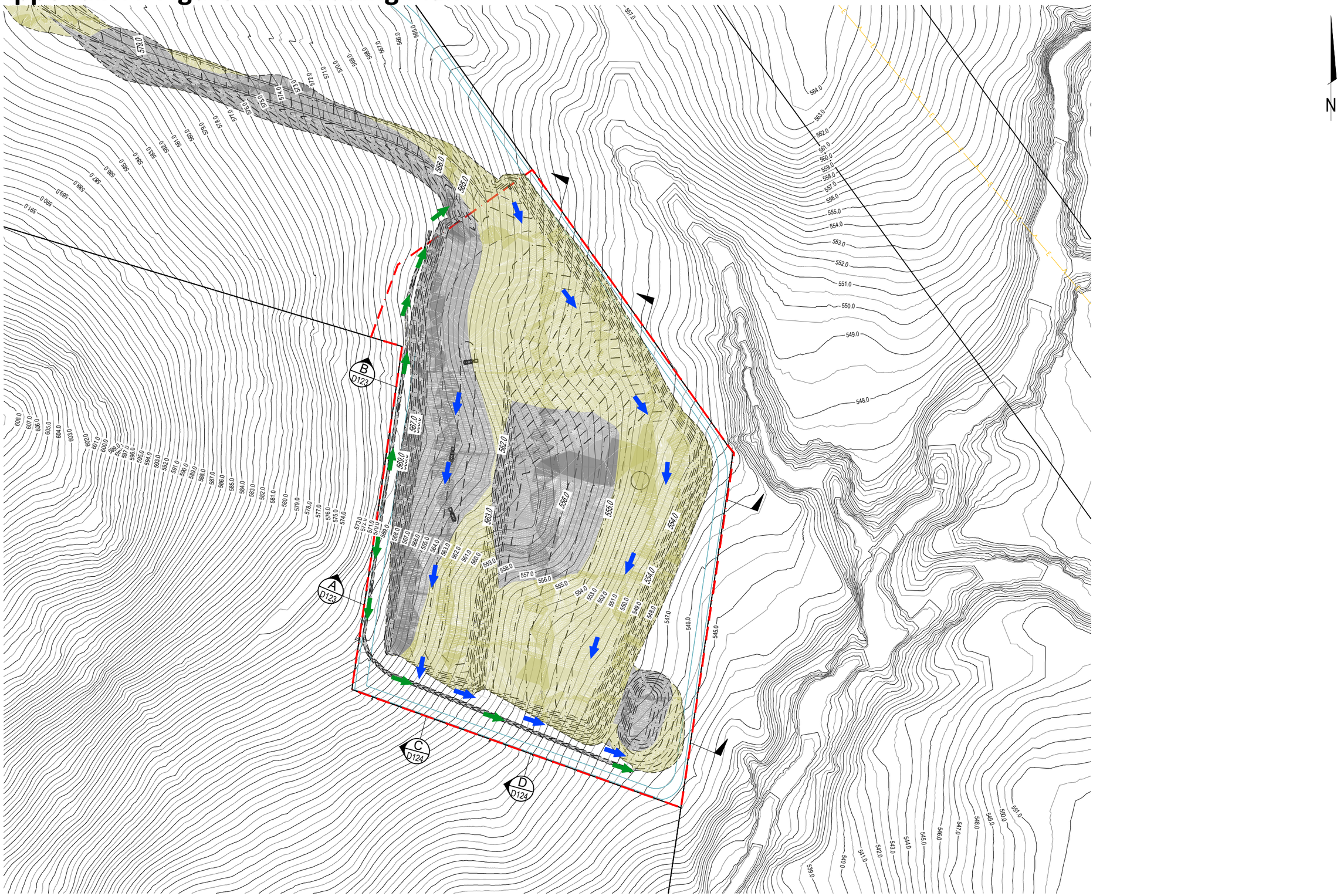
GRADING PLAN

SHEET 2 OF 5

21-000475 D121 ---

Plot Date: 8-Apr-22, 9:57 AM File: H:\21\21-000475\6_Model\Civil3D\21-000475-D120.dwg User:Byju Mathew

Appendix A: Figure 4D - Grading Plan



FIRST ISSUE	DESIGN	DRAWN	CHECK	APPROVED	DATE
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AMENDMENTS

AMENDMENT DETAILS

SCALE 1:100 (A1) SCALE 1:200 (A3)

WAE No. ---

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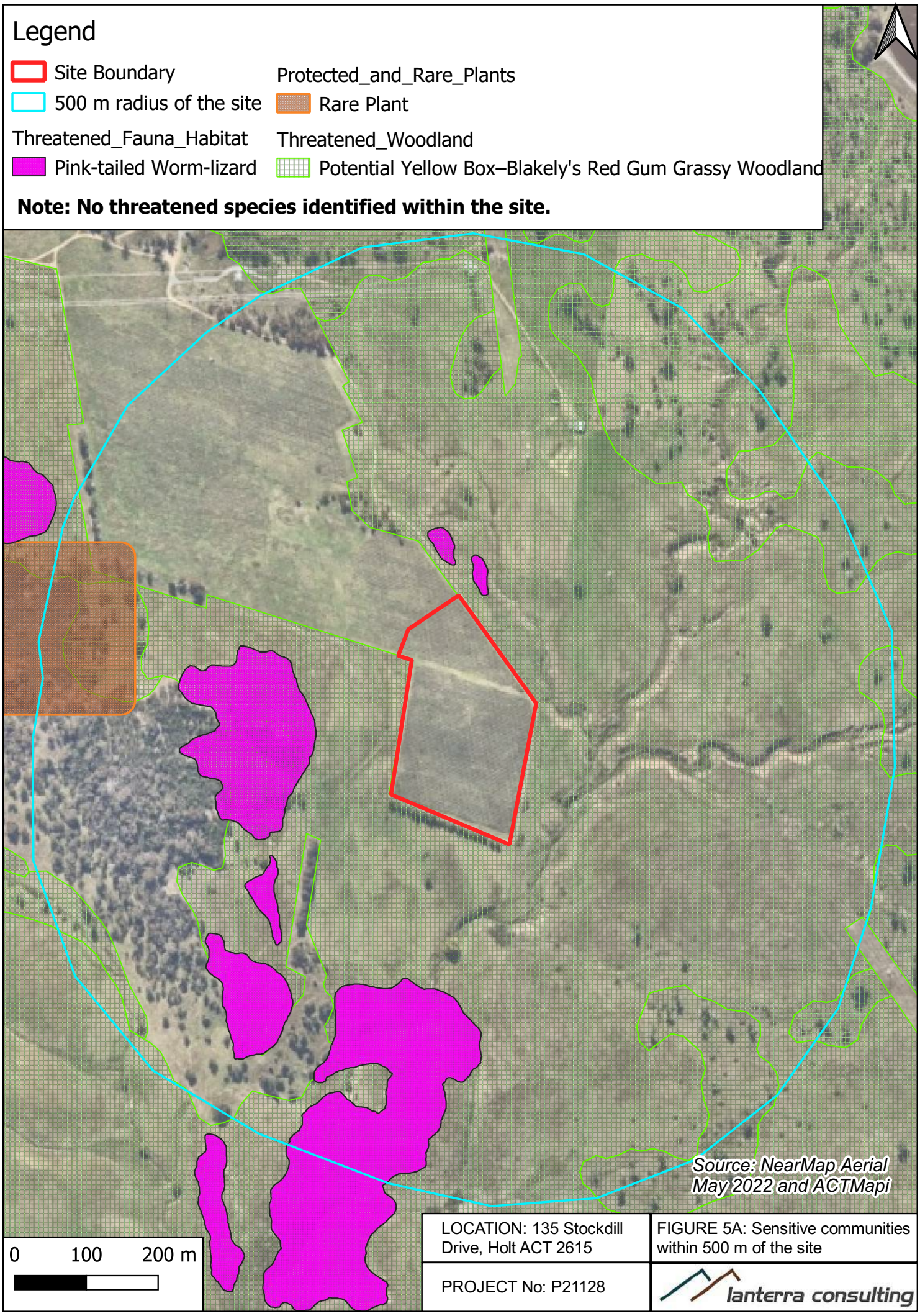
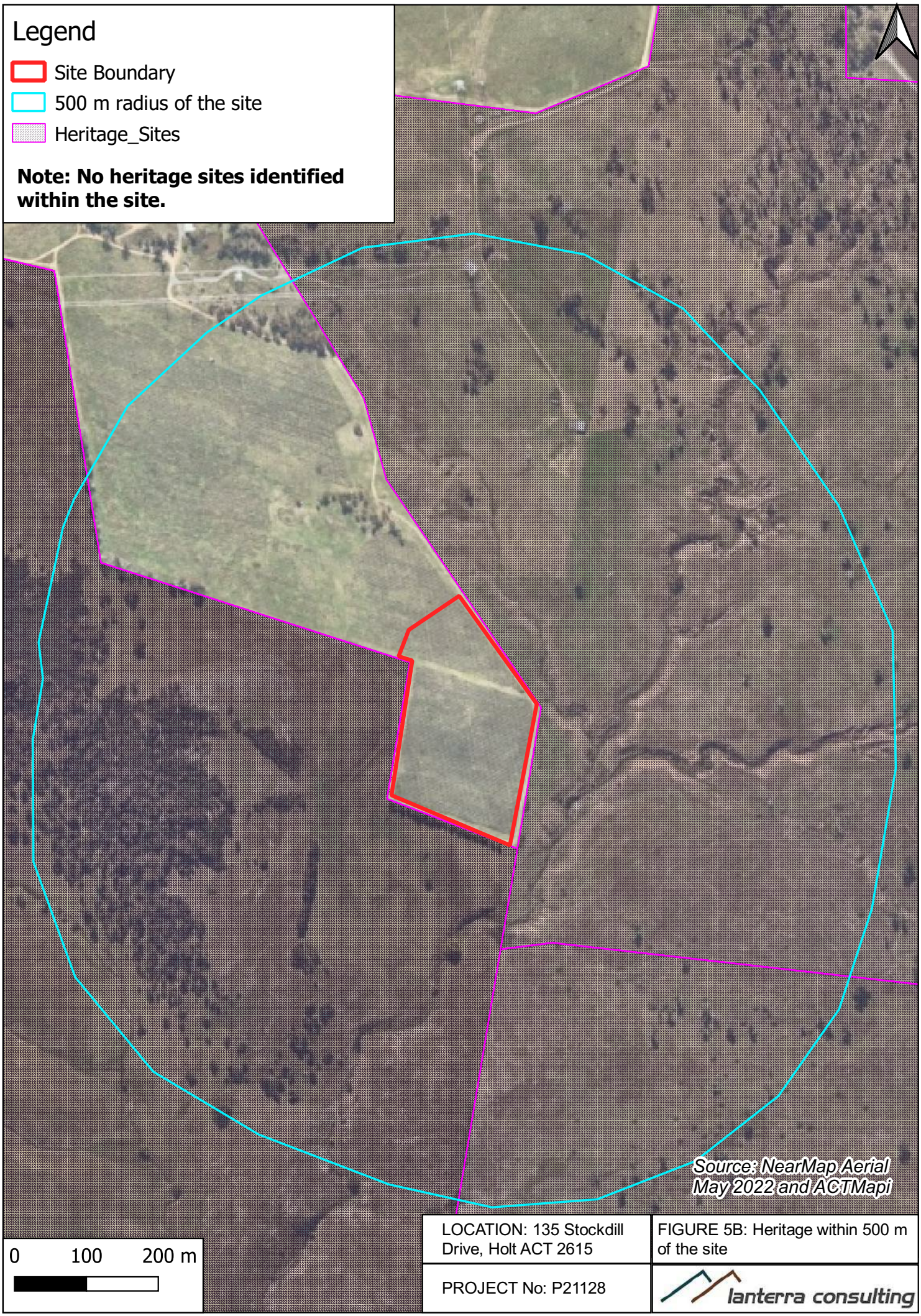
CSG SITE GRADING PLAN

SHEET 3 OF 5

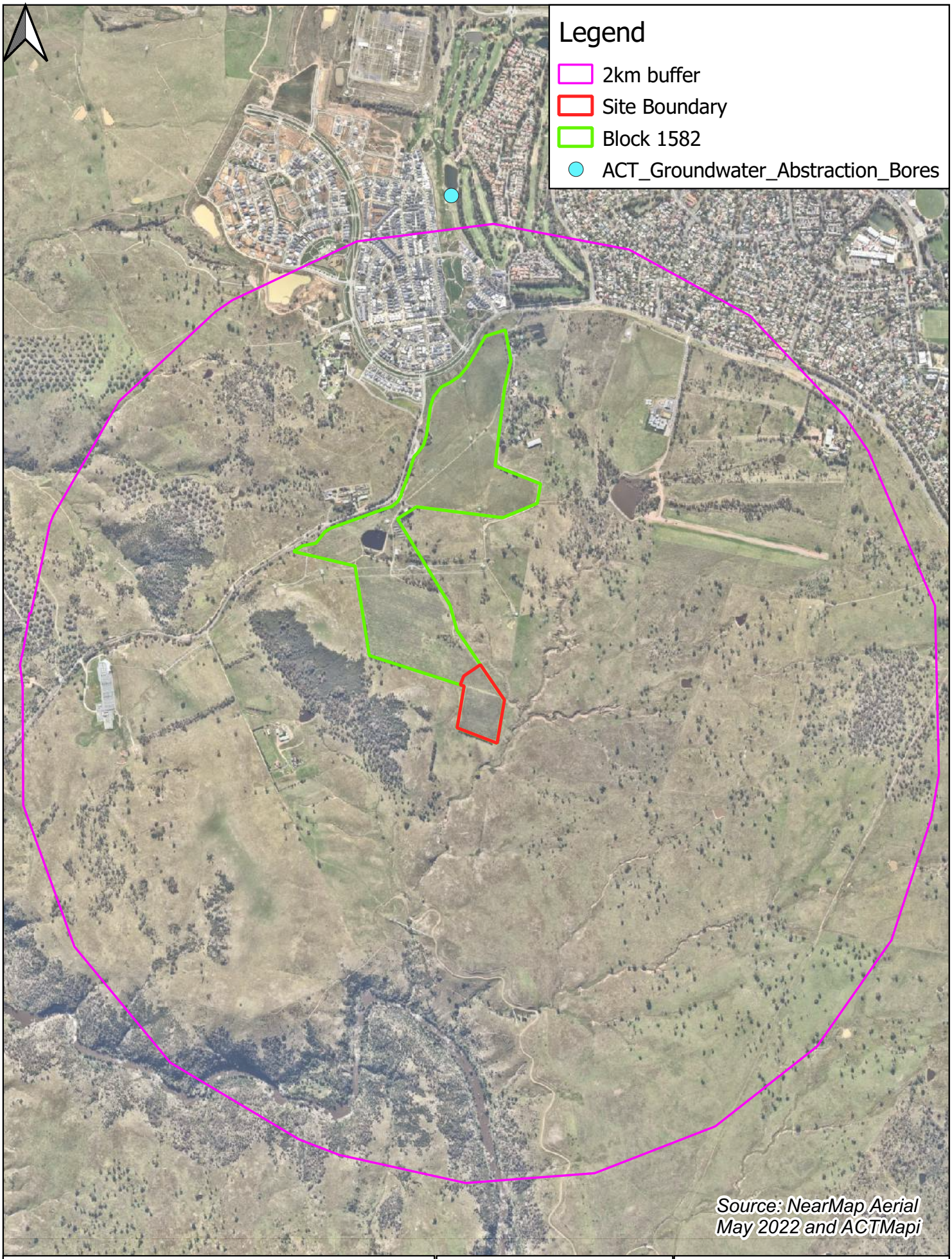
21-000475 D122 ---

Plot Date: 8-Apr-22, 9:57 AM File: H:\2121-000475\6_Model\Civil3D\21-000475-D120.dwg User:Byju Mathew


Legend
Site Boundary
500 m radius of the site
Protected_and_Rare_Plants
Rare Plant
Threatened_Fauna_Habitat
Pink-tailed Worm-lizard
Threatened_Woodland
Potential Yellow Box–Blakely's Red Gum Grassy Woodland
Note: No threatened species identified within the site.
Source: NearMap Aerial May 2022 and ACTMapi
0
100
200 m
LOCATION: 135 Stockdill Drive, Holt ACT 2615
FIGURE 5A: Sensitive communities within 500 m of the site
PROJECT No: P21128
lanterra consulting



LOCATION: 135 Stockdill Drive, Holt ACT 2615	FIGURE 5B: Heritage within 500 m of the site
PROJECT No: P21128	lanterra consulting



500 0 500 1000 m

LOCATION: 135 Stockdill Drive, Holt ACT 2615

FIGURE 6: Groundwater Bores

PROJECT No: P21128

lanterra consulting

Appendix B

Laboratory Data Summary Table and Laboratory Reports

P21128 Canberra Sand and Gravel Relocation - Site Suitability Report (Block 1582)
Appendix B: Table 1 Analytical Results for Surface Water

						Field_ID	Upstream	Downstrea	QC1	RPD (Dup)
						Sampled-date	8/04/2022	8/04/2022	8/04/2022	
Method Type	**ChemName**	**Units**	**EQL**	AQUA/2 Environment Protection Regulation 2005	ANZG 2018 & PFAS NEMP 2.0 - 95% Protection for Freshwater Species					
Metals in water	Arsenic, As	µg/L	1	50	24 [a]		**2**	<1	**2**	**0%**
	Cadmium, Cd	µg/L	0.1	0.2	0.2		<0.1	<0.1	<0.1	**0%**
	Chromium, Cr	µg/L	1	2 [c]	1 [b]		**1**	<1	**1**	**0%**
	Copper, Cu	µg/L	1	2	1.4		**4**	<1	**4**	**0%**
	Lead, Pb	µg/L	1	1	3.4		<1	<1	<1	N/A
	Nickel, Ni	µg/L	1	25	11		**2**	**1**	**2**	**0%**
	Zinc, Zn	µg/L	5	5	8		<5	<5	<5	N/A
	Aluminium, Al	µg/L	5	5 / 100 [d]	0.8 / 55 [d]		**1400**	**240**	**1300**	**7%**
	Iron, Fe	µg/L	5	300			**990**	**220**	**960**	**3%**
	Mercury	mg/L	0	0.1	0.6		<0.0001	<0.0001	<0.0001	N/A
Organochlorine Pesticides	Alpha BHC	µg/L	0.1				<0.1	<0.1	<0.1	**0%**
	Hexachlorobenzene (HCB)	µg/L	0.1	0.007	0.1		<0.1	<0.1	<0.1	**0%**
	Beta BHC	µg/L	0.1				<0.1	<0.1	<0.1	**0%**
	Lindane (gamma BHC)	µg/L	0.1	0.003	0.2		<0.1	<0.1	<0.1	**0%**
	Delta BHC	µg/L	0.1				<0.1	<0.1	<0.1	**0%**
	Heptachlor	µg/L	0.1	0.003	0.09		<0.1	<0.1	<0.1	**0%**
	Aldrin	µg/L	0.1	0.01	0.001		<0.1	<0.1	<0.1	**0%**
	Heptachlor epoxide	µg/L	0.1				<0.1	<0.1	<0.1	**0%**
	Gamma Chlordane	µg/L	0.1	0.004	0.08		<0.1	<0.1	<0.1	**0%**
	Alpha Chlordane	µg/L	0.1	0.004	0.08		<0.1	<0.1	<0.1	**0%**
	Alpha Endosulfan	µg/L	0.1	0.01	0.2		<0.1	<0.1	<0.1	**0%**
	o,p'-DDE	µg/L	0.1	0.014			<0.1	<0.1	<0.1	**0%**
	p,p'-DDE	µg/L	0.1	0.014			<0.1	<0.1	<0.1	**0%**
	Dieldrin	µg/L	0.1	0.002	0.01		<0.1	<0.1	<0.1	**0%**
	Endrin	µg/L	0.1	0.0023	0.02		<0.1	<0.1	<0.1	**0%**
	Beta Endosulfan	µg/L	0.1	0.01	0.2		<0.1	<0.1	<0.1	**0%**
	o,p'-DDD	µg/L	0.1				<0.1	<0.1	<0.1	**0%**
	p,p'-DDD	µg/L	0.1				<0.1	<0.1	<0.1	**0%**
	Endosulfan sulphate	µg/L	0.1				<0.1	<0.1	<0.1	**0%**
	o,p'-DDT	µg/L	0.1	0.001	0.01		<0.1	<0.1	<0.1	**0%**
	p,p'-DDT	µg/L	0.1	0.001	0.01		<0.1	<0.1	<0.1	**0%**
	Endrin ketone	µg/L	0.1		0.04		<0.1	<0.1	<0.1	**0%**
	Methoxychlor	µg/L	0.1	0.04	0.005		<0.1	<0.1	<0.1	**0%**
	trans-Nonachlor	µg/L	0.1				<0.1	<0.1	<0.1	**0%**
	Endrin aldehyde	µg/L	0.1				<0.1	<0.1	<0.1	**0%**
	Isodrin	µg/L	0.1				<0.1	<0.1	<0.1	**0%**
	Mirex	µg/L	0.1	0.001	0.04		<0.1	<0.1	<0.1	**0%**
	Total OC	µg/L	1				<0.1	<0.1	<0.1	**0%**
Organophosphorus Pesticides	Dichlorvos	µg/L	0.5				<0.5	<0.5	<0.5	**0%**
	Dimethoate	µg/L	0.5		0.15		<0.5	<0.5	<0.5	**0%**
	Diazinon (Dimpylate)	µg/L	0.5		0.01		<0.5	<0.5	<0.5	**0%**
	Fenitrothion	µg/L	0.2		0.2		<0.2	<0.2	<0.2	**0%**
	Malathion	µg/L	0.2	0.07	0.05		<0.2	<0.2	<0.2	**0%**
	Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	0.001	0.01		<0.2	<0.2	<0.2	**0%**
	Parathion-ethyl (Parathion)	µg/L	0.2	0.004	0.004		<0.2	<0.2	<0.2	**0%**
	Bromophos Ethyl	µg/L	0.2				<0.2	<0.2	<0.2	**0%**
	Methidathion	µg/L	0.5				<0.5	<0.5	<0.5	**0%**
	Ethion	µg/L	0.2				<0.2	<0.2	<0.2	**0%**
	Azinphos-methyl	µg/L	0.2		0.02		<0.2	<0.2	<0.2	**0%**
PAHs	Naphthalene	µg/L	0.1		16		<0.1	<0.1	<0.1	**0%**
	2-methylnaphthalene	µg/L	0.1				<0.1	<0.1	<0.1	**0%**
	1-methylnaphthalene	µg/L	0.1				<0.1	<0.1	<0.1	**0%**
	Acenaphthylene	µg/L	0.1				<0.1	<0.1	<0.1	**0%**
	Acenaphthene	µg/L	0.1				<0.1	<0.1	<0.1	**0%**
	Fluorene	µg/L	0.1				<0.1	<0.1	<0.1	**0%**
	Phenanthrene	µg/L	0.1		2		<0.1	<0.1	<0.1	**0%**
	Anthracene	µg/L	0.1		0.4		<0.1	<0.1	<0.1	**0%**
	Fluoranthene	µg/L	0.1		1.4		<0.1	<0.1	<0.1	**0%**
	Pyrene	µg/L	0.1				<0.1	<0.1	<0.1	**0%**
	Benzo(a)anthracene	µg/L	0.1				<0.1	<0.1	<0.1	**0%**
	Chrysene	µg/L	0.1				<0.1	<0.1	<0.1	**0%**
	Benzo(b&j)fluoranthene	µg/L	0.1				<0.1	<0.1	<0.1	**0%**
	Benzo(k)fluoranthene	µg/L	0.1				<0.1	<0.1	<0.1	**0%**
	Benzo(a)pyrene	µg/L	0.1		0.2		<0.1	<0.1	<0.1	**0%**
	Indeno(1,2,3-cd)pyrene	µg/L	0.1				<0.1	<0.1	<0.1	**0%**
	Dibenzo(ah)anthracene	µg/L	0.1				<0.1	<0.1	<0.1	**0%**
	Benzo(ghi)perylene	µg/L	0.1				<0.1	<0.1	<0.1	**0%**
	Total PAH (18)	µg/L	1	3	6.5		<1	<1	<1	**0%**
PCBs	Arochlor 1016	µg/L	1				<1	<1	<1	**0%**
	Arochlor 1221	µg/L	1				<1	<1	<1	**0%**
	Arochlor 1232	µg/L	1				<1	<1	<1	**0%**
	Arochlor 1242	µg/L	1		0.6		<1	<1	<1	**0%**
	Arochlor 1248	µg/L	1				<1	<1	<1	**0%**
	Arochlor 1254	µg/L	1		0.03		<1	<1	<1	**0%**
	Arochlor 1260	µg/L	1				<1	<1	<1	**0%**
	Arochlor 1262	µg/L	1				<1	<1	<1	**0%**
	Arochlor 1268	µg/L	1				<1	<1	<1	**0%**
	Total Arochlors	µg/L	5	0.001	0.63		<5	<5	<5	**0%**
TRH Soil C10-C40 NEPM	TRH C10-C14	µg/L	50				<50	<50	**62**	N/A
	TRH C15-C28	µg/L	200				<200	<200	<200	**0%**
	TRH C29-C36	µg/L	200				<200	<200	<200	**0%**
	TRH C37-C40	µg/L	200				<200	<200	<200	**0%**
	TRH >C10-C16	µg/L	60				<60	<60	**63**	N/A
	TRH >C10-C16 - Naphthalene (F2)	µg/L	60				<60	<60	**63**	N/A
	TRH >C16-C34 (F3)	µg/L	500				<500	<500	<500	**0%**
	TRH >C34-C40 (F4)	µg/L	500				<500	<500	<500	**0%**
	TRH C10-C40	µg/L	320				<320	<320	<320	**0%**

P21128 Canberra Sand and Gravel Relocation - Site Suitability Report (Block 1582)
Appendix B: Table 1 Analytical Results for Surface Water

						Field_ID	Upstream	Downstrea	QC1	RPD (Dup)
						Sampled-date	8/04/2022	8/04/2022	8/04/2022	
Method Type	**ChemName**	**Units**	**EQL**	AQUA/2 Environment Protection Regulation 2005	ANZG 2018 & PFAS NEMP 2.0 - 95% Protection for Freshwater Species					
BTEX + VOC	Benzene	µg/L	0.5	300	950		<0.5	<0.5	<0.5	0%
	Toluene	µg/L	0.5	300	180		<0.5	<0.5	<0.5	0%
	Ethylbenzene	µg/L	0.5	140	80		<0.5	<0.5	<0.5	0%
	m/p-xylene	µg/L	1		275		<1	<1	<1	0%
	o-xylene	µg/L	0.5		350		<0.5	<0.5	<0.5	0%
	Naphthalene (VOC)	µg/L	0.5		16		<0.5	<0.5	<0.5	0%
	Total Xylenes	µg/L	1.5		625		<1.5	<1.5	<1.5	0%
	Total BTEX	µg/L	3				<3	<3	<3	0%
	Benzene (F0)	µg/L	0.5	300	950		<0.5	<0.5	<0.5	0%
	TRH C6-C9	µg/L	40				<40	<40	<40	0%
	TRH C6-C10	µg/L	50				<50	<50	<50	0%
	TRH C6-C10 minus BTEX (F1)	µg/L	50				<50	<50	<50	0%
Speciated Phenols	Phenol	µg/L	0.5	1	320		<0.5	<0.5	<0.5	0%
	2-methyl phenol (o-cresol)	µg/L	0.5				<0.5	<0.5	<0.5	0%
	3/4-methyl phenol (m/p-cresol)	µg/L	1				<1	<1	<1	0%
	Total Cresol	µg/L	1.5				<1.5	<1.5	<1.5	0%
	2-chlorophenol	µg/L	0.5	7 [e]	490		<0.5	<0.5	<0.5	0%
	2,4-dimethylphenol	µg/L	0.5		2		<0.5	<0.5	<0.5	0%
	2,6-dichlorophenol	µg/L	0.5	0.2 [e]	34		<0.5	<0.5	<0.5	0%
	2,4-dichlorophenol	µg/L	0.5	0.2 [e]	160		<0.5	<0.5	<0.5	0%
	2,4,6-trichlorophenol	µg/L	0.5	18 [e]	20		<0.5	<0.5	<0.5	0%
	2-nitrophenol	µg/L	0.5				<0.5	<0.5	<0.5	0%
	4-nitrophenol	µg/L	1		58		<1	<1	<1	0%
	2,4,5-trichlorophenol	µg/L	0.5	18 [e]			<0.5	<0.5	<0.5	0%
	2,3,4,6/2,3,5,6-tetrachlorophenol	µg/L	1	1 [e]	20		<1	<1	<1	0%
	Pentachlorophenol	µg/L	0.5	0.05	10		<0.5	<0.5	<0.5	0%
	2,4-dinitrophenol	µg/L	2		45		<2	<2	<2	0%
	4-chloro-3-methylphenol	µg/L	2				<2	<2	<2	0%
Soluble Anions	Nitrate Nitrogen, NO3-N	mg/L	0.01		2400 [f]		**0.28**	**0.21**	**0.27**	4%
	Chloride	mg/L	1				**18**	**110**	**19**	5%
	Sulfate, SO4	mg/L	1				**20**	**22**	**20**	0%
	Fluoride	mg/L	0.02				**0.1**	**0.45**	**0.09**	11%
Nutrients	Nitrite Nitrogen, NO2 as N	mg/L	0.01	60			**0.007**	<0.005	**0.006**	15%
	Filterable Reactive Phosphorus as P	mg/L	0.01	0.1 [g]			**0.021**	<0.005	**0.02**	5%
Cattions	Calcium, Ca	mg/L	0.1				**7.2**	**37**	**7.3**	1%
	Magnesium, Mg	mg/L	0.1				**4.6**	**27**	**4.7**	2%
	Sodium, Na	mg/L	0.1				**16**	**78**	**17**	6%
	Potassium, K	mg/L	0.2				**7.9**	**9.5**	**8**	1%
Physio chemical	pH	pH units	0	6.5 - 9			**6.3**	**7.3**	**6.3**	0%
	Conductivity @ 25 C	µS/cm	2				**170**	**700**	**170**	0%
	Total Dissolved Solids (by calculation)	mg/L	2				**100**	**420**	**100**	0%
	Bicarbonate Alkalinity as CaCO3	mg/L	5				**27**	**200**	**27**	0%
	Carbonate Alkalinity as CaCO3	mg/L	1				<1	<1	<1	0%
	Hydroxide Alkalinity as CaCO3	mg/L	5				<5	<5	<5	0%
	Phenolphthalein Alkalinity as CaCO3	mg/L	5				<5	<5	<5	0%
	Total Alkalinity as CaCO3	mg/L	5				**27**	**200**	**27**	0%
	Acidity to pH 8.3	mg CaCO3/L	5				**13**	**16**	**12**	8%
Per- and Polyfluoro alkyl Substance s (PFAS)	Perfluorobutanoic acid (PFBA)	µg/L	0.002				**0.005**	**0.002**	**0.005**	0%
	Perfluoropentanoic acid (PFPeA)	µg/L	0.002				<0.002	<0.002	<0.002	0%
	Perfluorohexanoic acid (PFHxA)	µg/L	0.002				<0.002	<0.002	<0.002	0%
	Perfluoroheptanoic acid (PFHpA)	µg/L	0.002				<0.002	<0.002	<0.002	0%
	Perfluorooctanoic Acid (PFOA)	µg/L	0.002		220		<0.002	<0.002	<0.002	0%
	Perfluorononanoic acid (PFNA)	µg/L	0.004				<0.004	<0.004	<0.004	0%
	Perfluorodecanoic acid (PFDA)	µg/L	0.004				<0.004	<0.004	<0.004	0%
	Perfluoroundecanoic acid (PFUnA)	µg/L	0.004				<0.004	<0.004	<0.004	0%
	Perfluorododecanoic acid (PFDoA)	µg/L	0.004				<0.004	<0.004	<0.004	0%
	Perfluorotridecanoic acid (PFTrDA)	µg/L	0.004				<0.004	<0.004	<0.004	0%
	Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.004				<0.004	<0.004	<0.004	0%
	Perfluorohexadecanoic acid (PFHxDA)	µg/L	0.008				<0.008	<0.008	<0.008	0%
	Perfluorobutane sulfonate (PFBS)	µg/L	0.004				<0.004	<0.004	<0.004	0%
	Perfluoropentane sulfonate (PFPeS)	µg/L	0.004				<0.004	<0.004	<0.004	0%
	Perfluorohexane sulfonate (PFHxS)	µg/L	0.002				<0.002	<0.002	<0.002	0%
	Perfluoroheptane sulfonate (PFHpS)	µg/L	0.002				<0.002	<0.002	<0.002	0%
	Perfluorooctane sulfonate (PFOS)	µg/L	0.002		0.13		<0.002	<0.002	<0.002	0%
	Sum of PFHxS and PFOS	µg/L	0.002				<0.002	<0.002	<0.002	0%
	Perfluorononane sulfonate (PFNS)	µg/L	0.002				<0.002	<0.002	<0.002	0%
	Perfluorodecane sulfonate (PFDS)	µg/L	0.002				<0.002	<0.002	<0.002	0%
	Perfluorododecane sulfonate (PFDoS)	µg/L	0.002				<0.002	<0.002	<0.002	0%
	1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	µg/L	0.002				<0.002	<0.002	<0.002	0%
	1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	µg/L	0.002				<0.002	<0.002	<0.002	0%
	1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	µg/L	0.002				<0.002	<0.002	<0.002	0%
	Perfluorooctane sulfonamide (PFOSA)	µg/L	0.008				<0.008	<0.008	<0.008	0%
	N-Methylperfluorooctane sulfonamide (N-MeFOSA)	µg/L	0.01				<0.01	<0.01	<0.01	0%
	N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	µg/L	0.01				<0.01	<0.01	<0.01	0%
	2-(N-Methylperfluorooctane sulfonamido)-ethanol (N-MeFOSE)	µg/L	0.01				<0.01	<0.01	<0.01	0%
	2-(N-Ethylperfluorooctane sulfonamido)-ethanol (N-EtFOSE)	µg/L	0.01				<0.01	<0.01	<0.01	0%
	N-Methylperfluorooctanesulfonamidoacetic acid (N_MeFOSAA)	µg/L	0.01				<0.01	<0.01	<0.01	0%
	N-Ethylperfluorooctanesulfonamidoacetic Acid (N-EtFOSAA)	µg/L	0.01				<0.01	<0.01	<0.01	0%
	Total of PFAS (n=30)	µg/L	0.04				<0.04	<0.04	<0.04	0%

Note:
a) Values for Arsenic (III)
b) Values for Chromium (VI)
c) Values for Total Chromium
d) Values for Aluminium with pH < 6.5 and > 6.5 respectively
e) Values for Chlorophenol, Dichlorophenol, Trichlorophenol and Tetrachlorophenol.
f) Grading value based on 95% protection for chronic protection under NIWA 2013 Updating Nitrate Toxicity Effects on Freshwater Aquatic Species
g) Based on the criteria for Total Phosphorus

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Project	**P21128**
Order Number	**P21128**
Samples	3

LABORATORY DETAILS

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SGS Reference	**SE230872 R0**
Date Received	11/4/2022
Date Reported	14/4/2022

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

PFAS subcontracted to SGS Melbourne, Unit 10/585 Blackburn Road Notting Hill VIC 3168, NATA Accreditation Number 2562, Site number 14420. Report Number ME326292.

MA-1523: Majority of surrogate recoveries within acceptance criteria.

SIGNATORIES

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VOCs in Water [AN433] Tested: 11/4/2022

PARAMETER	UOM	LOR	Upstream WATER - 8/4/2022 SE230872.001	Downstream WATER - 8/4/2022 SE230872.002	QC1 WATER - 8/4/2022 SE230872.003
Benzene	µg/L	0.5	<0.5	<0.5	<0.5
Toluene	µg/L	0.5	<0.5	<0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5
m/p-xylene	µg/L	1	<1	<1	<1
o-xylene	µg/L	0.5	<0.5	<0.5	<0.5
Naphthalene (VOC)	µg/L	0.5	<0.5	<0.5	<0.5
Total Xylenes	µg/L	1.5	<1.5	<1.5	<1.5
Total BTEX	µg/L	3	<3	<3	<3

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 11/4/2022

PARAMETER	UOM	LOR	Upstream WATER - 8/4/2022 SE230872.001	Downstream WATER - 8/4/2022 SE230872.002	QC1 WATER - 8/4/2022 SE230872.003
Benzene (F0)	µg/L	0.5	<0.5	<0.5	<0.5
TRH C6-C9	µg/L	40	<40	<40	<40
TRH C6-C10	µg/L	50	<50	<50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50	<50

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 12/4/2022

PARAMETER	UOM	LOR	Upstream WATER - 8/4/2022 SE230872.001	Downstream WATER - 8/4/2022 SE230872.002	QC1 WATER - 8/4/2022 SE230872.003
TRH C10-C14	µg/L	50	<50	<50	**62**
TRH C15-C28	µg/L	200	<200	<200	<200
TRH C29-C36	µg/L	200	<200	<200	<200
TRH C37-C40	µg/L	200	<200	<200	<200
TRH >C10-C16	µg/L	60	<60	<60	**63**
TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60	<60	**63**
TRH >C16-C34 (F3)	µg/L	500	<500	<500	<500
TRH >C34-C40 (F4)	µg/L	500	<500	<500	<500
TRH C10-C40	µg/L	320	<320	<320	<320

PAH (Polynuclear Aromatic Hydrocarbons) in Water [AN420] Tested: 12/4/2022

PARAMETER	UOM	LOR	Upstream WATER - 8/4/2022 SE230872.001	Downstream WATER - 8/4/2022 SE230872.002	QC1 WATER - 8/4/2022 SE230872.003
Naphthalene	µg/L	0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	µg/L	0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	µg/L	0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	µg/L	0.1	<0.1	<0.1	<0.1
Total PAH (18)	µg/L	1	<1	<1	<1

Speciated Phenols in Water [AN420] Tested: 12/4/2022

PARAMETER	UOM	LOR	Upstream WATER - 8/4/2022 SE230872.001	Downstream WATER - 8/4/2022 SE230872.002	QC1 WATER - 8/4/2022 SE230872.003
Phenol	µg/L	0.5	<0.5	<0.5	<0.5
2-methyl phenol (o-cresol)	µg/L	0.5	<0.5	<0.5	<0.5
3/4-methyl phenol (m/p-cresol)	µg/L	1	<1	<1	<1
Total Cresol	µg/L	1.5	<1.5	<1.5	<1.5
2-chlorophenol	µg/L	0.5	<0.5	<0.5	<0.5
2,4-dimethylphenol	µg/L	0.5	<0.5	<0.5	<0.5
2,6-dichlorophenol	µg/L	0.5	<0.5	<0.5	<0.5
2,4-dichlorophenol	µg/L	0.5	<0.5	<0.5	<0.5
2,4,6-trichlorophenol	µg/L	0.5	<0.5	<0.5	<0.5
2-nitrophenol	µg/L	0.5	<0.5	<0.5	<0.5
4-nitrophenol	µg/L	1	<1	<1	<1
2,4,5-trichlorophenol	µg/L	0.5	<0.5	<0.5	<0.5
2,3,4,6/2,3,5,6-tetrachlorophenol	µg/L	1	<1	<1	<1
Pentachlorophenol	µg/L	0.5	<0.5	<0.5	<0.5
2,4-dinitrophenol	µg/L	2	<2	<2	<2
4-chloro-3-methylphenol	µg/L	2	<2	<2	<2

OC Pesticides in Water [AN420] Tested: 12/4/2022

PARAMETER	UOM	LOR	Upstream WATER - 8/4/2022 SE230872.001	Downstream WATER - 8/4/2022 SE230872.002	QC1 WATER - 8/4/2022 SE230872.003
Alpha BHC	µg/L	0.1	<0.1	<0.1	<0.1
Hexachlorobenzene (HCB)	µg/L	0.1	<0.1	<0.1	<0.1
Beta BHC	µg/L	0.1	<0.1	<0.1	<0.1
Lindane (gamma BHC)	µg/L	0.1	<0.1	<0.1	<0.1
Delta BHC	µg/L	0.1	<0.1	<0.1	<0.1
Heptachlor	µg/L	0.1	<0.1	<0.1	<0.1
Aldrin	µg/L	0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	µg/L	0.1	<0.1	<0.1	<0.1
Gamma Chlordane	µg/L	0.1	<0.1	<0.1	<0.1
Alpha Chlordane	µg/L	0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	µg/L	0.1	<0.1	<0.1	<0.1
o,p'-DDE	µg/L	0.1	<0.1	<0.1	<0.1
p,p'-DDE	µg/L	0.1	<0.1	<0.1	<0.1
Dieldrin	µg/L	0.1	<0.1	<0.1	<0.1
Endrin	µg/L	0.1	<0.1	<0.1	<0.1
Beta Endosulfan	µg/L	0.1	<0.1	<0.1	<0.1
o,p'-DDD	µg/L	0.1	<0.1	<0.1	<0.1
p,p'-DDD	µg/L	0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	µg/L	0.1	<0.1	<0.1	<0.1
o,p'-DDT	µg/L	0.1	<0.1	<0.1	<0.1
p,p'-DDT	µg/L	0.1	<0.1	<0.1	<0.1
Endrin ketone	µg/L	0.1	<0.1	<0.1	<0.1
Methoxychlor	µg/L	0.1	<0.1	<0.1	<0.1
trans-Nonachlor	µg/L	0.1	<0.1	<0.1	<0.1
Endrin aldehyde	µg/L	0.1	<0.1	<0.1	<0.1
Isodrin	µg/L	0.1	<0.1	<0.1	<0.1
Mirex	µg/L	0.1	<0.1	<0.1	<0.1
Total OC	µg/L	1	<1	<1	<1
Total OC	µg/L	1	<1	<1	<1

OP Pesticides in Water [AN420] Tested: 12/4/2022

PARAMETER	UOM	LOR	Upstream WATER - 8/4/2022 SE230872.001	Downstream WATER - 8/4/2022 SE230872.002	QC1 WATER - 8/4/2022 SE230872.003
Dichlorvos	µg/L	0.5	<0.5	<0.5	<0.5
Dimethoate	µg/L	0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	µg/L	0.5	<0.5	<0.5	<0.5
Fenitrothion	µg/L	0.2	<0.2	<0.2	<0.2
Malathion	µg/L	0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	µg/L	0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	µg/L	0.2	<0.2	<0.2	<0.2
Methidathion	µg/L	0.5	<0.5	<0.5	<0.5
Ethion	µg/L	0.2	<0.2	<0.2	<0.2
Azinphos-methyl	µg/L	0.2	<0.2	<0.2	<0.2

PCBs in Water [AN420] Tested: 12/4/2022

PARAMETER	UOM	LOR	Upstream WATER - 8/4/2022 SE230872.001	Downstream WATER - 8/4/2022 SE230872.002	QC1 WATER - 8/4/2022 SE230872.003
Arochlor 1016	µg/L	1	<1	<1	<1
Arochlor 1221	µg/L	1	<1	<1	<1
Arochlor 1232	µg/L	1	<1	<1	<1
Arochlor 1242	µg/L	1	<1	<1	<1
Arochlor 1248	µg/L	1	<1	<1	<1
Arochlor 1254	µg/L	1	<1	<1	<1
Arochlor 1260	µg/L	1	<1	<1	<1
Arochlor 1262	µg/L	1	<1	<1	<1
Arochlor 1268	µg/L	1	<1	<1	<1
Total Arochlors*	µg/L	5	<5	<5	<5

Anions by Ion Chromatography in Water [AN245] Tested: 12/4/2022

PARAMETER	UOM	LOR	Upstream WATER - 8/4/2022 SE230872.001	Downstream WATER - 8/4/2022 SE230872.002	QC1 WATER - 8/4/2022 SE230872.003
Nitrate Nitrogen, NO3-N	mg/L	0.005	**0.28**	**0.21**	**0.27**
Chloride	mg/L	1	**18**	**110**	**19**
Sulfate, SO4	mg/L	1	**20**	**22**	**20**
Fluoride	mg/L	0.02	**0.10**	**0.45**	**0.09**

Nitrite in Water [AN277] Tested: 11/4/2022

PARAMETER	UOM	LOR	Upstream WATER - 8/4/2022 SE230872.001	Downstream WATER - 8/4/2022 SE230872.002	QC1 WATER - 8/4/2022 SE230872.003
Nitrite Nitrogen, NO2 as N	mg/L	0.005	**0.007**	<0.005	**0.006**

Filterable Reactive Phosphorus (FRP) [AN278] Tested: 11/4/2022

PARAMETER	UOM	LOR	Upstream WATER - 8/4/2022 SE230872.001	Downstream WATER - 8/4/2022 SE230872.002	QC1 WATER - 8/4/2022 SE230872.003
Filterable Reactive Phosphorus as P	mg/L	0.005	**0.021**	<0.005	**0.020**

pH in water [AN101] Tested: 11/4/2022

PARAMETER	UOM	LOR	Upstream WATER - 8/4/2022 SE230872.001	Downstream WATER - 8/4/2022 SE230872.002	QC1 WATER - 8/4/2022 SE230872.003
pH**	No unit	-	**6.3**	**7.3**	**6.3**

Conductivity and TDS by Calculation - Water [AN106] Tested: 11/4/2022

PARAMETER	UOM	LOR	Upstream WATER - 8/4/2022 SE230872.001	Downstream WATER - 8/4/2022 SE230872.002	QC1 WATER - 8/4/2022 SE230872.003
Conductivity @ 25 C	µS/cm	2	170	700	170
Total Dissolved Solids (by calculation)	mg/L	2	100	420	100

Alkalinity [AN135] Tested: 13/4/2022

PARAMETER	UOM	LOR	Upstream WATER - 8/4/2022 SE230872.001	Downstream WATER - 8/4/2022 SE230872.002	QC1 WATER - 8/4/2022 SE230872.003
Bicarbonate Alkalinity as CaCO3	mg/L	5	**27**	**200**	**27**
Carbonate Alkalinity as CaCO3	mg/L	1	<1	<1	<1
Hydroxide Alkalinity as CaCO3	mg/L	5	<5	<5	<5
Phenolphthalein Alkalinity as CaCO3*	mg/L	5	<5	<5	<5
Total Alkalinity as CaCO3	mg/L	5	**27**	**200**	**27**

Acidity and Free CO2 [AN140] Tested: 13/4/2022

PARAMETER	UOM	LOR	Upstream WATER - 8/4/2022 SE230872.001	Downstream WATER - 8/4/2022 SE230872.002	QC1 WATER - 8/4/2022 SE230872.003
Acidity to pH 8.3	mg CaCO3/L	5	**13**	**16**	**12**

Metals in Water (Dissolved) by ICPOES [AN320] Tested: 13/4/2022

PARAMETER	UOM	LOR	Upstream WATER - 8/4/2022 SE230872.001	Downstream WATER - 8/4/2022 SE230872.002	QC1 WATER - 8/4/2022 SE230872.003
Calcium, Ca	mg/L	0.1	**7.2**	**37**	**7.3**
Magnesium, Mg	mg/L	0.1	**4.6**	**27**	**4.7**
Sodium, Na	mg/L	0.1	**16**	**78**	**17**
Potassium, K	mg/L	0.2	**7.9**	**9.5**	**8.0**

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 12/4/2022

PARAMETER	UOM	LOR	Upstream WATER - 8/4/2022 SE230872.001	Downstream WATER - 8/4/2022 SE230872.002	QC1 WATER - 8/4/2022 SE230872.003
Arsenic, As	µg/L	1	**2**	<1	**2**
Cadmium, Cd	µg/L	0.1	<0.1	<0.1	<0.1
Chromium, Cr	µg/L	1	**1**	<1	**1**
Copper, Cu	µg/L	1	**4**	<1	**4**
Lead, Pb	µg/L	1	<1	<1	<1
Nickel, Ni	µg/L	1	**2**	**1**	**2**
Zinc, Zn	µg/L	5	<5	<5	<5
Aluminium, Al	µg/L	5	**1400**	**240**	**1300**
Iron, Fe	µg/L	5	**990**	**220**	**960**

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 12/4/2022

PARAMETER	UOM	LOR	Upstream WATER - 8/4/2022 SE230872.001	Downstream WATER - 8/4/2022 SE230872.002	QC1 WATER - 8/4/2022 SE230872.003
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples [MA-1523] Tested: 14/4/2022

PARAMETER	UOM	LOR	Upstream WATER - 8/4/2022 SE230872.001	Downstream WATER - 8/4/2022 SE230872.002	QC1 WATER - 8/4/2022 SE230872.003
Perfluorobutanoic acid (PFBA)	µg/L	0.002	**0.005**	**0.002**	**0.005**
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorooctanoic Acid (PFOA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorononanoic acid (PFNA)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluorodecanoic acid (PFDA)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluoroundecanoic acid (PFUnA)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluorododecanoic acid (PFDoA)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluorohexadecanoic acid (PFHxDA)	µg/L	0.008	<0.008	<0.008	<0.008
Perfluorobutane sulfonate (PFBS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluoropentane sulfonate (PFPeS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluorohexane sulfonate (PFHxS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoroheptane sulfonate (PFHpS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonate (PFOS)	µg/L	0.002	<0.002	<0.002	<0.002
Sum of PFHxS and PFOS	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorononane sulfonate (PFNS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorodecane sulfonate (PFDS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorododecane sulfonate (PFDoS)	µg/L	0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonamide (PFOSA)	µg/L	0.008	<0.008	<0.008	<0.008
N-Methylperfluorooctane sulfonamide (N-MeFOSA)	µg/L	0.01	<0.01	<0.01	<0.01
N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	µg/L	0.01	<0.01	<0.01	<0.01
2-(N-Methylperfluorooctane sulfonamido)-ethanol	µg/L	0.01	<0.01	<0.01	<0.01
2-(N-Ethylperfluorooctane sulfonamido)-ethanol	µg/L	0.01	<0.01	<0.01	<0.01
N-Methylperfluorooctanesulfonamidoacetic acid	µg/L	0.01	<0.01	<0.01	<0.01
N-Ethylperfluorooctanesulfonamidoacetic Acid	µg/L	0.01	<0.01	<0.01	<0.01
Total of PFAS (n=30)	µg/L	0.04	<0.04	<0.04	<0.04

METHOD	METHODOLOGY SUMMARY
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN101	pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode (glass plus reference electrode) and is calibrated against 3 buffers purchased commercially. For soils, an extract with water is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+.
AN106	Conductivity and TDS by Calculation: Conductivity is measured by meter with temperature compensation and is calibrated against a standard solution of potassium chloride. Conductivity is generally reported as µmhos /cm or µS/cm @ 25°C. For soils, an extract with water is made at a ratio of 1:5 and the EC determined and reported on the extract, or calculated back to the as-received sample. Total Dissolved Salts can be estimated from conductivity using a conversion factor, which for natural waters, is in the range 0.55 to 0.75. SGS use 0.6. Reference APHA 2510 B.
AN106	Salinity may be calculated in terms of NaCl from the sample conductivity. This assumes all soluble salts present , measured by the conductivity, are present as NaCl.
AN135	Alkalinity (and forms of) by Titration: The sample is titrated with standard acid to pH 8.3 (P titre) and pH 4.5 (T titre) and permanent and/or total alkalinity calculated. The results are expressed as equivalents of calcium carbonate or recalculated as bicarbonate, carbonate and hydroxide. Reference APHA 2320. Internal Reference AN135
AN140	Acidity by Titration: The water sample is titrated with sodium hydroxide to designated pH end point. In a sample containing only carbon dioxide, bicarbonates and carbonates, titration to pH 8.3 at 25°C corresponds to stoichiometric neutralisation of carbonic acid to bicarbonate. Method reference APHA 2310 B.
AN245	Anions by Ion Chromatography: A water sample is injected into an eluent stream that passes through the ion chromatographic system where the anions of interest ie Br, Cl, NO2, NO3 and SO4 are separated on their relative affinities for the active sites on the column packing material. Changes to the conductivity and the UV-visible absorbance of the eluent enable identification and quantitation of the anions based on their retention time and peak height or area. APHA 4110 B
AN277	Nitrite ions, when reacted with a reagent containing sulphanilamide and N-(1-naphthyl)-ethylenediamine dihydrochloride produce a highly coloured azo dye that is measured photometrically at 540nm.
AN278	Filterable Reactive Phosphorus by DA (determined on filtered sample): Orthophosphate reacts with ammonium molybdate (Mo VI) and potassium antimonyl tartrate (Sb III) in acid medium to form an antimony-phosphomolybdate complex. This complex is subsequently reduced with ascorbic acid to form a blue colour and the absorbance is read at 880 nm. The sensitivity of the automated method is 10-20 times that of the macro method. Reference APHA 4500-P F
AN311(Perth)/AN312	Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
AN318	Determination of elements at trace level in waters by ICP-MS technique,, referenced to USEPA 6020B and USEPA 200.8 (5.4).
AN320	Metals by ICP-OES: Samples are preserved with 10% nitric acid for a wide range of metals and some non-metals. This solution is measured by Inductively Coupled Plasma. Solutions are aspirated into an argon plasma at 8000-10000K and emit characteristic energy or light as a result of electron transitions through unique energy levels. The emitted light is focused onto a diffraction grating where it is separated into components .
AN320	Photomultipliers or CCDs are used to measure the light intensity at specific wavelengths. This intensity is directly proportional to concentration. Corrections are required to compensate for spectral overlap between elements . Reference APHA 3120 B.
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). Where F2 is corrected for Naphthalene, the VOC data for Naphthalene is used.
AN403	Additionally, the volatile C6-C9/C6-C10 fractions may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoveerable Hydrocarbons - Silica (TRH-Silica) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.

AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
Calculation	Free and Total Carbon Dioxide may be calculated using alkalinity forms only when the samples TDS is <500mg/L. If TDS is >500mg/L free or total carbon dioxide cannot be reported. APHA4500CO2 D.
MA-1523	This method covers the analysis of per- and polyfluoroalkyl substances (PFAS) in aqueous, solid and biosolid samples and solvent extracts, determined as the total of linear and branched isomers. After spiking with isotopically labelled quantification surrogates and clean-up via SPE cartridges sample extracts are analysed by liquid chromatography/mass spectrometry (LC-MS/MS). PFAS concentrations are determined by isotope dilution quantification.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
***	Indicates that both * and ** apply.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

STATEMENT OF QA/QC PERFORMANCE

SE230872 R0

CLIENT DETAILS

Contact	Kelly Lee
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Project	**P21128**
Order Number	**P21128**
Samples	3

LABORATORY DETAILS

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SGS Reference	**SE230872 R0**
Date Received	11 Apr 2022
Date Reported	14 Apr 2022

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Extraction Date	Acidity and Free CO2	3 items
	pH in water	3 items
Analysis Date	Acidity and Free CO2	3 items
	pH in water	3 items
Surrogate	OC Pesticides in Water	1 item
	OP Pesticides in Water	1 item
	PAH (Polynuclear Aromatic Hydrocarbons) in Water	2 items
	PCBs in Water	1 item
	Speciated Phenols in Water	1 item

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	3 Water
Date documentation received	11/4/2022	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	21.3°C	Sufficient sample for analysis	Yes
Turnaround time requested	Three Days		

HOLDING TIME SUMMARY

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SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Acidity and Free CO2

Method: ME-(AU)-[ENV]AN140

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Upstream	SE230872.001	LB246528	08 Apr 2022	11 Apr 2022	09 Apr 2022	13 Apr 2022†	09 Apr 2022	13 Apr 2022†
Downstream	SE230872.002	LB246528	08 Apr 2022	11 Apr 2022	09 Apr 2022	13 Apr 2022†	09 Apr 2022	13 Apr 2022†
QC1	SE230872.003	LB246528	08 Apr 2022	11 Apr 2022	09 Apr 2022	13 Apr 2022†	09 Apr 2022	13 Apr 2022†

Alkalinity

Method: ME-(AU)-[ENV]AN135

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Upstream	SE230872.001	LB246540	08 Apr 2022	11 Apr 2022	22 Apr 2022	13 Apr 2022	22 Apr 2022	13 Apr 2022
Downstream	SE230872.002	LB246540	08 Apr 2022	11 Apr 2022	22 Apr 2022	13 Apr 2022	22 Apr 2022	13 Apr 2022
QC1	SE230872.003	LB246540	08 Apr 2022	11 Apr 2022	22 Apr 2022	13 Apr 2022	22 Apr 2022	13 Apr 2022

Anions by Ion Chromatography in Water

Method: ME-(AU)-[ENV]AN245

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Upstream	SE230872.001	LB246395	08 Apr 2022	11 Apr 2022	06 May 2022	12 Apr 2022	06 May 2022	12 Apr 2022
Downstream	SE230872.002	LB246395	08 Apr 2022	11 Apr 2022	06 May 2022	12 Apr 2022	06 May 2022	12 Apr 2022
QC1	SE230872.003	LB246395	08 Apr 2022	11 Apr 2022	06 May 2022	12 Apr 2022	06 May 2022	12 Apr 2022

Conductivity and TDS by Calculation - Water

Method: ME-(AU)-[ENV]AN106

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Upstream	SE230872.001	LB246377	08 Apr 2022	11 Apr 2022	06 May 2022	11 Apr 2022	06 May 2022	11 Apr 2022
Downstream	SE230872.002	LB246377	08 Apr 2022	11 Apr 2022	06 May 2022	11 Apr 2022	06 May 2022	11 Apr 2022
QC1	SE230872.003	LB246377	08 Apr 2022	11 Apr 2022	06 May 2022	11 Apr 2022	06 May 2022	11 Apr 2022

Filterable Reactive Phosphorus (FRP)

Method: ME-(AU)-[ENV]AN278

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Upstream	SE230872.001	LB246356	08 Apr 2022	11 Apr 2022	06 May 2022	11 Apr 2022	06 May 2022	11 Apr 2022
Downstream	SE230872.002	LB246356	08 Apr 2022	11 Apr 2022	06 May 2022	11 Apr 2022	06 May 2022	11 Apr 2022
QC1	SE230872.003	LB246356	08 Apr 2022	11 Apr 2022	06 May 2022	11 Apr 2022	06 May 2022	11 Apr 2022

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Upstream	SE230872.001	LB246396	08 Apr 2022	11 Apr 2022	06 May 2022	12 Apr 2022	06 May 2022	13 Apr 2022
Downstream	SE230872.002	LB246396	08 Apr 2022	11 Apr 2022	06 May 2022	12 Apr 2022	06 May 2022	13 Apr 2022
QC1	SE230872.003	LB246396	08 Apr 2022	11 Apr 2022	06 May 2022	12 Apr 2022	06 May 2022	13 Apr 2022

Metals in Water (Dissolved) by ICPOES

Method: ME-(AU)-[ENV]AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Upstream	SE230872.001	LB246505	08 Apr 2022	11 Apr 2022	05 Oct 2022	13 Apr 2022	05 Oct 2022	13 Apr 2022
Downstream	SE230872.002	LB246505	08 Apr 2022	11 Apr 2022	05 Oct 2022	13 Apr 2022	05 Oct 2022	13 Apr 2022
QC1	SE230872.003	LB246505	08 Apr 2022	11 Apr 2022	05 Oct 2022	13 Apr 2022	05 Oct 2022	13 Apr 2022

Nitrite in Water

Method: ME-(AU)-[ENV]AN277

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Upstream	SE230872.001	LB246356	08 Apr 2022	11 Apr 2022	12 Apr 2022	11 Apr 2022	12 Apr 2022	11 Apr 2022
Downstream	SE230872.002	LB246356	08 Apr 2022	11 Apr 2022	12 Apr 2022	11 Apr 2022	12 Apr 2022	11 Apr 2022
QC1	SE230872.003	LB246356	08 Apr 2022	11 Apr 2022	12 Apr 2022	11 Apr 2022	12 Apr 2022	11 Apr 2022

OC Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Upstream	SE230872.001	LB246393	08 Apr 2022	11 Apr 2022	15 Apr 2022	12 Apr 2022	22 May 2022	14 Apr 2022
Downstream	SE230872.002	LB246393	08 Apr 2022	11 Apr 2022	15 Apr 2022	12 Apr 2022	22 May 2022	14 Apr 2022
QC1	SE230872.003	LB246393	08 Apr 2022	11 Apr 2022	15 Apr 2022	12 Apr 2022	22 May 2022	14 Apr 2022

OP Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Upstream	SE230872.001	LB246393	08 Apr 2022	11 Apr 2022	15 Apr 2022	12 Apr 2022	22 May 2022	14 Apr 2022
Downstream	SE230872.002	LB246393	08 Apr 2022	11 Apr 2022	15 Apr 2022	12 Apr 2022	22 May 2022	14 Apr 2022
QC1	SE230872.003	LB246393	08 Apr 2022	11 Apr 2022	15 Apr 2022	12 Apr 2022	22 May 2022	14 Apr 2022

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Upstream	SE230872.001	LB246393	08 Apr 2022	11 Apr 2022	15 Apr 2022	12 Apr 2022	22 May 2022	14 Apr 2022
Downstream	SE230872.002	LB246393	08 Apr 2022	11 Apr 2022	15 Apr 2022	12 Apr 2022	22 May 2022	14 Apr 2022
QC1	SE230872.003	LB246393	08 Apr 2022	11 Apr 2022	15 Apr 2022	12 Apr 2022	22 May 2022	14 Apr 2022

HOLDING TIME SUMMARY

SE230872 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

PCBs in Water

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Upstream	SE230872.001	LB246393	08 Apr 2022	11 Apr 2022	15 Apr 2022	12 Apr 2022	22 May 2022	14 Apr 2022
Downstream	SE230872.002	LB246393	08 Apr 2022	11 Apr 2022	15 Apr 2022	12 Apr 2022	22 May 2022	14 Apr 2022
QC1	SE230872.003	LB246393	08 Apr 2022	11 Apr 2022	15 Apr 2022	12 Apr 2022	22 May 2022	14 Apr 2022

pH in water

Method: ME-(AU)-[ENV]AN101

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Upstream	SE230872.001	LB246377	08 Apr 2022	11 Apr 2022	09 Apr 2022	11 Apr 2022†	09 Apr 2022	11 Apr 2022†
Downstream	SE230872.002	LB246377	08 Apr 2022	11 Apr 2022	09 Apr 2022	11 Apr 2022†	09 Apr 2022	11 Apr 2022†
QC1	SE230872.003	LB246377	08 Apr 2022	11 Apr 2022	09 Apr 2022	11 Apr 2022†	09 Apr 2022	11 Apr 2022†

Speciated Phenols in Water

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Upstream	SE230872.001	LB246393	08 Apr 2022	11 Apr 2022	29 Apr 2022	12 Apr 2022	22 May 2022	14 Apr 2022
Downstream	SE230872.002	LB246393	08 Apr 2022	11 Apr 2022	29 Apr 2022	12 Apr 2022	22 May 2022	14 Apr 2022
QC1	SE230872.003	LB246393	08 Apr 2022	11 Apr 2022	29 Apr 2022	12 Apr 2022	22 May 2022	14 Apr 2022

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Upstream	SE230872.001	LB246416	08 Apr 2022	11 Apr 2022	05 Oct 2022	12 Apr 2022	05 Oct 2022	13 Apr 2022
Downstream	SE230872.002	LB246416	08 Apr 2022	11 Apr 2022	05 Oct 2022	12 Apr 2022	05 Oct 2022	13 Apr 2022
QC1	SE230872.003	LB246416	08 Apr 2022	11 Apr 2022	05 Oct 2022	12 Apr 2022	05 Oct 2022	13 Apr 2022

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Upstream	SE230872.001	LB246393	08 Apr 2022	11 Apr 2022	15 Apr 2022	12 Apr 2022	22 May 2022	14 Apr 2022
Downstream	SE230872.002	LB246393	08 Apr 2022	11 Apr 2022	15 Apr 2022	12 Apr 2022	22 May 2022	14 Apr 2022
QC1	SE230872.003	LB246393	08 Apr 2022	11 Apr 2022	15 Apr 2022	12 Apr 2022	22 May 2022	14 Apr 2022

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Upstream	SE230872.001	LB246369	08 Apr 2022	11 Apr 2022	22 Apr 2022	11 Apr 2022	22 Apr 2022	12 Apr 2022
Downstream	SE230872.002	LB246369	08 Apr 2022	11 Apr 2022	22 Apr 2022	11 Apr 2022	22 Apr 2022	12 Apr 2022
QC1	SE230872.003	LB246369	08 Apr 2022	11 Apr 2022	22 Apr 2022	11 Apr 2022	22 Apr 2022	12 Apr 2022

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Upstream	SE230872.001	LB246369	08 Apr 2022	11 Apr 2022	22 Apr 2022	11 Apr 2022	22 Apr 2022	12 Apr 2022
Downstream	SE230872.002	LB246369	08 Apr 2022	11 Apr 2022	22 Apr 2022	11 Apr 2022	22 Apr 2022	12 Apr 2022
QC1	SE230872.003	LB246369	08 Apr 2022	11 Apr 2022	22 Apr 2022	11 Apr 2022	22 Apr 2022	12 Apr 2022

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	Upstream	SE230872.001	%	40 - 130%	29 ④
	Downstream	SE230872.002	%	40 - 130%	50
	QC1	SE230872.003	%	40 - 130%	55

OP Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	Upstream	SE230872.001	%	40 - 130%	24 ④
	Downstream	SE230872.002	%	40 - 130%	44
	QC1	SE230872.003	%	40 - 130%	42
d14-p-terphenyl (Surrogate)	Upstream	SE230872.001	%	40 - 130%	40
	Downstream	SE230872.002	%	40 - 130%	66
	QC1	SE230872.003	%	40 - 130%	74

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	Upstream	SE230872.001	%	40 - 130%	24 ④
	Downstream	SE230872.002	%	40 - 130%	44
	QC1	SE230872.003	%	40 - 130%	42
d14-p-terphenyl (Surrogate)	Upstream	SE230872.001	%	40 - 130%	40
	Downstream	SE230872.002	%	40 - 130%	66
	QC1	SE230872.003	%	40 - 130%	74
d5-nitrobenzene (Surrogate)	Upstream	SE230872.001	%	40 - 130%	24 ④
	Downstream	SE230872.002	%	40 - 130%	40
	QC1	SE230872.003	%	40 - 130%	40

PCBs in Water

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (Surrogate)	Upstream	SE230872.001	%	40 - 130%	29 ④
	Downstream	SE230872.002	%	40 - 130%	50
	QC1	SE230872.003	%	40 - 130%	55

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: MA-1523

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
(13C2_PFTeDA) Isotopically Labelled Internal Recovery Standard	Upstream	SE230872.001	%	10 - 150%	148
	Downstream	SE230872.002	%	10 - 150%	145
	QC1	SE230872.003	%	10 - 150%	122
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery Standard	Upstream	SE230872.001	%	10 - 150%	101
	Downstream	SE230872.002	%	10 - 150%	114
	QC1	SE230872.003	%	10 - 150%	99
(13C2-6:2 FTS) Isotopically Labelled Internal Recovery Standard	Upstream	SE230872.001	%	10 - 150%	110
	Downstream	SE230872.002	%	10 - 150%	122
	QC1	SE230872.003	%	10 - 150%	116
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery Standard	Upstream	SE230872.001	%	10 - 150%	97
	Downstream	SE230872.002	%	10 - 150%	86
	QC1	SE230872.003	%	10 - 150%	80
(13C2-PFDoA) Isotopically Labelled Internal Recovery Standard	Upstream	SE230872.001	%	10 - 150%	114
	Downstream	SE230872.002	%	10 - 150%	105
	QC1	SE230872.003	%	10 - 150%	98
(13C2-PFHxDA) Isotopically Labelled Internal Recovery Standard	Upstream	SE230872.001	%	10 - 150%	93
	Downstream	SE230872.002	%	10 - 150%	99
	QC1	SE230872.003	%	10 - 150%	74
(13C3-PFBS) Isotopically Labelled Internal Recovery Standard	Upstream	SE230872.001	%	10 - 150%	95
	Downstream	SE230872.002	%	10 - 150%	106
	QC1	SE230872.003	%	10 - 150%	96
(13C3-PFHxS) Isotopically Labelled Internal Recovery Standard	Upstream	SE230872.001	%	10 - 150%	102
	Downstream	SE230872.002	%	10 - 150%	91
	QC1	SE230872.003	%	10 - 150%	95
(13C4_PFOA) Isotopically Labelled Internal Recovery Standard	Upstream	SE230872.001	%	10 - 150%	105
	Downstream	SE230872.002	%	10 - 150%	104
	QC1	SE230872.003	%	10 - 150%	98
(13C4-PFBA) Isotopically Labelled Internal Recovery Standard	Upstream	SE230872.001	%	10 - 150%	98
	Downstream	SE230872.002	%	10 - 150%	98
	QC1	SE230872.003	%	10 - 150%	99

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples (continued)

Method: MA-1523

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	Upstream	SE230872.001	%	10 - 150%	92
	Downstream	SE230872.002	%	10 - 150%	98
	QC1	SE230872.003	%	10 - 150%	90
(13C5-PFHxA) Isotopically Labelled Internal Recovery Standard	Upstream	SE230872.001	%	10 - 150%	97
	Downstream	SE230872.002	%	10 - 150%	105
	QC1	SE230872.003	%	10 - 150%	91
(13C5-PFPeA) Isotopically Labelled Internal Recovery Standard	Upstream	SE230872.001	%	10 - 150%	102
	Downstream	SE230872.002	%	10 - 150%	105
	QC1	SE230872.003	%	10 - 150%	101
(13C6-PFDA) Isotopically Labelled Internal Recovery Standard	Upstream	SE230872.001	%	10 - 150%	103
	Downstream	SE230872.002	%	10 - 150%	94
	QC1	SE230872.003	%	10 - 150%	94
(13C7-PFUdA) Isotopically Labelled Internal Recovery Standard	Upstream	SE230872.001	%	10 - 150%	104
	Downstream	SE230872.002	%	10 - 150%	93
	QC1	SE230872.003	%	10 - 150%	106
(13C8-PFOS) Isotopically Labelled Internal Recovery Standard	Upstream	SE230872.001	%	10 - 150%	91
	Downstream	SE230872.002	%	10 - 150%	107
	QC1	SE230872.003	%	10 - 150%	105
(13C8-PFOSA) Isotopically Labelled Internal Recovery Standard	Upstream	SE230872.001	%	10 - 150%	78
	Downstream	SE230872.002	%	10 - 150%	87
	QC1	SE230872.003	%	10 - 150%	90
(13C9-PFNA) Isotopically Labelled Internal Recovery Standard	Upstream	SE230872.001	%	10 - 150%	105
	Downstream	SE230872.002	%	10 - 150%	106
	QC1	SE230872.003	%	10 - 150%	102
(D3-N-MeFOSA) Isotopically Labelled Internal Recovery Standard	Upstream	SE230872.001	%	10 - 150%	71
	Downstream	SE230872.002	%	10 - 150%	80
	QC1	SE230872.003	%	10 - 150%	85
(D3-N-MeFOSAA) Isotopically Labelled Internal Recovery Standard	Upstream	SE230872.001	%	10 - 150%	97
	Downstream	SE230872.002	%	10 - 150%	96
	QC1	SE230872.003	%	10 - 150%	104
(D5-N-EtFOSA) Isotopically Labelled Internal Recovery Standard	Upstream	SE230872.001	%	10 - 150%	89
	Downstream	SE230872.002	%	10 - 150%	89
	QC1	SE230872.003	%	10 - 150%	104
(D5-N-EtFOSAA) Isotopically Labelled Internal Recovery Standard	Upstream	SE230872.001	%	10 - 150%	90
	Downstream	SE230872.002	%	10 - 150%	93
	QC1	SE230872.003	%	10 - 150%	94
(D7-N-MeFOSE) Isotopically Labelled Internal Recovery Standard	Upstream	SE230872.001	%	10 - 150%	74
	Downstream	SE230872.002	%	10 - 150%	93
	QC1	SE230872.003	%	10 - 150%	103
(D9-N-EtFOSE) Isotopically Labelled Internal Recovery Standard	Upstream	SE230872.001	%	10 - 150%	79
	Downstream	SE230872.002	%	10 - 150%	81
	QC1	SE230872.003	%	10 - 150%	86

Speciated Phenols in Water

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2,4,6-Tribromophenol (Surrogate)	Upstream	SE230872.001	%	40 - 130%	19 ④
	Downstream	SE230872.002	%	40 - 130%	42
	QC1	SE230872.003	%	40 - 130%	49
d5-phenol (Surrogate)	Upstream	SE230872.001	%	20 - 90%	25
	Downstream	SE230872.002	%	20 - 90%	43
	QC1	SE230872.003	%	20 - 90%	47

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	Upstream	SE230872.001	%	40 - 130%	92
	Downstream	SE230872.002	%	40 - 130%	92
	QC1	SE230872.003	%	40 - 130%	79
d4-1,2-dichloroethane (Surrogate)	Upstream	SE230872.001	%	40 - 130%	86
	Downstream	SE230872.002	%	40 - 130%	85
	QC1	SE230872.003	%	40 - 130%	85
d8-toluene (Surrogate)	Upstream	SE230872.001	%	40 - 130%	81
	Downstream	SE230872.002	%	40 - 130%	81

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOCs in Water (continued) — Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d8-toluene (Surrogate)	QC1	SE230872.003	%	40 - 130%	79

Volatile Petroleum Hydrocarbons in Water — Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	Upstream	SE230872.001	%	40 - 130%	92
	Downstream	SE230872.002	%	40 - 130%	92
	QC1	SE230872.003	%	40 - 130%	90
d4-1,2-dichloroethane (Surrogate)	Upstream	SE230872.001	%	60 - 130%	86
	Downstream	SE230872.002	%	60 - 130%	85
	QC1	SE230872.003	%	60 - 130%	85
d8-toluene (Surrogate)	Upstream	SE230872.001	%	40 - 130%	81
	Downstream	SE230872.002	%	40 - 130%	81
	QC1	SE230872.003	%	40 - 130%	79

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Acidity and Free CO2

Method: ME-(AU)-[ENV]AN140

Sample Number	Parameter	Units	LOR	Result
LB246528.001	Acidity to pH 8.3	mg CaCO3/L	5	<5

Alkalinity

Method: ME-(AU)-[ENV]AN135

Sample Number	Parameter	Units	LOR	Result
LB246540.001	Bicarbonate Alkalinity as CaCO3	mg/L	5	<5
	Carbonate Alkalinity as CaCO3	mg/L	1	<1
	Total Alkalinity as CaCO3	mg/L	5	<5

Anions by Ion Chromatography in Water

Method: ME-(AU)-[ENV]AN245

Sample Number	Parameter	Units	LOR	Result
LB246395.001	Nitrate Nitrogen, NO3-N	mg/L	0.005	<0.005
	Chloride	mg/L	1	<1.0
	Sulfate, SO4	mg/L	1	<1.0
	Fluoride	mg/L	0.02	<0.02

Conductivity and TDS by Calculation - Water

Method: ME-(AU)-[ENV]AN106

Sample Number	Parameter	Units	LOR	Result
LB246377.001	Conductivity @ 25 C	µS/cm	2	<2
	Total Dissolved Solids (by calculation)	mg/L	2	<2

Filterable Reactive Phosphorus (FRP)

Method: ME-(AU)-[ENV]AN278

Sample Number	Parameter	Units	LOR	Result
LB246356.001	Filterable Reactive Phosphorus as P	mg/L	0.005	<0.005

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB246396.001	Mercury	mg/L	0.0001	<0.0001

Metals in Water (Dissolved) by ICPOES

Method: ME-(AU)-[ENV]AN320

Sample Number	Parameter	Units	LOR	Result
LB246505.001	Calcium, Ca	mg/L	0.1	<0.1
	Magnesium, Mg	mg/L	0.1	<0.1
	Potassium, K	mg/L	0.2	<0.2
	Sodium, Na	mg/L	0.1	<0.1

Nitrite in Water

Method: ME-(AU)-[ENV]AN277

Sample Number	Parameter	Units	LOR	Result
LB246356.001	Nitrite Nitrogen, NO2 as N	mg/L	0.005	<0.005

OC Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB246393.001	Alpha BHC	µg/L	0.1	<0.1
	Hexachlorobenzene (HCB)	µg/L	0.1	<0.1
	Beta BHC	µg/L	0.1	<0.1
	Lindane (gamma BHC)	µg/L	0.1	<0.1
	Delta BHC	µg/L	0.1	<0.1
	Heptachlor	µg/L	0.1	<0.1
	Aldrin	µg/L	0.1	<0.1
	Heptachlor epoxide	µg/L	0.1	<0.1
	Gamma Chlordane	µg/L	0.1	<0.1
	Alpha Chlordane	µg/L	0.1	<0.1
	Alpha Endosulfan	µg/L	0.1	<0.1
	p,p'-DDE	µg/L	0.1	<0.1
	Dieldrin	µg/L	0.1	<0.1
	Endrin	µg/L	0.1	<0.1
	Beta Endosulfan	µg/L	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

OC Pesticides in Water (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB246393.001		p,p'-DDD	µg/L	0.1	<0.1
		Endosulfan sulphate	µg/L	0.1	<0.1
		p,p'-DDT	µg/L	0.1	<0.1
		Endrin ketone	µg/L	0.1	<0.1
		Methoxychlor	µg/L	0.1	<0.1
		Endrin aldehyde	µg/L	0.1	<0.1
		Isodrin	µg/L	0.1	<0.1
		Mirex	µg/L	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	80

OP Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB246393.001		Dichlorvos	µg/L	0.5	<0.5
		Dimethoate	µg/L	0.5	<0.5
		Diazinon (Dimpylate)	µg/L	0.5	<0.5
		Fenitrothion	µg/L	0.2	<0.2
		Malathion	µg/L	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	<0.2
		Parathion-ethyl (Parathion)	µg/L	0.2	<0.2
		Bromophos Ethyl	µg/L	0.2	<0.2
		Methidathion	µg/L	0.5	<0.5
		Ethion	µg/L	0.2	<0.2
		Azinphos-methyl	µg/L	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	64
		d14-p-terphenyl (Surrogate)	%	-	88

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB246393.001		Naphthalene	µg/L	0.1	<0.1
		2-methylnaphthalene	µg/L	0.1	<0.1
		1-methylnaphthalene	µg/L	0.1	<0.1
		Acenaphthylene	µg/L	0.1	<0.1
		Acenaphthene	µg/L	0.1	<0.1
		Fluorene	µg/L	0.1	<0.1
		Phenanthrene	µg/L	0.1	<0.1
		Anthracene	µg/L	0.1	<0.1
		Fluoranthene	µg/L	0.1	<0.1
		Pyrene	µg/L	0.1	<0.1
		Benzo(a)anthracene	µg/L	0.1	<0.1
		Chrysene	µg/L	0.1	<0.1
		Benzo(a)pyrene	µg/L	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1
		Dibenzo(ah)anthracene	µg/L	0.1	<0.1
		Benzo(ghi)perylene	µg/L	0.1	<0.1
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	56
		2-fluorobiphenyl (Surrogate)	%	-	64
		d14-p-terphenyl (Surrogate)	%	-	88

PCBs in Water

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB246393.001	Arochlor 1016	µg/L	1	<1
	Arochlor 1221	µg/L	1	<1
	Arochlor 1232	µg/L	1	<1
	Arochlor 1242	µg/L	1	<1
	Arochlor 1248	µg/L	1	<1
	Arochlor 1254	µg/L	1	<1
	Arochlor 1260	µg/L	1	<1
	Arochlor 1262	µg/L	1	<1
	Arochlor 1268	µg/L	1	<1

Speciated Phenols in Water

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Speciated Phenols in Water (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB246393.001		Phenol	µg/L	0.5	<0.5
		2-methyl phenol (o-cresol)	µg/L	0.5	<0.5
		3/4-methyl phenol (m/p-cresol)	µg/L	1	<1
		2-chlorophenol	µg/L	0.5	<0.5
		2,4-dimethylphenol	µg/L	0.5	<0.5
		2,6-dichlorophenol	µg/L	0.5	<0.5
		2,4-dichlorophenol	µg/L	0.5	<0.5
		2,4,6-trichlorophenol	µg/L	0.5	<0.5
		2-nitrophenol	µg/L	0.5	<0.5
		4-nitrophenol	µg/L	1	<1
		2,4,5-trichlorophenol	µg/L	0.5	<0.5
		2,3,4,6/2,3,5,6-tetrachlorophenol	µg/L	1	<1
		Pentachlorophenol	µg/L	0.5	<0.5
		2,4-dinitrophenol	µg/L	2	<2
		4-chloro-3-methylphenol	µg/L	2	<2
	Surrogates	2,4,6-Tribromophenol (Surrogate)	%	-	96
		d5-phenol (Surrogate)	%	-	112

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB246416.001	Aluminium, Al	µg/L	5	<5
	Arsenic, As	µg/L	1	<1
	Cadmium, Cd	µg/L	0.1	<0.1
	Chromium, Cr	µg/L	1	<1
	Copper, Cu	µg/L	1	<1
	Iron, Fe	µg/L	5	<5
	Lead, Pb	µg/L	1	<1
	Nickel, Ni	µg/L	1	<1
	Zinc, Zn	µg/L	5	<5

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB246393.001	TRH C10-C14	µg/L	50	<50
	TRH C15-C28	µg/L	200	<200
	TRH C29-C36	µg/L	200	<200
	TRH C37-C40	µg/L	200	<200

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB246369.001	Monocyclic Aromatic Hydrocarbons	Benzene	µg/L	0.5	<0.5
		Toluene	µg/L	0.5	<0.5
		Ethylbenzene	µg/L	0.5	<0.5
		m/p-xylene	µg/L	1	<1
		o-xylene	µg/L	0.5	<0.5
	Polycyclic VOCs	Naphthalene (VOC)	µg/L	0.5	<0.5
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	85
		d8-toluene (Surrogate)	%	-	82
		Bromofluorobenzene (Surrogate)	%	-	92

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB246369.001		TRH C6-C9	µg/L	40	<40
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	85
		d8-toluene (Surrogate)	%	-	82
		Bromofluorobenzene (Surrogate)	%	-	92

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Acidity and Free CO2

Method: ME-(AU)-[ENV]AN140

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE230872.003	LB246528.006	Acidity to pH 8.3	mg CaCO3/L	5	12	11	59	8

Alkalinity

Method: ME-(AU)-[ENV]AN135

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE230986.001	LB246540.008	Total Alkalinity as CaCO3	mg/L	5	520	540	16	3

Anions by Ion Chromatography in Water

Method: ME-(AU)-[ENV]AN245

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE230907.001	LB246395.010	Nitrate Nitrogen, NO3-N	mg/L	0.005	<0.005	<0.005	200	0
		Fluoride	mg/L	0.02	0.36	0.39	42	6

Conductivity and TDS by Calculation - Water

Method: ME-(AU)-[ENV]AN106

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE230885.001	LB246377.009	Conductivity @ 25 C	µS/cm	2	560	560	15	0

Filterable Reactive Phosphorus (FRP)

Method: ME-(AU)-[ENV]AN278

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE230872.003	LB246356.007	Filterable Reactive Phosphorus as P	mg/L	0.005	0.020	0.021	40	5

Metals in Water (Dissolved) by ICPOES

Method: ME-(AU)-[ENV]AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE230790.016	LB246505.014	Calcium, Ca	mg/L	0.1	28	28	16	1
		Magnesium, Mg	mg/L	0.1	49	50	15	1
		Potassium, K	mg/L	0.2	13	13	16	1
		Sodium, Na	mg/L	0.1	390	400	15	1

Nitrite in Water

Method: ME-(AU)-[ENV]AN277

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE230872.003	LB246356.007	Nitrite Nitrogen, NO2 as N	mg/L	0.005	0.006	0.006	96	0

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE230885.001	LB246393.028		Naphthalene	µg/L	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	µg/L	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	µg/L	0.1	<0.1	<0.1	200	0
			Acenaphthylene	µg/L	0.1	<0.1	<0.1	200	0
			Acenaphthene	µg/L	0.1	<0.1	<0.1	200	0
			Fluorene	µg/L	0.1	<0.1	<0.1	200	0
			Phenanthrene	µg/L	0.1	<0.1	<0.1	200	0
			Anthracene	µg/L	0.1	<0.1	<0.1	200	0
			Fluoranthene	µg/L	0.1	<0.1	<0.1	200	0
			Pyrene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	µg/L	0.1	<0.1	<0.1	200	0
			Chrysene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	µg/L	0.1	<0.1	<0.1	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.3	0.3	30	14

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

PAH (Polynuclear Aromatic Hydrocarbons) in Water (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE230885.001	LB246393.028	Surrogates	2-fluorobiphenyl (Surrogate)	µg/L	-	0.3	0.3	30	16
			d14-p-terphenyl (Surrogate)	µg/L	-	0.4	0.4	30	18

pH in water

Method: ME-(AU)-[ENV]AN101

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE230885.001	LB246377.009	pH**	pH Units	-	6.4	6.4	17	0

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE230885.001	LB246416.014	Aluminium, Al	µg/L	5	19	19	41	1
		Arsenic, As	µg/L	1	3	3	51	1
		Cadmium, Cd	µg/L	0.1	<0.1	<0.1	200	0
		Chromium, Cr	µg/L	1	<1	<1	200	0
		Copper, Cu	µg/L	1	3	3	44	1
		Lead, Pb	µg/L	1	<1	<1	200	0
		Nickel, Ni	µg/L	1	<1	<1	200	0
		Zinc, Zn	µg/L	5	35	35	29	0
SE230903.003	LB246416.021	Lead, Pb	µg/L	1	2	2	70	3

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE230883.018	LB246393.014		TRH C10-C14	µg/L	50	<50	<50	200	0
			TRH C15-C28	µg/L	200	<200	<200	200	0
			TRH C29-C36	µg/L	200	<200	<200	200	0
			TRH C37-C40	µg/L	200	<200	<200	200	0
			TRH C10-C40	µg/L	320	<650	<320	200	0
		TRH F Bands	TRH >C10-C16	µg/L	60	<60	<60	200	0
			TRH >C16-C34 (F3)	µg/L	500	<500	<500	200	0
			TRH >C34-C40 (F4)	µg/L	500	<500	<500	200	0
SE230885.001	LB246393.028		TRH C10-C14	µg/L	50	<50	<50	200	0
			TRH C15-C28	µg/L	200	<200	<200	200	0
			TRH C29-C36	µg/L	200	<200	<200	200	0
			TRH C37-C40	µg/L	200	<200	<200	200	0
			TRH C10-C40	µg/L	320	<320	<320	200	0
		TRH F Bands	TRH >C10-C16	µg/L	60	<60	<60	200	0
			TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60	<60	200	0
			TRH >C16-C34 (F3)	µg/L	500	<500	<500	200	0
			TRH >C34-C40 (F4)	µg/L	500	<500	<500	200	0

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE230872.002	LB246369.023	Monocyclic	Benzene	µg/L	0.5	<0.5	<0.5	200	0
		Aromatic	Toluene	µg/L	0.5	<0.5	<0.5	200	0
			Ethylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			m/p-xylene	µg/L	1	<1	<1	200	0
			o-xylene	µg/L	0.5	<0.5	<0.5	200	0
		Polycyclic	Naphthalene (VOC)	µg/L	0.5	<0.5	<0.5	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	0.0	0.0	30	2
			d8-toluene (Surrogate)	µg/L	-	0.0	0.0	30	19
			Bromofluorobenzene (Surrogate)	µg/L	-	0.0	0.0	30	16

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE230872.002	LB246369.023		TRH C6-C10	µg/L	50	<50	<50	200	0
			TRH C6-C9	µg/L	40	<40	<40	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	0.0	0.0	30	2
			d8-toluene (Surrogate)	µg/L	-	0.0	0.0	30	19
			Bromofluorobenzene (Surrogate)	µg/L	-	0.0	0.0	30	16
		VPH F Bands	Benzene (F0)	µg/L	0.5	<0.5	<0.5	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Acidity and Free CO2

Method: ME-(AU)-[ENV]AN140

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB246528.002	Acidity to pH 8.3	mg CaCO3/L	5	240	250	80 - 120	96

Alkalinity

Method: ME-(AU)-[ENV]AN135

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB246540.002	Total Alkalinity as CaCO3	mg/L	5	65	59.5	76 - 124	109

Anions by Ion Chromatography in Water

Method: ME-(AU)-[ENV]AN245

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB246395.002	Nitrate Nitrogen, NO3-N	mg/L	0.005	2.2	2	80 - 120	108
	Chloride	mg/L	1	21	20	80 - 120	105
	Sulfate, SO4	mg/L	1	21	20	80 - 120	106
	Fluoride	mg/L	0.02	2.1	2	80 - 120	105

Conductivity and TDS by Calculation - Water

Method: ME-(AU)-[ENV]AN106

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB246377.002	Conductivity @ 25 C	µS/cm	2	320	303	90 - 110	104
	Total Dissolved Solids (by calculation)	mg/L	2	190	181	85 - 115	105

Filterable Reactive Phosphorus (FRP)

Method: ME-(AU)-[ENV]AN278

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB246356.002	Filterable Reactive Phosphorus as P	mg/L	0.005	0.098	0.1	80 - 120	98

Metals in Water (Dissolved) by ICPOES

Method: ME-(AU)-[ENV]AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB246505.002	Calcium, Ca	mg/L	0.1	49	50.5	80 - 120	97
	Magnesium, Mg	mg/L	0.1	50	50.5	80 - 120	98
	Potassium, K	mg/L	0.2	57	55	80 - 120	103
	Sodium, Na	mg/L	0.1	53	50.5	80 - 120	105

Nitrite in Water

Method: ME-(AU)-[ENV]AN277

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB246356.002	Nitrite Nitrogen, NO2 as N	mg/L	0.005	0.10	0.1	80 - 120	104

OC Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB246393.002		Delta BHC	µg/L	0.1	0.2	0.2	60 - 140	96
		Heptachlor	µg/L	0.1	0.2	0.2	60 - 140	93
		Aldrin	µg/L	0.1	0.2	0.2	60 - 140	83
		Dieldrin	µg/L	0.1	0.2	0.2	60 - 140	95
		Endrin	µg/L	0.1	0.2	0.2	60 - 140	102
		p,p'-DDT	µg/L	0.1	0.2	0.2	60 - 140	103
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	µg/L	-	0.10	0.15	40 - 130	65

OP Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB246393.002		Dichlorvos	µg/L	0.5	8.0	8	60 - 140	100
		Diazinon (Dimpylate)	µg/L	0.5	9.1	8	60 - 140	114
		Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	9.3	8	60 - 140	116
		Ethion	µg/L	0.2	10	8	60 - 140	129
	Surrogates	2-fluorobiphenyl (Surrogate)	µg/L	-	0.3	0.5	40 - 130	64
		d14-p-terphenyl (Surrogate)	µg/L	-	0.4	0.5	40 - 130	84

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Water (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB246393.002		Naphthalene	µg/L	0.1	31	40	60 - 140	77
		Acenaphthylene	µg/L	0.1	34	40	60 - 140	85
		Acenaphthene	µg/L	0.1	31	40	60 - 140	78
		Phenanthrene	µg/L	0.1	36	40	60 - 140	90
		Anthracene	µg/L	0.1	35	40	60 - 140	86
		Fluoranthene	µg/L	0.1	35	40	60 - 140	88
		Pyrene	µg/L	0.1	36	40	60 - 140	91
		Benzo(a)pyrene	µg/L	0.1	40	40	60 - 140	100
	Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.3	0.5	40 - 130	60
		2-fluorobiphenyl (Surrogate)	µg/L	-	0.3	0.5	40 - 130	64
		d14-p-terphenyl (Surrogate)	µg/L	-	0.4	0.5	40 - 130	84

PCBs in Water

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB246393.002	Arochlor 1260	µg/L	1	<1	0.4	60 - 140	104

pH in water

Method: ME-(AU)-[ENV]AN101

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB246377.003	pH**	No unit	-	7.4	7.415	98 - 102	99

Speciated Phenols in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB246393.002		Phenol	µg/L	0.5	46	40	60 - 140	116
		2,4-dichlorophenol	µg/L	0.5	49	40	60 - 140	122
		2,4,6-trichlorophenol	µg/L	0.5	44	40	60 - 140	110
		Pentachlorophenol	µg/L	0.5	32	40	60 - 140	80
	Surrogates	2,4,6-Tribromophenol (Surrogate)	µg/L	-	4.4	5	40 - 130	87
		d5-phenol (Surrogate)	µg/L	-	2.1	2	40 - 130	104

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB246416.002	Aluminium, Al	µg/L	5	21	20	80 - 120	106
	Arsenic, As	µg/L	1	19	20	80 - 120	97
	Cadmium, Cd	µg/L	0.1	21	20	80 - 120	104
	Chromium, Cr	µg/L	1	21	20	80 - 120	107
	Copper, Cu	µg/L	1	21	20	80 - 120	105
	Iron, Fe	µg/L	5	22	20	80 - 120	108
	Lead, Pb	µg/L	1	19	20	80 - 120	93
	Nickel, Ni	µg/L	1	21	20	80 - 120	107
	Zinc, Zn	µg/L	5	22	20	80 - 120	109

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB246393.002		TRH C10-C14	µg/L	50	1200	1200	60 - 140	99
		TRH C15-C28	µg/L	200	1300	1200	60 - 140	110
		TRH C29-C36	µg/L	200	1400	1200	60 - 140	119
	TRH F Bands	TRH >C10-C16	µg/L	60	1200	1200	60 - 140	103
		TRH >C16-C34 (F3)	µg/L	500	1400	1200	60 - 140	120
		TRH >C34-C40 (F4)	µg/L	500	720	600	60 - 140	120

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB246369.002	Monocyclic Aromatic	Benzene	µg/L	0.5	49	45.45	60 - 140	109
		Toluene	µg/L	0.5	49	45.45	60 - 140	107
		Ethylbenzene	µg/L	0.5	50	45.45	60 - 140	109
		m/p-xylene	µg/L	1	98	90.9	60 - 140	108
		o-xylene	µg/L	0.5	49	45.45	60 - 140	109

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Volatile Petroleum Hydrocarbons in Water (continued) — **Method: ME-(AU)-[ENV]AN433**

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB246369.002		TRH C6-C10	µg/L	50	930	946.63	60 - 140	98
		TRH C6-C9	µg/L	40	800	818.71	60 - 140	98
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	630	639.67	60 - 140	99

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Anions by Ion Chromatography in Water

Method: ME-(AU)-[ENV]AN245

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE230872.001	LB246395.004	Nitrate Nitrogen, NO3-N	mg/L	0.005	2.4	0.28	2	106
		Chloride	mg/L	1	40	18	20	110
		Sulfate, SO4	mg/L	1	41	20	20	109

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE230872.001	LB246396.004	Mercury	mg/L	0.0001	0.0018	<0.0001	0.008	87

Metals in Water (Dissolved) by ICPOES

Method: ME-(AU)-[ENV]AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE230749.001	LB246505.004	Calcium, Ca	mg/L	0.1	72	20	50.5	103
		Magnesium, Mg	mg/L	0.1	55	2.3	50.5	104
		Potassium, K	mg/L	0.2	62	4.1	55	106
		Sodium, Na	mg/L	0.1	71	12	50.5	116

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE230842.001	LB246416.004	Aluminium, Al	µg/L	5	48	27.82	20	102
		Arsenic, As	µg/L	1	24	0.851	20	114
		Cadmium, Cd	µg/L	0.1	21	0.015	20	104
		Chromium, Cr	µg/L	1	22	1.054	20	105
		Copper, Cu	µg/L	1	27	7.671	20	94
		Lead, Pb	µg/L	1	19	0.131	20	94
		Nickel, Ni	µg/L	1	24	4.24	20	100
		Zinc, Zn	µg/L	5	31	10.435	20	104

VOCs in Water

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE230749.001	LB246369.024	Monocyclic Aromatic	Benzene	µg/L	0.5	60	<0.5	45.45	132
			Toluene	µg/L	0.5	61	<0.5	45.45	135
			Ethylbenzene	µg/L	0.5	56	<0.5	45.45	123
			m/p-xylene	µg/L	1	110	<1	90.9	123
			o-xylene	µg/L	0.5	56	<0.5	45.45	124
		Polycyclic	Naphthalene (VOC)	µg/L	0.5	55	<0.5	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/L	-	0.0	8.9	-	101
			d8-toluene (Surrogate)	mg/L	-	0.0	8.7	-	107
			Bromofluorobenzene (Surrogate)	mg/L	-	0.0	9.7	-	105

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE230749.001	LB246369.024		TRH C6-C10	µg/L	50	780	<50	946.63	83
			TRH C6-C9	µg/L	40	610	<40	818.71	75
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/L	-	0.0	8.9	-	101
			d8-toluene (Surrogate)	mg/L	-	0.0	8.7	-	107
			Bromofluorobenzene (Surrogate)	mg/L	-	0.0	9.7	-	105
		VPH F Bands	Benzene (F0)	µg/L	0.5		<0.5	-	-
			TRH C6-C10 minus BTEX (F1)	µg/L	50	440	<50	639.67	69

MATRIX SPIKE DUPLICATES

SE230872 R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
***	Indicates that both * and ** apply.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.
①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to relevant report comments for further information.

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	Lanterra Consulting Pty Ltd	Project Name/No:	P21128
Address:	Unit 13, 71 Leichhardt Street,	Purchase Order No:	
	Kingston ACT 2604	Results Required By:	3 day TAT
		Telephone:	0472 648 804
Contact Name:	Kelly Lee	Facsimile:	
		Email Results:	kelly@lanterra.com.au

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	CL15	PFAS	WQ4
Upstream	08/04/2022	1	X			7	X	X	X
Downstream	08/04/2022	2	X			7	X	X	X
QC1	08/04/2022	3	X			7	X	X	X

Relinquished By: K. Lee	Date/Time: 08/04/2022 2.00pm	Received By:	Date/Time 11.4.22 10:30
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: Yes/No	Temperature: Ambient / Chilled 2.3	Sample Cooler Sealed: Yes/No	SGS EHS Sydney COC
	Comments:		SE230872

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Huong Crawford
Client	SGS I&E SYDNEY
Address	Unit 16, 33 Maddox Street Alexandria NSW 2015
Telephone	02 8594 0400
Facsimile	02 8594 0499
Email	au.environmental.sydney@sgs.com
Project	**P21128**
Order Number	**SE230872**
Samples	3

LABORATORY DETAILS

Manager	Adam Atkinson
Laboratory	SGS Melbourne EH&S
Address	10/585 Blackburn Road Notting Hill Victoria 3168
Telephone	+61395743200
Facsimile	+61395743399
Email	Au.SampleReceipt.Melbourne@sgs.com
SGS Reference	**ME326292 R0**
Date Received	13 Apr 2022
Date Reported	14 Apr 2022

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(14420).

MA-1523: Majority of surrogate recoveries within acceptance criteria.

SIGNATORIES

Andrew WRIGHT
Senior Chemist

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	ME326292.001 Water 08 Apr 2022 SE230872.001	ME326292.002 Water 08 Apr 2022 SE230872.002	ME326292.003 Water 08 Apr 2022 SE230872.003
Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples	**Method: MA-1523**	**Tested: 13/4/2022**				
Perfluorobutanoic acid (PFBA)	µg/L	0.002		**0.005**	**0.002**	**0.005**
Perfluoropentanoic acid (PFPeA)	µg/L	0.002		<0.002	<0.002	<0.002
Perfluorohexanoic acid (PFHxA)	µg/L	0.002		<0.002	<0.002	<0.002
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002		<0.002	<0.002	<0.002
Perfluorooctanoic Acid (PFOA)	µg/L	0.002		<0.002	<0.002	<0.002
Perfluorononanoic acid (PFNA)	µg/L	0.004		<0.004	<0.004	<0.004
Perfluorodecanoic acid (PFDA)	µg/L	0.004		<0.004	<0.004	<0.004
Perfluoroundecanoic acid (PFUnA)	µg/L	0.004		<0.004	<0.004	<0.004
Perfluorododecanoic acid (PFDoA)	µg/L	0.004		<0.004	<0.004	<0.004
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.004		<0.004	<0.004	<0.004
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.004		<0.004	<0.004	<0.004
Perfluorohexadecanoic acid (PFHxDA)	µg/L	0.008		<0.008	<0.008	<0.008
Perfluorobutane sulfonate (PFBS)	µg/L	0.004		<0.004	<0.004	<0.004
Perfluoropentane sulfonate (PFPeS)	µg/L	0.004		<0.004	<0.004	<0.004
Perfluorohexane sulfonate (PFHxS)	µg/L	0.002		<0.002	<0.002	<0.002
Perfluoroheptane sulfonate (PFHpS)	µg/L	0.002		<0.002	<0.002	<0.002
Perfluorooctane sulfonate (PFOS)	µg/L	0.002		<0.002	<0.002	<0.002
Sum of PFHxS and PFOS	µg/L	0.002		<0.002	<0.002	<0.002
Perfluorononane sulfonate (PFNS)	µg/L	0.002		<0.002	<0.002	<0.002
Perfluorodecane sulfonate (PFDS)	µg/L	0.002		<0.002	<0.002	<0.002
Perfluorododecane sulfonate (PFDoS)	µg/L	0.002		<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	µg/L	0.002		<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	µg/L	0.002		<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	µg/L	0.002		<0.002	<0.002	<0.002
Perfluorooctane sulfonamide (PFOSA)	µg/L	0.008		<0.008	<0.008	<0.008
N-Methylperfluorooctane sulfonamide (N-MeFOSA)	µg/L	0.01		<0.01	<0.01	<0.01
N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	µg/L	0.01		<0.01	<0.01	<0.01
2-(N-Methylperfluorooctane sulfonamido)-ethanol	µg/L	0.01		<0.01	<0.01	<0.01
2-(N-Ethylperfluorooctane sulfonamido)-ethanol	µg/L	0.01		<0.01	<0.01	<0.01
N-Methylperfluorooctanesulfonamidoacetic acid	µg/L	0.01		<0.01	<0.01	<0.01
N-Ethylperfluorooctanesulfonamidoacetic Acid	µg/L	0.01		<0.01	<0.01	<0.01
Total of PFAS (n=30)	µg/L	0.04		<0.04	<0.04	<0.04
(13C4-PFBA) Isotopically Labelled Internal Recovery	%	-		**98**	**98**	**99**
(13C5-PFPeA) Isotopically Labelled Internal Recovery	%	-		**102**	**105**	**101**
(13C5-PFHxA) Isotopically Labelled Internal Recovery	%	-		**97**	**105**	**91**
(13C4-PFHpA) Isotopically Labelled Internal Recovery	%	-		**92**	**98**	**90**
(13C4_PFOA) Isotopically Labelled Internal Recovery	%	-		**105**	**104**	**98**
(13C9-PFNA) Isotopically Labelled Internal Recovery	%	-		**105**	**106**	**102**
(13C6-PFDA) Isotopically Labelled Internal Recovery	%	-		**103**	**94**	**94**
(13C7-PFUdA) Isotopically Labelled Internal Recovery	%	-		**104**	**93**	**106**
(13C2-PFDoA) Isotopically Labelled Internal Recovery	%	-		**114**	**105**	**98**
(13C2_PFTeDA) Isotopically Labelled Internal Recovery	%	-		**148**	**145**	**122**
(13C2-PFHxDA) Isotopically Labelled Internal Recovery	%	-		**93**	**99**	**74**
(13C3-PFBS) Isotopically Labelled Internal Recovery	%	-		**95**	**106**	**96**
(13C3-PFHxS) Isotopically Labelled Internal Recovery	%	-		**102**	**91**	**95**
(13C8-PFOS) Isotopically Labelled Internal Recovery	%	-		**91**	**107**	**105**
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery	%	-		**101**	**114**	**99**
(13C2-6:2 FTS) Isotopically Labelled Internal Recovery	%	-		**110**	**122**	**116**
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery	%	-		**97**	**86**	**80**
(13C8-PFOSA) Isotopically Labelled Internal Recovery	%	-		**78**	**87**	**90**
(D3-N-MeFOSA) Isotopically Labelled Internal Recovery	%	-		**71**	**80**	**85**
(D5-N-EtFOSA) Isotopically Labelled Internal Recovery	%	-		**89**	**89**	**104**
(D7-N-MeFOSE) Isotopically Labelled Internal Recovery	%	-		**74**	**93**	**103**
(D9-N-EtFOSE) Isotopically Labelled Internal Recovery	%	-		**79**	**81**	**86**
(D3-N-MeFOSAA) Isotopically Labelled Internal Recovery	%	-		**97**	**96**	**104**
(D5-N-EtFOSAA) Isotopically Labelled Internal Recovery	%	-		**90**	**93**	**94**

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage.* Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples Method: MA-1523

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Perfluorobutanoic acid (PFBA)	LB050049	µg/L	0.002	<0.002	11%	NA
Perfluoropentanoic acid (PFPeA)	LB050049	µg/L	0.002	<0.002	0%	NA
Perfluorohexanoic acid (PFHxA)	LB050049	µg/L	0.002	<0.002	0%	NA
Perfluoroheptanoic acid (PFHpA)	LB050049	µg/L	0.002	<0.002	0%	91%
Perfluorooctanoic Acid (PFOA)	LB050049	µg/L	0.002	<0.002	0%	92%
Perfluorononanoic acid (PFNA)	LB050049	µg/L	0.004	<0.004	0%	135%
Perfluorodecanoic acid (PFDA)	LB050049	µg/L	0.004	<0.004	0%	111%
Perfluoroundecanoic acid (PFUnA)	LB050049	µg/L	0.004	<0.004	0%	142%
Perfluorododecanoic acid (PFDoA)	LB050049	µg/L	0.004	<0.004	0%	149%
Perfluorotridecanoic acid (PFTrDA)	LB050049	µg/L	0.004	<0.004	0%	94%
Perfluorotetradecanoic acid (PFTeDA)	LB050049	µg/L	0.004	<0.004	0%	77%
Perfluorohexadecanoic acid (PFHxDA)	LB050049	µg/L	0.008	<0.008	0%	NA
Perfluorobutane sulfonate (PFBS)	LB050049	µg/L	0.004	<0.004	0%	NA
Perfluoropentane sulfonate (PFPeS)	LB050049	µg/L	0.004	<0.004	0%	NA
Perfluorohexane sulfonate (PFHxS)	LB050049	µg/L	0.002	<0.002	0%	NA
Perfluoroheptane sulfonate (PFHpS)	LB050049	µg/L	0.002	<0.002	0%	NA
Perfluorooctane sulfonate (PFOS)	LB050049	µg/L	0.002	<0.002	0%	139%
Sum of PFHxS and PFOS	LB050049	µg/L	0.002	<0.002	0%	NA
Perfluorononane sulfonate (PFNS)	LB050049	µg/L	0.002	<0.002	0%	NA
Perfluorodecane sulfonate (PFDS)	LB050049	µg/L	0.002	<0.002	0%	NA
Perfluorododecane sulfonate (PFDoS)	LB050049	µg/L	0.002	<0.002	0%	NA
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	LB050049	µg/L	0.002	<0.002	0%	NA
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	LB050049	µg/L	0.002	<0.002	0%	NA
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	LB050049	µg/L	0.002	<0.002	0%	NA
Perfluorooctane sulfonamide (PFOSA)	LB050049	µg/L	0.008	<0.008	0%	48%
N-Methylperfluorooctane sulfonamide (N-MeFOSA)	LB050049	µg/L	0.01	<0.01	0%	NA
N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	LB050049	µg/L	0.01	<0.01	0%	NA
2-(N-Methylperfluorooctane sulfonamido)-ethanol (N-MeFOSE)	LB050049	µg/L	0.01	<0.01	0%	NA
2-(N-Ethylperfluorooctane sulfonamido)-ethanol (N-EtFOSE)	LB050049	µg/L	0.01	<0.01	0%	NA
N-Methylperfluorooctanesulfonamidoacetic acid (N_MeFOSAA)	LB050049	µg/L	0.01	<0.01	0%	NA
N-Ethylperfluorooctanesulfonamidoacetic Acid (N-EtFOSAA)	LB050049	µg/L	0.01	<0.01	0%	NA
Total of PFAS (n=30)	LB050049	µg/L	0.04	<0.04	0%	NA
(13C4-PFBA) Isotopically Labelled Internal Recovery Standard	LB050049	%	-	97%	1%	99%
(13C5-PFPeA) Isotopically Labelled Internal Recovery Standard	LB050049	%	-	90%	1%	92%
(13C5-PFHxA) Isotopically Labelled Internal Recovery Standard	LB050049	%	-	116%	1%	100%
(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	LB050049	%	-	101%	2%	100%
(13C4_PFOA) Isotopically Labelled Internal Recovery Standard	LB050049	%	-	104%	4%	116%
(13C9-PFNA) Isotopically Labelled Internal Recovery Standard	LB050049	%	-	109%	6%	109%
(13C6-PFDA) Isotopically Labelled Internal Recovery Standard	LB050049	%	-	104%	14%	86%
(13C7-PFUdA) Isotopically Labelled Internal Recovery Standard	LB050049	%	-	86%	7%	74%
(13C2-PFDoA) Isotopically Labelled Internal Recovery Standard	LB050049	%	-	69%	15%	58%
(13C2_PFTeDA) Isotopically Labelled Internal Recovery Standard	LB050049	%	-	47%	15%	43%
(13C2-PFHxDA) Isotopically Labelled Internal Recovery Standard	LB050049	%	-	31%	10%	17%
(13C3-PFBS) Isotopically Labelled Internal Recovery Standard	LB050049	%	-	133%	10%	106%
(13C3-PFHxS) Isotopically Labelled Internal Recovery Standard	LB050049	%	-	95%	14%	104%
(13C8-PFOS) Isotopically Labelled Internal Recovery Standard	LB050049	%	-	103%	9%	110%
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery Standard	LB050049	%	-	149%	16%	119%
(13C2-6:2 FTS) Isotopically Labelled Internal Recovery Standard	LB050049	%	-	150%	11%	129%
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery Standard	LB050049	%	-	100%	5%	89%
(13C8-PFOSA) Isotopically Labelled Internal Recovery Standard	LB050049	%	-	137%	14%	113%
(D3-N-MeFOSA) Isotopically Labelled Internal Recovery Standard	LB050049	%	-	144%	12%	75%
(D5-N-EtFOSA) Isotopically Labelled Internal Recovery Standard	LB050049	%	-	141%	2%	93%
(D7-N-MeFOSE) Isotopically Labelled Internal Recovery Standard	LB050049	%	-	141%	3%	108%
(D9-N-EtFOSE) Isotopically Labelled Internal Recovery Standard	LB050049	%	-	146%	22%	88%
(D3-N-MeFOSAA) Isotopically Labelled Internal Recovery Standard	LB050049	%	-	122%	7%	94%
(D5-N-EtFOSAA) Isotopically Labelled Internal Recovery Standard	LB050049	%	-	111%	11%	96%

METHOD SUMMARY

ME326292 R0

METHOD	METHODOLOGY SUMMARY
MA-1523	This method covers the analysis of per- and polyfluoroalkyl substances (PFAS) in aqueous, solid and biosolid samples and solvent extracts, determined as the total of linear and branched isomers. After spiking with isotopically labelled quantification surrogates and clean-up via SPE cartridges sample extracts are analysed by liquid chromatography/mass spectrometry (LC-MS/MS). PFAS concentrations are determined by isotope dilution quantification.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	↑↓	Raised or Lowered Limit of Reporting
*	NATA accreditation does not cover the performance of this service.	QFH	QC result is above the upper tolerance
		QFL	QC result is below the lower tolerance
**	Indicative data, theoretical holding time exceeded.	-	The sample was not analysed for this analyte
***	Indicates that both * and ** apply.	NVL	Not Validated

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calcuated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

SAMPLE RECEIPT ADVICE

SE230872

CLIENT DETAILS

Contact	Kelly Lee
Client	LANTERRA CONSULTING PTY LTD
Address	Unit 13, 71 Leichhardt Street Kingston ACT 2604
Telephone	0472 648 804
Facsimile	(Not specified)
Email	Kelly@lanterra.com.au
Project	**P21128**
Order Number	**P21128**
Samples	3

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Mon 11/4/2022
Report Due	Thu 14/4/2022
SGS Reference	**SE230872**

SUBMISSION DETAILS

This is to confirm that 3 samples were received on Monday 11/4/2022. Results are expected to be ready by COB Thursday 14/4/2022. Please quote SGS reference SE230872 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	3 Water
Date documentation received	11/4/2022	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	21.3°C	Sufficient sample for analysis	Yes
Turnaround time requested	Three Days		

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

PFAS subcontracted to SGS Melbourne, Unit 10/585 Blackburn Road Notting Hill VIC 3168, NATA Accreditation Number 2562, Site number 14420. Results may be delayed.

SAMPLE RECEIPT ADVICE

SE230872

CLIENT DETAILS

Client LANTERRA CONSULTING PTY LTD

Project P21128

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Water	OP Pesticides in Water	PAH (Polynuclear Aromatic Hydrocarbons) in Water	PCBs in Water	Speciated Phenols in Water	TRH (Total Recoverable Hydrocarbons) in Water	VOCs in Water	Volatile Petroleum Hydrocarbons in Water
001	Upstream	30	13	22	11	18	9	11	7
002	Downstream	30	13	22	11	18	9	11	7
003	QC1	30	13	22	11	18	9	11	7

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE230872

CLIENT DETAILS

Client LANTERRA CONSULTING PTY LTD

Project P21128

SUMMARY OF ANALYSIS

No.	Sample ID	Acidity and Free CO2	Alkalinity	Anions by Ion Chromatography in Water	Conductivity and TDS by Calculation - Water	Filterable Reactive Phosphorus (FRP)	Mercury (dissolved) in Water	Metals in Water (Dissolved) by ICPOES	Nitrite in Water	pH in water	Trace Metals (Dissolved) in Water by ICPMS
001	Upstream	1	5	4	2	1	1	4	1	1	9
002	Downstream	1	5	4	2	1	1	4	1	1	9
003	QC1	1	5	4	2	1	1	4	1	1	9

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE230872

CLIENT DETAILS

Client LANTERRA CONSULTING PTY LTD

Project P21128

SUMMARY OF ANALYSIS

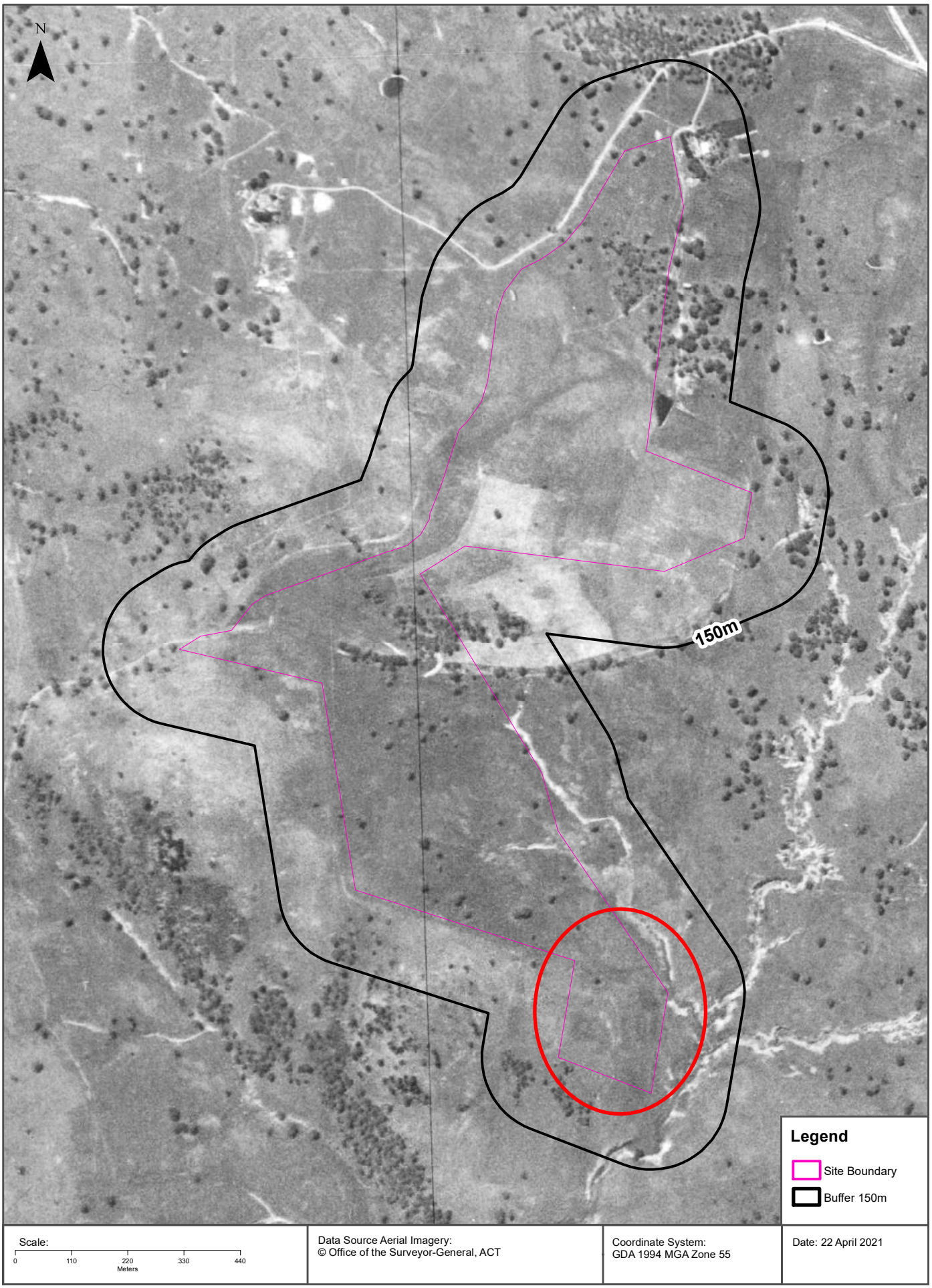
No.	Sample ID	Per- and Polyfluoroalkyl Substances (PFAS) in
001	Upstream	56
002	Downstream	56
003	QC1	56

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

Appendix C

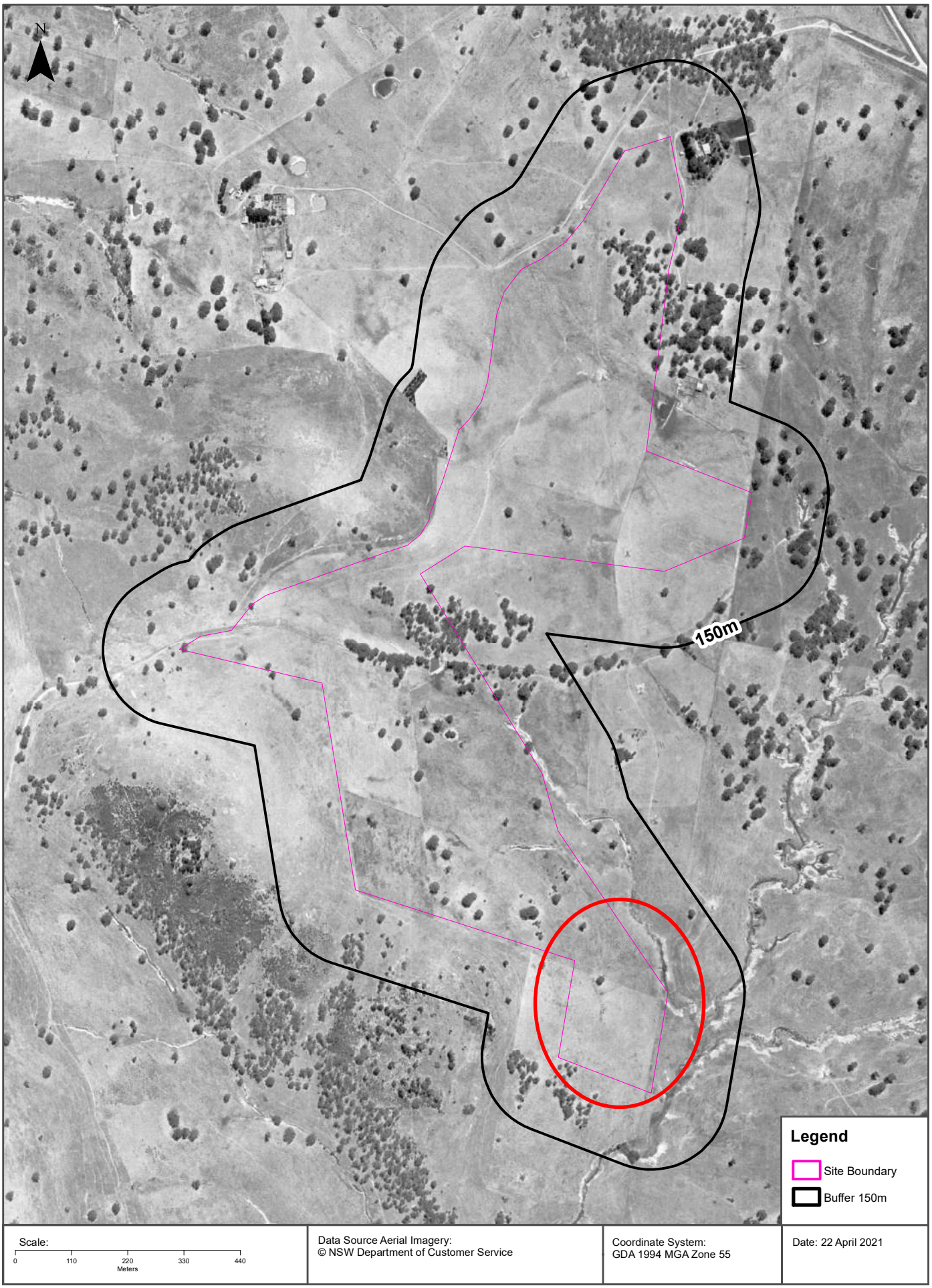
Aerial Imagery 1959

135 Stockdill Drive, Holt, ACT 2615



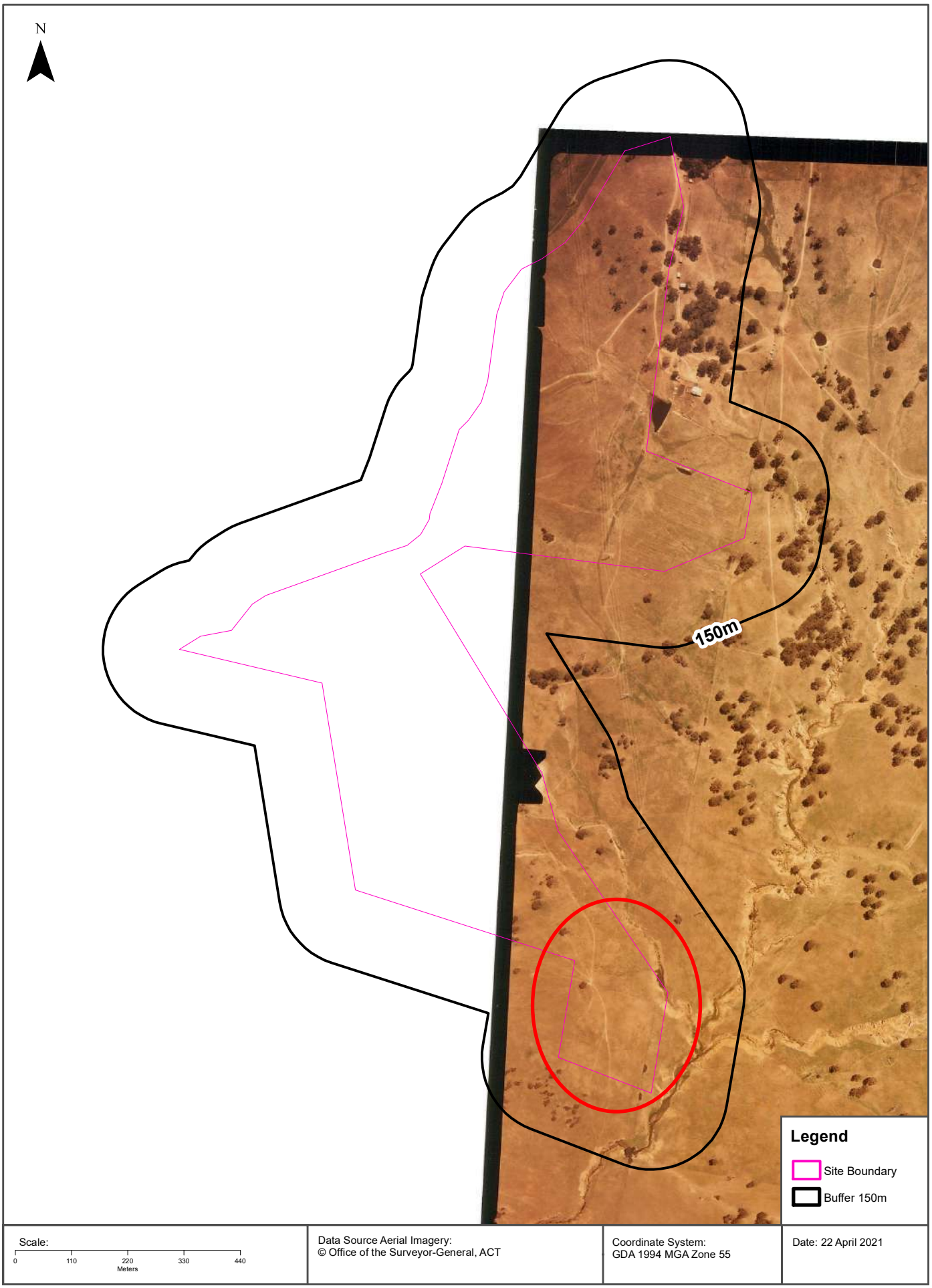
Aerial Imagery 1967

135 Stockdill Drive, Holt, ACT 2615



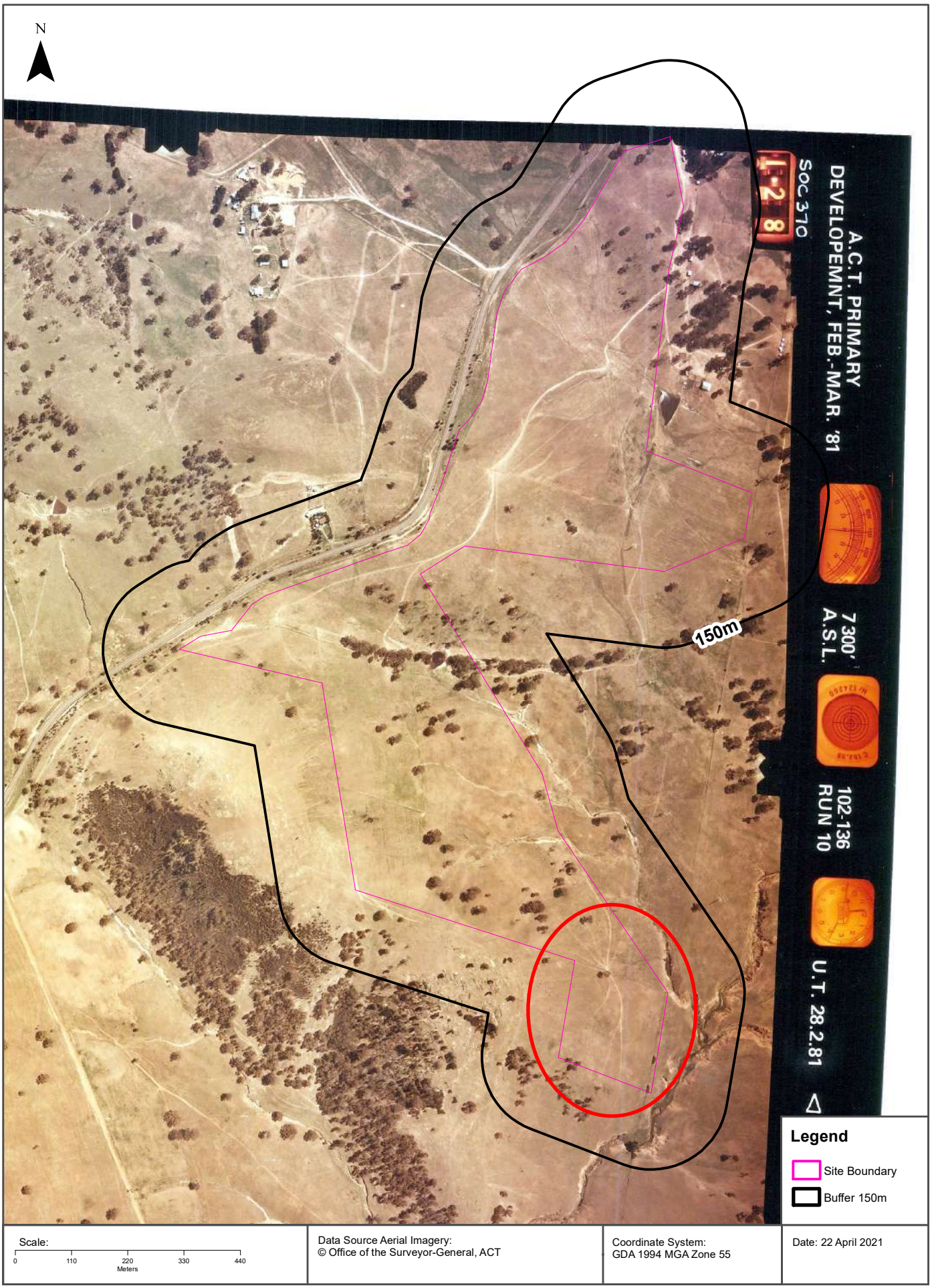
Aerial Imagery 1981

135 Stockdill Drive, Holt, ACT 2615



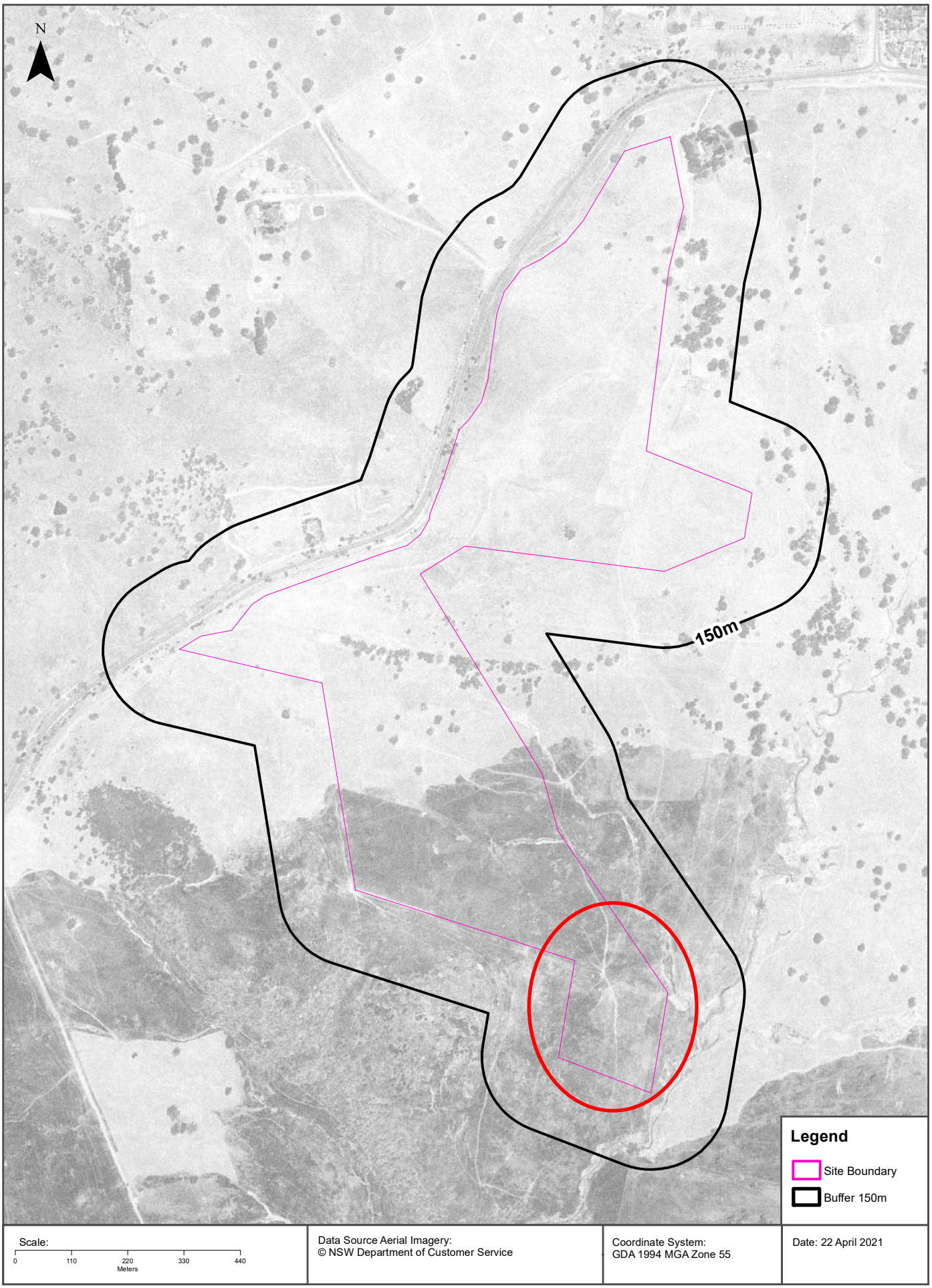
Aerial Imagery 1981

135 Stockdill Drive, Holt, ACT 2615



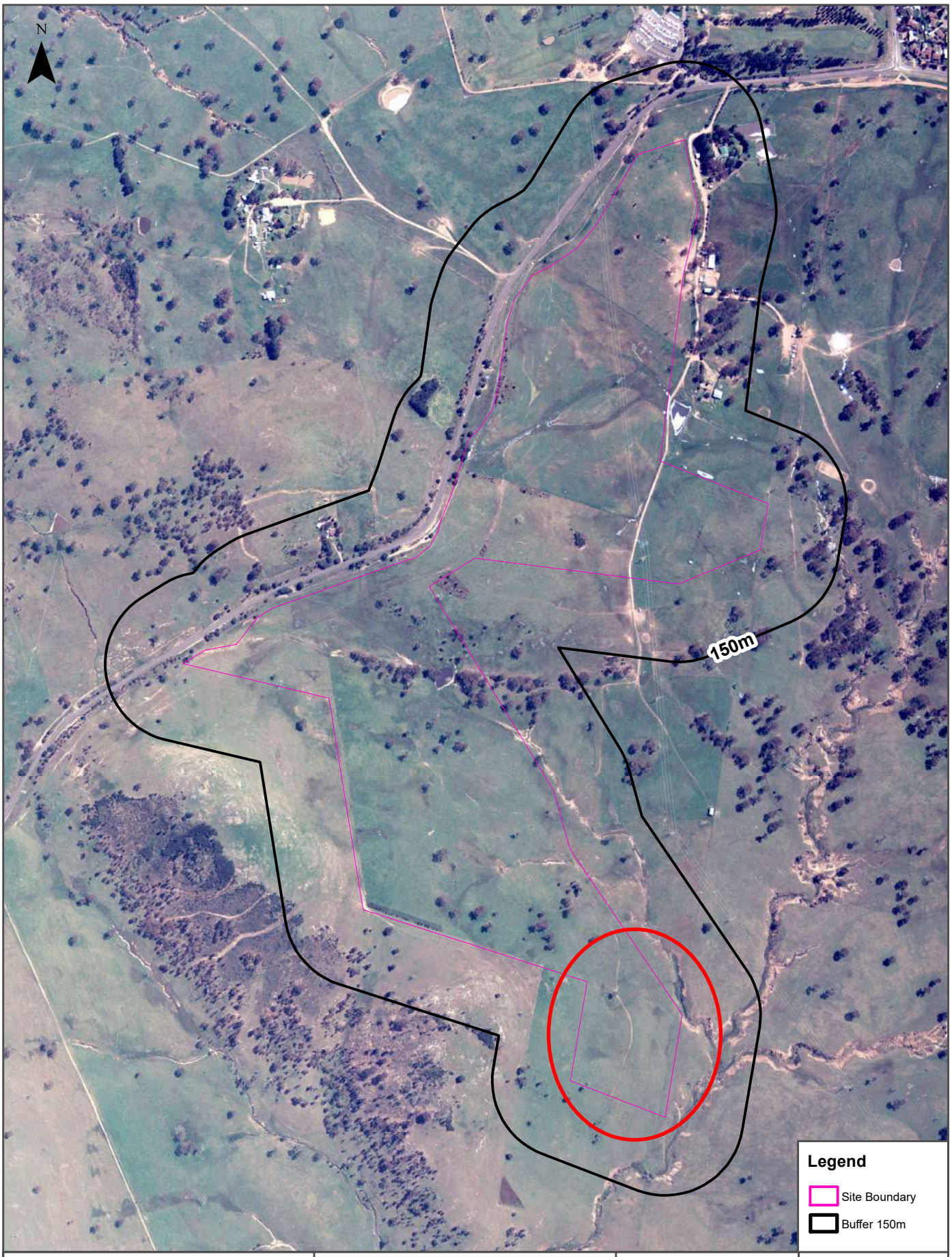
Aerial Imagery 1985

135 Stockdill Drive, Holt, ACT 2615



Aerial Imagery 1992

135 Stockdill Drive, Holt, ACT 2615



Aerial Imagery 2004

135 Stockdill Drive, Holt, ACT 2615

Scale:	Data Sources: Aerial Imagery © Aerometrex Pty Ltd	Coordinate System: GDA 1994 MGA Zone 55	Date: 23 April 2021

0 110 220 330 440
Meters

Aerial Imagery 2009

135 Stockdill Drive, Holt, ACT 2615

Scale:
0 110 220 330 440
Meters

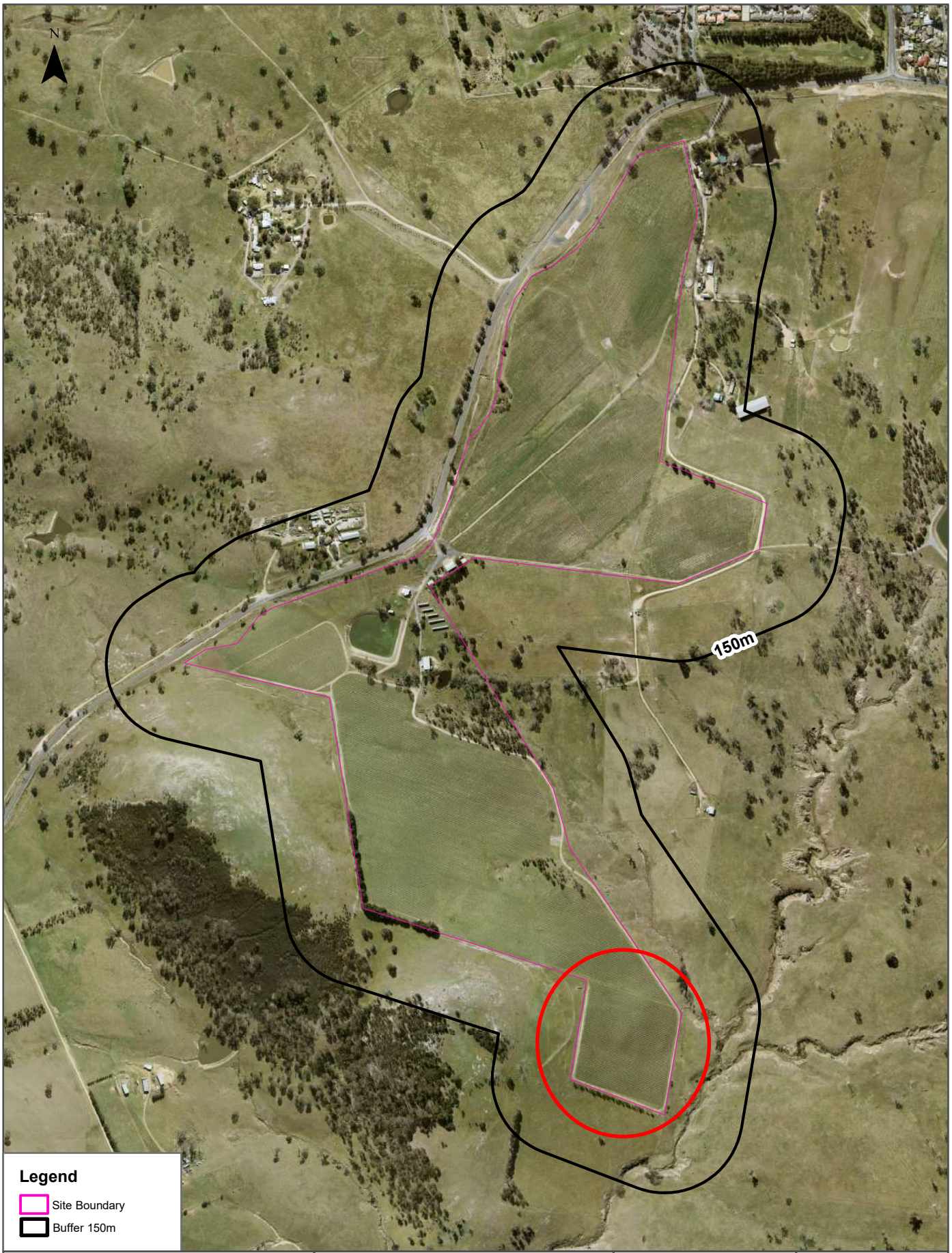
Data Source Aerial Imagery: © 2021 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.

Coordinate System:
GDA 1994 MGA Zone 55

Date: 22 April 2021

Aerial Imagery 2014

135 Stockdill Drive, Holt, ACT 2615



Appendix D

Chris Gunton

From: Zhang, Jianmin <Jianmin.Zhang@act.gov.au> on behalf of Contaminated Sites <ContaminatedSites@act.gov.au>
Sent: Monday, 22 November 2021 7:37 AM
To: Chris Gunton
Subject: Contaminated Land Search Result - Block 1582 Belconnen

OFFICIAL

Dear Dr Gunton

RE: CONTAMINATED LAND SEARCH

Thank you for your search form request of 18/11/2021 enquiring about:

Block 1582 Belconnen

Records held by the Environment Protection Authority (EPA) for the above block(s) indicate the following:

The block is not recorded on the EPA's contaminated sites management database or geographic information system.

However, EPA records indicate that the site is or was being used for the cultivation of grapes. EPA records indicate that waste water from the Lower Molonglo Water Quality Control Centre is or was being used for irrigation at the site.

EPA records also indicate that there is or was a plunge sheep dip site located on the adjacent block, Block 1600 Belconnen, which is within 100 metres of the eastern boundary of Block 1582.

The plunge dip has been identified but not investigated. Detailed below are the Australian Mapping Grid (AMG) co-ordinates recorded by the EPA for the sheep dip located on the above block.

Block 1600
"Pine Ridge"
x_co-ord. 682165
y_co-ord. 6098846
surveyed - plunge dip

The ACT EPA Contaminated Sites Environment Protection Policy 2017 lists agricultural/ horticultural activities and sheep dips as activities associated with land contamination which may present a risk to human health or the environment.

Under the precautionary principal, all blocks adjacent to sheep dip sites are identified and persons making enquiries are made aware of potential for impacts from these sites due to the ability of contaminants to migrate through the environment.

As part of ACT second electrical supply project area, a portion of the block was assessed in 2018. The EPA reviewed the report titled "ACT Second Electrical Supply Project Preliminary Site Investigation" dated 2 February 2018 by WSP Australia Pty Ltd.

The EPA assessed the report and supported the consultant's findings that the areas of the blocks assessed are suitable "for development of a substation and associated transmission line network" from a contamination perspective subject to the implementation of a development area specific construction environmental management plan (CEMP).

The EPA has not issued any orders of assessment or remediation under sections 91C (1) or 91D (1) respectively, environment protection orders under sections 125 (2) or (3), requested an audit under section 76 (2) or received an audit notification under section 76A (1) of the *Environment Protection Act 1997* (the Act) over the site and as a result the site is not recorded on the Register of contaminated sites under section 21A of the Act.

The information detailed above only relates to records held by the EPA and may not represent the actual condition of the site.

At present the EPA has no information on contamination of the above block(s) other than as detailed above. However, this does not absolutely rule out the possibility of contamination and should not be interpreted as a warranty that there is no contamination.

I appreciate that this does not absolutely rule out the existence of contamination of the soils. If you or your clients wish to be completely sure you, or they, should arrange to conduct independent tests.

Regards
Jianmin

Jianmin Zhang |Environment Protection Officer |Office of the Environment Protection Authority
Phone: 02 6207 2157|Email: jianmin.zhang@act.gov.au
Access Canberra|Chief Minister, Treasury and Economic Development Directorate |ACT Government
GPO Box 158, Canberra City, ACT 2601 | www.act.gov.au/accessCBR

We acknowledge the Traditional custodians of the ACT, the Ngunnawal people. We acknowledge and respect their continuing culture and the contribution they make to the life of this city and this region.

Appendix E

ACT Government
Environment and Sustainable Development

Authorisation No. 0642

AUSTRALIAN CAPITAL TERRITORY

ENVIRONMENTAL AUTHORISATION UNDER THE ENVIRONMENT PROTECTION ACT 1997

NOTE: This is a variation of the original environmental authorisation issued 30 September 2008 and includes the variation of 29 July 2010.

The Environment Protection Authority (the Authority), pursuant to section 49(1) (a) of the *Environment Protection Act 1997* (the Act), hereby authorises:

Name:	**CANBERRA SAND & GRAVEL Pty Ltd**
ABN:	**37 008 417 883**
ACN:	**008 417 883**
Street:	**PO Box 110**
Division:	**FYSHWICK, ACT**
Postcode:	**2609**

to conduct the following activity/activities:

the operation of a facility that composts, or is intended by the operator to compost, more than 200t of animal waste, or 5000t of plant waste, per year;

On:	Lot:	**2056**
	Block:	**1651**
	District:	**Belconnen**

subject to the conditions set out in **Schedules 1 and 2** attached, for an unlimited period or until earlier surrendered by Canberra Sand and Gravel Pty Ltd or cancelled or suspended by the Authority.

This is a **standard** environmental authorisation. This authorisation will be reviewed annually.

.....

Delegate for the Environment Protection Authority

Dated this 4th day of November 2013

SCHEDULE 1: GENERAL CONDITIONS

Definitions

For the purposes of this Authorisation the following terms are defined:

Authority: *means the ACT Environment Protection Authority.*

Authorisation holder*: means Canberra Sand and Gravel Pty Ltd.*

Site: *Lot 2056 part of Block 1651 Belconnen as detailed in Attachment A.*

Operation: *means operation of a facility that composts animal or plant waste.*

Acceptable waste*: means plant (green) waste from domestic, commercial horticultural, agricultural and municipal sources following visual inspection and removal of any foreign material.*

Residual Waste: *means waste material left over from the composting operations sent to an approved facility licensed to accept such waste.*

Sediment Retention Dam 1*: means the 21,427 m^3 capacity sediment retention dam located on Block 1586 Belconnen.*

1. Compliance with Environmental Authorisation

The Authorisation holder shall:

(a) comply with any authorisation condition immediately where no time for compliance is stated;

(b) notify the Authority in writing within 2 working days of becoming aware of:

i. any event that causes, or is likely to cause, any authorisation condition to be exceeded; or

ii. any monitoring data that show that a condition of the authorisation has been exceeded.

2 Activities must be carried out to protect the environment

2.1 All activities carried out on the site shall be carried out in such a manner that adverse impact on the environment is minimised.

3 Maintenance of plant and equipment

3.1 All plant and equipment installed or used in or on the site shall be maintained in a safe and good condition and in accordance with manufacturer's recommendations.

3.2 Records of all maintenance and repairs performed on pollution control equipment including storage vessels, pressure vessels, drainage systems, interceptors, separators and infrastructure shall be kept on site for a period of 2 years and made available to the Authority on request.

3.3 "plant and equipment" includes pollution control equipment including storage vessels, pressure vessels, drainage systems, interceptors, separators and infrastructure and pollution control equipment.

4 Environmental Practices

4.1 The Authorisation holder shall minimise emissions to the environment by:

(a) adopting the practices set out in **Schedule 1 and 2** for the composting of animal and plant waste.

5 Compliance with Australian Standards and Industry Codes of Practice

5.1 The Authorisation holder shall comply with the provisions of the following Australian Standards, Guidelines and Industry Codes of Practice provided such provisions are not in conflict with the conditions in this Authorisation, and the provisions of any policies made by the Authority.

- AS 1940 - The Storage and Handling of Flammable and Combustible Liquids, Standards Association of Australia.
- Environment Protection Authority Guidelines for Service Stations and Hydrocarbon Storage September 2011.

6 Fuel Storage

6.1 Where there are fuel storage tanks on the site the authorisation holder shall ensure the tanks and associated pipe work are maintained in good condition. The proposed method of demonstrating the integrity of the tanks and associated pipe should be incorporated into the authorisation holders Environment Management Plan required under section 17 of this schedule.

6.2 Further to the provisions of section 6.1, special requirements are applied to the abandonment of any aboveground or underground tanks and should the need arise, the Authorisation holder agrees to contact the Authority and:

ORS Workcover
Dangerous Substances and Workers Compensation
Telephone: 02 6207 0200
Facsimile: 02 6205 0336
Block B, Level 3
Callam Offices
Easty Street
WODEN ACT 2606
(P O Box 224, CIVIC SQUARE ACT 2608)

7 Reporting of environmental harm

7.1 In the event that an incident has caused, is causing or is likely to cause material or serious environmental harm, whether the harm occurs on or off the site, the Authorisation holder, their employee or agent shall report the incident to the Authority immediately after it becomes known to the Authorisation holder or to their employee or agent in accordance with clause 7.2.

7.2 The incident shall be reported to the Authority by telephoning Canberra Connect on 132 281 during and outside business hours.

7.3 The Authorisation holder shall notify the Authority in accordance with clause 7.2 immediately after becoming aware that land is contaminated in such a way as to present, or to be likely to present –

a) a significant risk of harm to human health: or

b) a risk of material environmental harm or serious environmental harm

7.4 All incidents and /or contamination of land (including ground and surface waters) shall be reported in writing to the Authority within 2 working days of the Authorisation holder, their employee or agent becoming aware of any environmental harm in accordance with clause 7.2.

7.5 The Authorisation holder, their employee or agent is required to report an incident in writing and include:

(a) incident or activity that has caused contamination or environmental harm;

(b) nature of contamination and chemicals of concern;

(c) area affected (on or off site);

(d) aspects of the environment affected; and

(e) any other relevant information.

8 Record of pollution complaints

8.1 The Authorisation holder shall keep a record of all complaints received by its employees or its agents, in relation to pollution from, or on, the site. This record is to be provided, on request, to the Authority.

9 Record of activity levels

9.1 The Authorisation holder shall maintain a record of the amount of plant waste material composted in m^3 per month.

9.2 The Authorisation holder shall maintain a record of the amount of residual waste generated and disposed of in m^3 per month.

10 Records to be maintained

10.1 The following records will be maintained and kept by the authorisation holder for a period of five (5) years:

a) waste disposal certificates for any residual or hazardous waste disposed off-site; and

b) keep a legible record of all complaints received by its employees or by its agents in relation to pollution associated with the activities.

11 Responsible employees

11.1 The Authorisation holder shall authorise at least two senior employees or agents:

a) to speak on behalf of the Authorisation holder; and

b) to provide any information or document required under this authorisation.

11.2 The Authorisation holder shall inform the Authority of the names and telephone numbers (including after hours numbers) of those persons within five (5) working days of this authorisation coming into force. The details may be provided by facsimile to (02) 6207 6084 or by e-mail to environment.protection@act.gov.au.

11.3 The Authorisation holder shall inform the Authority of any change in the information provided under this condition within five (5) working days of the change.

11.4 Any person nominated by the Authorisation holder to meet the requirements of this condition shall be readily contactable on the person's nominated telephone numbers.

12 Authorisation shall be kept at the site

12.1 A copy of this authorisation shall be kept at the site and shall be available for inspection by any employee or agent of the Authorisation holder working at the site.

13 Waste

13.1 The Authorisation holder shall undertake all practical steps to encourage clients to separate materials prior to acceptance at the site.

13.2 The Authorisation holder shall inspect all vehicles arriving on the site.

13.3 The Authorisation holder shall only accept plant (green) waste from domestic, municipal and commercial sources on site which is consistent with the activity/activities approved by the Authority.

13.4 The Authorisation holder shall ensure all stockpiles have appropriate controls in place to minimise any adverse environmental impact whilst stored on site. Other controls shall be installed as required by Schedule 1 and 2.

13.5 Any/all foreign material and/ or residual waste is to be classified using the ACT's Environmental Standards: Assessment and Classification of Liquid and Non-liquid Wastes (June 2000) and recycled or removed from the site within six (6) months or longer time frame approved in writing by the Authority.

13.6 Waste removed under clause 13.5 must be taken to a facility approved to accept such waste and documentary evidence of the disposal kept by the Authorisation holder as set out in clause 10.1.

13.6 No waste material is to be incinerated or disposed of on site.

13.7 No soil is to be permanently placed on the site without written approval from the Authority.

14 Hazardous Materials

14.1 The Authorisation holder shall store and manage hazardous materials in a manner that prevents adverse impacts on the environment. The handling and storage of hazardous materials should be addressed in the Environment Management Plan required under section 17 of this schedule.

15 Discharge of stormwater

15.1 The Authorisation holder shall manage the water catchment on the site so that storm water, pollutants and sediments are diverted to landfill sediment retention Dam 1.

16 New designs and innovations

16.1 The provisions of this Authorisation are not intended to limit the appropriate use of alternative materials, equipment, designs, or methods because they are not included.

17 Environment Management Plan

17.1 The Authorisation holder shall prepare and submit an Environment Management Plan (EMP) acceptable to the Authority within 3 months of the date of this Authorisation.

17.2 The EMP should identify all activities that may have an adverse impact on the environment or the potential to cause environmental harm, and detail the mechanisms employed to prevent or minimise the impact of these activities. If required, the ways in which the conduct of the activity will be altered to minimise or reduce the adverse environmental impact of the activity is to be detailed including a timetable for implementation.

17.3 The EMP, once accepted by the Authority is to be implemented immediately. It will also form the basis for future authorisation conditions and environmental improvements.

17.4 The Authorisation holder shall review the approved EMP every 2 years from the date of this Authorisation to ensure that the document remains current/ relevant to activities undertaken on the site. The reviewed EMP shall be submitted to the Authority within 3 months of the review date.

18 Monitoring Requirements

N/A

19 Water Quality Standards

N/A

20 Reporting Requirements

20.1 Provide an annual report to the Authority by 31 January following each reporting year on the amount of material composted as required under section 9.1. The reporting year covers the period 1 January to 31 December and shall commence 1 month from the anniversary of the grant date.

21 Sampling Requirements

N/A

22 Potentially offensive odour

22.1 The Authorisation holder must not cause or permit the emission of offensive odour beyond the boundary of the site.

SCHEDULE 2

Composting and related reprocessing or treatment

TABLE 1: ACCEPTANCE OF MATERIAL

Requirement
Only accept the following material for composting: **Permitted** ▪ Plant (green) waste from domestic, commercial horticultural, agricultural and municipal sources following visual inspection and removal of any foreign material. **Not Permitted** ▪ Waste types or streams detailed in Tables 1, 2, 3 and 4 of the "ACT's Assessment & Classification of Non - liquid Wastes", excepted those wastes which are defined as "permitted wastes"; ▪ Chemically treated timber products, including timber such as copper chrome arsenate (CCA), high temperature creosote (HTC), pigmented emulsified creosote (PEC) and light organic solvent preservative (LOSP) treated timber; and ▪ Painted timber products.

TABLE 2: AIR POLLUTION

Accessories/ Equipment/ Station	Requirement
Trafficked areas	Pave, seal or otherwise treat and maintain all trafficked areas within site to prevent or minimise the generation of airbourne dust.
Composting operations	Take practical and reasonable measures to prevent or minimise airbourne dust.
Stockpiles	Take practical and reasonable measures to prevent or minimise airbourne dust.
Movement of materials	Take practical and reasonable measures to prevent or minimise airbourne dust.

TABLE 3: NOISE EMISSION

Requirement
Shall manage the operations at the site so that noise levels do not exceed the following levels at any point on the boundary of the site. Mon – Saturday 7 am to 10 pm 45dB(A) Sunday and Public Holidays 8 am to 10 pm 45dB(A) At any other time 35dB(A)

TABLE 4: CONTAMINATION

Requirement
Residual waste is to be classified using the *"ACT's Environmental Standards: assessment and Classification of Liquid and Non-liquid Wastes (June 2000)"* and separately stored and removed from the site within 6 months or a longer time frame approved in writing by the Authority. Residual waste removed must be taken to a facility approved to accept such waste and documentary evidence of the disposal kept by the Authorisation holder as set out in Schedule 1, Clause 10.

TABLE 5: OPERATIONAL REQUIREMENTS.

Requirement
a) Vehicles are to use formed roads. Every effort is to be taken to prevent tracking of sediment onto public roads. All sediment spilled, dropped, or washed onto public roads must be removed immediately. b) Material shall be stockpiled or deposited only in identified areas.

Attachment A – Site Map

ACT Government
Chief Minister, Treasury and Economic Development

11 OCT 2018

Mr James Gregory
Canberra Sand and Gravel Pty Ltd
PO Box 110
FYSHWICK ACT 2609

Dear Mr Gregory,

Environmental Authorisation No: 0642, granted to Canberra Sand and Gravel Pty Ltd on the 30 September 2008 has been reviewed by the Environment Protection Authority for the period 30 September 2016 to 29 September 2018, in accordance with Section 57 of the *Environment Protection Act 1997*.

Canberra Sand and Gravel Pty Ltd was found to comply with the standard conditions of their authorisation.

Please read through the attached document, 'Review of Environmental Authorisation under the *Environment Protection Act 1997*', for comments relating to the review of authorisation No: 0642.

Should you wish to discuss this matter further please contact me on (02) 6207 1819 or email de.clayton@act.gov.au.

Yours sincerely

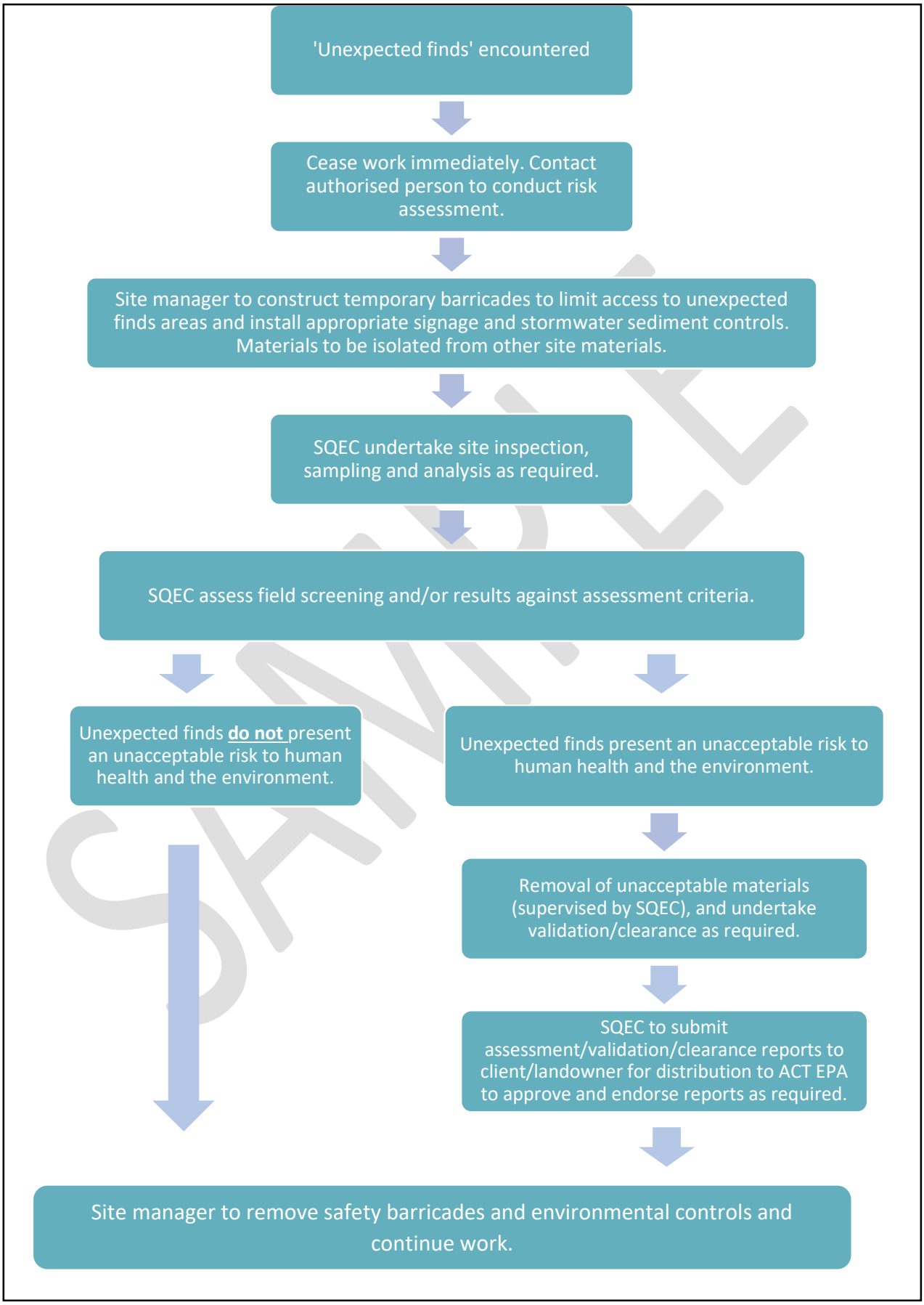
Des Clayton
Environment Protection Officer
Environmental Quality

8 October 2018

Appendix F

Example Unexpected Finds Protocol

Figure 1 – Summary of Unexpected Finds Protocol



EPA Reporting Checklist

Appendix G: Site Suitability Report Checklist

(NSW EPA 2020, Contaminated Land Guidelines: Consultant Reporting on Contaminated Land)

Report section	Required information	Included	Lanterra Report Section
Document control	Date, version number, author and reviewer (including certification details) and who commissioned the report	☒	Document control page Section 1.0
Executive summary	Background	☒	Executive summary
	Objectives of the investigation	☒	Executive summary
	Scope of work	☒	Executive summary
	Where appropriate, a summary of key findings, observations and sampling results (if available)	☒	Executive summary
	Summary of conclusions and recommendations	☒	Executive summary
Objectives	The objectives of the investigation/report and the broader objectives for the site/investigation	☒	Section 1.1
Scope of work	Scope of work performed (work not undertaken where relevant)	☒	Section 1.2
Site identification	Site identification and detail items from ASC NEPM Field Checklist 'Site information' sheet.	☒	Section 2
Site history	Site history items from ASC NEPM Field Checklist 'Site information' sheet. A summary is enough if detailed information was included in an available referenced previous report.	☒	Section 3
Site condition and surrounding environment	Site condition and surrounding environment items from ASC NEPM Field Checklist 'Site information' sheet. A summary is enough if detailed information was included in an available referenced previous report, to be updated with site-specific information.	☒	Section 3, 4 & 5
Assessment criteria	Table listing all selected assessment criteria and references	☒	Section 8
	Rationale for the selection of assessment criteria, including assumptions and limitations of the criteria (relevant to the assessment and current or proposed landuse) and any deviations from approved guidelines.	☒	Section 9

Report section	Required information	Included	Lanterra Report Section
	Rationale for any site-specific assessment criteria developed through a site-specific risk assessment.	☒	Section 9
Sampling and analysis quality plan and sampling methodology	A strategy to achieve pre-determined data quality objectives, including sampling strategy and justification for the sampling design.	☒	Section 9
	Procedures to be undertaken if the data does not meet the expected data quality objectives.	☒	Section 8
	Sampling and analysis plan and methodology items from ASC NEPM Field Checklist 'SAP, QAQC Sheet'	☒	Section 9
Results	Summary of previous results, if applicable	☐	Not applicable
	A table(s) of analytical results that:		
	shows all essential details such as sample identification numbers and sampling depth	☒	Appendix B
	shows assessment criteria	☒	Appendix B
	highlights all results exceeding any assessment criteria (not just the highest)	☒	Section 9.1.4 & Appendix B
	includes a summary/discussion of the analytical results	☒	Section 9.1.4
	includes sample descriptions for all media where applicable (e.g. soil, sediment, surface water, groundwater, biota)	☒	Section 9
	includes test pit or bore logs (well construction details where appropriate for example groundwater level expressed in Australian height datum)	☐	Not applicable
	includes site plan showing all sample locations	☒	Appendix A
	includes site plan(s) showing the extent of soil and groundwater contamination exceeding selected assessment criteria for each sampling depth, including identification numbers and depths of all samples analysed	☐	Not applicable
	follows appropriate statistical procedures when comparing site data with the investigation and screening levels.	☐	Not applicable

Report section	Required information	Included	Lanterra Report Section
Quality assurance/quality control data evaluation	Details of sampling team	☒	Section 9
	Reference to sampling plan/method, including any deviations from it – sampling and analysis quality plan	☒	Section 9
	Any information that could be required to evaluate measurement uncertainty for subsequent testing (analysis)	☒	Section 8
	Decontamination procedures carried out between sampling event	☒	Section 9
	Logs for each sample collected, including date, time, location (with GPS coordinates if possible), sampler, duplicate samples, chemical analysis to be performed, site observations and weather/environmental (i.e. surroundings) conditions. Include any, diagrams, maps, photos.	☒	Section 9, Appendix A & Appendix B
	Chain of custody fully identifying – for each sample – the sampler, nature of the sample, collection date, analysis to be performed, sample preservation method, departure time from the site and dispatch couriers (s) (where applicable).	☒	Appendix B
	Field quality assurance/quality control results (e.g.) field blank, rinsate blank, trip blank, laboratory prepared trip spike	☒	Section 9 & Appendix B
	Sample splitting techniques – subsampling, containers/preservation (ensure unique ID for subsequent samples provided)	☒	Section 9
	Statement of duplicate frequency	☒	Section 9
	Background sample results	☐	Not applicable
	Field instrument calibrations (when used)	☐	Not applicable
	Sampling devices and equipment	☒	Section 9
	A copy of signed chain-of-custody forms acknowledging receipt date, time and temperature and identity of samples included in shipments.	☒	Appendix B
	Record of holding times and a comparison with method specifications	☒	Section 9 & Appendix B

Report section	Required information	Included	Lanterra Report Section
	Analytical methods used, including any deviations	☒	Appendix B
	Laboratory accreditation for analytical methods used, also noting any methods used which are not covered by accreditation	☒	Section 9 & Appendix B
	Laboratory performance for the analytical method using inter-laboratory duplicates	☒	Section 9
	Surrogates and spikes used throughout the full method process, or only in parts. Results are corrected for the recovery	☒	Section 9 & Appendix B
	A list of what spikes and surrogates were run with their recoveries and acceptance criteria (tabulate)	☒	Section 9 & Appendix B
	Practical quantification limits (PQL)	☒	Section 9 & Appendix B
	Reference laboratory control sample (LCS) and check results	☒	Section 9 and Appendix B
	Laboratory duplicate results (tabulate)	☒	Appendix B
	Laboratory blank results (tabulate)	☒	Appendix B
	Results are within control chart limits	☒	Appendix B
	Evaluation of all quality assurance/control information listed above against the stated data quality objectives, including a quality assurance/control data evaluation	☒	Section 9
Conceptual site model	Regional and local geology, hydrogeology and hydrology items from ASC NEPM Field Checklist 'CSM' sheet	☒	Section 4
	List of potential contaminants of concern	☒	Section 6 & 10
	Potential and known sources of contamination on- and offsite	☒	Section 6 & 10
	Mechanism of contamination	☒	Section 6 & 10
	Potentially affected environmental media	☒	Section 6 & 10
	Consideration of spatial and temporal variations	☒	Section 6 & 10

Report section	Required information	Included	Lanterra Report Section
	Actual or potential exposure pathways. Also consider preferential pathways for contaminant migration	☒	Section 6 & 10
	Human and ecological receptors	☒	Section 6 & 10
	Frequency of exposure	☒	Section 6 & 10
	Linkage of source, pathway and receptor assessed in terms of potentially complete pathways and likelihood	☒	Section 6 & 10
	Discussion on multiple lines of evidence (for complex sites)	☒	Section 7, 9 and 11
	Previous site investigations, contaminant characteristics and migration items from ASC NEPM Field Checklist 'CSM' sheet	☒	Section 3, 6 & 10
	Conceptual site model items from ASC NEPM Field Checklist 'CSM' sheet	☒	Section 6 & 10
	Meteorological data items from ASC NEPM Field Checklist 'CSM' sheet	☐	Not applicable
	Sources of variability	☐	Not applicable
	Data gap identification	☐	Not applicable
	Sensitivity analysis where modelling is undertaken.	☐	Not applicable
Data Quality Objectives	Step 1: State the problem	☒	Section 8
	Step 2: Identify the decision / goal of the study	☒	Section 8
	Step 3: Identify the information inputs	☒	Section 8
	Step 4: Define the boundaries of the study	☒	Section 8
	Step 5: Develop the analytical approach	☒	Section 8
	Step 6: Specify performance or acceptance criteria	☒	Section 8
	Step 7: Develop the plan for obtaining data	☒	Section 8

Report section	Required information	Included	Lanterra Report Section
	Are the data quality objectives linked to the conceptual site model, and have they been updated with the conceptual site model?	☒	Section 6 & Section 10
Site characterisation	Assessment of extent of contamination considering all relevant media, including offsite areas	☒	Section 11
	Assessment of aesthetic issues	☒	Section 9
	Assessment of secondary toxicity (if conducting an ecological risk assessment)	☐	Not applicable
	Assessment of potential effects of contaminants on human health, and built structures (for example arising from risks to service lines from hydrocarbons in groundwater, or risks to concrete from acid sulphate soils)	☒	Section 9 & 11
	Assessment of chemical degradation products	☐	Not applicable
	Assessment of possible exposure routes and exposed populations (human, ecological)	☒	Section 10 & 11
	Any evidence of, or potential for, migration of contaminants from the site, including odour, air quality, stormwater, sedimentation, soil vapour, ground gases and groundwater issues	☒	Section 7 & 11
Conclusions and recommendations	Summary of all findings	☒	Exec Summary & Section 11
	Conclusions addressing the stated objectives	☒	Exec Summary & Section 11
	Assumptions used in reaching the conclusions	☒	Exec Summary, Section 1.4 & Section 11
	Extent of uncertainties in the results	☒	Exec Summary & Section 11
	A clear-cut statement that the consultant considers the site to be suitable for the proposed use (where applicable)	☒	Exec Summary & Section 11
	A statement detailing all limitations and constraints on the use of the site (where applicable)	☒	Section 1.4
	Recommendations for further work, if appropriate	☒	Exec Summary & Section 11