

12457/AF/VR/25

14 March 2025

J G Hale Construction
Unit 2
Milland Road Industrial Estate
Neath
SA11 1NJ

For the attention of Kevin O'Mahoney

12457 Phase 3 County Flats, Sandfields, Aberavon – PAH Hotspot Validation Report

We have now completed the validation works post removal of a hotspot of PAH impacted made ground carried out for the proposed housing development at County Flats, Sandfields, Aberavon.

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Background

The site has been previously investigated by Intégral Géotechnique and the following reports are detailed below:

- Sandfields Aberavon, Site Investigation Reports (Reference 12457/RAH/19/SI), dated September 2019,
- Sandfields County Flats Soil Infiltration Testing Report (Reference 12457/DPD), dated May 2019,
- County Flats, Sandfields, Aberavon, Supplementary Site Investigation Report (Reference 12735/LW) dated March 2025.

The contamination test results and investigation observations from both the 2019 site investigation and the recent supplementary site investigation indicate elevated concentrations of several PAH compounds detected within the made ground at a single location within Phase 3, namely WS01 which is considered a potential hotspot.

This report should be read in conjunction with the above reports and should be referred to for the full geoenvironmental and geotechnical recommendations.

An Outline Remediation Strategy Report was produced by Intégral Géotechnique (Wales) Limited for the site and referenced 12457/LW/21/ORS dated May 2021.

The Outline Remediation Report states that the Phase 3 areas of the site will be deemed remediated following removal of PAH impacted made ground around the hotspot at WS01 with either placement of the impacted soil under areas of hardstanding or disposal off site at an appropriate facility.

To validate these works, following removal of the PAH impacted made ground, samples of the exposed underlying in-situ natural strata should be sampled and tested for contaminants (PAH compounds) to confirm that no residual contamination remains.

In consultation with J G Hale Construction, Intégral Géotechnique were instructed to validate the area where the PAH impacted ground was removed. Additional sampling for PAH analysis and an assessment of the results was carried out as part of the works.

The Site

The site is in the Sandfields area of Aberavon, approximately 2km west southwest of Port Talbot, at an approximate National Grid Reference of 274650, 189780. A Site Location Plan, Figure 1 is enclosed.

Fieldworks

The PAH impacted made ground around the “WS1” hotspot had been removed by J G Hale Construction. Intégral Géotechnique (Wales) Limited were instructed by J G Hale Construction to undertake near surface sampling, geoenvironmental laboratory testing and validation reporting giving recommendations.

A geotechnical engineer from Intégral Géotechnique (Wales) Limited carried out the validation sampling fieldwork on 5 March 2025. A shallow pit was excavated using a tracked machine supplied by J G Hale Construction Ltd in the area where the impacted PAH made ground had been removed. The pit was excavated to 0.5m bgl across an area of approximately 3m by 3m.

Six samples were taken to facilitate testing for PAH compounds. Samples were taken from each face of the excavation (sample references V1W, V2E, V3S and V4N) and two from the base of the excavation (sample references V5B1 and V6B2).

The approximate sample locations are shown on the Validation Sample Location Plan - Figure 2.

Geoenvironmental Laboratory Testing Results

Representative samples of the soil were dispatched to the UKAS accredited laboratory of i2 Analytical for testing PAH - Speciated (EPA 16).

For this analysis, the averaging area has been determined according to the proposed residential end use.

The results of the laboratory testing indicate that all the soil samples analysed for PAH are present at concentrations below the appropriate thresholds.

The results of the laboratory geoenvironmental testing and summary are presented in Enclosure A.

Conclusions

Following a review of the hotspot validation sample results it is confirmed the PAH concentrations are below the published soil screening values for proposed residential areas end use, and the soils tested pose no significant threat to human health or the environment.

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We can conclude that with the evidence provided by J G Hale Construction, on site observations and results of the testing, it is confirmed that the area of PAH impacted ground around the WS1 hotspot has been remediated in accordance with the Outline Remediation Strategy referenced 12457/LW/21/ORS dated May 2021.

We trust the above and enclosed are to your satisfaction. However, if you have any queries or require any further information, please do not hesitate to contact us.

Yours faithfully,



Andy Figgis
Senior Engineering Geologist BSc
For
Intégral Géotechnique (Wales) Limited

Enclosed.

Appendix A - Laboratory Geoenvironmental Test Results and Summary

Figure 1 - Site Location Plan

Figure 2 - Sample Location Plan

APPENDIX A

LABORATORY GEOENVIRONMENTAL TEST RESULTS

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e: andy@integralgeotec.com

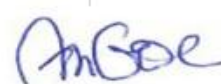
t: 01923 225404

f: 01923 237404

e: reception@i2analytical.com

Analytical Report Number : 25-011218

Project / Site name:	Phase 3 Country Flats, Sandfields	Samples received on:	07/03/2025
Your job number:	12457	Samples instructed on/ Analysis started on:	07/03/2025
Your order number:	12457/AF	Analysis completed by:	13/03/2025
Report Issue Number:	1	Report issued on:	13/03/2025
Samples Analysed:	6 soil samples		



Signed: _____

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting
air	- once the analysis is complete

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Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.



Analytical Report Number: 25-011218

Project / Site name: Phase 3 Country Flats, Sandfields

Your Order No: 12457/AF

Lab Sample Number				473730	473731	473732	473733	473734
Sample Reference				V1W	V2E	V3S	V4N	V5B1
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.40	0.40	0.40	0.40	0.50
Date Sampled				05/03/2025	05/03/2025	05/03/2025	05/03/2025	05/03/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	4.8	4.5	4.7	3.5	3.7
Total mass of sample received	kg	0.1	NONE	0.1	0.1	0.1	0.1	0.1

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	< 0.80	< 0.80	< 0.80	< 0.80
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 25-011218

Project / Site name: Phase 3 Country Flats, Sandfields

Your Order No: 12457/AF

Lab Sample Number				473735
Sample Reference				V6B2
Sample Number				None Supplied
Water Matrix				N/A
Depth (m)				0.50
Date Sampled				05/03/2025
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	

Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	3.2
Total mass of sample received	kg	0.1	NONE	0.1

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



Analytical Report Number : 25-011218

Project / Site name: Phase 3 Country Flats, Sandfields

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
473730	V1W	None Supplied	0.4	Brown sand with gravel
473731	V2E	None Supplied	0.4	Brown sand with gravel
473732	V3S	None Supplied	0.4	Brown sand with gravel
473733	V4N	None Supplied	0.4	Brown sand with gravel
473734	V5B1	None Supplied	0.5	Brown sand with gravel
473735	V6B2	None Supplied	0.5	Brown sand with gravel



Analytical Report Number : 25-011218

Project / Site name: Phase 3 Country Flats, Sandfields

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

SUMMARY OF LABORATORY SOIL TEST RESULTS

POLYAROMATIC HYDROCARBONS (PAH)

Job No.: 12457
 Site: Phase 3 County Flats, Sandfields, Aberavon
 Soil Type: Made Ground
 Soil Organic Matter: 1%

No.	Location	Depth (m)	Acenaphthene (mg/kg)	Acenaphthylene (mg/kg)	Anthracene (mg/kg)	Benzo(a)anthra- cene (mg/kg)	Benzo(a)pyrene (mg/kg)	Benzo(b)fluoran- thene (mg/kg)	Benzo(ghi)peryl- ene (mg/kg)	Benzo(k)fluoran- thene (mg/kg)	Chrysene (mg/kg)	Dibenzo(ah)anth- racene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Indeno(123cd)p- yrene (mg/kg)	Naphthalene (mg/kg)	Phenanthrene (mg/kg)	Pyrene (mg/kg)
1	V1W	N/A	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2	V2E	N/A	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
3	V3S	N/A	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4	V4N	N/A	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
5	V5B1	N/A	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
6	V6B2	N/A	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Screening Criteria Value			210.0	170.0	2400.0	7.2	2.2	2.6	320.0	77.0	15.0	0.24	280.0	170.0	27.0	2.3	95.0	620.0
Source of Screening Criteria Value			S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL

FIGURES

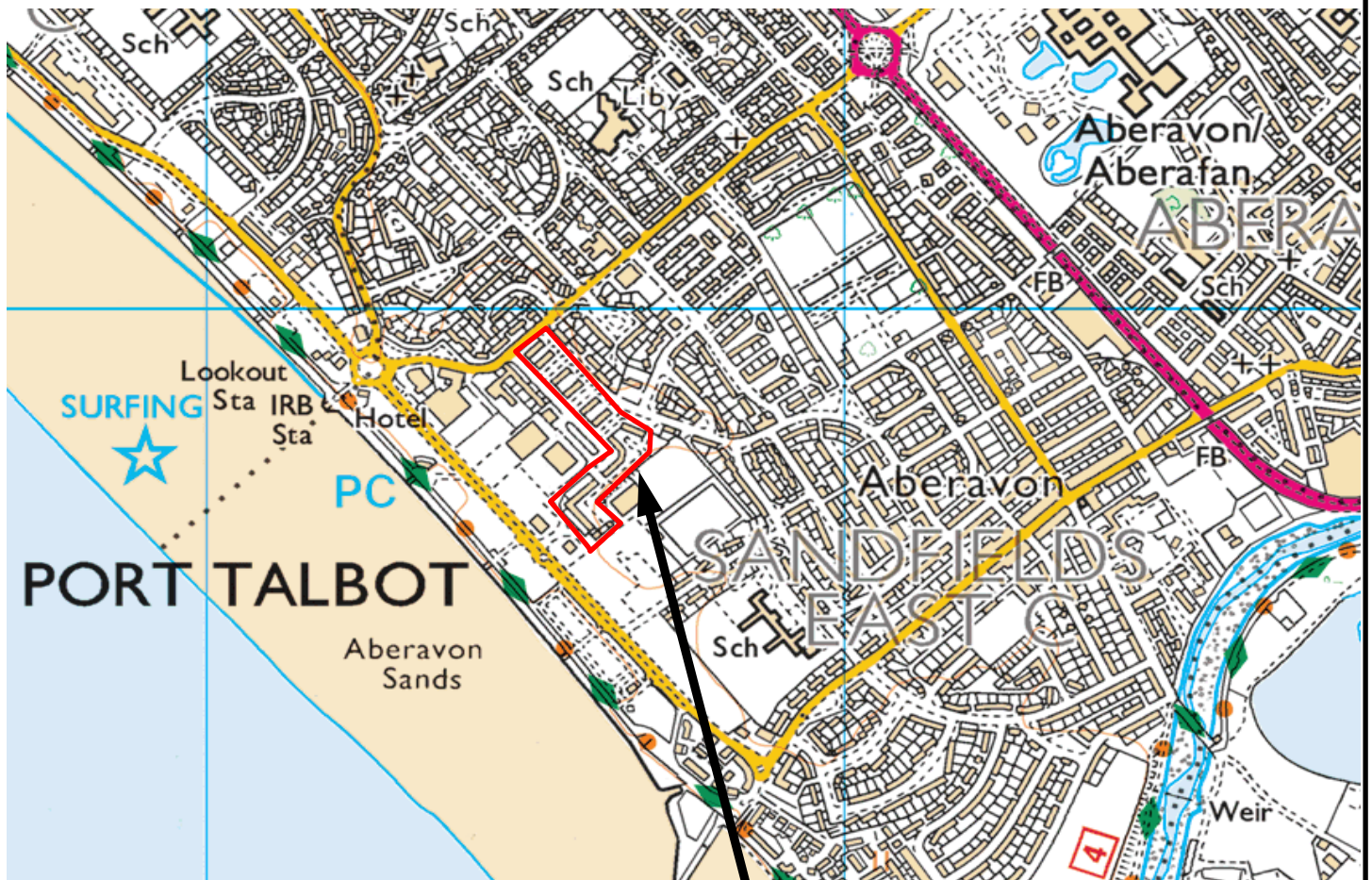
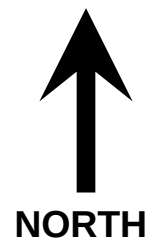


FIGURE 1: Site Location Plan

County Flats, Sandfields, Aberavon

Intégral
Géotechnique

Intégral House
7 Beddau Way
Castlegate Business Park
Caerphilly
CF83 2AX
Tel: 029 2080 7991

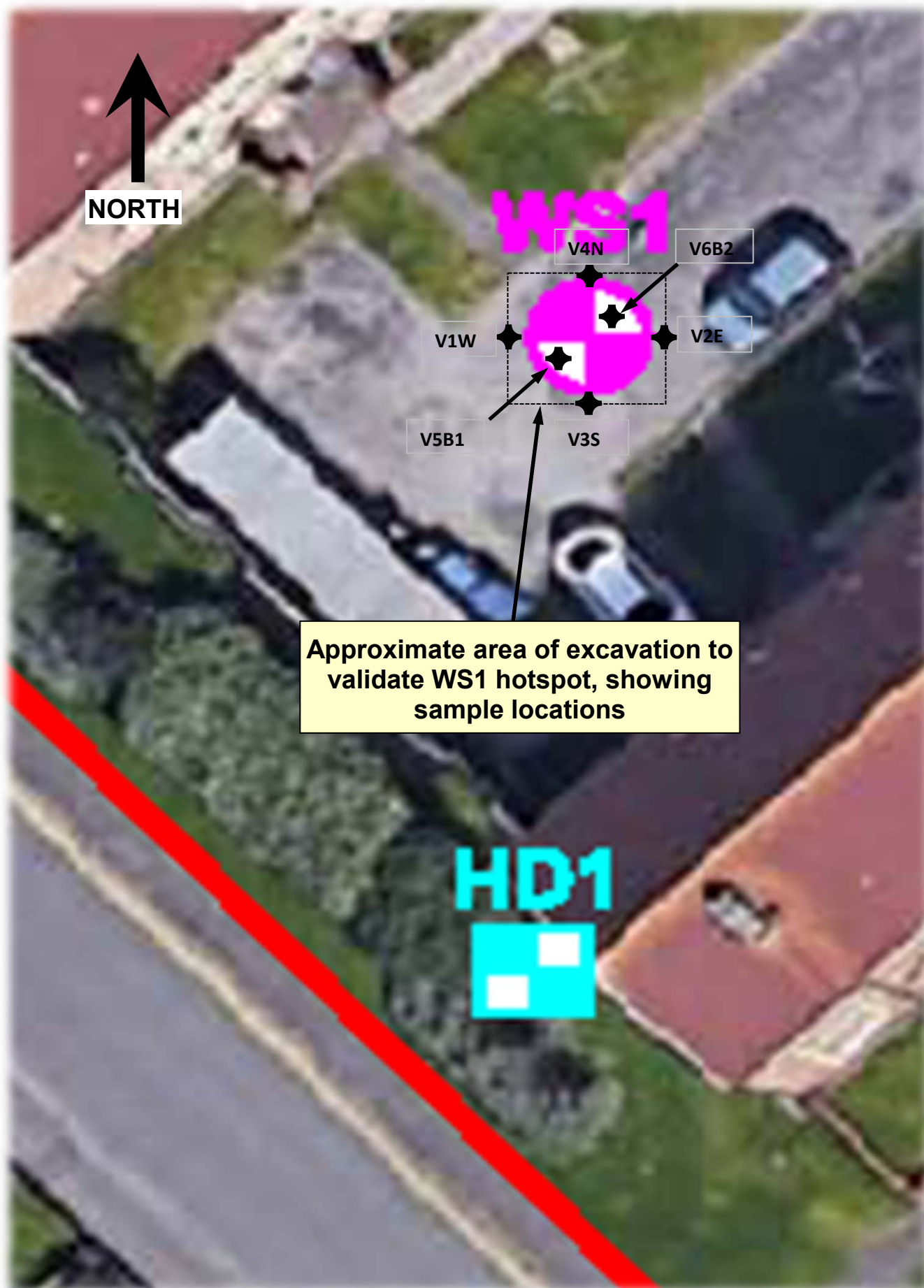


FIGURE 2: VALIDATION SAMPLE LOCATION PLAN

12457 - County Flats Sandfields, Aberavon

Intégral
Géotechnique

Intégral House
7 Beddau Way
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Caerphilly
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