



CONTAMINATION REMEDIATION

STATEMENT

FOR

SMITHYBRIDGE PUB

LITTLEBOROUGH

ON BEHALF OF

ARMSTRONG PROJECTS LTD

ARP (NORTH WEST)

CHARTERED CONSULTING ENGINEERS

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CLIENT: ARMSTRONG PROJECTS LTD

JOB NUMBER: NW149/02

PROJECT: SMITHYBRIDGE PUB, LITTLEBOROUGH

REPORT TYPE: CONTAMINATION REMEDIATION STATEMENT

REPORT REFERENCE: NW149/02remV2

	Name	Signature
Prepared By:	O Gwilym BSc MSc FGS	
Reviewed and Authorised By:	J Race BSc CGeol FGS EurGeol	

ISSUE	DATE	STATUS
1	15 TH MARCH 2021	V1 FINAL
2	07 TH FEBRUARY 2024	V2 FINAL

1.0 Introduction

- 1.1 This document has been prepared to provide information for the Client and other interested parties, such as the Regulatory Authorities, outlining how contamination encountered on the site will be managed to ensure that the site is environmentally suitable for the intended residential use. The document should be agreed, prior to implementation, with the relevant Regulatory Authorities, usually the local Planning Authority and NHBC or other building control provider.
- 1.2 This document was updated in February 2024 following a post-demolition supplementary site investigation.

2.0 The Site

- 2.1 The ARP (North West) Combined Stage 1/Stage 2 Geo-environmental Report, dated March 2021 under reference NW149/02r1, makes an assessment of contamination, along with other aspects.
- 2.2 Following the supplementary investigation in January 2024 the assessment of contamination was updated in letter NW149/02/l4 dated February 2024.
- 2.3 The conceptual site model is for a residential development, without private gardens.
- 2.4 At the time of the original investigation, the centre of the site was occupied by a brick building (the Smithybridge Pub), with bitmac hardstanding to the north and south of the building. A large concrete retaining wall was present along the eastern boundary of the site, approximately 4m to 6m high. Bolts were seen to be present along the retaining wall, suspected to be retaining anchors of unknown extent. A small landscaped area was present to the west of the building. The site is bounded to the west by Bridgenorth Drive and to the south by Smithy Bridge Road. To the east of the site is a church community centre with charity shop, just above the retaining wall, with a car park to the north and a patio area between the building and the retaining wall.
- 2.5 At the time of the supplementary investigation, on 18th January 2024, the former pub had been demolished and all floor slabs and bitmac surfacing had been removed.
- 2.6 The geological maps show the site to be covered by superficial glacial deposits of diamicton (usually stony cohesive material). The bedrock geology comprises sandstone of the Milnrow Sandstone Formation. There are no faults shown to affect the site.
- 2.7 The site is considered stable with regard to coal mining.
- 2.8 The strata beneath the site are classed as a Secondary A Aquifer. There are no sensitive groundwater abstractions within 1km of the site. The nearest downslope surface water is Rochdale Canal 67m to the west. There are no sensitive surface water abstractions within 1km of the site.

- 2.9 No Radon Protection Measures are required for the proposed properties on the site. There are no historical landfills within 250m of the site. No gas protection measures are required.
- 2.10 Ordnance Survey archive maps show that there was a public house just inside the southern boundary, fronting the road to the south, and smaller buildings on the rest of the site, presumed to be part of the public house buildings, but also possibly used as blacksmiths at one time (1851 map only). By 1976, the existing building and layout was present. The surrounding area has seen extensive residential development. There has also been a sanitary works with kilns, across the road to the south, and an unspecified small "works" to the east, later replaced by a community centre.
- 2.11 During the original investigation in 2021 within the car park, the surface covering of bitmac was found to be up to 0.2m thick. Two hand dug trial pits were excavated within the grassed area to the west of the building, and these revealed brown clayey topsoil to be present, to a depth of 0.3m. Underlying the bitmac hardstanding, made ground was present, to depths of between 0.4m (WS1) and 1.0m (WS2 & WS3). The made ground typically comprised dark grey sandy angular gravel of mixed lithology, sandstone, and locally brick. Made ground was identified in all six windowless sample boreholes. Beneath the topsoil and made ground was highly variable glacial diamicton deposits, comprising intercalated sequences of clay, sand and gravels.
- 2.12 The contamination testing carried out as part of the 2021 investigation revealed the made ground, in WS4 only, to contain elevated benzo(b)fluoranthene, benzo(a)pyrene and dibenzo(a,h)anthracene at concentrations of 20mg/kg, 15mg/kg and 2.6mg/kg. Assessment of the PAH double ratio plot showed the elevation to be probably as a result of coal tar, tyre oil, or creosote, and it was concluded appropriate to treat this location as a localised "hotspot" area.
- 2.13 During the supplementary sampling and testing in January 2024, additional sampling was undertaken in the vicinity of WS4. Five hand samples were collected at/around the location of WS4 on a grid basis. No made ground was present within any of the five hand pits, which suggests that the made ground originally identified in WS4 was removed, along with the floor slabs and bitmac surfacing, probably due to the difficulty of selective excavation. No elevated PAH compounds were identified in any of the samples of natural soils identified in the vicinity of WS4.
- 2.14 In addition, three trial pits were excavated within the footprint of the former pub following the demolition and removal of hardstanding. Made ground was only identified within one of the trial pits, with 0.4m of cohesive made ground identified in TP2. Natural soils, of clay with lenses of gravel, were found from the surface of TP1 and TP3 down to the base of the trial pits at 2.0m. Elevated concentrations of benzo(a)pyrene (26mg/kg) and lead (560mg/kg) were identified within the made ground in TP2.

3.0 Remediation Strategy

- 3.1 Where any landscape areas overlie the existing contaminated made ground at/around TP2, a minimum 0.6m thickness of uncontaminated soils (topsoil and subsoil) should be provided. In areas of hardstanding or building footprints, the cover blanket is not required.
- 3.2 The cover blanket for garden/landscape areas must be clean and uncontaminated. Details of the profile are provided below.

Thickness (m)	Description
Minimum 0.1	Topsoil
Minimum 0.5	Subsoil

- 3.3 Alternatively, all or some of the contaminated made ground may be removed off-site and taken to a suitably licensed landfill. The waste receiver may require Waste Acceptance Criteria Testing (WAC).

4.0 Validation

- 4.1 To satisfy the Regulatory Authorities, verification that the above measures have been successfully implemented must be independently confirmed, in accordance with the guidance supplied in the document produced by the Yorkshire and Lincolnshire Pollution Advisory Group (YALPAG): "Guidance on the Verification Requirements for Cover Systems". The measures described below will be required to ensure compliance with the document and discharge of planning conditions. The verification works will need to be carried out by ARP, or similar consultant. Verification by the contractor, or the developer directly, will not be accepted by the regulators.
- 4.2 Where the made ground found at/around TP2 is placed or retained within any area of garden or POS, it is necessary for ARP to confirm the required 0.6m cover of uncontaminated soil has been placed by excavating trial pits to 0.6m depth across these areas on the basis of one pit per plot or a maximum 25m spacing on Public Open Space. The trial pits will be photographed, to include a reference scale, and the photographs included within any report to enable the location on site to be identified.
- 4.3 If the affected made ground is removed entirely off-site then, following the removal, the area should be inspected by ARP, samples taken at maximum 25m spacing, and photographs taken. The samples will be tested for speciated PAH and used to confirm successful removal. All the details will be included within a Validation Letter Report. If the material has been taken off-site, any disposal/transfer documents should be retained for inclusion in the Validation Report.

5.0 Imported Soils

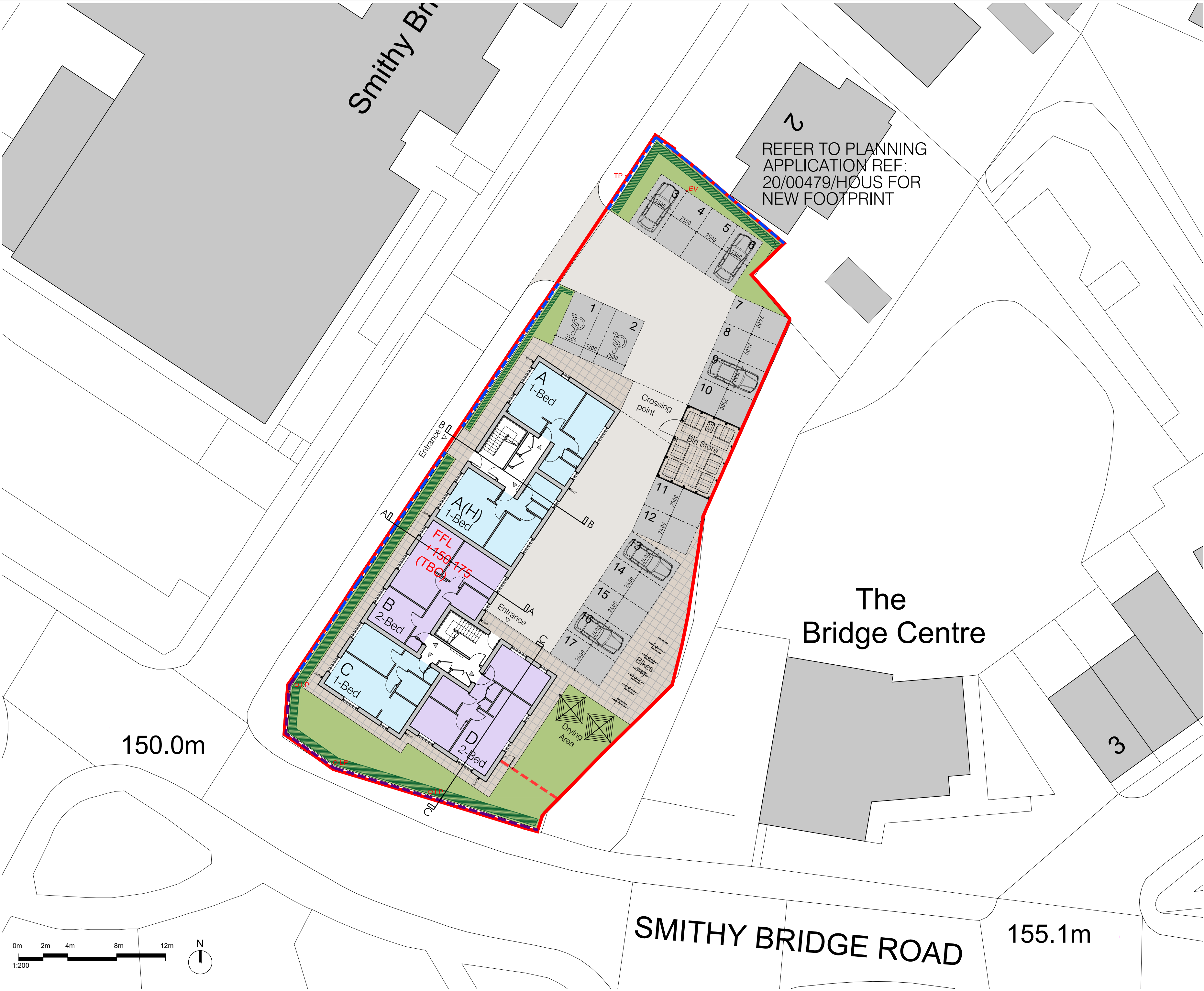
- 5.1 For any imported soils, the source will need to be confirmed, and the material tested for the attached suite of contaminants, to comply with the maximum screening values listed. The frequency of testing is given on the table below.

Material Type	Number of Samples
Topsoil or subsoil from greenfield site or manufactured source	Minimum 3No. or 1 per 250m ³ (whichever is greater)
Topsoil or subsoil from brownfield site or screened source	Minimum 6No. or 1 per 100m ³ (whichever is greater)

- 5.2 The material should be placed in quarantined stockpiles and once a stockpile has been approved by ARP no further material should be added to the stockpile, and any further import should be stockpiled separately. Any cross contamination of materials should be avoided, and further testing carried out where any cross contamination is suspected to have occurred.
- 5.3 If space is insufficient on the site to store quarantined stockpiles, topsoil/subsoil can be placed directly into the appropriate gardens/landscape areas, but samples of each material would need to be tested by means of validation trial pits on the basis of one per plot.
- 5.4 The results of all the laboratory analysis, excavation logs, plans, photographs, and import documents, will form part of the Remediation Validation Report.
- 5.5 In order to enable the scheme to progress and sales of properties to continue throughout the construction of the development, interim Validation Reports may be prepared for specific plots, if required, showing how the contamination has been dealt with. This will enable enquiries during the sales of the properties to be satisfied. On completion of the development, the discharge of any associated planning condition may be achieved by submission of all the interim validation letters, or issuing the information as a single combined Validation Report.

6.0 Unexpected Contamination

- 6.1 Any unexpected contamination uncovered during the works shall be inspected, sampled and analysed in laboratory for the suite of determinands appended to this Remediation Statement, and compared to the maximum concentration levels listed on the enclosure. Works on the affected materials shall cease until the appraisal is complete and, if necessary, a revised Remediation Statement is to be prepared and approved by the Planning Authority before work is recommenced.



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- THE CONTRACTOR IS RESPONSIBLE FOR CHECKING DIMENSIONS, TOLERANCES & REFERENCES.
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- REPORT ERRORS & OMISSIONS TO ARCHITECT.
- WHERE AN ITEM IS COVERED BY DRAWINGS OF DIFFERENT SCALES, THE LARGER SCALE DRAWING TO BE WORKED TO. DO NOT SCALE FROM THE DRAWING. FIGURED DIMENSIONS TO BE WORKED TO IN ALL CASES.
- CHECK ALL DIMENSIONS ON SITE.
- DRAWING TO BE READ IN CONJUNCTION WITH THE HEALTH & SAFETY PLAN, AND ALL RELEVANT RISK ASSESSMENTS AND THE FOLLOWING DRAWINGS:

Schedule of Accommodation

Housetype	Description	Area/m2	Total
A	1B2P Apartment	42.7	2
A(H)	1B2P Apartment	42.7	2
B	2B4P Apartment	60.1	2
C	1B2P Apartment	44.1	2
D	2B4P Apartment	59.7	2
E	1B2P Apartment	43.7	1
F	1B2P Apartment	43.4	1
G	1B2P Apartment	45.4	1
H	1B2P Apartment	45.1	1

Total
Car parking : 19No (136% Parking)

Landscape Key

	Car Park Space (Permeable surface)		Bin Location
	Tarmac		Buff Paving (450x450 Paving)
	Grass		Existing Telephone Pole relocated
	New Hedge		Existing Lamppost relocated
	IP Rated 13A double electrical socket		Site Boundary (0.12Ha)

Boundary Treatments

- 900MM HIGH RAILINGS & METAL POSTS
- LOW RETAINING WALL UPSTAND WITH 1100MM RAILINGS ABOVE (FALL PROTECTION)
- 2100MM HIGH CONCRETE POST AND amended. Entrance to Stair 1 amended.

Rev Date By Remarks

Client: Armstrong Projects Ltd

Project Name: The Smithybridge Pub, Littleborough

Drawing Name: Proposed Site Plan

Drawing Purpose: PLANNING

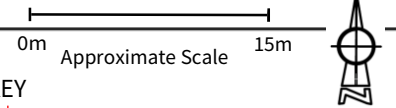
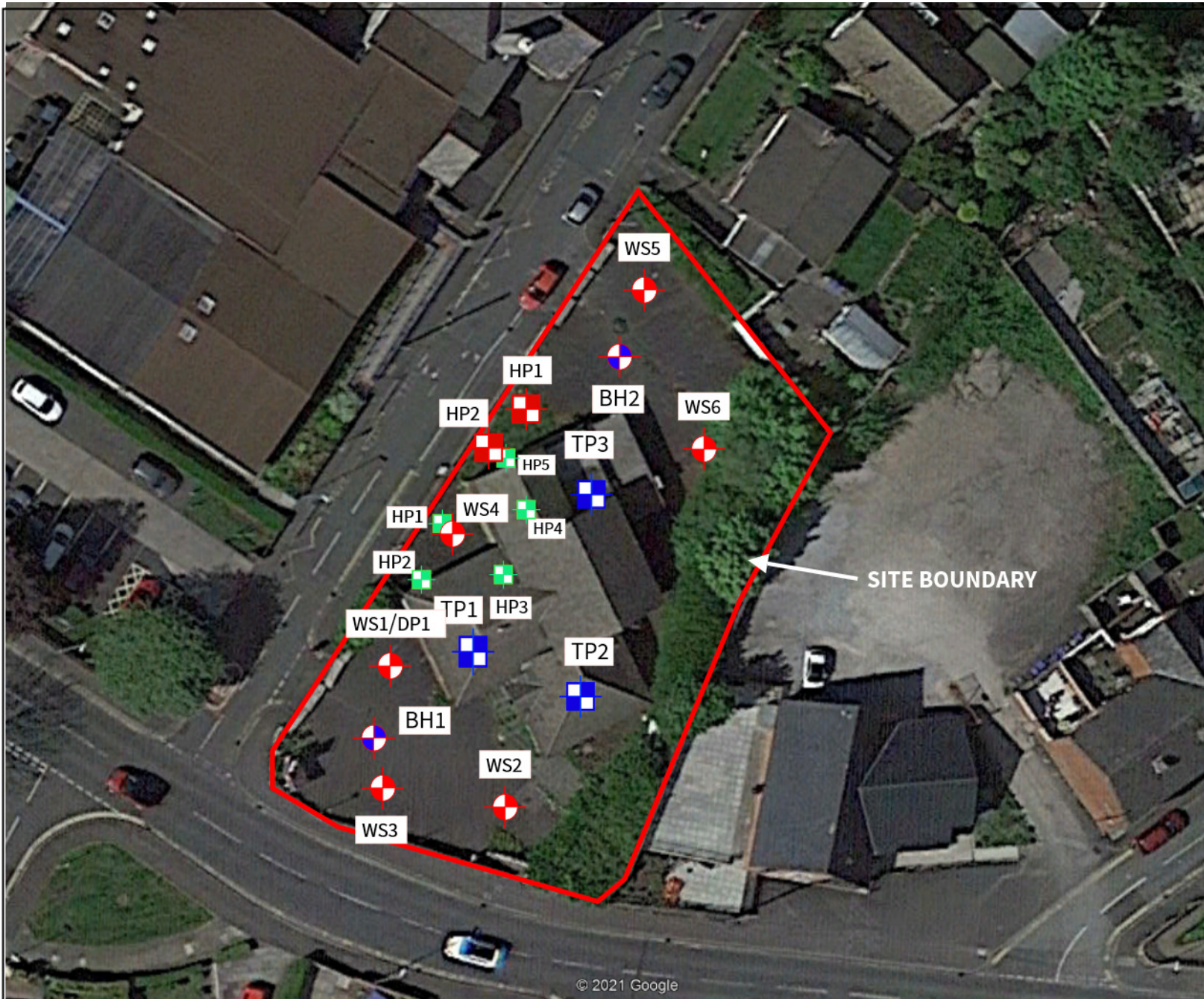
Project Drawing Number: Revision: 20.02.21 04 A

Project Origin Val / Sys level Type Role Number

Status: Scale @ A2: 1:200@A2 Drawn: AJD Checked: BPM Date: JULY 2021



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- KEY**
- Windowless Sample Boreholes (2021)
 - Dynamic probe (2021)
 - Hand Pits (2021)
 - Cable Percussive boreholes (2024)
 - Post demolition trial pits (2024)
 - Post demolition hand pits surrounding WS4 (2024)

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Project	THE FORMER SMITHYBRIDGE PUB LITTLEBOROUGH	
Client	ARMSTRONG PROJECTS LTD	
Title	COMBINED SITE INVESTIGATION PLAN	
Date	JANUARY 2024	
Drawn	OG	Scale AS SHOWN
Job No.	NW149/02	



ARP GEOTECHNICAL LIMITED
SOIL CONTAMINANT SCREENING VALUES
RESIDENTIAL WITHOUT HOME-GROWN PRODUCE

Determinand	S4UL (mg/kg)			C4SL (mg/kg)		
Arsenic	40			40		
Cadmium	85			150		
Chromium (trivalent)	910					
Chromium (hexavalent)	6			21		
Lead				310		
Inorganic Mercury	56					
Selenium	430					
Copper	7100					
Nickel	180					
Zinc	40000					
Acidity (pH)	*Should be Greater Than 5			*Should be Greater Than 5		
	1% SOM	2.5% SOM	6% SOM	1% SOM	2.5% SOM	6% SOM
Acenaphthene	3000	4700	6000			
Acenaphthylene	2900	4600	6000			
Anthracene	31000	35000	37000			
Benzo(a)anthracene	11	14	15			
Benzo(a)pyrene	3.2	3.2	3.2			5.3
Benzo(b)fluoranthene	3.9	4	4			
Benzo(g,h,i)perylene	360	360	360			
Benzo(k)fluoranthene	110	110	110			
Chrysene	30	31	32			
Dibenzo(a,h)anthracene	0.31	0.32	0.32			
Fluoranthene	1500	1600	1600			
Fluorene	2800	3800	4500			
Indeno(1,2,3-cd)pyrene	45	46	46			
Naphthalene	2.3	5.6	13			
Phenanthrene	1300	1500	1500			
Pyrene	3700	3800	3800			
Phenols	440	690	1200			
Total TPH	*Above 500, speciate and compare with values below:					
C5 to C6 Aliphatic	42	78	160			
C6 to C8 Aliphatic	100	230	530			
C8 to C10 Aliphatic	27	65	150			
C10 to C12 Aliphatic	130	330	770			
C12 to C16 Aliphatic	1100	2400	4400			
C16 to C35 Aliphatic	65000	92000	110000			
C35 TO C44 Aliphatic	65000	92000	110000			
C5 to C7 Aromatic (Benzene)	370	690	1400			
C7 to C8 Aromatic (Toluene)	860	1800	3900			
C8 to C10 Aromatic	47	110	270			
C10 to C12 Aromatic	250	590	1200			
C12 to C16 Aromatic	1800	2300	2500			
C16 to C21 Aromatic	1900	1900	1900			
C21 TO C35 Aromatic	1900	1900	1900			
C35 TO C44 Aromatic	1900	1900	1900			
Asbestos	*Should be None Detected			*Should be None Detected		

* In House Value/Approach S4UL = Suitable 4 Use Level, CIEH/LQM 2014 C4SL = Cat 4 Screening Level, DEFRA, 2014

Blank cell indicates no published value or in-house value. Some values presented are above saturation limits.

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ARP GEOTECHNICAL LIMITED
SOIL CONTAMINANT SCREENING VALUES
PUBLIC OPEN SPACE NEAR RESIDENTIAL

Determinand	S4UL (mg/kg)			C4SL (mg/kg)		
Arsenic	79			79		
Cadmium	120			220		
Chromium (trivalent)	1500					
Chromium (hexavalent)	7.7			21		
Copper	12000					
Lead				630		
Inorganic Mercury	120					
Nickel	230					
Selenium	1100					
Zinc	81000					
Acidity (pH)	*Should be Greater Than 5					
	1% SOM	2.5% SOM	6% SOM	1% SOM	2.5% SOM	6% SOM
Naphthalene	4900	4900	4900			
Acenaphthylene	15000	15000	15000			
Acenaphthene	15000	15000	15000			
Fluorene	9900	9900	9900			
Phenanthrene	3100	3100	3100			
Anthracene	74000	74000	74000			
Fluoranthene	3100	3100	3100			
Pyrene	7400	7400	7400			
Benzo(a)anthracene	29	29	29			
Chrysene	57	57	57			
Benzo(b)fluoranthene	7.1	7.2	7.2			
Benzo(k)fluoranthene	190	190	190			
Benzo(a)pyrene	5.7	5.7	5.7			10
Indeno(1,2,3-cd)pyrene	82	82	82			
Dibenzo(a,h)anthracene	0.57	0.57	0.57			
Benzo(g,h,i)perylene	640	640	640			
Phenols	440	690	1300			
Total TPH	*Above 3,800, speciate and compare with values below:					
C5 to C6 Aliphatic	570000	590000	600000			
C6 to C8 Aliphatic	600000	610000	620000			
C8 to C10 Aliphatic	13000	13000	13000			
C10 to C12 Aliphatic	13000	13000	13000			
C12 to C16 Aliphatic	13000	13000	13000			
C16 to C35 Aliphatic	250000	250000	250000			
C35 TO C44 Aliphatic	250000	250000	250000			
C5 to C7 Aromatic (Benzene)	56000	56000	56000			
C7 to C8 Aromatic (Toluene)	56000	56000	56000			
C8 to C10 Aromatic	5000	5000	5000			
C10 to C12 Aromatic	5000	5000	5000			
C12 to C16 Aromatic	5100	5100	5000			
C16 to C21 Aromatic	3800	3800	3800			
C21 TO C35 Aromatic	3800	3800	3800			
C35 TO C44 Aromatic	3800	3800	3800			
Asbestos	*Should be None Detected			*Should be None Detected		

* In House Value/Approach S4UL = Suitable 4 Use Level, CIEH/LQM 2014 C4SL = Cat 4 Screening Level, DEFRA, 2014

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