CERTIFICATE OF ANALYSIS

SDG:	120312-4	**Location:**	Redhill - Bourne Estate	**Order Number:**	
Job:	H_CAMREITH_REH-4	**Customer:**	Campbell Reith Hill	**Report Number:**	181857
Client Reference:		**Attention:**	Rhyadd Watkins	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
§	Deviating sample.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed

Component	LOD/Units	Method	Customer Sample R	BHB2A	BHB2A	WS B3	WS B3	WS B3	WS B4
			Depth (m)	1.00	4.00	0.15	0.90	2.50	0.10
			Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
			Date Sampled	08/03/2012	08/03/2012	08/03/2012	08/03/2012	08/03/2012	08/03/2012
			Sample Time	.	.	.	.	.	.
			Date Received	10/03/2012	10/03/2012	10/03/2012	10/03/2012	10/03/2012	10/03/2012
			SDG Ref	120312-4	120312-4	120312-4	120312-4	120312-4	120312-4
			Lab Sample No.(s)	5308514	5308521	5308501	5308503	5308509	5308486
			AGS Reference	ES	ES	ES	ES	ES	ES1
Naphthalene-d8 % recovery**	%	TM218		91.4	99	97.3 §	93.8 §	98.4	99.9 §
Acenaphthene-d10 % recovery**	%	TM218		89.1	96.9	96.2 §	94.2 §	94.9	97.4 §
Phenanthrene-d10 % recovery**	%	TM218		85.9	93.7	92.6 §	92.6 §	95.2	94.9 §
Chrysene-d12 % recovery**	%	TM218		83	84.5	91.1 §	90.6 §	89	94.7 §
Perylene-d12 % recovery**	%	TM218		77.4	84.6	92.4 §	97.3 §	90.5	97.9 §
Naphthalene	<9 µg/kg	TM218		45.6 M	230 M	139 § M	95.2 § M	48 § M	104 § M
Acenaphthylene	<12 µg/kg	TM218		<12 M	<12 M	108 § M	105 § M	<12 § M	102 § M
Acenaphthene	<8 µg/kg	TM218		<8 M	<8 M	76.9 § M	43.9 § M	<8 § M	34.2 § M
Fluorene	<10 µg/kg	TM218		<10 M	<10 M	64.7 § M	44.5 § M	<10 § M	35.7 § M
Phenanthrene	<15 µg/kg	TM218		176 M	154 M	1220 § M	802 § M	47.6 § M	759 § M
Anthracene	<16 µg/kg	TM218		<16 M	<16 M	234 § M	188 § M	<16 § M	191 § M
Fluoranthene	<17 µg/kg	TM218		40.1 M	39.7 M	2500 § M	1930 § M	<17 § M	1840 § M
Pyrene	<15 µg/kg	TM218		42.1 M	44.6 M	2030 § M	1600 § M	<15 § M	1610 § M
Benz(a)anthracene	<14 µg/kg	TM218		46 M	48.7 M	1110 § M	938 § M	28.1 § M	934 § M
Chrysene	<10 µg/kg	TM218		63.4 M	44.5 M	1100 § M	910 § M	17.8 § M	915 § M
Benzo(b)fluoranthene	<15 µg/kg	TM218		69.4 M	61.8 M	1760 § M	1570 § M	20.2 § M	1570 § M
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 M	<14 M	580 § M	538 § M	<14 § M	519 § M
Benzo(a)pyrene	<15 µg/kg	TM218		28.6 M	28.5 M	1240 § M	1220 § M	<15 § M	1090 § M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		24.1 M	23 M	748 § M	825 § M	<18 § M	680 § M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M	<23 M	219 § M	223 § M	<23 § M	199 § M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		41.1 M	45.1 M	887 § M	997 § M	<24 § M	863 § M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		576	720	14000 §	12000 §	162	11400 §

CERTIFICATE OF ANALYSIS

SDG:	120312-4	**Location:**	Redhill - Bourne Estate	**Order Number:**	
Job:	H_CAMREITH_REH-4	**Customer:**	Campbell Reith Hill	**Report Number:**	181857
Client Reference:		**Attention:**	Rhyadd Watkins	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
§	Deviating sample.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed

Component	LOD/Units	Method	Customer Sample R	WS B4	WS B4	WS B4			
			Depth (m)	0.50	1.50	2.80			
			Sample Type	Soil/Solid	Soil/Solid	Soil/Solid			
			Date Sampled	08/03/2012	08/03/2012	08/03/2012			
			Sample Time	.	.	.			
			Date Received	10/03/2012	10/03/2012	10/03/2012			
			SDG Ref	120312-4	120312-4	120312-4			
			Lab Sample No.(s)	5308492	5308495	5308499			
			AGS Reference	ES3	ES5	ES8			
Naphthalene-d8 % recovery**	%	TM218		97.9 §	99.5 §	96.8			
Acenaphthene-d10 % recovery**	%	TM218		96.3 §	99.7 §	95 §			
Phenanthrene-d10 % recovery**	%	TM218		93.7 §	93.9 §	93.1			
Chrysene-d12 % recovery**	%	TM218		93.3 §	93.6 §	92.7 §			
Perylene-d12 % recovery**	%	TM218		95.5 §	97.9 §	96			
Naphthalene	<9 µg/kg	TM218		325 § M	<9 § M	290 M			
Acenaphthylene	<12 µg/kg	TM218		34.1 § M	<12 § M	35.2 § M			
Acenaphthene	<8 µg/kg	TM218		12.5 § M	<8 § M	35.5 § M			
Fluorene	<10 µg/kg	TM218		15.7 § M	<10 § M	49.3 M			
Phenanthrene	<15 µg/kg	TM218		451 § M	<15 § M	852 M			
Anthracene	<16 µg/kg	TM218		75 § M	<16 § M	152 § M			
Fluoranthene	<17 µg/kg	TM218		565 § M	<17 § M	1040 M			
Pyrene	<15 µg/kg	TM218		507 § M	<15 § M	848 M			
Benz(a)anthracene	<14 µg/kg	TM218		369 § M	<14 § M	440 § M			
Chrysene	<10 µg/kg	TM218		352 § M	<10 § M	390 § M			
Benzo(b)fluoranthene	<15 µg/kg	TM218		568 § M	<15 § M	546 § M			
Benzo(k)fluoranthene	<14 µg/kg	TM218		174 § M	<14 § M	181 § M			
Benzo(a)pyrene	<15 µg/kg	TM218		375 § M	<15 § M	421 § M			
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		217 § M	<18 § M	232 M			
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		75.8 § M	<23 § M	65.8 M			
Benzo(g,h,i)perylene	<24 µg/kg	TM218		277 § M	<24 § M	298 § M			
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		4390 §	<118 §	5870			

CERTIFICATE OF ANALYSIS

SDG:	120312-4	**Location:**	Redhill - Bourne Estate	**Order Number:**	
Job:	H_CAMREITH_REH-4	**Customer:**	Campbell Reith Hill	**Report Number:**	181857
Client Reference:		**Attention:**	Rhyadd Watkins	**Superseded Report:**	

Asbestos Identification - Soil

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Customer Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number		03/04/12	Martin Cotterell	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Customer Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BHB1 D 2 1.80 SOLID 12/03/2012 00:00:00 120312-4 5490776 TM048	27/04/12	Kevin Bowron	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Customer Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BHB2A D 2 2.00 SOLID 07/03/2012 00:00:00 120312-4 5490779 TM048	26/04/12	Kevin Bowron	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected
Customer Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BHB2A ES 1.00 SOLID 08/03/2012 00:00:00 120312-4 5308514 TM048	03/04/12	Martin Cotterell	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected
Customer Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BHB2A ES 4.00 SOLID 08/03/2012 00:00:00 120312-4 5308521 TM048	03/04/12	Martin Cotterell	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG:	120312-4	**Location:**	Redhill - Bourne Estate	**Order Number:**	
Job:	H_CAMREITH_REH-4	**Customer:**	Campbell Reith Hill	**Report Number:**	181857
Client Reference:		**Attention:**	Rhyadd Watkins	**Superseded Report:**	

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Customer Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS B4 ES 1 0.10 SOLID 08/03/2012 00:00:00 120312-4 5308486 TM048	03/04/12	Lauren Sargeant	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Customer Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS B4 ES 3 0.50 SOLID 08/03/2012 00:00:00 120312-4 5308492 TM048	03/04/12	Martin Cotterell	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected
Customer Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS B4 ES 5 1.50 SOLID 08/03/2012 00:00:00 120312-4 5308495 TM048	03/04/12	Martin Cotterell	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Customer Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS B4 ES 8 2.80 SOLID 08/03/2012 00:00:00 120312-4 5308499 TM048	03/04/12	Lauren Sargeant	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Customer Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WSB3 D 1 1.20 - 1.65 SOLID 120312-4 5490793 TM048	27/04/12	Kevin Bowron	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected
Customer Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WSB4 D 1 1.20 - 1.65 SOLID 120312-4 5490792 TM048	26/04/12	Kevin Bowron	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG:	120312-4	**Location:**	Redhill - Bourne Estate	**Order Number:**	
Job:	H_CAMREITH_REH-4	**Customer:**	Campbell Reith Hill	**Report Number:**	181857
Client Reference:		**Attention:**	Rhyadd Watkins	**Superseded Report:**	

Notification of Deviating Samples

Sample Number	Customer Sample Ref.	Depth (m)	Matrix	Test Name	Component Name	Comment
5388493	WS B4 ES5	1.50	SOLID	yanide Comp/Free/Total/Thiocyanat	Cyanide, Free	Sample holding time exceeded
5388493	WS B4 ES5	1.50	SOLID	yanide Comp/Free/Total/Thiocyanat	Cyanide, Total	Sample holding time exceeded
5388515	WS B4 ES5	1.50	SOLID	Phenols by HPLC (S)	Phenol	Sample holding time exceeded
5388534	WS B4 ES3	0.50	SOLID	yanide Comp/Free/Total/Thiocyanat	Cyanide, Free	Sample holding time exceeded
5388534	WS B4 ES3	0.50	SOLID	yanide Comp/Free/Total/Thiocyanat	Cyanide, Total	Sample holding time exceeded
5388554	WS B4 ES3	0.50	SOLID	Phenols by HPLC (S)	Phenol	Sample holding time exceeded
5393228	WS B4 ES1	0.10	SOLID	PAH by GCMS	Acenaphthene	Sample holding time exceeded
5393228	WS B4 ES1	0.10	SOLID	PAH by GCMS	Acenaphthene-d10 % recovery**	Sample holding time exceeded
5393228	WS B4 ES1	0.10	SOLID	PAH by GCMS	Acenaphthylene	Sample holding time exceeded
5393228	WS B4 ES1	0.10	SOLID	PAH by GCMS	Anthracene	Sample holding time exceeded
5393228	WS B4 ES1	0.10	SOLID	PAH by GCMS	Benz(a)anthracene	Sample holding time exceeded
5393228	WS B4 ES1	0.10	SOLID	PAH by GCMS	Benzo(a)pyrene	Sample holding time exceeded
5393228	WS B4 ES1	0.10	SOLID	PAH by GCMS	Benzo(b)fluoranthene	Sample holding time exceeded
5393228	WS B4 ES1	0.10	SOLID	PAH by GCMS	Benzo(g,h,i)perylene	Sample holding time exceeded
5393228	WS B4 ES1	0.10	SOLID	PAH by GCMS	Benzo(k)fluoranthene	Sample holding time exceeded
5393228	WS B4 ES1	0.10	SOLID	PAH by GCMS	Chrysene	Sample holding time exceeded
5393228	WS B4 ES1	0.10	SOLID	PAH by GCMS	Chrysene-d12 % recovery**	Sample holding time exceeded
5393228	WS B4 ES1	0.10	SOLID	PAH by GCMS	Dibenzo(a,h)anthracene	Sample holding time exceeded
5393228	WS B4 ES1	0.10	SOLID	PAH by GCMS	Fluoranthene	Sample holding time exceeded
5393228	WS B4 ES1	0.10	SOLID	PAH by GCMS	Fluorene	Sample holding time exceeded
5393228	WS B4 ES1	0.10	SOLID	PAH by GCMS	Indeno(1,2,3-cd)pyrene	Sample holding time exceeded
5393228	WS B4 ES1	0.10	SOLID	PAH by GCMS	Naphthalene	Sample holding time exceeded
5393228	WS B4 ES1	0.10	SOLID	PAH by GCMS	Naphthalene-d8 % recovery**	Sample holding time exceeded
5393228	WS B4 ES1	0.10	SOLID	PAH by GCMS	PAH, Total Detected USEPA 16	Sample holding time exceeded
5393228	WS B4 ES1	0.10	SOLID	PAH by GCMS	Perylene-d12 % recovery**	Sample holding time exceeded
5393228	WS B4 ES1	0.10	SOLID	PAH by GCMS	Phenanthrene	Sample holding time exceeded
5393228	WS B4 ES1	0.10	SOLID	PAH by GCMS	Phenanthrene-d10 % recovery**	Sample holding time exceeded
5393228	WS B4 ES1	0.10	SOLID	PAH by GCMS	Pyrene	Sample holding time exceeded
5393342	WS B4 ES1	0.10	SOLID	yanide Comp/Free/Total/Thiocyanat	Cyanide, Free	Sample holding time exceeded
5393342	WS B4 ES1	0.10	SOLID	yanide Comp/Free/Total/Thiocyanat	Cyanide, Total	Sample holding time exceeded
5393356	WS B4 ES1	0.10	SOLID	Phenols by HPLC (S)	Phenol	Sample holding time exceeded
5393360	WS B3 ES	0.90	SOLID	yanide Comp/Free/Total/Thiocyanat	Cyanide, Free	Sample holding time exceeded
5393360	WS B3 ES	0.90	SOLID	yanide Comp/Free/Total/Thiocyanat	Cyanide, Total	Sample holding time exceeded
5393363	WS B3 ES	0.90	SOLID	Phenols by HPLC (S)	Phenol	Sample holding time exceeded
5393509	WS B4 ES3	0.50	SOLID	PAH by GCMS	Acenaphthene	Sample holding time exceeded
5393509	WS B4 ES3	0.50	SOLID	PAH by GCMS	Acenaphthene-d10 % recovery**	Sample holding time exceeded
5393509	WS B4 ES3	0.50	SOLID	PAH by GCMS	Acenaphthylene	Sample holding time exceeded
5393509	WS B4 ES3	0.50	SOLID	PAH by GCMS	Anthracene	Sample holding time exceeded
5393509	WS B4 ES3	0.50	SOLID	PAH by GCMS	Benz(a)anthracene	Sample holding time exceeded
5393509	WS B4 ES3	0.50	SOLID	PAH by GCMS	Benzo(a)pyrene	Sample holding time exceeded
5393509	WS B4 ES3	0.50	SOLID	PAH by GCMS	Benzo(b)fluoranthene	Sample holding time exceeded
5393509	WS B4 ES3	0.50	SOLID	PAH by GCMS	Benzo(g,h,i)perylene	Sample holding time exceeded
5393509	WS B4 ES3	0.50	SOLID	PAH by GCMS	Benzo(k)fluoranthene	Sample holding time exceeded
5393509	WS B4 ES3	0.50	SOLID	PAH by GCMS	Chrysene	Sample holding time exceeded
5393509	WS B4 ES3	0.50	SOLID	PAH by GCMS	Chrysene-d12 % recovery**	Sample holding time exceeded
5393509	WS B4 ES3	0.50	SOLID	PAH by GCMS	Dibenzo(a,h)anthracene	Sample holding time exceeded
5393509	WS B4 ES3	0.50	SOLID	PAH by GCMS	Fluoranthene	Sample holding time exceeded
5393509	WS B4 ES3	0.50	SOLID	PAH by GCMS	Fluorene	Sample holding time exceeded
5393509	WS B4 ES3	0.50	SOLID	PAH by GCMS	Indeno(1,2,3-cd)pyrene	Sample holding time exceeded
5393509	WS B4 ES3	0.50	SOLID	PAH by GCMS	Naphthalene	Sample holding time exceeded
5393509	WS B4 ES3	0.50	SOLID	PAH by GCMS	Naphthalene-d8 % recovery**	Sample holding time exceeded
5393509	WS B4 ES3	0.50	SOLID	PAH by GCMS	PAH, Total Detected USEPA 16	Sample holding time exceeded
5393509	WS B4 ES3	0.50	SOLID	PAH by GCMS	Perylene-d12 % recovery**	Sample holding time exceeded
5393509	WS B4 ES3	0.50	SOLID	PAH by GCMS	Phenanthrene	Sample holding time exceeded
5393509	WS B4 ES3	0.50	SOLID	PAH by GCMS	Phenanthrene-d10 % recovery**	Sample holding time exceeded
5393509	WS B4 ES3	0.50	SOLID	PAH by GCMS	Pyrene	Sample holding time exceeded
5393523	WS B3 ES	0.15	SOLID	PAH by GCMS	Acenaphthene	Sample holding time exceeded
5393523	WS B3 ES	0.15	SOLID	PAH by GCMS	Acenaphthene-d10 % recovery**	Sample holding time exceeded
5393523	WS B3 ES	0.15	SOLID	PAH by GCMS	Acenaphthylene	Sample holding time exceeded

CERTIFICATE OF ANALYSIS

SDG: 120312-4 **Location:** Redhill - Bourne Estate **Order Number:**
Job: H_CAMREITH_REH-4 **Customer:** Campbell Reith Hill **Report Number:** 181857
Client Reference: **Attention:** Rhyadd Watkins **Superseded Report:**

Sample Number	Customer Sample Ref.	Depth (m)	Matrix	Test Name	Component Name	Comment
5393523	WS B3 ES	0.15	SOLID	PAH by GCMS	Anthracene	Sample holding time exceeded
5393523	WS B3 ES	0.15	SOLID	PAH by GCMS	Benz(a)anthracene	Sample holding time exceeded
5393523	WS B3 ES	0.15	SOLID	PAH by GCMS	Benzo(a)pyrene	Sample holding time exceeded
5393523	WS B3 ES	0.15	SOLID	PAH by GCMS	Benzo(b)fluoranthene	Sample holding time exceeded
5393523	WS B3 ES	0.15	SOLID	PAH by GCMS	Benzo(g,h,i)perylene	Sample holding time exceeded
5393523	WS B3 ES	0.15	SOLID	PAH by GCMS	Benzo(k)fluoranthene	Sample holding time exceeded
5393523	WS B3 ES	0.15	SOLID	PAH by GCMS	Chrysene	Sample holding time exceeded
5393523	WS B3 ES	0.15	SOLID	PAH by GCMS	Chrysene-d12 % recovery**	Sample holding time exceeded
5393523	WS B3 ES	0.15	SOLID	PAH by GCMS	Dibenzo(a,h)anthracene	Sample holding time exceeded
5393523	WS B3 ES	0.15	SOLID	PAH by GCMS	Fluoranthene	Sample holding time exceeded
5393523	WS B3 ES	0.15	SOLID	PAH by GCMS	Fluorene	Sample holding time exceeded
5393523	WS B3 ES	0.15	SOLID	PAH by GCMS	Indeno(1,2,3-cd)pyrene	Sample holding time exceeded
5393523	WS B3 ES	0.15	SOLID	PAH by GCMS	Naphthalene	Sample holding time exceeded
5393523	WS B3 ES	0.15	SOLID	PAH by GCMS	Naphthalene-d8 % recovery**	Sample holding time exceeded
5393523	WS B3 ES	0.15	SOLID	PAH by GCMS	PAH, Total Detected USEPA 16	Sample holding time exceeded
5393523	WS B3 ES	0.15	SOLID	PAH by GCMS	Perylene-d12 % recovery**	Sample holding time exceeded
5393523	WS B3 ES	0.15	SOLID	PAH by GCMS	Phenanthrene	Sample holding time exceeded
5393523	WS B3 ES	0.15	SOLID	PAH by GCMS	Phenanthrene-d10 % recovery**	Sample holding time exceeded
5393523	WS B3 ES	0.15	SOLID	PAH by GCMS	Pyrene	Sample holding time exceeded
5393613	WS B3 ES	2.50	SOLID	Phenols by HPLC (S)	Phenol	Sample holding time exceeded
5393623	WS B4 ES8	2.80	SOLID	PAH by GCMS	Acenaphthene	Sample holding time exceeded
5393623	WS B4 ES8	2.80	SOLID	PAH by GCMS	Acenaphthene-d10 % recovery**	Sample holding time exceeded
5393623	WS B4 ES8	2.80	SOLID	PAH by GCMS	Acenaphthylene	Sample holding time exceeded
5393623	WS B4 ES8	2.80	SOLID	PAH by GCMS	Anthracene	Sample holding time exceeded
5393623	WS B4 ES8	2.80	SOLID	PAH by GCMS	Benz(a)anthracene	Sample holding time exceeded
5393623	WS B4 ES8	2.80	SOLID	PAH by GCMS	Benzo(a)pyrene	Sample holding time exceeded
5393623	WS B4 ES8	2.80	SOLID	PAH by GCMS	Benzo(b)fluoranthene	Sample holding time exceeded
5393623	WS B4 ES8	2.80	SOLID	PAH by GCMS	Benzo(g,h,i)perylene	Sample holding time exceeded
5393623	WS B4 ES8	2.80	SOLID	PAH by GCMS	Benzo(k)fluoranthene	Sample holding time exceeded
5393623	WS B4 ES8	2.80	SOLID	PAH by GCMS	Chrysene	Sample holding time exceeded
5393623	WS B4 ES8	2.80	SOLID	PAH by GCMS	Chrysene-d12 % recovery**	Sample holding time exceeded
5393639	WS B3 ES	0.15	SOLID	Phenols by HPLC (S)	Phenol	Sample holding time exceeded
5393667	WS B4 ES8	2.80	SOLID	yanide Comp/Free/Total/Thiocyanat	Cyanide, Free	Sample holding time exceeded
5393667	WS B4 ES8	2.80	SOLID	yanide Comp/Free/Total/Thiocyanat	Cyanide, Total	Sample holding time exceeded
5393671	WS B4 ES8	2.80	SOLID	Phenols by HPLC (S)	Phenol	Sample holding time exceeded
5393675	BHB2A ESZ	4.00	SOLID	yanide Comp/Free/Total/Thiocyanat	Cyanide, Free	Sample holding time exceeded
5393675	BHB2A ESZ	4.00	SOLID	yanide Comp/Free/Total/Thiocyanat	Cyanide, Total	Sample holding time exceeded
5393680	BHB2A ESZ	4.00	SOLID	Phenols by HPLC (S)	Phenol	Sample holding time exceeded
5393720	BHB2A ESZ	1.00	SOLID	yanide Comp/Free/Total/Thiocyanat	Cyanide, Free	Sample holding time exceeded
5393720	BHB2A ESZ	1.00	SOLID	yanide Comp/Free/Total/Thiocyanat	Cyanide, Total	Sample holding time exceeded
5393724	BHB2A ESZ	1.00	SOLID	Phenols by HPLC (S)	Phenol	Sample holding time exceeded
5417701	WS B3 ES	0.90	SOLID	PAH by GCMS	Acenaphthene	Sample holding time exceeded
5417701	WS B3 ES	0.90	SOLID	PAH by GCMS	Acenaphthene-d10 % recovery**	Sample holding time exceeded
5417701	WS B3 ES	0.90	SOLID	PAH by GCMS	Acenaphthylene	Sample holding time exceeded
5417701	WS B3 ES	0.90	SOLID	PAH by GCMS	Anthracene	Sample holding time exceeded
5417701	WS B3 ES	0.90	SOLID	PAH by GCMS	Benz(a)anthracene	Sample holding time exceeded
5417701	WS B3 ES	0.90	SOLID	PAH by GCMS	Benzo(a)pyrene	Sample holding time exceeded
5417701	WS B3 ES	0.90	SOLID	PAH by GCMS	Benzo(b)fluoranthene	Sample holding time exceeded
5417701	WS B3 ES	0.90	SOLID	PAH by GCMS	Benzo(g,h,i)perylene	Sample holding time exceeded
5417701	WS B3 ES	0.90	SOLID	PAH by GCMS	Benzo(k)fluoranthene	Sample holding time exceeded
5417701	WS B3 ES	0.90	SOLID	PAH by GCMS	Chrysene	Sample holding time exceeded
5417701	WS B3 ES	0.90	SOLID	PAH by GCMS	Chrysene-d12 % recovery**	Sample holding time exceeded
5417701	WS B3 ES	0.90	SOLID	PAH by GCMS	Dibenzo(a,h)anthracene	Sample holding time exceeded
5417701	WS B3 ES	0.90	SOLID	PAH by GCMS	Fluoranthene	Sample holding time exceeded
5417701	WS B3 ES	0.90	SOLID	PAH by GCMS	Fluorene	Sample holding time exceeded
5417701	WS B3 ES	0.90	SOLID	PAH by GCMS	Indeno(1,2,3-cd)pyrene	Sample holding time exceeded
5417701	WS B3 ES	0.90	SOLID	PAH by GCMS	Naphthalene	Sample holding time exceeded
5417701	WS B3 ES	0.90	SOLID	PAH by GCMS	Naphthalene-d8 % recovery**	Sample holding time exceeded
5417701	WS B3 ES	0.90	SOLID	PAH by GCMS	PAH, Total Detected USEPA 16	Sample holding time exceeded
5417701	WS B3 ES	0.90	SOLID	PAH by GCMS	Perylene-d12 % recovery**	Sample holding time exceeded

CERTIFICATE OF ANALYSIS

SDG:	120312-4	**Location:**	Redhill - Bourne Estate	**Order Number:**	
Job:	H_CAMREITH_REH-4	**Customer:**	Campbell Reith Hill	**Report Number:**	181857
Client Reference:		**Attention:**	Rhyadd Watkins	**Superseded Report:**	

Sample Number	Customer Sample Ref.	Depth (m)	Matrix	Test Name	Component Name	Comment
5417701	WS B3 ES	0.90	SOLID	PAH by GCMS	Phenanthrene	Sample holding time exceeded
5417701	WS B3 ES	0.90	SOLID	PAH by GCMS	Phenanthrene-d10 % recovery**	Sample holding time exceeded
5417701	WS B3 ES	0.90	SOLID	PAH by GCMS	Pyrene	Sample holding time exceeded
5418261	WS B4 ES5	1.50	SOLID	PAH by GCMS	Acenaphthene	Sample holding time exceeded
5418261	WS B4 ES5	1.50	SOLID	PAH by GCMS	Acenaphthene-d10 % recovery**	Sample holding time exceeded
5418261	WS B4 ES5	1.50	SOLID	PAH by GCMS	Acenaphthylene	Sample holding time exceeded
5418261	WS B4 ES5	1.50	SOLID	PAH by GCMS	Anthracene	Sample holding time exceeded
5418261	WS B4 ES5	1.50	SOLID	PAH by GCMS	Benz(a)anthracene	Sample holding time exceeded
5418261	WS B4 ES5	1.50	SOLID	PAH by GCMS	Benzo(a)pyrene	Sample holding time exceeded
5418261	WS B4 ES5	1.50	SOLID	PAH by GCMS	Benzo(b)fluoranthene	Sample holding time exceeded
5418261	WS B4 ES5	1.50	SOLID	PAH by GCMS	Benzo(g,h,i)perylene	Sample holding time exceeded
5418261	WS B4 ES5	1.50	SOLID	PAH by GCMS	Benzo(k)fluoranthene	Sample holding time exceeded
5418261	WS B4 ES5	1.50	SOLID	PAH by GCMS	Chrysene	Sample holding time exceeded
5418261	WS B4 ES5	1.50	SOLID	PAH by GCMS	Chrysene-d12 % recovery**	Sample holding time exceeded
5418261	WS B4 ES5	1.50	SOLID	PAH by GCMS	Dibenzo(a,h)anthracene	Sample holding time exceeded
5418261	WS B4 ES5	1.50	SOLID	PAH by GCMS	Fluoranthene	Sample holding time exceeded
5418261	WS B4 ES5	1.50	SOLID	PAH by GCMS	Fluorene	Sample holding time exceeded
5418261	WS B4 ES5	1.50	SOLID	PAH by GCMS	Indeno(1,2,3-cd)pyrene	Sample holding time exceeded
5418261	WS B4 ES5	1.50	SOLID	PAH by GCMS	Naphthalene	Sample holding time exceeded
5418261	WS B4 ES5	1.50	SOLID	PAH by GCMS	Naphthalene-d8 % recovery**	Sample holding time exceeded
5418261	WS B4 ES5	1.50	SOLID	PAH by GCMS	PAH, Total Detected USEPA 16	Sample holding time exceeded
5418261	WS B4 ES5	1.50	SOLID	PAH by GCMS	Perylene-d12 % recovery**	Sample holding time exceeded
5418261	WS B4 ES5	1.50	SOLID	PAH by GCMS	Phenanthrene	Sample holding time exceeded
5418261	WS B4 ES5	1.50	SOLID	PAH by GCMS	Phenanthrene-d10 % recovery**	Sample holding time exceeded
5418261	WS B4 ES5	1.50	SOLID	PAH by GCMS	Pyrene	Sample holding time exceeded
5422074	WS B3 ES	2.50	SOLID	PAH by GCMS	Acenaphthene	Sample holding time exceeded
5422074	WS B3 ES	2.50	SOLID	PAH by GCMS	Acenaphthylene	Sample holding time exceeded
5422074	WS B3 ES	2.50	SOLID	PAH by GCMS	Anthracene	Sample holding time exceeded
5422074	WS B3 ES	2.50	SOLID	PAH by GCMS	Benz(a)anthracene	Sample holding time exceeded
5422074	WS B3 ES	2.50	SOLID	PAH by GCMS	Benzo(a)pyrene	Sample holding time exceeded
5422074	WS B3 ES	2.50	SOLID	PAH by GCMS	Benzo(b)fluoranthene	Sample holding time exceeded
5422074	WS B3 ES	2.50	SOLID	PAH by GCMS	Benzo(g,h,i)perylene	Sample holding time exceeded
5422074	WS B3 ES	2.50	SOLID	PAH by GCMS	Benzo(k)fluoranthene	Sample holding time exceeded
5422074	WS B3 ES	2.50	SOLID	PAH by GCMS	Chrysene	Sample holding time exceeded
5422074	WS B3 ES	2.50	SOLID	PAH by GCMS	Dibenzo(a,h)anthracene	Sample holding time exceeded
5422074	WS B3 ES	2.50	SOLID	PAH by GCMS	Fluoranthene	Sample holding time exceeded
5422074	WS B3 ES	2.50	SOLID	PAH by GCMS	Fluorene	Sample holding time exceeded
5422074	WS B3 ES	2.50	SOLID	PAH by GCMS	Indeno(1,2,3-cd)pyrene	Sample holding time exceeded
5422074	WS B3 ES	2.50	SOLID	PAH by GCMS	Naphthalene	Sample holding time exceeded
5422074	WS B3 ES	2.50	SOLID	PAH by GCMS	Phenanthrene	Sample holding time exceeded
5422074	WS B3 ES	2.50	SOLID	PAH by GCMS	Pyrene	Sample holding time exceeded
5498508	BHB2A D6	8.00	SOLID	pH	pH	Sample holding time exceeded
5498528	BHB1 D4	4.00	SOLID	pH	pH	Sample holding time exceeded
5498579	BHB2A D9	12.00 - 12.45	SOLID	pH	pH	Sample holding time exceeded
5498620	BHB2A D19	25.95 - 26.05	SOLID	pH	pH	Sample holding time exceeded
5498726	BHB2A D12	16.95 - 17.05	SOLID	pH	pH	Sample holding time exceeded
5498837	BHB1 D9	9.44 - 9.55	SOLID	pH	pH	Sample holding time exceeded
5498872	BHB2A D16	21.00 - 21.45	SOLID	pH	pH	Sample holding time exceeded
5500460	WSB4 D1	1.20 - 1.65	SOLID	pH	pH	Sample holding time exceeded
5500592	BHB2A D2	2.00	SOLID	pH	pH	Sample holding time exceeded
5500734	BHB1 D2	1.80	SOLID	pH	pH	Sample holding time exceeded
5500738	WSB3 D1	1.20 - 1.65	SOLID	pH	pH	Sample holding time exceeded
5505169	BHB2A	8.00	SOLID	Anions by Kone (soil)	Chloride 2:1 water/soil extract BRE	Sample holding time exceeded
5505169	BHB2A	8.00	SOLID	Anions by Kone (soil)	Soluble Sulphate 2:1 extract as SO4 BRE	Sample holding time exceeded
5505907	BHB2A	16.95 - 17.05	SOLID	Anions by Kone (soil)	Soluble Sulphate 2:1 extract as SO4 BRE	Sample holding time exceeded
5505924	BHB2A	21.00 - 21.45	SOLID	Anions by Kone (soil)	Soluble Sulphate 2:1 extract as SO4 BRE	Sample holding time exceeded
5505935	BHB2A	25.95 - 26.05	SOLID	Anions by Kone (soil)	Soluble Sulphate 2:1 extract as SO4 BRE	Sample holding time exceeded

CERTIFICATE OF ANALYSIS

SDG:	120312-4	**Location:**	Redhill - Bourne Estate	**Order Number:**	
Job:	H_CAMREITH_REH-4	**Customer:**	Campbell Reith Hill	**Report Number:**	181857
Client Reference:		**Attention:**	Rhyadd Watkins	**Superseded Report:**	

Sample Number	Customer Sample Ref.	Depth (m)	Matrix	Test Name	Component Name	Comment
5505948	BHB2A	12.00 - 12.45	SOLID	Anions by Kone (soil)	Soluble Sulphate 2:1 extract as SO4 BRE	Sample holding time exceeded
5505966	BHB1	4.00	SOLID	Anions by Kone (soil)	Soluble Sulphate 2:1 extract as SO4 BRE	Sample holding time exceeded
5520550	BHB1	9.44 - 9.55	SOLID	Anions by Kone (soil)	Chloride 2:1 water/soil extract BRE	Sample holding time exceeded
5520550	BHB1	9.44 - 9.55	SOLID	Anions by Kone (soil)	Soluble Sulphate 2:1 extract as SO4 BRE	Sample holding time exceeded
5520844	WSB4	1.20 - 1.65	SOLID	Anions by Kone (soil)	Soluble Sulphate 2:1 extract as SO4 BRE	Sample holding time exceeded
5520883	BHB1	1.80	SOLID	Anions by Kone (soil)	Soluble Sulphate 2:1 extract as SO4 BRE	Sample holding time exceeded
5520899	BHB2A	2.00	SOLID	Anions by Kone (soil)	Soluble Sulphate 2:1 extract as SO4 BRE	Sample holding time exceeded
5520921	WSB3	1.20 - 1.65	SOLID	Anions by Kone (soil)	Soluble Sulphate 2:1 extract as SO4 BRE	Sample holding time exceeded

Note : Test results may be compromised

CERTIFICATE OF ANALYSIS

SDG:	120312-4	**Location:**	Redhill - Bourne Estate	**Order Number:**	
Job:	H_CAMREITH_REH-4	**Customer:**	Campbell Reith Hill	**Report Number:**	181857
Client Reference:		**Attention:**	Rhyadd Watkins	**Superseded Report:**	

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample [1]	Surrogate Corrected
PM001		Preparation of Samples for Metals Analysis		
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material		
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material		
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC		
TM132	In - house Method	ELTRA CS800 Operators Guide		
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter		
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser		
TM154	In - house Method	Determination of Petroleum Hydrocarbons by EZ Flash GC-FID in the Carbon range C6- C40		
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES		
TM218	Microwave extraction – EPA method 3546	Microwave extraction - EPA method 3546		
TM243		Mixed Anions In Soils By Kone		
TM282		Extraction of Magnesium by BRE Method		
TM321		Organic matter Content of Soil By Titration		

[1] Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

CERTIFICATE OF ANALYSIS

SDG:	120312-4	**Location:**	Redhill - Bourne Estate	**Order Number:**	
Job:	H_CAMREITH_REH-4	**Customer:**	Campbell Reith Hill	**Report Number:**	181857
Client Reference:		**Attention:**	Rhyadd Watkins	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	5490773	5490776	5490783	5308514	5308521	5490779	5490781	5490784	5490787	5490789
Customer Sample Ref.	BHB1	BHB1	BHB1	BHB2A	BHB2A	BHB2A	BHB2A	BHB2A	BHB2A	BHB2A
AGS Ref.	D9	D2	D4	ES	ES	D2	D6	D16	D19	D9
Depth	9.44 - 9.55	1.80	4.00	1.00	4.00	2.00	8.00	21.00 - 21.45	25.95 - 26.05	12.00 - 12.45
Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Anions by Kone (soil)	01-May-2012	01-May-2012	30-Apr-2012			01-May-2012	30-Apr-2012	30-Apr-2012	30-Apr-2012	30-Apr-2012
Asbestos Identification (Soil)		27-Apr-2012		03-Apr-2012	03-Apr-2012	26-Apr-2012				
Cyanide Comp/Free/Total/Thiocyanate				04-Apr-2012	04-Apr-2012					
Magnesium (BRE)	27-Apr-2012						01-May-2012			
Metals by iCap-OES (Soil)				05-Apr-2012	05-Apr-2012					
NO3, NO2 and TON by KONE (s)	01-May-2012						01-May-2012			
PAH by GCMS				05-Apr-2012	08-Apr-2012					
pH	27-Apr-2012	30-Apr-2012	27-Apr-2012	05-Apr-2012	05-Apr-2012	27-Apr-2012	27-Apr-2012	27-Apr-2012	27-Apr-2012	27-Apr-2012
Phenols by HPLC (S)				05-Apr-2012	05-Apr-2012					
Sample description	25-Apr-2012	25-Apr-2012	25-Apr-2012	03-Apr-2012	01-Apr-2012	25-Apr-2012	25-Apr-2012	25-Apr-2012	25-Apr-2012	25-Apr-2012
Total Organic Carbon				05-Apr-2012	04-Apr-2012					
TPH c6-40 Value of soil				05-Apr-2012	05-Apr-2012					

Lab Sample No(s)	5490791	5308501	5308503	5308509	5308486	5308492	5308495	5308499	5490793	5490792
Customer Sample Ref.	BHB2A	WS B3	WS B3	WS B3	WS B4	WS B4	WS B4	WS B4	WSB3	WSB4
AGS Ref.	D12	ES	ES	ES	ES1	ES3	ES5	ES8	D1	D1
Depth	16.95 - 17.05	0.15	0.90	2.50	0.10	0.50	1.50	2.80	1.20 - 1.65	1.20 - 1.65
Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Anions by Kone (soil)	30-Apr-2012								01-May-2012	01-May-2012
Asbestos Identification (Soil)		03-Apr-2012	03-Apr-2012	03-Apr-2012	03-Apr-2012	03-Apr-2012	03-Apr-2012	03-Apr-2012	27-Apr-2012	26-Apr-2012
Cyanide Comp/Free/Total/Thiocyanate		05-Apr-2012	04-Apr-2012	05-Apr-2012	04-Apr-2012	04-Apr-2012	04-Apr-2012	04-Apr-2012		
Metals by iCap-OES (Soil)		05-Apr-2012	05-Apr-2012	04-Apr-2012	04-Apr-2012	04-Apr-2012	04-Apr-2012	04-Apr-2012		
PAH by GCMS		05-Apr-2012	10-Apr-2012	11-Apr-2012	05-Apr-2012	05-Apr-2012	10-Apr-2012	05-Apr-2012		
pH	27-Apr-2012	05-Apr-2012	05-Apr-2012	05-Apr-2012	05-Apr-2012	05-Apr-2012	05-Apr-2012	05-Apr-2012	30-Apr-2012	27-Apr-2012
Phenols by HPLC (S)		05-Apr-2012	05-Apr-2012	05-Apr-2012	05-Apr-2012	05-Apr-2012	04-Apr-2012	04-Apr-2012		
Sample description	25-Apr-2012	01-Apr-2012	01-Apr-2012	01-Apr-2012	01-Apr-2012	01-Apr-2012	01-Apr-2012	01-Apr-2012	25-Apr-2012	25-Apr-2012
Total Organic Carbon		05-Apr-2012	05-Apr-2012	05-Apr-2012	05-Apr-2012	05-Apr-2012	05-Apr-2012	05-Apr-2012		
TPH c6-40 Value of soil		05-Apr-2012	05-Apr-2012	05-Apr-2012	05-Apr-2012	05-Apr-2012	05-Apr-2012	05-Apr-2012		

SDG:	120312-4	**Location:**	Redhill - Bourne Estate	**Order Number:**	
Job:	H_CAMREITH_REH-4	**Customer:**	Campbell Reith Hill	**Report Number:**	181857
Client Reference:		**Attention:**	Rhyadd Watkins	**Superseded Report:**	

Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICS and SVOC TICS.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 2 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible. The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP -No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals -total metals must be requested separately.

11. Results relate only to the items tested.

12. LODs for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** -Most of our organic methods include surrogates, the recovery of which is monitored and reported. For EPH, MO, PAH, GRO and VOCs on soils the result is not surrogate corrected, but a percentage recovery is quoted. Acceptable limits for most organic methods are 70 -130 %.

14. **Product analyses** -Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors
employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5 -C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D&C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENT EXTRACTABLE MATTER	D&C	DCM	SOXTHERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
ELEMENTAL SULPHUR	D&C	DCM	SOXTHERM	HPLC
PHENOLS BY GCMS	WET	DCM	SOXTHERM	GC-MS
HERBICIDES	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
PESTICIDES	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
EPH (DRO)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (MIN OIL)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (CLEANED UP)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH CWG BY GC	D&C	HEXANE:ACETONE	END OVER END	GC-FID
PCB AROCLOR 1254 / PCB CON	D&C	HEXANE:ACETONE	END OVER END	GC-MS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANE:ACETONE	MICROWAVE TM218.	GC-MS
>C6-C40	WET	HEXANE:ACETONE	SHAKER	GC-FID
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HEXANE:ACETONE	SHAKER	GC-FID
SEMI VOLATILE ORGANIC COMPOUNDS	WET	DCM:ACETONE	SONICATE	GC-MS

LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAH MS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
EPH	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
EPH CWG	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
MINERAL OIL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
PCB 7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
PCB AROCLOR 1254	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
SVOC	DCM	LIQUID/LIQUID SHAKE	GC MS
FREE SULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PESTOC POPP	DCM	LIQUID/LIQUID SHAKE	GC MS
TRIAZINE HERBS	DCM	LIQUID/LIQUID SHAKE	GC MS
PHENOLS MS	ACETONE	SOLID PHASE EXTRACTION	GC MS
TPH by INFRARED (IR)	TCE	STIRRED EXTRACTION (STIR-BAR)	IR
MINERAL OIL by IR	TCE	STIRRED EXTRACTION (STIR-BAR)	IR
GLYCOLS	NONE	DIRECT INJECTION	GC FID

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials or those identified as potentially asbestos containing during sample description which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: -
Trace -Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Lab address:

GEOTRACE - ANALYSIS REQUEST FORM AND SAMPLE CUSTODY SHEET

Tel:
Fax:

Sent from: Harrison Group Environmental Ltd. | Contact Name: Jiban Bajracharya
Address: Unit A11, Poplar Business Park, 10 Prestons Road, London, E14 9RL | Email: GL@harrisongroupuk.com
Tel. No.: 020 7537 9233 | Fax. No: 020 7987 0361
Project/Site Name: Bourne Estate, Camden

Date Samples Scheduled:
ProjectCode: GL16481
Sampler ID: GP
Quote Reference:
Turnaround Time: | Date Required:

Sheet: 1 of 1

One project per sheet please

Sampling Date (dd/mm/yr)	Borehole/ Trial Pit No.	Sample Type	Sample Number	Sample Depth in Metres (Top)	Sample Depth in Metres (Bottom)	Chain of Custody Reference	(S)soil or (W)water or (G)gas (specify if other)	**Suite Name (from Contract Rates or Quotation)**	pH & sulphate							**Individual Determinants (SOIL)**	1.25 Asbestos screen	1.26 Asbestos screen and microscopy ID	1.32 Fraction Organic Carbon	1.36 TPH - CWG (C5-C35) based on TNRCC method 1006					**Individual Determinants (GAS)**	1.57 C1-C7 (As listed below)	1.58 VOCs inc BTEX. 10ppm				**Individual Determinants (WATER and LEACHATE)**	1.60 PAH (Total)	1.61 PAH (Total of USEPA 16)	1.62 PAH (16 speciated) (Modified EPA 8100)	1.63 TPH - CWG (C5-35) based on TNRCC method 1006	1.64 Petrol Range Organics/ BTEX/ MTBE	1.65 BTEX by GC-MS (Modified US EPA 8150)	1.66 SVOCs target list (one extraction only) (Modified US EPA 8270)	1.67 SVOCs scan (up to 10 peaks, >80% fit)	1.68 VOCs target list only (Modified US EPA 8260)	1.69 VOCs target list plus TICs (top 10 peaks to 0.01mg/l only) (Modified US EPA 8260)	1.70 Phenols (Total) by HPLC						
17/04/2012	BHB1 (d)	EW	1	7.00	7.00		W		X																																					

COMMENTS: data required in AGS format (V3.1).

1.1A Mandatory Soil Suite includes: As, Cd, Cr, Cu, Ni, Pb, Hg, Se, Zn, Cyanide (total), Phenols (total), TPH screen (C6-40), PAH (total), pH.

1.1Bi Waste Categorisation (HPA) soils suite includes: pH, Moisture Content, Total Sulphate, Sulphide, Phenols Monohydric, Total Cyanide, As, Cd, Cr, Ni, Pb, Hg, Se, Cu, Zn, PAHs USEPA 16 (plus addition of benzo(J)fluoranthene) by GC-MS GRO (C6-C10), EPH Banded (C10-C25, C25-C40).

1.1Bii WAC Leachates Suite includes: Waste Acceptance Criteria Thresholds for Leachates, Leachate Prep BS EN 12457-3 (CEN Stage 2.:1 and 10:1), As, Ba, Cd, Cr, Cu, Hg, Mo, Ni, Pb, Sb, Se, Zn, Cl, F, SO4, TDS Phenol Index, DOC.

1.1Biii WAC Solid Suite-Full includes: TOC, LOI, BTEX, PCBs, Mineral Oil C10-C40, pH, Acid Neutralisation Capacity, PAHs-total 17 GC-MS.

1.1Biv WAC Solid Suite-Inert includes: TOC, BTEX, PCBs, Mineral Oil C10-C40, Acid Neutralisation Capacity, PAHs-total 17 GC-MS.

1.1Bv WAC Solid Suite-Hazardous includes: TOC, LOI.

1.56 Bulk Gas includes: Methane (0.05%), Carbon Dioxide (0.05%), Oxygen (0.5%), Nitrogen (0.5%), Hydrogen (0.5%), Carbon Monoxide (1ppm), Hydrogen Sulphide (1ppm).

1.57 C1-C7 includes: (Methane, Ethane, Ethene, Butane, Propane, Pentane, Hexane, Heptane) 1ppm.

1.59 Mandatory Water Suite includes: As, Cd, Cr, Cu, Ni, Zn, Pb, Hg, B, Se, Hex Chromium, Total Cyanide, Free Cyanide, Soluble Sulphate, Sulphide, Free Sulphur, Speciated (16) PAHs, Phenols, Thiocyanate, Total TPH, pH.

1.71 Speciated Phenol Suite: 2-methylphenol (o-cresol); 4-methylphenol (p-cresol); 2, 4-Dimethylphenol; Napthols; 3-methyphenol (m-cresol).

1.72 Glycol Suite: Monoethylene glycol, Propylene glycol, Diethylene glycol, Triethylene glycol.

PCB (WHO 12) Congener: 77, 81, 105, 114, 118, 123, 126, 156, 157, 167, 169, 189.

Special Instructions / Known Hazards:

Intended Use of Results:

Required for Environment Agency? Y / (N) **(Please Circle as Applicable)** | ***Date Recieved:*** | ***Time:*** | **Signature:** | ***Report No.***

ALcontrol Laboratories

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Tel: (01244) 528700
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Website: www.alcontrol.com

Harrison Group Ltd
Unit C14
Poplar Business Park
10 Prestons Road
London
E14 9RL

Attention: Jiban Bajracharya

CERTIFICATE OF ANALYSIS

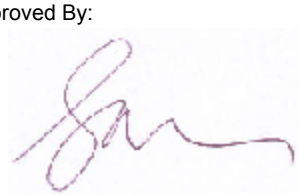
Date:	25 April 2012
Customer:	H_HARRIS_LON
Sample Delivery Group (SDG):	120423-4
Your Reference:	GL16482
Location:	Bourne Estate
Report No:	178963

We received 1 sample on Saturday April 21, 2012 and 1 of these samples were scheduled for analysis which was completed on Wednesday April 25, 2012. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

Approved By:



Sonia McWhan

Operations Manager

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Registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No.

CERTIFICATE OF ANALYSIS

SDG:	120423-4	**Location:**	Bourne Estate	**Order Number:**	
Job:	H_HARRIS_LON-73	**Customer:**	Harrison Group Ltd	**Report Number:**	178963
Client Reference:	GL16482	**Attention:**	Jiban Bajracharya	**Superseded Report:**	

LIQUID

Results Legend

X **Test**

N **No Determination Possible**

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container
			5487511	BHB1(d)			1l green glass bottle
Anions by Kone (w)	All	NDPs: 0 Tests: 1	X				
pH Value	All	NDPs: 0 Tests: 1	X				

CERTIFICATE OF ANALYSIS

SDG:	120423-4	**Location:**	Bourne Estate	**Order Number:**	
Job:	H_HARRIS_LON-73	**Customer:**	Harrison Group Ltd	**Report Number:**	178963
Client Reference:	GL16482	**Attention:**	Jiban Bajracharya	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
§	Deviating sample.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed

Customer Sample R	BHB1(d)
Depth (m)	.
Sample Type	Water(GW/SW)
Date Sampled	17/04/2012
Sample Time	.
Date Received	21/04/2012
SDG Ref	120423-4
Lab Sample No.(s)	5487511
AGS Reference	

Component	LOD/Units	Method	
Sulphate	<2 mg/l	TM184	64.8 #
pH	<1 pH Units	TM256	7.37 #

CERTIFICATE OF ANALYSIS

SDG:	120423-4	**Location:**	Bourne Estate	**Order Number:**	
Job:	H_HARRIS_LON-73	**Customer:**	Harrison Group Ltd	**Report Number:**	178963
Client Reference:	GL16482	**Attention:**	Jiban Bajracharya	**Superseded Report:**	

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample [1]	Surrogate Corrected
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers		
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter		

[1] Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

CERTIFICATE OF ANALYSIS

SDG:	120423-4	**Location:**	Bourne Estate	**Order Number:**	
Job:	H_HARRIS_LON-73	**Customer:**	Harrison Group Ltd	**Report Number:**	178963
Client Reference:	GL16482	**Attention:**	Jiban Bajracharya	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	5487511
Customer Sample Ref.	BHB1(d)
AGS Ref.	
Depth	
Type	LIQUID
Anions by Kone (w)	25-Apr-2012
pH Value	24-Apr-2012

SDG:	120423-4	**Location:**	Bourne Estate	**Order Number:**	
Job:	H_HARRIS_LON-73	**Customer:**	Harrison Group Ltd	**Report Number:**	178963
Client Reference:	GL16482	**Attention:**	Jiban Bajracharya	**Superseded Report:**	

Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICS and SVOC TICS.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 2 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible. The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP -No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals -total metals must be requested separately.

11. Results relate only to the items tested.

12. LODs for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** -Most of our organic methods include surrogates, the recovery of which is monitored and reported. For EPH, MO, PAH, GRO and VOCs on soils the result is not surrogate corrected, but a percentage recovery is quoted. Acceptable limits for most organic methods are 70 -130 %.

14. **Product analyses** -Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors
employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5 -C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D&C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENT EXTRACTABLE MATTER	D&C	DCM	SOXTHERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
ELEMENTAL SULPHUR	D&C	DCM	SOXTHERM	HPLC
PHENOLS BY GCMS	WET	DCM	SOXTHERM	GC-MS
HERBICIDES	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
PESTICIDES	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
EPH (DRO)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (MIN OIL)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (CLEANED UP)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH CWG BY GC	D&C	HEXANE:ACETONE	END OVER END	GC-FID
PCB AROCLOR 1254 / PCB CON	D&C	HEXANE:ACETONE	END OVER END	GC-MS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANE:ACETONE	MICROWAVE TM218.	GC-MS
>C6-C40	WET	HEXANE:ACETONE	SHAKER	GC-FID
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HEXANE:ACETONE	SHAKER	GC-FID
SEMI VOLATILE ORGANIC COMPOUNDS	WET	DCM:ACETONE	SONICATE	GC-MS

LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAH MS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
EPH	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
EPH CWG	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
MINERAL OIL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
PCB 7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
PCB AROCLOR 1254	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
SVOC	DCM	LIQUID/LIQUID SHAKE	GC MS
FREE SULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PESTOCPOPP	DCM	LIQUID/LIQUID SHAKE	GC MS
TRIAZINE HERBS	DCM	LIQUID/LIQUID SHAKE	GC MS
PHENOLS MS	ACETONE	SOLID PHASE EXTRACTION	GC MS
TPH by INFRARED (IR)	TCE	STIRRED EXTRACTION (STIR-BAR)	IR
MINERAL OIL by IR	TCE	STIRRED EXTRACTION (STIR-BAR)	IR
GLYCOLS	NONE	DIRECT INJECTION	GC FID

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials or those identified as potentially asbestos containing during sample description which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: -
Trace -Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

APPENDIX D: SELECTED SUPPLEMENTARY REPORTS

6 Alpha Associates Limited
Quatro House, Frimley Road
Camberley, Surrey
GU16 7ER

T: +44(0) 203 371 3904
W: www.6alpha.com

Detailed Unexploded Ordnance (UXO) Risk Assessment

Study Site: Bourne Estate, Holborn, London
Client Name: Tibbalds Planning and Urban Design Limited
6 Alpha Project Number: P2770_V1.0
Date: 22nd February 2012

Originator: Gary Hubbard (22nd February 2012)
Quality Review: Lee Gooderham (5th March 2012)
Released by: Simon Cooke (6th March 2012)

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Contents

Figures

Annexes

EXECUTIVE SUMMARY	
Study Site	The Client has specified the Study Site as "*Bourne Estate, Holborn, London*". The Site is located at National Grid Reference 531160, 181890.
Key Findings	The *Luftwaffe* conducted numerous bombing raids against *London* during World War Two (WWII), with virtually all boroughs of the city sustaining substantial damage and loss of life, which can be attributed to the quantity of bombs dropped and the inaccuracies of high altitude bombing at this time. This is evidenced by the very high bomb density statistics recorded by the *Holborn Metropolitan Borough* (in which the Site is located) of 863 High Explosive (HE) bombs per 1,000 acres. During WWII the Air Raid Precaution (ARP) wardens retained detailed records concerning many aspects of *Luftwaffe* bombing. These records have identified two HE bomb strikes within the Study Site, with an additional eight recorded within 100m of the Site boundary. These records do not contain information regarding incendiary bombs, which may also have struck the Site. These were deployed in such vast quantities that the locations were seldom recorded. Prior to WWII the Study Site has been identified, by 1937 County Series mapping, as a densely developed area containing numerous commercial and residential buildings. The *London County Council* (LCC) recorded damage sustained by property throughout WWII, these maps have identified significantly high levels of damage across the entire Site, with many of the structures sustaining "total destruction". Whilst these maps are considered definitive, the specific cause (e.g. HE bombs or Incendiary bombs) of this damage is not indicated. Given the severity and scale of damage throughout the Site, debris could potentially mask a UXB entry hole. Should a UXB have indeed landed on Site, the potential for penetration is significantly reduced due to the development on Site, the thickness of the made ground and also the "competent" natural strata beneath the Site. 6 Alpha has assessed that the maximum bomb penetration for the likely HE bombs on Site would not exceed 4m below ground level (bgl). Post WWII development has been limited in both scale and depth. There have been three buildings constructed within the Site post WWII, which may have reduced the potential for a UXO discovery within the footprint of these structures. However, given the scale of destruction and the bomb density for this Site, the potential for unexploded ordnance (UXO) contained within these areas is still considered to pose a significant threat to future works conducted within this particular Site.
Potential Threat Source	The threat is predominately posed by WWII *German* HE bombs, Incendiary Bombs and *British* Anti-Aircraft Artillery (AAA) projectiles (the latter were used to defend against *German* raids). This threat is principally confined from ground level to 4m bgl.
Risk Pathway	Given the type of munitions that might be present on Site, all types of aggressive intrusive engineering activities may generate a significant risk pathway.
Risk Level	**MEDIUM/HIGH**
Recommended Risk Mitigation	**Magnetometer survey is not possible within this Study Site due to the potential UXO threat being contained within the Made Ground, which significantly limits the detection ability of potential items of UXO. Therefore, the following risk mitigation measures are required for ALL ground work activities on the Study Site:** 1. **Operational UXO Risk Management Plan;** appropriate site management documentation should be held on site to plan for and guide upon the actions to be carried out in the event of a suspected or real UXO discovery. 2. **UXO Safety & Awareness Briefings;** the briefings are essential when there is a possibility of encountering explosive ordnance, and are a vital part of the general safety requirement. 3. **Specialist UXO Banksman Support;** all ground works should be supervised by a specialist UXO banksman to identify and dispose of any items of UXO.

ASSESSMENT METHODOLOGY

Approach	6 Alpha Associates are independent, specialist risk management consultants and the UXO related risk on the Site has been assessed using the process advocated by both the *Construction Industry Research & Information Association* (CIRIA) best practice guide (C681) and by the *Health & Safety Executive* (HSE). Therefore, any risk levels identified in the assessments are objective, quantifiable and not simply designed to generate "follow on survey or contracting work"; any mitigation solution is recommended *only* because it delivers the Client a risk reduced to As Low As Reasonably Practicable (ALARP) at best value. Potential UXO hazards have been identified through investigation of Local and National archives covering the Site, *Ministry of Defense* (MoD) archives, local historical sources, historical mapping as well as contemporaneous aerial photography (as and if, it is available). Potential hazards have only been recorded if there is specific information that could reasonably place them within the boundaries of the Site. Key source material is referenced within this document, whilst data of lesser relevance (which may have been properly considered and discounted by 6 Alpha), is available upon request. The assessment of UXO risk is a measure of ***probability*** *of encounter* and ***consequence*** *of encounter*; the former being a function of the identified hazard and proposed development methodology; the latter being a function of the type of hazard and the proximity of personnel (and/or other "sensitive receptors"), to the hazard at the moment of encounter. Should a measurable UXO risk be identified (in this case, assessed as **MEDIUM/HIGH** across the Site), the methods of mitigation recommended are reasonably and sufficiently robust to reduce these to As Low As Reasonably Practicable (ALARP). We believe that the adoption of the legal ALARP principle is a key factor in efficiently and effectively ameliorating UXO risks. It also provides a ready means for assessing the client's tolerability of UXO risk. In essence the principle states that if the cost of reducing a risk significantly outweighs the benefit, then the risk may be considered tolerable. Clearly this does not mean that there is no requirement for UXO risk mitigation, but any mitigation must demonstrate that it is beneficial. Any additional mitigation that delivers diminishing benefits **and** that consume disproportionate time, money and effort are considered *de minimis* and thus unnecessary. Because of this principle, unexploded bomb (UXB) risks will rarely be reduced to zero (nor need they be).
Important Notes	Although this report is up to date and accurate, our databases are continually being populated as and when additional information becomes available. Nonetheless, 6 Alpha have exercised all reasonable care, skill and due diligence in providing this service and producing this report. The assessment levels are based upon our professional opinion and have been supported by our interpretation of historical records and third party data sources. Wherever possible, 6 Alpha has sought to corroborate and to verify the accuracy of all data we have employed, but we are not accountable for any inherent errors that may be contained in third party data sets (e.g. National Archive or other library sources), and over which 6 Alpha can exercise no control.

STAGE ONE – SITE LOCATION AND DESCRIPTION	
Study Site	The Client has specified the Study Site as "*Bourne Estate, Holborn, London*". The Site is located at National Grid Reference 531160, 181890. See *Figures 1* and *2* for the Site location.
Location Description	The Site is situated within the *Hatton Garden Conservation Area,* located immediately east of *Grays Inn*. The Study Site is an irregular shape covering approximately 1.2 hectares (Ha). It is located within a city block bounded by four streets, *Portpool Lane* to the north, *Buckridge Building* to the east, *Baldwin's Gardens* to the southeast and *St Albans Church of England Primary School* to the south. The western boundary is located to the rear of the commercial properties fronting onto *Grays Inn Road.* There are three structures located within the Study Site, these are *Gooch House* (comprising of 20 flats) located to the west, a community building located centrally and *Mawson House* (comprising of 30 flats) located to the southeast. The remainder of the Site comprises of hard standing and gardens. See *Figure 3* for a current aerial view of the region.
Proposed Works	The Client has specified that there are three proposed development plans, one infill and two redevelopment opportunities. **Proposal 1:** "The first proposal looks to replace the two single storey community buildings, set out in an L-shape, with a new larger rectangular building with community facilities at ground floor and four storeys of residential above. This block would rationalise this area and create a clearly defined frontage enclosing open spaces to the front and rear, whilst providing modern accessible community facilities (new community centre and 12 flats)". **Proposal 2**: "The second opportunity could come through the extension from the blank façade of 1 – 27 *Portpool Lane* or through the creation of a new freestanding block, reaching up to 5 storeys fronting *Portpool Lane*. In order to enable this development the currently substantial sports pitch would have to be remodelled making it a few meters shorter to enable a buffer between the two uses and the loss of a significant tree considered (3 houses or 10 flats)". **Proposal 3:** "The last and most significant intervention option would require the demolition of *Mawson House*, containing 20 flats (5 studios, 5 1-beds, 5 2-beds and 5 3-beds) and only one leasehold. These could be replaced with up to 3 times the amount of accommodation set out in larger modern flats and maisonettes, most of which would have their own private outdoor spaces running back to back (38 maisonettes and flats)". For completeness of the risk assessment process, 6 Alpha will also assume a number of generic engineering methodologies within this document, including trial pits, trenching, bulk excavations, boreholes and piled foundations.

STAGE ONE – SITE LOCATION AND DESCRIPTION (…continued)

Ground Conditions

The Client has supplied ground conditions for this particular Site (established via a number of boreholes) and these are summarised in Table 1:

Thickness (m)	Type	Description
3.45 – 4.90	Made Ground	Topsoil over fill comprising compact bricks and rubble underlain by silty clayey sand.
0.90 – 2.75	Hackney Gravel	Very dense brown slightly silty sand and gravel.
12.80 – 14.50	London Clay	Stiff, becoming very stiff with depth, grey fissured silty clay.
11.90	Lambeth Group	Very stiff multi-coloured mottled fissured clay over pale grey silty fine sand underlain by blue clay to 25.90m bgl (Woolwich and Reading Beds). Pebble beds over blue clay (Upnor Formation).
12.20	Thanet Sand	Dense green sand.
26.20 proven	Chalk	White with flints.

Table 1: Site Ground Conditions Summary

It is important to establish the ground conditions within this report to determine both the maximum German UXB bomb penetration depth (BPD) as well as the potential for other types of munitions to be buried on this Site.

STAGE TWO – REVIEW OF HISTORICAL DATASETS	
Sources of Information Consulted	The following primary information sources have been used in order to establish the background UXO threat: 1. Home Office WWII Bomb Census Maps; 2. WWII & post-WWII Aerial Photography; 3. Official Abandoned Bomb Register; 4. National Archives in Kew; 5. Internet based research; 6. Geoenvironmental, Drainage and Flood Risk Desk Top Study N°10907 *Campbell Reith*, January 2012; 7. 33 Engineer Regiment (Explosive Ordnance Disposal) at Carver Barracks, Wimbish. The Army and RAF providers have extremely long lead times for the delivery of information (typically extending to months), and at the time of reporting project specific data has not been received. If any relevant data is subsequently received that changes the risk assessment and/or the risk mitigation methodology, 6 Alpha will contact the client.
Site History	According to the County Series (CS) & Ordnance Survey (OS) historical mapping, the following site history can be recorded: **1896 CS Mapping –** There is extensive development across the Site consisting of numerous residential and commercial buildings. The western portion of the Site located between *Portpool Lane*, *Grays Inn Road* and *Verulam Street* contains a "Laundry" and "*Thanksgiving Model Buildings*". Within the central area of the Site, there is what appears to be a residential development *Providence Place*, the southwest of the Site is occupied by court buildings located on *Leopard's Court* and *Dove Court*; **1916 CS Mapping –** There has been no noticeable development within the east or west of the Site. There appears to have been considerable development located within the centre of the Site**.** "*Providence Place*" is no longer evident, neither are the structures that were located in proximity to it. These have been replaced by one large rectangular structure which is not identified; **1937 CS Mapping** – There is no noticeable change within the Site boundary, two structures that have been present to the northwest of the Study Site are now identified as the "*Duncan Buildings*"; **1949 to 1952 OS Mapping –** There has been significant development within the Site, all structures located to the northwest and centrally of the Site have been removed. There is still evidence of structures located within the southeastern portion of the Site; **1965 to 1968 OS Mapping** – There is a single rectangular structure located within the northwest of the Site identified as "*Gooch House"*, a similar structure is also located to the southeast identified as "*Mawson House".* There is also a structure located within the central area of the Site, which resembles the size and shape of the community building at present. The remainder of the Site appears to be landscaped or hard standing; **1972 OS Mapping –** No noticeable change within the Site boundary; **1990 to 1995 OS Mapping –** No noticeable change within the Site boundary.
Deductions	Prior to WWII, there had been considerable development across the Site. Following serious WWII bomb damage, the Site underwent limited post war development, which consisted of approximately three structures, as well as shallow ground works associated with recreational gardens and hard standings.

STAGE TWO – REVIEW OF HISTORICAL DATASETS (…continued)	
WWII Bombing of London	The most intensive period of bombing over *London* was the nine months between October 1940 and May 1941, known as "the Blitz". During this period the *Luftwaffe* attempted to overwhelm *Britain's* air defenses, destroy key military and industrial facilities as well as logistical capabilities, prior to invasion. A total of 18,000 tons of bombs were dropped on *London* between 1940 and 1945. Thousands of civilians were killed and many more injured; many buildings, both residential and commercial, were completely or partially destroyed. Public services also sustained intensive targeting with gas, electricity and water supplies often cut-off following damage to either the installation themselves or to the supply infrastructure.
WWII Site Use	The CS mapping from 1937 identifies the Study Site as a densely developed commercial and residential area located within the *Holborn Metropolitan Borough* of *London*. The surrounding area consists of numerous commercial, residential and industrial properties.
WWII Luftwaffe Bombing Targets (*Figure 4*)	During WWII the Study Site was located within the *Holborn Metropolitan Borough.* Many areas of London were indiscriminately bombed by the *Luftwaffe*, particularly areas containing primary bombing targets. There has been one primary bombing target identified from *Luftwaffe* aerial photography (TN1611), which identifies the "Water Works, filter beds and pumping station" located 750m to the north of the Study Site. In addition, the Luftwaffe considered railway infrastructure a viable target during WWII, in an attempt to disrupt the supply and transportation of troops and materials vital for the war effort. There are two railway stations in proximity to the Study Site, *Farrington Street Station* (275m to the east) and *Holborn Viaduct Station* (600m to the southeast). There is also a "Goods Depot" located 300m to the east, which would also have been considered an "opportunistic" target.
WWII Anti-Aircraft Artillery (AAA) location	Anti-Aircraft Artillery (AAA) batteries were located in and around *London* as an integral defence mechanism against the *Luftwaffe* bombers. Typically, the *Royal Artillery* would man such defences. The AAA defence around *London* consisted predominantly of 4.5" Heavy AAA gun batteries and 3.7" AAA batteries. The significance of these defensive positions located near to the Site, is that the *Luftwaffe* often targeted them in an attempt to reduce losses. *British* AAA sites were located at *Hyde Park and Regent's Park*, approximately 3.3km southwest and 2.4km northwest respectively from the Study Site throughout WWII
WWII HE Bomb Strikes (*Figure 5)*	Air Raid Precaution (ARP) mapping identifies two HE bomb strikes on the Site from between October 1940 to July 1941, located within the central area of the Study Site. One is located on *Verulam Street* (east), with the second located approximately 35m further north. In addition, eight HE bomb strikes are recorded within 50m of the Site boundary, three to the north, two to the south and three to the west. There are no recorded V1 or V2 strikes recorded within 100m of the Study Site.
WWII Bomb Damage (*Figure 6*)	The *London County Council* (LCC) bomb damage maps identify that significant damage was sustained by all structures located within the Study Site boundary. This ranges from "seriously damaged – doubtful if repairable" to "total destruction". The structures located to the southeast sustained the most intense damage, all being "totally destroyed", whilst the structures located within the centre of the Site sustained damage to a slightly lesser (but still high) degree, being "damaged beyond repair". The western portion of the Site also sustained a high proportion of structures being "totally destroyed" whilst approximately seven structures sustained damage described as "seriously damaged – doubtful if repairable" within the southwest of the Site.
WWII High Explosive Bomb Density (*Figure 7*)	The Study Site was located within *Holborn Metropolitan Borough*, which recorded 863 HE bombs per 1,000 acres. This figure does not include incendiary devices, as they were often released in such large numbers that they were seldom recorded.
Abandoned Bombs	There are no abandoned bombs recorded within the Study Site, or within the immediate vicinity.

STAGE THREE – DATA ANALYSIS	
Was the ground undeveloped during WWII?	No; OS mapping from 1937 identifies the Study Site as a densely developed area of commercial, industrial and residential use.
Is there a reason to suspect that the immediate area was a bombing target during WWII?	Yes; there was one primary *Luftwaffe* target located within the vicinity of the Study Site, this is identified by Luftwaffe aerial photo "TN1611" as a "water works, filter beds and pumping station", which is located 750m to the north. There were an additional three "opportunistic" bombing targets located within the region including several areas of railway infrastructure, located approximately 275m to the east and 600m to the southeast of the Site.
Is there firm evidence that ordnance landed on Site?	Yes; ARP records identify two HE bomb strikes within the Study Site, with an additional eight HE bomb strikes recorded within 50m of the Study Site boundary. Whilst incendiary bombs may have fallen within the Site boundary, these were dropped in such large numbers that they were rarely recorded.
Is there evidence of damage sustained on Site?	Yes; the LCC bomb damage maps identify that significant damage was sustained across the entire Site. The damage sustained by the majority of buildings located to the southeast and west within the Study Site is described as "total destruction", the remaining structures located centrally are recorded as "damaged beyond repair". There are approximately seven structures located within the western area of the Site, which are described as "seriously damaged – doubtful if repairable".
Would an UXB entry hole have been observed and reported during WWII?	Possibly; numerous buildings used both for business and residential purposes occupied the Study Site, any UXB entering the Study Site whilst engaged in this level of development and occupancy would probably have been witnessed. However, following the scale of destruction sustained on Site between 1940 and 1941, any UXB entering the Site at this time or subsequently, is likely to have gone unrecorded or witnessed. It is possible that a UXB from later air raids may have entered the Site, which may have been masked by debris from these earlier raids.
Is there any reason to suspect that Live Firing or military training may have occurred at this location?	No; there is no supporting evidence to suggest that guns or associated artillery munitions were ever stored, located or fired from this Site.
What is the expected UXO contamination?	The most likely source of UXO contamination is from *German* aerial delivered ordnance, which ranges from small incendiary bombs through to large HE bombs (of which the latter forms the principal threat). There is an additional threat posed by *British* AAA ordnance.
Would previous earthworks have removed the potential for UXO to be present?	Possibly, following the large-scale destruction on Site during WWII, the area within the Study Site was developed post WWII. It is possible that the development of the three structures built during the 1960s may have removed items of UXO within the footprint of these structures depending on the scale and depth of ground works. However, there remains a possibility for UXO to be present within the footprint of the structures.
Does the potential for a UXO encounter vary across the site?	No, given the widespread bomb damage sustained within the Study Site, there is no evidence to suggest the probability for a UXO encounter would vary across the Site. Whilst there has been some post WWII development within localised areas, this is unlikely to have removed all potential items of UXO .

STAGE FOUR – RISK ASSESSMENT	
Threat Items	The threat is predominately posed by WWII *German* HE bombs and Incendiary Bombs and *British* AAA projectiles (the latter were used to defend against German bombing raids).
Maximum Penetration	Considering the detailed ground conditions (highlighted in Stage 1), the most likely Bomb Penetration Depth (BPD) for a 250kg bomb is assessed to be 4m (bgl). Whilst the *Luftwaffe* used larger bombs, their deployment was so few and only used against notable targets, to use them within this risk assessment would not be justified. The expected threat horizon for the Site is shallow. Due to ground cover present during WWII, bomb penetration depths are expected to be shallow. The structures present on Site during WWII would significantly retard the penetration ability of an item of UXO.
Risk Pathway	Given the type of munitions that might be present on Site, all types of aggressive intrusive engineering activities (i.e. groundwork) may generate a significant risk pathway. Whilst not all munitions encountered aggressively will initiate upon contact, such a discovery could lead to serious impact on the project, especially in terms of delay and blight.
Consequence	Consequences of UXO initiation include: 1. Kill and/or critically injure personnel; 2. Severe damage to plant and equipment; 3. Blast damage to nearby buildings; 4. Rupture and damage underground services. Consequences of UXO discovery include: 1. Delay the project; 2. Disruption to local community/infrastructure; 3. Incurring of additional costs.
UXO RISK CALCULATION	
Site Activities	A number of construction methodologies have been identified for analysis on this Site. There is a large amount of variation in the probability of encountering, or initiating items of UXO when conducting different activities on Site. Additionally the consequences of initiating UXO vary greatly depending on how the item of UXO was initiated on Site. For this reason, 6 Alpha has determined that by conducting separate Risk Rating calculations for each construction methodology that may be used on Site.
Threat Items	The most probable UXO threat items for this Site are *German* HE bombs, incendiary bombs and *British* AAA projectiles. The consequences of initiating *German* HE bombs are more severe than initiating incendiary bombs or *British* AAA projectiles and thus they pose the greatest threat to the Site.
Risk Rating Calculation	6 Alpha's Semi-Quantitative Risk Assessment identifies the Risk Rating posed by the most probable threat items when conducting a number of different construction activities on the Site. Risk Rating is determined by calculating the probability of encountering UXO and the consequences of initiating it.

STAGE FOUR - RISK ASSESSMENT (…continued)				
UXO RISK CALCULATION TABLE				
Activity	**Threat Item**	**Probability** (SHxEM=P)	**Consequence** (DxPSR=C)	**Risk Rating** (PxC=RR)
Trial Pits and Window Sampling	HE Bombs	2x1=2	3x2=6	2x6=12
	Incendiary Bombs	1x1=1	3x1=3	1x3=3
	AAA Projectiles	1x1=1	3x1=3	1x3=3
Trenching	HE Bombs	2x1=2	3x2=6	2x6=12
	Incendiary Bombs	1x1=1	3x1=3	1x3=3
	AAA Projectiles	1x1=1	3x1=3	1x3=3
Bulk Excavations	HE Bombs	2x2=4	2x2=4	4x4=16
	Incendiary Bombs	1x2=2	2x1=2	2x2=4
	AAA Projectiles	1x2=2	2x1=2	2x2=4
Boreholes	HE Bombs	2x2=4	2x2=4	4x4=16
	Incendiary Bombs	1x2=2	2x1=2	2x2=4
	AAA Projectiles	1x2=2	2x1=2	2x2=4
Piled Foundations	HE Bombs	2x3=6	2x2=4	6x4=24
	Incendiary Bombs	1x3=3	2x1=2	3x2=6
	AAA Projectiles	1x3=3	2x1=2	3x2=6
Abbreviations – Site History (SH), Engineering Methodology (EM), Probability (P), Depth (D), Consequence (C), Proximity to Sensitive Receptors (PSR) and Risk Rating (RR).				

STAGE FIVE – RECOMMENDED RISK MITIGATION MEASURES WITH RESULTING RISK RATING	
If a geophysical survey is required are the ground conditions an issue?	**Non-Intrusive Methods of Mitigation** – Not possible, as any magnetometer results are highly likely to be affected by ferro-magnetic contamination due to previous construction activities and Made Ground/fill material contained within the Study Site. **Intrusive Methods of Mitigation** – Intrusive magnetometry is expected to be ineffective on this Site, as any possible UXO items are expected to be confined to the Made Ground. Intrusive magnetometry within the Made Ground will be affected by ferro-magnetic contamination and thus UXO threat item identification would be limited.

MITIGATION MEASURES TO REDUCE RISK TO 'ALARP'		
Activity	**Risk Mitigation Measures**	**Final Risk Rating**
All Activities across the entire Site	1. **Operational UXO Risk Management Plan;** appropriate site management documentation should be held on site to plan for and guide upon the actions to be carried out in the event of a suspected or real UXO discovery. 2. **UXO Safety & Awareness Briefings;** the briefings are essential when there is a possibility of explosive ordnance encounter and are a vital part of the general safety requirement. All personnel working on the site should receive a general briefing on the identification of UXB, what actions they should take to keep people and equipment away from the hazard and to alert site management. Posters and information of the general nature of the UXB threat should be held in the site office for reference and as a reminder. The safety awareness briefing is an essential part of the Health & Safety Plan for the site and conforms to the CDM regulations 2007. **3. Specialist UXO Banksman Support;** all works should be supervised by a specialist UXO banksman to identify and dispose of any items of UXO on the Site. Whilst an intrusive survey would be possible, a Specialist UXO Banksman Support would be the most cost effective solution for this particular Site.	LOW ALARP
This assessment has been conducted based on the information provide by the Client, should the proposed works change then 6 Alpha should be re-engaged to refine this risk assessment.		

Report Figures

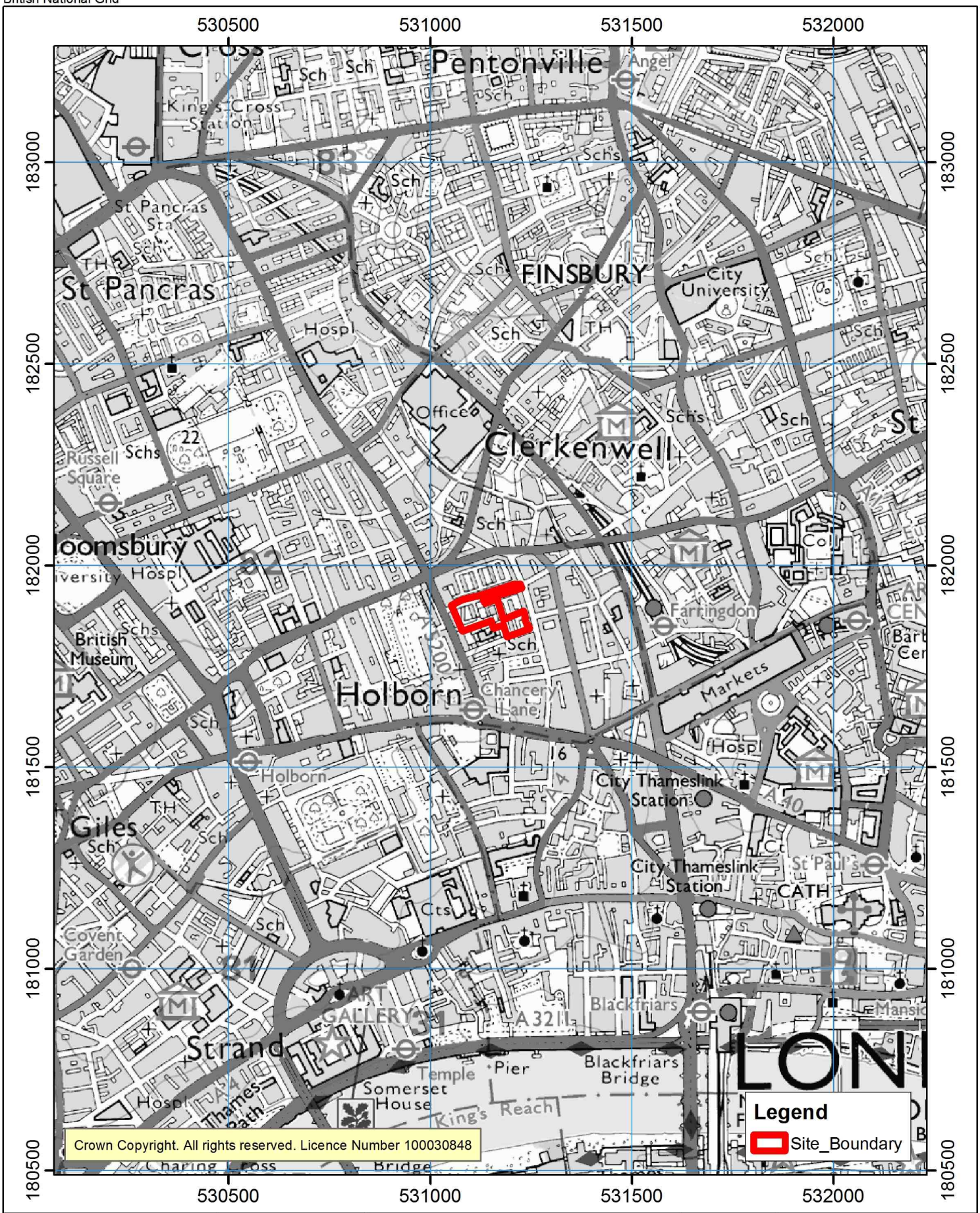
Figure One

Site Location

Bourne Estate, Holborn, London
Site Location

Figure 1

British National Grid



BOMB SEARCH

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0 50 100 200 300 400 500 Meters

N

Project Number: P2770

Drawn By: Dominique René

Checked by: Lee Gooderham

Date: 23rd February 2012

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Figure Two

Site Boundary

Bourne Estate, Holborn, London
Site Boundary

Figure 2

British National Grid

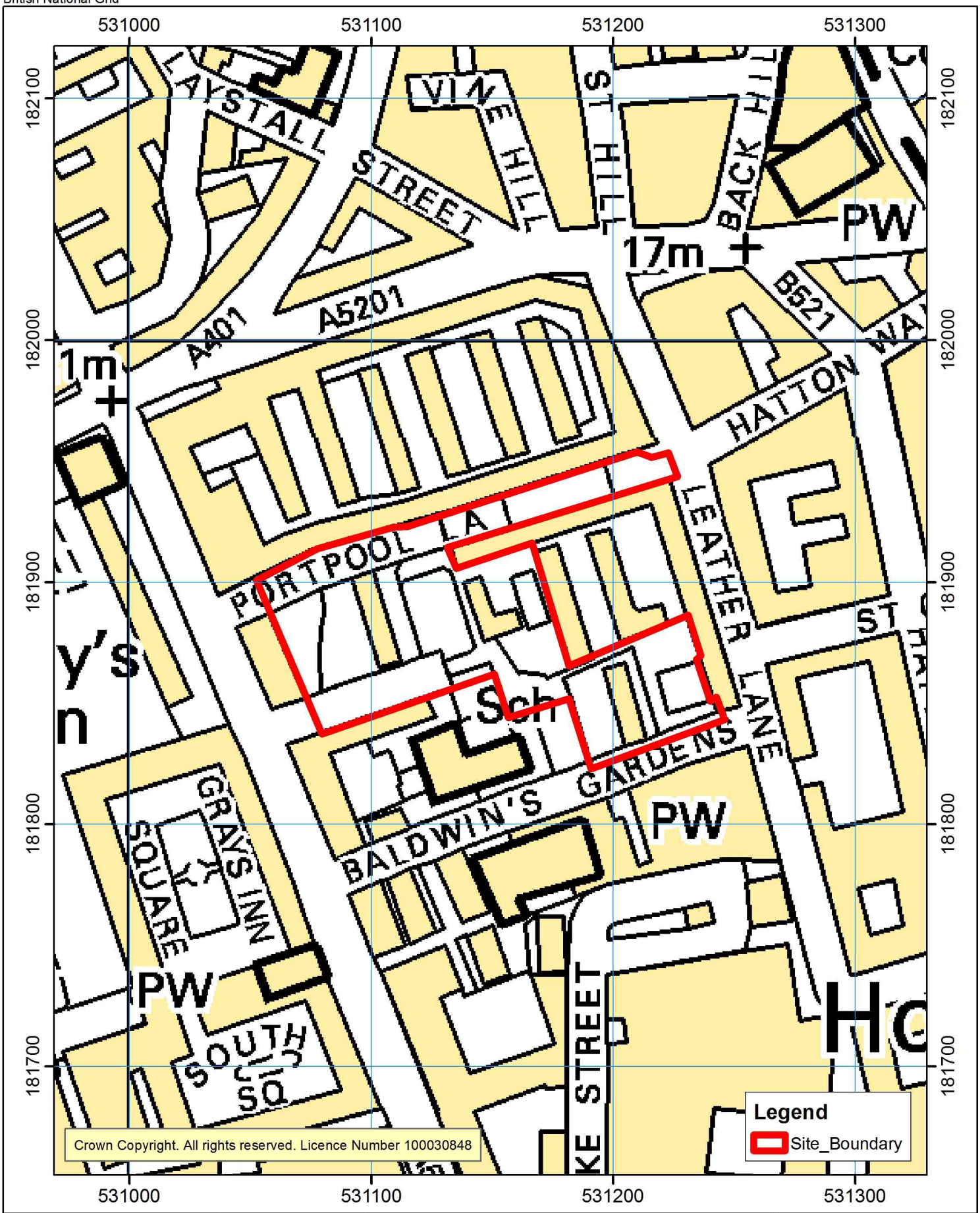

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Figure Three

Current Aerial Photography

Bourne Estate, Holborn, London
Current Aerial Photography

Figure 3

British National Grid

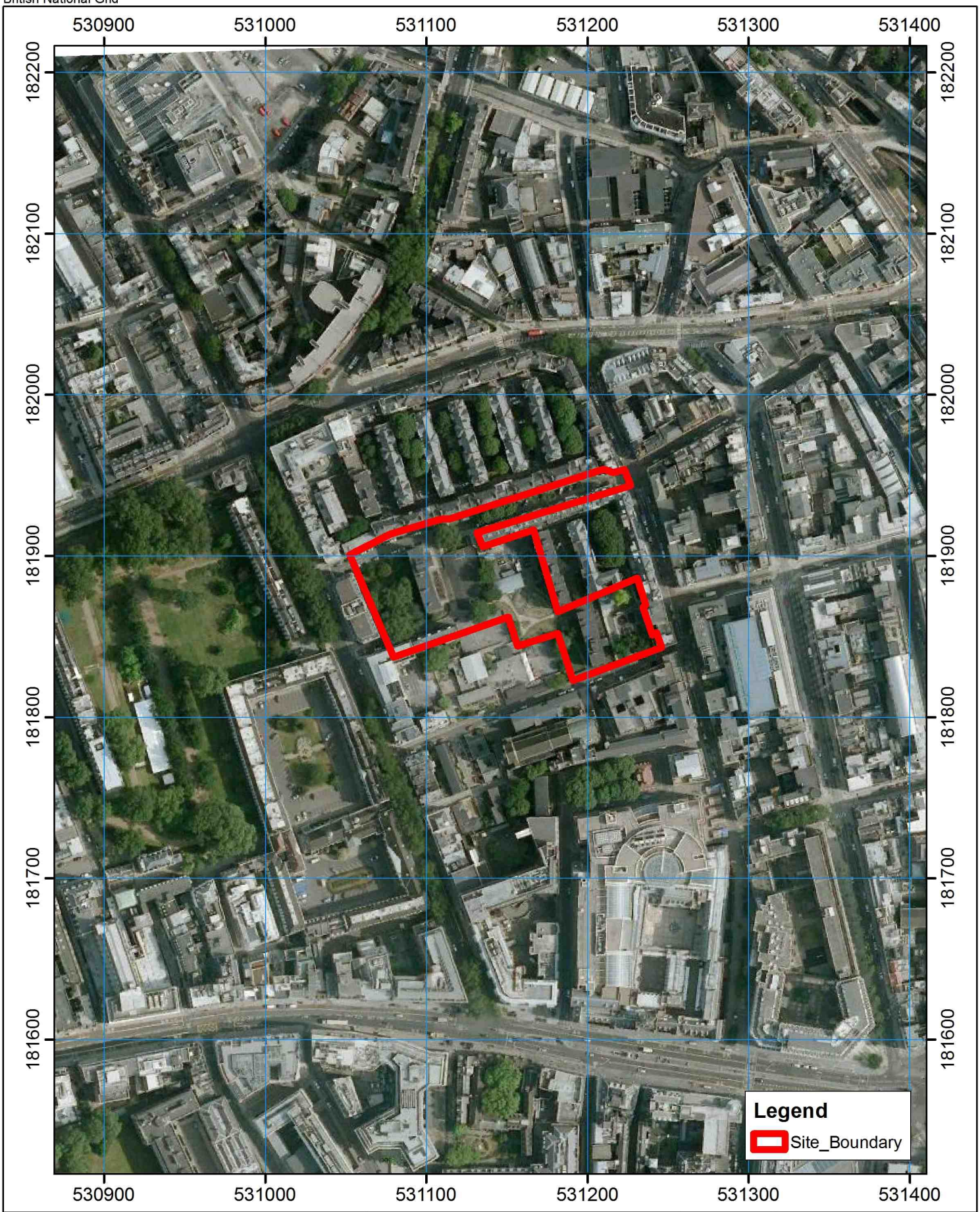

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Figure Four

WWII Luftwaffe Bombing Targets

Bourne Estate, Holborn, London
WWII Luftwaffe Bombing Targets

Figure 4

British National Grid

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0 100 200 400 600 800 1,000 Meters

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Figure Five

WWII High Explosive Bomb Strikes

Bourne Estate, Holborn, London
WWII High Explosive Bomb Strikes

Figure 5

British National Grid

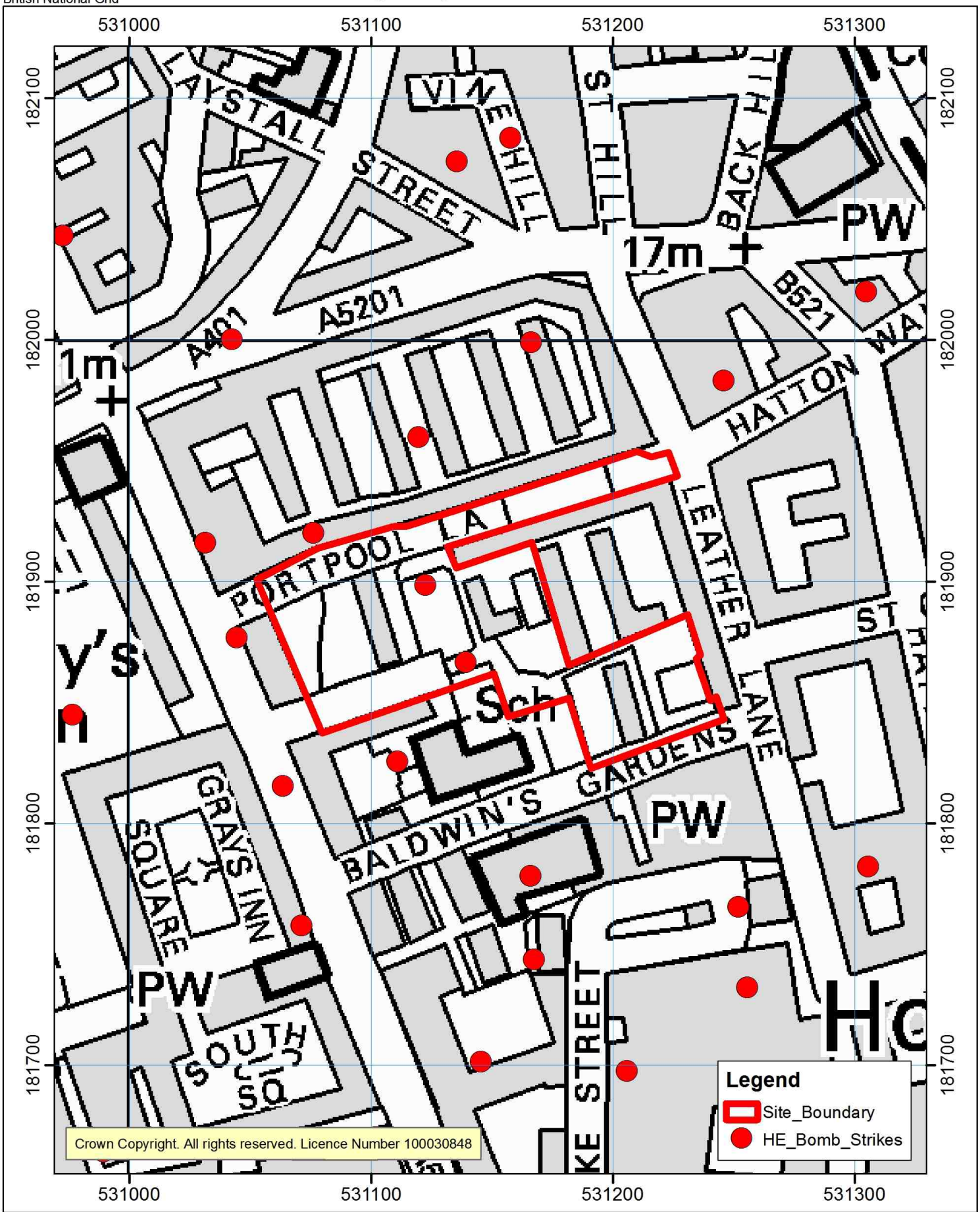

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Figure Six

London County Council Bomb Damage Map

Bourne Estate, Holborn, London
London County Council Bomb Damage Map

Figure 6

British National Grid

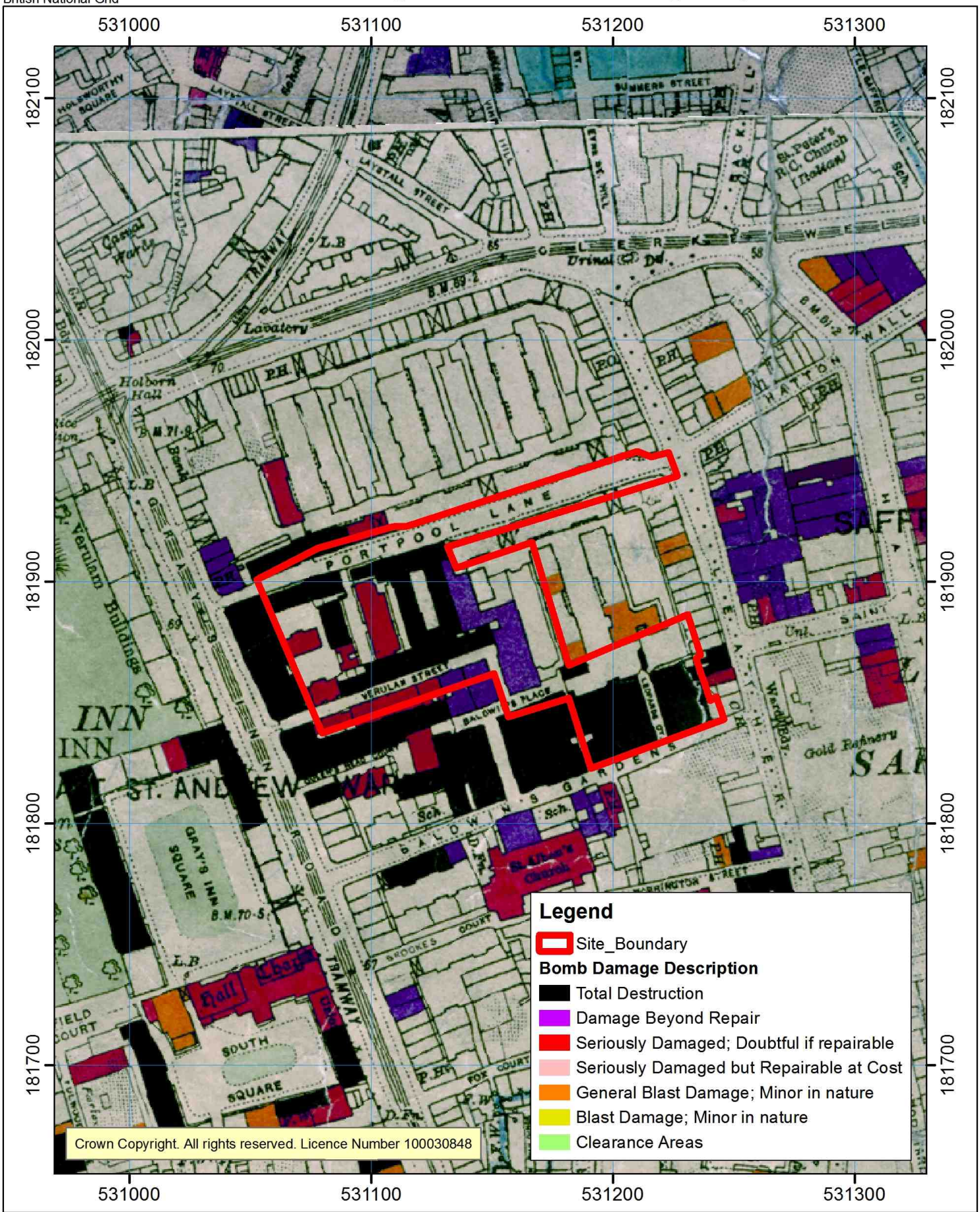

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Figure Seven

WWII High Explosive Bomb Density