Nicholls Colton Group
7 - 11 Harding Street
Leicester
LE1 4DH

Castledine & Co
4 Wymeswold Road
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LE12 5SN

Analytical Test Report: L19/0916/CAS/001 - Amendment A

Your Project Reference:	**White - Rotherham**	Samples Received on:	08/04/2019
Your Order Number:	Kevin - CoC	Testing Instruction Received:	08/04/2019
Report Issue Number:	2	Sample Tested:	08/04 to 15/04/2019
Samples Analysed:	8 soil samples	Report issued:	15/04/2019

Signed

Peter Swanston
Environmental Laboratories Manager
Nicholls Colton Group

Notes:

General

Please refer to Methodologies tab for details pertaining to the analytical methods undertaken.

Samples will be retained for 14 days after issue of this report unless otherwise requested.

Moisture Content was determined in accordance with NC method statement MS - CL - Sample Prep, oven dried at <30˚C.

Moisture Content is reported as a percentage of the dry mass of soil, this calculation is in accordance with BS1377, Part 2, 1990, Clause 3.2

Stone Content was determined in accordance with NC method statement MS - CL - Sample Prep and refers to the percentage of stones retained on a 10mm BS test sieve.

Concentrations are reported as a percentage mass of the dry soil passing the 10mm BS test sieve. As received samples have been corrected for moisture content but not stone content.

Samples were supplied by customer, results are representative of the material provided

Deviating Samples

Samples were received in suitable containers	**No**
A date and time of sampling was provided	**Yes**
Sample holding times were exceeded prior to analysis of determinants	**No**

Where samples do not meet one or more of the above criteria they will be classed as deviating, this means data may not be representative of the sample at the time of sampling and it is possible that results provided may be compromised.

Accreditation Key

UKAS = UKAS Accreditation, MCERTS = MCERTS Accreditation, u = Unaccredited

MCERTS Accreditation only covers the SAND, CLAY and LOAM matrices

Date of Issue 24.01.2017
Owned by Emily Blissett - Customer Services Supervisor
Authorised by James Gane - Commercial Manager
J:\Public\Projects\2019\L19\CAS\L19-0916-CAS\[L19-0916-CAS-001.xlsx]Cover Sheet

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Project Reference - White - Rotherham

Analytical Test Results - Soil

NC Reference			32874	32875	32876	32877	32878	32879	32880
Client Sample Reference			TP1	TP2	TP3	TP4	TP5	TP6	TP7
Client Sample Location			TP1	TP2	TP3	TP4	TP5	TP6	TP7
Depth - Top (m)			0.25	0.5	0.2	0.2	0.45	0.6	0.65
Depth - Bottom (m)			0.25	0.5	0.2	0.2	0.45	0.6	0.65
Date of Sampling			06/04/2019	06/04/2019	06/04/2019	06/04/2019	06/04/2019	06/04/2019	06/04/2019
Time of Sampling			14:20	13:45	13:35	13:20	13:15	13:00	12:50
Sample Matrix			Clay	Clay	Clay	Clay	Clay	Clay	Clay
Determinant	**Units**	**Accreditation**							
Arsenic	(mg/kg)	MCERTS	17	14	28	29	< 10	< 10	17
Cadmium	(mg/kg)	MCERTS	0.9	0.9	1.4	1.0	0.6	0.7	0.7
Chromium (Total)	(mg/kg)	UKAS	16	14	19	18	9.9	11	12
Copper	(mg/kg)	MCERTS	59	32	300	51	18	15	34
Lead	(mg/kg)	MCERTS	85	75	120	110	40	33	63
Mercury	(mg/kg)	UKAS	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5
Nickel	(mg/kg)	MCERTS	19	21	86	25	17	16	20
Zinc	(mg/kg)	MCERTS	170	93	730	170	60	60	76
Total Phenols	(mg/kg)	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chromium (Hexavalent)	(mg/kg)	u	2.1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	2.3
pH	pH Units	MCERTS	5.9	6.3	5.2	6.5	6.9	7.0	6.7
Acenaphthene	(mg/kg)	MCERTS	0.07	< 0.02	0.05	< 0.20	< 0.02	< 0.02	< 0.02
Acenaphthylene	(mg/kg)	UKAS	0.29	< 0.02	0.15	< 0.20	< 0.02	< 0.02	0.04
Anthracene	(mg/kg)	UKAS	0.61	0.07	0.22	0.39	< 0.02	< 0.02	0.07
Benzo (a) anthracene	(mg/kg)	MCERTS	1.8	0.13	1.0	1.5	< 0.02	< 0.02	0.33
Benzo (a) pyrene	(mg/kg)	MCERTS	1.6	0.14	1.0	1.7	< 0.02	< 0.02	0.37
Benzo (b) fluoranthene	(mg/kg)	MCERTS	2.3	0.23	1.6	2.5	< 0.02	0.03	0.57
Benzo (g, h, i) perylene	(mg/kg)	MCERTS	0.82	0.12	0.63	1.2	< 0.02	< 0.02	0.29
Benzo (k) fluoranthene	(mg/kg)	MCERTS	0.89	0.08	0.62	0.92	< 0.02	< 0.02	0.22
Chrysene	(mg/kg)	MCERTS	2.2	0.17	1.3	1.9	< 0.02	< 0.02	0.41
Dibenzo (a,h) anthracene	(mg/kg)	MCERTS	0.19	< 0.02	0.15	0.25	< 0.02	< 0.02	0.06
Fluoranthene	(mg/kg)	MCERTS	4.9	0.38	2.0	3.6	< 0.02	0.02	0.69
Fluorene	(mg/kg)	MCERTS	0.14	0.03	0.08	< 0.20	< 0.02	< 0.02	< 0.02
Indeno (1, 2, 3,-cd) pyrene	(mg/kg)	MCERTS	0.89	0.11	0.65	1.1	< 0.02	< 0.02	0.27
Naphthalene	(mg/kg)	MCERTS	0.18	0.12	0.26	0.57	< 0.02	0.02	0.16
Phenanthrene	(mg/kg)	MCERTS	3.4	0.41	0.89	1.6	< 0.02	0.03	0.34
Pyrene	(mg/kg)	MCERTS	3.9	0.32	1.7	3.3	< 0.02	< 0.02	0.62
Total PAH (Sum of USEPA 16)	(mg/kg)	UKAS	24	2.4	12	21	< 0.32	0.37	4.5
Pesticide Screen	(mg/kg)	u	Undetected <1mg/kg	Undetected <1mg/kg	Undetected <1mg/kg	Undetected <1mg/kg	Undetected <1mg/kg	Undetected <1mg/kg	Undetected <1mg/kg

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Analytical Test Results - Soil

NC Reference			32881
Client Sample Reference			TP8
Client Sample Location			TP8
Depth - Top (m)			0.85
Depth - Bottom (m)			0.85
Date of Sampling			06/04/2019
Time of Sampling			12:35
Sample Matrix			Clay
Determinant	**Units**	**Accreditation**	
Arsenic	(mg/kg)	MCERTS	26
Cadmium	(mg/kg)	MCERTS	0.9
Chromium (Total)	(mg/kg)	UKAS	15
Copper	(mg/kg)	MCERTS	150
Lead	(mg/kg)	MCERTS	110
Mercury	(mg/kg)	UKAS	< 2.5
Nickel	(mg/kg)	MCERTS	25
Zinc	(mg/kg)	MCERTS	130
Total Phenols	(mg/kg)	MCERTS	< 1.0
Chromium (Hexavalent)	(mg/kg)	u	< 1.0
pH	pH Units	MCERTS	6.9
Acenaphthene	(mg/kg)	MCERTS	< 0.02
Acenaphthylene	(mg/kg)	UKAS	< 0.02
Anthracene	(mg/kg)	UKAS	0.03
Benzo (a) anthracene	(mg/kg)	MCERTS	0.13
Benzo (a) pyrene	(mg/kg)	MCERTS	0.14
Benzo (b) fluoranthene	(mg/kg)	MCERTS	0.20
Benzo (g, h, i) perylene	(mg/kg)	MCERTS	0.10
Benzo (k) fluoranthene	(mg/kg)	MCERTS	0.08
Chrysene	(mg/kg)	MCERTS	0.16
Dibenzo (a,h) anthracene	(mg/kg)	MCERTS	< 0.02
Fluoranthene	(mg/kg)	MCERTS	0.24
Fluorene	(mg/kg)	MCERTS	< 0.02
Indeno (1, 2, 3,-cd) pyrene	(mg/kg)	MCERTS	0.10
Naphthalene	(mg/kg)	MCERTS	0.10
Phenanthrene	(mg/kg)	MCERTS	0.12
Pyrene	(mg/kg)	MCERTS	0.22
Total PAH (Sum of USEPA 16)	(mg/kg)	UKAS	1.7
Pesticide Screen	(mg/kg)	u	Undetected <1mg/kg

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Analytical Test Results - TPH CWG

NC Reference			32874	32875	32876	32877	32878	32879	32880
Client Sample Reference			TP1	TP2	TP3	TP4	TP5	TP6	TP7
Client Sample Location			TP1	TP2	TP3	TP4	TP5	TP6	TP7
Depth - Top (m)			0.25	0.5	0.2	0.2	0.45	0.6	0.65
Depth - Bottom (m)			0.25	0.5	0.2	0.2	0.45	0.6	0.65
Date of Sampling			06/04/2019	06/04/2019	06/04/2019	06/04/2019	06/04/2019	06/04/2019	06/04/2019
Time of Sampling			14:20	13:45	13:35	13:20	13:15	13:00	12:50
Sample Matrix			Clay	Clay	Clay	Clay	Clay	Clay	Clay
Determinant	**Units**	**Accreditation**							
Aliphatics									
$>C_5$ to C_6	(mg/kg)	u	< 0.03	0.04	0.27	< 0.03	< 0.03	< 0.03	< 0.03
$>C_6$ to C_8	(mg/kg)	u	< 0.03	< 0.03	0.16	< 0.03	0.03	< 0.03	< 0.03
$>C_8$ to C_{10}	(mg/kg)	u	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
$>C_{10}$ to C_{12}	(mg/kg)	u	< 10	< 10	< 10	< 10	< 10	< 10	< 10
$>C_{12}$ to C_{16}	(mg/kg)	u	< 10	< 10	< 10	< 10	< 10	< 10	< 10
$>C_{16}$ to C_{21}	(mg/kg)	u	< 10	< 10	< 10	12	< 10	< 10	12
$>C_{21}$ to C_{35}	(mg/kg)	u	20	< 10	31	39	12	14	110
Aromatics									
$>C_5$ to C_7	(mg/kg)	u	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
$>C_7$ to C_8	(mg/kg)	u	< 0.03	< 0.03	0.05	< 0.03	< 0.03	< 0.03	< 0.03
$>C_8$ to C_{10}	(mg/kg)	u	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
$>C_{10}$ to C_{12}	(mg/kg)	u	< 10	< 10	< 10	< 10	< 10	< 10	< 10
$>C_{12}$ to C_{16}	(mg/kg)	u	< 10	< 10	< 10	< 10	< 10	< 10	< 10
$>C_{16}$ to C_{21}	(mg/kg)	u	18	< 10	< 10	16	< 10	< 10	< 10
$>C_{21}$ to C_{35}	(mg/kg)	u	42	< 10	38	49	12	< 10	36
Total									
$>C_5$ to C_{35}	(mg/kg)	u	80	< 50	70	120	< 50	< 50	160

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Analytical Test Results - TPH CWG

NC Reference			32881
Client Sample Reference			TP8
Client Sample Location			TP8
Depth - Top (m)			0.85
Depth - Bottom (m)			0.85
Date of Sampling			06/04/2019
Time of Sampling			12:35
Sample Matrix			Clay
Determinant	**Units**	**Accreditation**	
Aliphatics			
>C_5 to C_6	(mg/kg)	u	< 0.03
>C_6 to C_8	(mg/kg)	u	< 0.03
>C_8 to C_{10}	(mg/kg)	u	< 0.03
>C_{10} to C_{12}	(mg/kg)	u	< 10
>C_{12} to C_{16}	(mg/kg)	u	13
>C_{16} to C_{21}	(mg/kg)	u	13
>C_{21} to C_{35}	(mg/kg)	u	20
Aromatics			
>C_5 to C_7	(mg/kg)	u	< 0.03
>C_7 to C_8	(mg/kg)	u	< 0.03
>C_8 to C_{10}	(mg/kg)	u	< 0.03
>C_{10} to C_{12}	(mg/kg)	u	< 10
>C_{12} to C_{16}	(mg/kg)	u	< 10
>C_{16} to C_{21}	(mg/kg)	u	< 10
>C_{21} to C_{35}	(mg/kg)	u	< 10
Total			
>C_5 to C_{35}	(mg/kg)	u	< 50

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Sample Descriptions

NC Reference	Client Sample Reference	Sample Location	Description	Moisture Content (%)	Stone Content (%)
32874	TP1	TP1	Brown slightly sandy silty clay with rare rootlets	16	0.4
32875	TP2	TP2	Grey slightly sandy silty clay with rare rootlets	20	0.6
32876	TP3	TP3	Grey slightly sandy slightly gravelly	34	4.0
32877	TP4	TP4	Grey slightly sandy slightly gravelly rootlets	17	0.8
32878	TP5	TP5	Brown slightly sandy silty clay	13	5.5
32879	TP6	TP6	Brown slightly sandy silty clay	14	4.7
32880	TP7	TP7	Greyish brown slightly sandy silty clay	16	0.3
32881	TP8	TP8	Greyish brown slightly sandy silty clay	20	2.3

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Sample Comments

NC Reference	Client Sample Reference	Sample Location	Comments
32874	TP1	TP1	VPH - Sample taken from container with headspace.
32875	TP2	TP2	VPH - Sample taken from container with headspace.
32876	TP3	TP3	VPH - Sample taken from container with headspace.
32877	TP4	TP4	VPH - Sample taken from container with headspace.
32878	TP5	TP5	VPH - Sample taken from container with headspace.
32879	TP6	TP6	VPH - Sample taken from container with headspace.
32880	TP7	TP7	VPH - Sample taken from container with headspace.
32881	TP8	TP8	VPH - Sample taken from container with headspace.

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Analysis Methodologies

Matrix	Determinant	Sample condition for analysis	Test Method used
Soil	Metals	Air Dried	In house method statement - MS - CL - ICP metals
Soil	PAH	As Received	In house method statement - MS - CL - PAH (As received)
Soil	Phenols	As Received	In house method statement - MS - CL - Phenols by Skalar
Soil	Chromium (hexavalent)	As Received	In house method statement - MS - CL - Hexavalent Chromium by Skalar
Soil	pH	As Received	In house method statement - MS - CL - pH in soils (using a 1:3 soil to water extraction)
Soil	CWG	As Received	In house method statements - MS - CL - EPH in soil and MS - CL - VPH
Soil	Pesticide Screen	As Received	In house method statement - MS - CL - Pesticides