



Ordnance Survey Plan

Published 1956

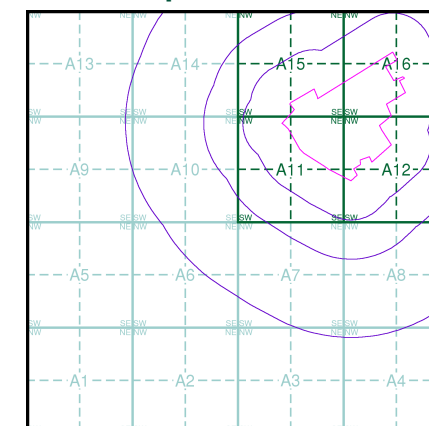
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

SE01NE	SE11NW
1956	1956
1:10,560	1:10,560
SE01SE	SE11SW
1956	1956
1:10,560	1:10,560

Historical Map - Slice A



Order Details

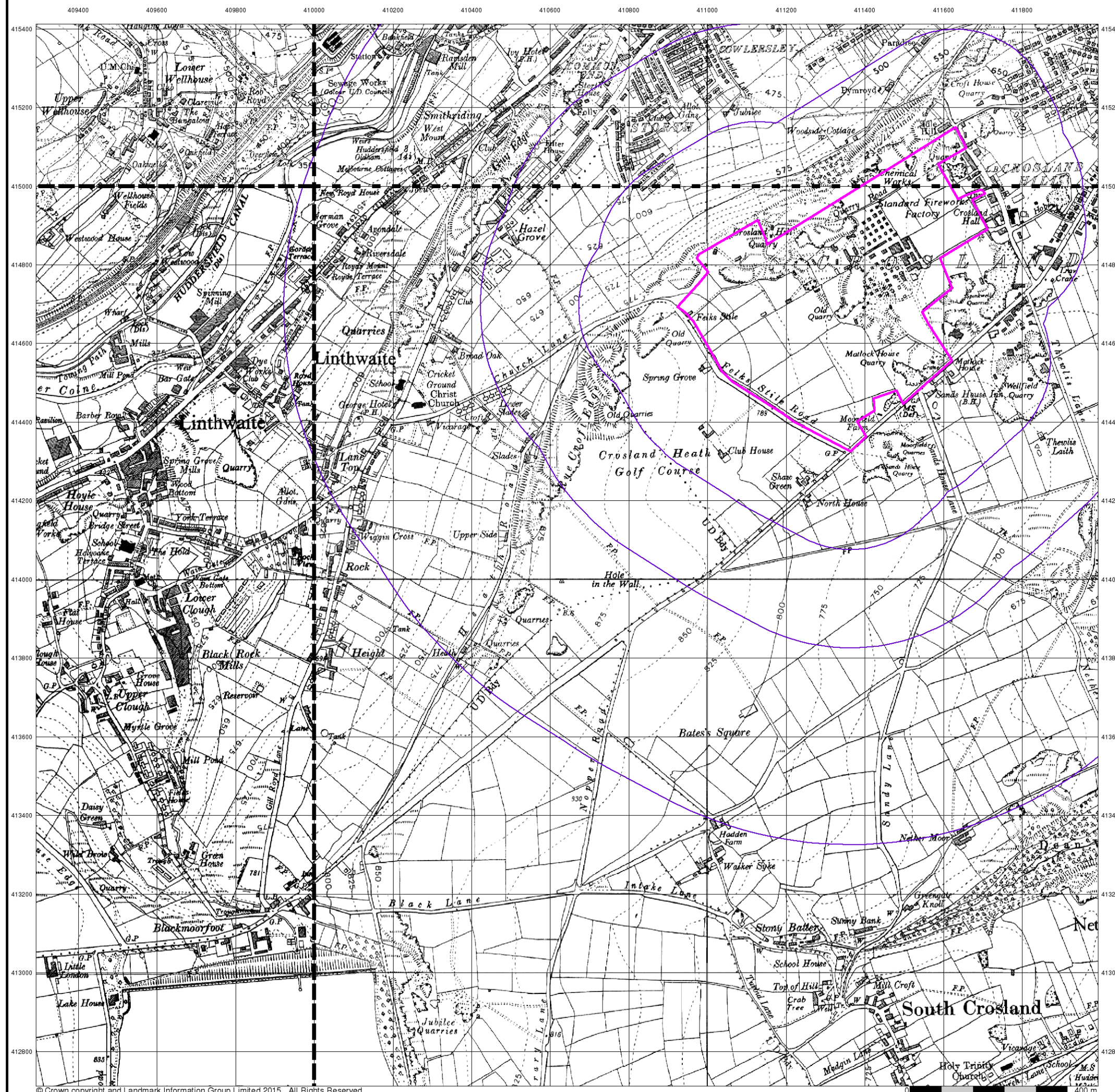
Order Number: 122396843_1_1
Customer Ref: 11822
National Grid Reference: 411050, 414460
Slice: A
Site Area (Ha): 33.22
Search Buffer (m): 1000

Site Details

Black Cat Fireworks Ltd, Standard Drive, Crosland Hill,
HUDDERSFIELD, HD4 7AD

Landmark
INFORMATION GROUP

Tel: 0844 844 9952
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10k Raster Mapping

Published 2000

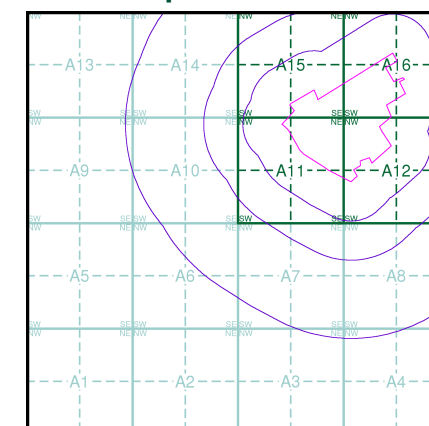
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)

SE01NE 2000 1:10,000	SE11NW 2000 1:10,000
SE01SE 2000 1:10,000	SE11SW 2000 1:10,000

Historical Map - Slice A



Order Details

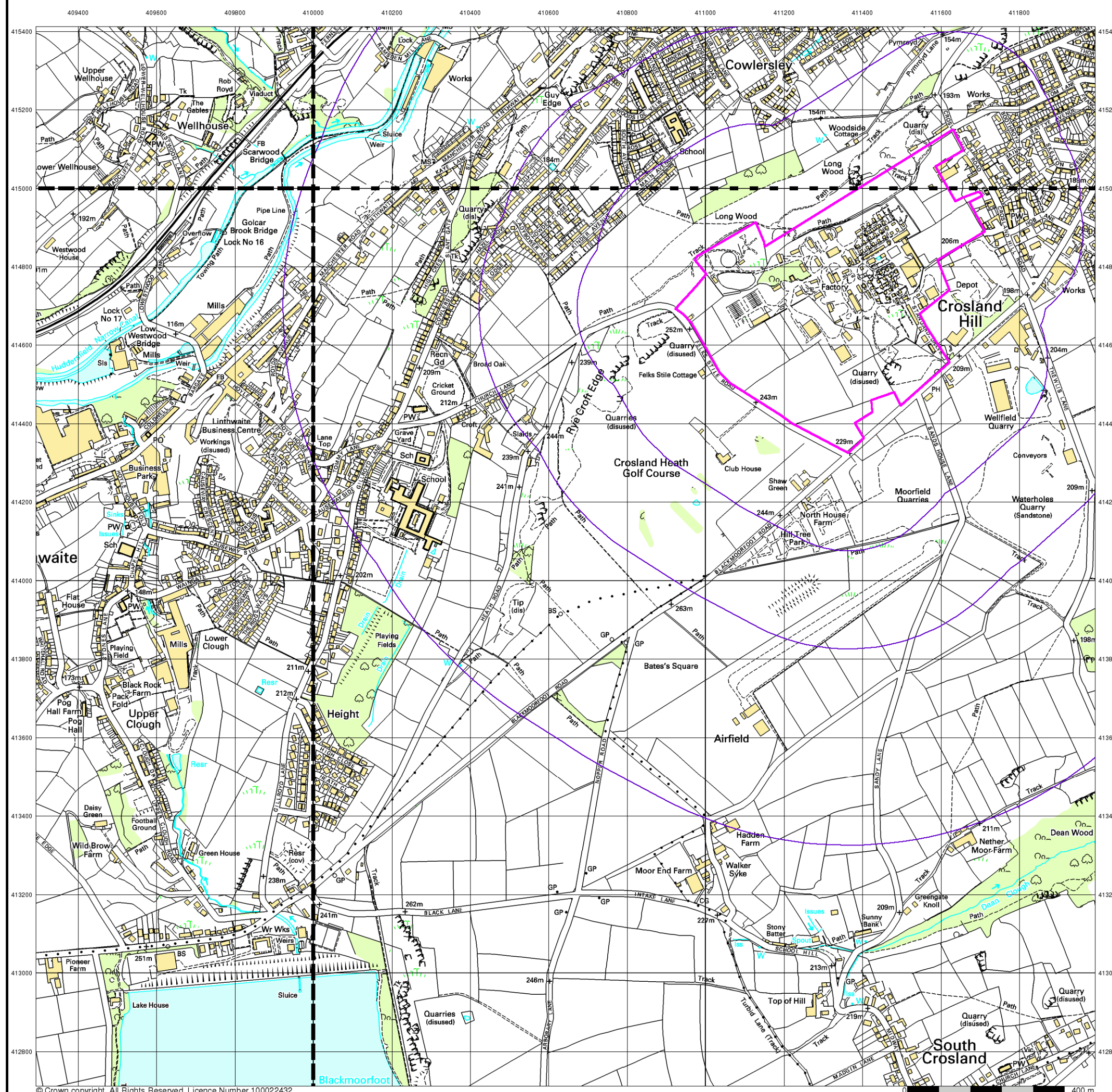
Order Number: 122396843_1_1
Customer Ref: 11822
National Grid Reference: 411050, 414460
Slice: A
Site Area (Ha): 33.22
Search Buffer (m): 1000

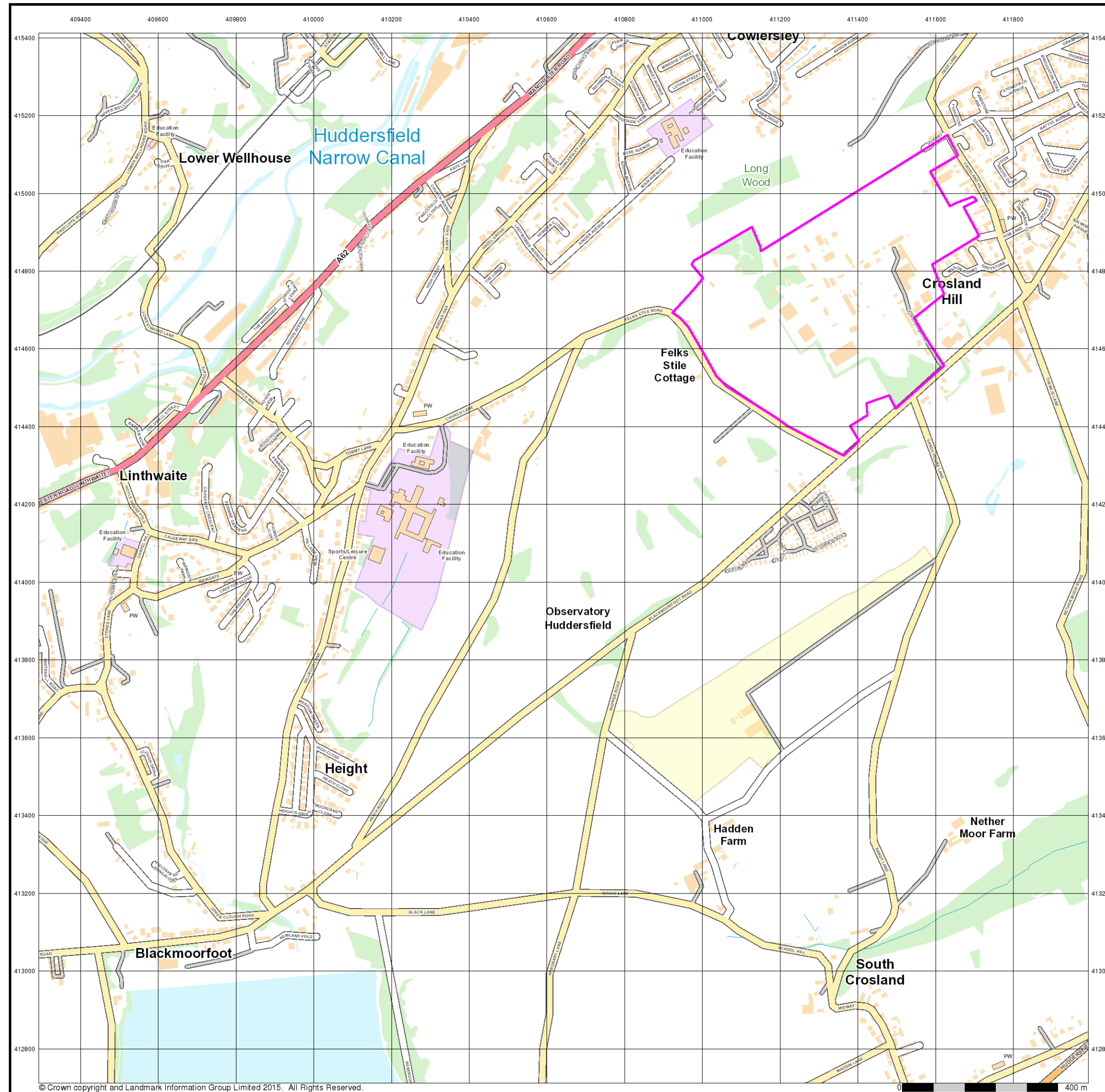
Site Details

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Street View

Published 2017

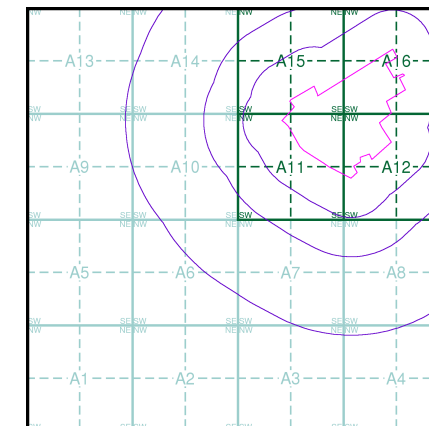
Source map scale - 1:10,000

Street View is a street-level map for the whole of Great Britain produced by the Ordnance Survey. These maps are provided at a nominal scale of 1:10,000

Map Name(s) and Date(s)



Street View Map - Slice A



Order Details

Order Number: 122396843_1_1
Customer Ref: 11822
National Grid Reference: 411050, 414460
Slice: A
Site Area (Ha): 33.22
Search Buffer (m): 1000

Site Details

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Historical Mapping Legends

Ordnance Survey County Series 1:10,560

	Gravel Pit		Sand Pit		Other Pits
	Quarry		Shingle		Orchard
	Osiers		Reeds		Marsh
	Mixed Wood		Deciduous		Brushwood
	Fir		Furze		Rough Pasture
	Arrow denotes flow of water		Trigonometrical Station		
	Site of Antiquities		Bench Mark		
	Pump, Guide Post, Signal Post		Well, Spring, Boundary Post		
	Surface Level				
	Sketched Contour		Instrumental Contour		
	Main Roads		Minor Roads		
	Sunken Road		Raised Road		
	Road over Railway		Railway over River		
	Railway over Road		Level Crossing		
	Road over River or Canal		Road over Stream		
	Road over Stream				
	County Boundary (Geographical)				
	County & Civil Parish Boundary				
	Administrative County & Civil Parish Boundary				
	County Borough Boundary (England)				
	County Burgh Boundary (Scotland)				
	Rural District Boundary				
	Civil Parish Boundary				

Ordnance Survey Plan 1:10,000

	Chalk Pit, Clay Pit or Quarry		Gravel Pit
	Sand Pit		Disused Pit or Quarry
	Refuse or Slag Heap		Lake, Loch or Pond
	Dunes		Boulders
	Coniferous Trees		Non-Coniferous Trees
	Orchard		Scrub
	Bracken		Heath
	Marsh		Reeds
	Building		Glasshouse
	Sloping Masonry		Pylon
	Cutting		Embankment
	Road Under		Road Over
	Level Crossing		Foot Bridge
	Standard Gauge Multiple Track		Standard Gauge Single Track
	Siding, Tramway or Mineral Line		Narrow Gauge
	Geographical County		Administrative County, County Borough or County of City
	Municipal Borough, Urban or Rural District, Burgh or District Council		Borough, Burgh or County Constituency
	Civil Parish		
	Boundary Post or Stone		Police Station
	Church		Post Office
	Club House		Public Convenience
	Fire Engine Station		Public House
	Foot Bridge		Signal Box
	Fountain		Spring
	Guide Post		Telephone Call Box
	Mile Post		Telephone Call Post
	Mile Stone		Well

1:10,000 Raster Mapping

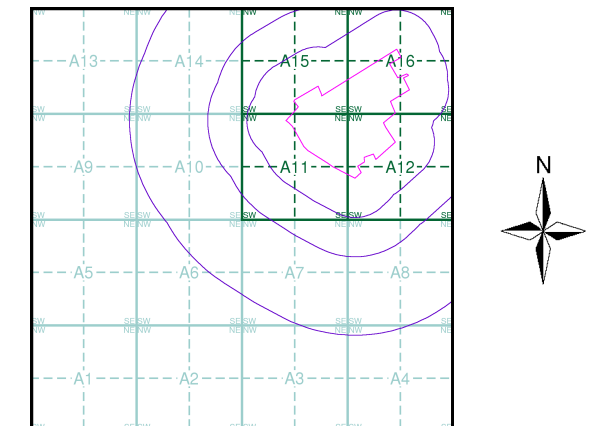
	Gravel Pit		Refuse tip or slag heap
	Rock		Rock (scattered)
	Boulders		Boulders (scattered)
	Shingle		Mud
	Sand		Sand Pit
	Slopes		Top of cliff
	General detail		Underground detail
	Overhead detail		Narrow gauge railway
	Multi-track railway		Single track railway
	County boundary (England only)		Civil, parish or community boundary
	District, Unitary, Metropolitan, London Borough boundary		Constituency boundary
	Area of wooded vegetation		Non-coniferous trees
	Non-coniferous trees (scattered)		Coniferous trees
	Coniferous trees (scattered)		Positioned tree
	Orchard		Coppice or Osiers
	Rough Grassland		Heath
	Scrub		Marsh, Salt Marsh or Reeds
	Water feature		Flow arrows
	Mean high water (springs)		Mean low water (springs)
	Telephone line (where shown)		Electricity transmission line (with poles)
	Bench mark (where shown)		Triangulation station
	Point feature (e.g. Guide Post or Mile Stone)		Pylon, flare stack or lighting tower
	Site of (antiquity)		Glasshouse
	General Building		Important Building



Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Yorkshire	1:10,560	1854	2
Yorkshire	1:10,560	1894	3
Yorkshire	1:10,560	1908	4
Yorkshire	1:10,560	1930	5
Yorkshire	1:10,560	1938	6
Yorkshire	1:10,560	1948	7
Ordnance Survey Plan	1:10,000	1956	8
Ordnance Survey Plan	1:10,000	1966 - 1969	9
Ordnance Survey Plan	1:10,000	1978 - 1979	10
Ordnance Survey Plan	1:10,000	1980 - 1987	11
Ordnance Survey Plan	1:10,000	1993	12
10K Raster Mapping	1:10,000	2000	13
Street View	Variable		14

Historical Map - Slice A



Order Details

Order Number: 122396843_1_1
Customer Ref: 11822
National Grid Reference: 411050, 414460
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APPENDIX VI E3P EXPLORATORY HOLE LOGS





Trial Pit Log

Trialpit No

TP101

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
02/05/2017

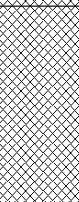
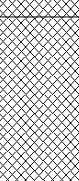
Location: Huddersfield

Dimensions (m): 1.50

Scale
1:25

Client: L F Europe Ltd

Depth
2.90Logged
G. Hirst**Samples and In Situ Testing**

Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
0.20	ES		0.30			MADE GROUND: Brown gravelly fine to medium sand. Gravel is fine to coarse angular to sub-rounded of sandstone, metal, brick, glass and slag.
						MADE GROUND: Brown gravelly fine to medium sand with frequent cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone, brick and rare slag.
1.10	ES		1.00			MADE GROUND: Black brown slightly silty gravelly fine to medium sand. Gravel is fine to coarse angular to sub-rounded of sandstone and rare slag.
			1.60			Yellow brown gravelly fine to medium SAND with cobbles and boulders. Gravel is fine to coarse angular to sub-rounded of sandstone. Cobbles and boulders are sub-angular of sandstone.
			2.90			End of pit at 2.90 m

Remarks: Complete at 2.90m bgl on rock.

Stability: Stable.





Trial Pit Log

Trialpit No

TP102

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
02/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Scale
1:25

Client: L F Europe Ltd

Depth
2.00Logged
G. Hirst**Samples and In Situ Testing**

Depth

Type

Results

Depth
(m)Level
(m)

Legend

Stratum Description

0.80

ES

0.60

1.00

1.70

ES

2.00

MADE GROUND: Brown very gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub-rounded of brick, concrete and sandstone.

MADE GROUND: Yellow brown gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone and brick.

MADE GROUND: Dark brown gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone, brick, metal and rare ash. Cobbles are angular to sub-angular of brick and sandstone.

End of pit at 2.00 m

1

2

3

4

5

Remarks: Complete at 2.00m bgl on rock.

Stability: Stable.





Trial Pit Log

Trialpit No

TP103

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
02/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Client: L F Europe Ltd

Depth
1.90

0.60

Scale

1:25

Logged
G. Hirst**Samples and In Situ Testing**

Depth

Type

Results

Depth
(m)Level
(m)

Legend

Stratum Description

0.50

ES

0.20

1.90

Brown slightly clayey gravelly fine to medium SAND (Topsoil) with rootlets. Gravel is fine to coarse angular to sub-angular of mudstone and sandstone.

Brown gravelly fine to medium SAND with frequent cobbles and boulders. Gravel is medium to coarse angular to sub-angular of mudstone and sandstone. Cobbles and boulders are sub-angular to sub-rounded of sandstone.

End of pit at 1.90 m

1

2

3

4

5

Remarks: Terminated at 1.90m bgl due to collapse.

Stability: Unstable.





Trial Pit Log

Trialpit No

TP104

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
02/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Client: L F Europe Ltd

Depth
2.20

0.60

Scale
1:25Logged
G. Hirst**Samples and In Situ Testing**

Depth

Type

Results

Depth
(m)Level
(m)

Legend

Stratum Description

0.10

ES

0.20

0.60

1.20

1.90

ES

2.20

MADE GROUND: Brown gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to medium angular to sub-angular of mudstone, slate and sandstone.

Brown slightly gravelly slightly clayey fine to medium SAND. Gravel is fine to medium angular to sub-rounded of sandstone.

Black brown slightly gravelly slightly clayey fine to medium SAND. Gravel is fine to coarse angular to sub-angular of sandstone.

Brown gravelly fine to medium SAND with cobbles and boulders. Gravel is fine to coarse angular to sub-angular of sandstone. Cobbles and boulders are sub-angular of sandstone.

End of pit at 2.20 m

1

2

3

4

5

Remarks: Complete. at 2.20m bgl on rock.

Stability: Stable.





Trial Pit Log

Trialpit No

TP105

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
02/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Client: L F Europe Ltd

Depth
1.50

0.60

Scale
1:25Logged
G. Hirst**Samples and In Situ Testing**

Depth

Type

Results

Depth
(m)Level
(m)

Legend

Stratum Description

1.40

ES

0.10

1.50

Brown gravelly fine to medium SAND (Topsoil) with rootlets. Gravel is fine to coarse angular to sub-rounded of sandstone.

Yellow brown sandy GRAVEL with frequent cobbles and boulders. Gravel is fine to coarse angular to sub-rounded of sandstone. Cobbles and boulders are angular to sub-angular of sandstone.

End of pit at 1.50 m

1

2

3

4

5

Remarks: Terminated at 1.50m bgl due to collapse.

Stability: Unstable.





Trial Pit Log

Trialpit No

TP106

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
02/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Client: L F Europe Ltd

Depth
2.90

0.60

Scale

1:25

Logged
G. Hirst**Samples and In Situ Testing**

Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description	
0.60	ES		0.30			MADE GROUND: Brown gravelly fine to medium sand (Topsoil). Gravel is fine to coarse angular to sub-rounded of sandstone and brick.	
			0.70			MADE GROUND: Black gravelly fine to medium sand. Gravel is fine to coarse angular to sub-rounded of sandstone and brick.	
			1.50			MADE GROUND: Yellow brown gravelly fine to medium sand with cobbles and boulders. Gravel is fine to coarse angular to sub-rounded of sandstone and brick. Cobbles are angular to sub-angular of brick and sandstone.	1
2.60	ES		2.90			MADE GROUND: Orange black gravelly medium to coarse sand with cobbles. Gravel is fine to coarse angular to sub-rounded of ash, glass, brick and concrete. Cobbles are angular to sub-angular of brick and sandstone.	2
						End of pit at 2.90 m	3
							4
							5

Remarks: Complete at 2.90m bgl on rock.

Stability: Stable.





Trial Pit Log

Trialpit No

TP107

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
02/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Client: L F Europe Ltd

Depth
1.10

0.60

Scale

1:25

Logged
G. Hirst**Samples and In Situ Testing**

Depth

Type

Results

Depth
(m)Level
(m)

Legend

Stratum Description

0.70

ES

0.30

0.90

1.00

ES

1.10

MADE GROUND: Brown gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to coarse angular to sub-rounded of sandstone and brick.

MADE GROUND: Black brown gravelly medium to coarse sand with cobbles. Gravel is fine to coarse angular to sub-rounded of ash, brick, slag, concrete and cement roofing. Cobbles are angular to sub-angular of brick.

MADE GROUND: Light brown gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone and brick. Cobbles are angular to sub-angular of sandstone.

End of pit at 1.10 m

1

2

3

4

5

Remarks: Complete at 1.10m bgl on rock.

Stability: Stable.





Trial Pit Log

Trialpit No

TP108

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
02/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Depth
0.10

0.60

Scale
1:25Logged
G. Hirst

Client: L F Europe Ltd

Samples and In Situ Testing

Depth

Type

Results

Depth
(m)Level
(m)

Legend

Stratum Description

0.10

MADE GROUND: Concrete.

End of pit at 0.10 m

1

2

3

4

5

Remarks: Refused on 0.10m bgl on concrete.

Stability:





Trial Pit Log

Trialpit No
TP108a
Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -
Level:

Date
02/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

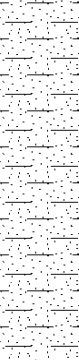
Client: L F Europe Ltd

Depth
2.40

0.60

Scale
1:25
Logged
G. Hirst

Samples and In Situ Testing

Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
0.20	ES		0.30			MADE GROUND: Dark brown slightly gravelly medium to coarse sand (Topsoil) with rootlets. Gravel is fine to coarse angular to sub-rounded of ash, slag, wood and glass.
			1.20			Light brown gravelly fine to medium SAND with cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone. Cobbles are angular to sub-angular of sandstone.
2.20	ES		2.40			Light brown slightly clayey gravelly fine to medium SAND. Gravel is fine to coarse angular to sub-rounded of sandstone.
						End of pit at 2.40 m

Remarks: Complete at 2.40m bgl on rock.

Stability: Stable.





Trial Pit Log

Trialpit No

TP109

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
02/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Client: L F Europe Ltd

Depth
1.10

0.60

Scale
1:25Logged
G. Hirst**Samples and In Situ Testing**

Depth

Type

Results

Depth
(m)Level
(m)

Legend

Stratum Description

0.40

ES

0.30

0.90

1.10

MADE GROUND: Dark brown gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to coarse angular to sub-rounded of brick and sandstone.

MADE GROUND: Light brown gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub-rounded of brick and sandstone. Cobbles are angular to sub-angular of brick and sandstone.

Yellow brown gravelly fine to medium SAND with cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone. Cobbles are angular to sub-angular of sandstone.

End of pit at 1.10 m

1

2

3

4

5

Remarks: Complete at 1.10m bgl on rock.

Stability: Stable.





Trial Pit Log

Trialpit No

TP110

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
02/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Client: L F Europe Ltd

Depth
2.30

0.60

Scale

1:25

Logged
G. Hirst**Samples and In Situ Testing**

Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
0.30	ES					MADE GROUND: Light brown gravelly medium to coarse sand with cobbles. Gravel is fine to coarse sub-angular to sub-rounded of brick, sandstone and limestone. Cobbles are angular to sub-angular of brick.
			1.10			
1.50	ES					MADE GROUND: Black dark brown slightly gravelly fine to medium sand. Gravel is fine to medium sub-angular to sub-rounded of siltstone and brick.
			1.80			
			2.30			Orange brown gravelly SAND with cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone. Cobbles are angular to sub-angular of sandstone.
						End of pit at 2.30 m

Remarks: Rock at 2.30m bgl.

Stability: Stable.





Trial Pit Log

Trialpit No

TP111

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
02/05/2017

Location: Huddersfield

Dimensions
(m):

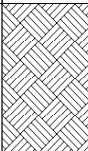
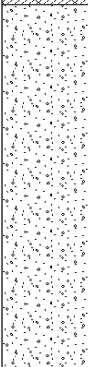
1.50

Client: L F Europe Ltd

Depth
1.70

0.60

Scale
1:25Logged
G. Hirst**Samples and In Situ Testing**

Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
0.40	ES		0.50			Black dark brown slightly gravelly fine to medium SAND (Topsoil) with rootlets. Gravel is fine to medium angular to sub-rounded of sandstone.
1.50	B		1.70			Yellow brown gravelly fine to medium SAND with cobbles. Gravel is fine to coarse angular to sub-angular of sandstone. Cobbles are angular to sub-angular of sandstone.
End of pit at 1.70 m						

1

2

3

4

5

Remarks: Rock at 1.70m bgl.

Stability: Stable.





Trial Pit Log

Trialpit No

TP112

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
02/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Client: L F Europe Ltd

Depth
1.80

0.60

Scale

1:25

Logged
G. Hirst**Samples and In Situ Testing**

Depth

Type

Results

Depth
(m)Level
(m)

Legend

Stratum Description

0.60

ES

0.20

0.80

1.80

Black dark brown slightly gravelly fine to medium SAND (Topsoil) with rootlets. Gravel is fine to medium angular to sub-rounded of sandstone.

Orange brown gravelly fine to medium SAND with cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone. Cobbles are sub-angular of sandstone.

Light brown gravelly fine to coarse SAND. Gravel is fine to coarse angular to sub-rounded of sandstone.

End of pit at 1.80 m

1

2

3

4

5

Remarks: Rock at 1.80m bgl.

Stability: Stable.





Trial Pit Log

Trialpit No

TP113

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
03/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Client: L F Europe Ltd

Depth
1.10

0.60

Scale
1:25Logged
G. Hirst**Samples and In Situ Testing**

Depth Type Results

Depth
(m)Level
(m)

Legend

Stratum Description

0.50

ES

0.20

1.10

Black dark brown slightly gravelly fine to medium SAND (Topsoil) with rootlets. Gravel is fine to medium angular to sub-rounded of sandstone.

Light brown slightly gravelly slightly clayey fine to medium SAND. Gravel is fine to medium sub-angular to sub-rounded of sandstone.

End of pit at 1.10 m

1

2

3

4

5

Remarks: Rock at 1.10m bgl.

Stability: Stable.





Trial Pit Log

Trialpit No

TP114

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
03/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Client: L F Europe Ltd

Depth
1.10

0.60

Scale
1:25Logged
G. Hirst**Samples and In Situ Testing**

Depth

Type

Results

Depth
(m)Level
(m)

Legend

Stratum Description

0.10

ES

0.20

0.60

1.10

MADE GROUND: Brown gravelly sand (Topsoil) with rootlets. Gravel is fine to medium sub-angular to sub-rounded of sandstone, plastic and slate.

Brown gravelly fine to medium SAND. Gravel is fine to coarse angular to sub-rounded of sandstone.

Light brown slightly clayey gravelly fine to medium SAND. Gravel is fine to coarse angular to sub-rounded of sandstone.

End of pit at 1.10 m

1

2

3

4

5

Remarks:

Stability:





Trial Pit Log

Trialpit No

TP115

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
03/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Client: L F Europe Ltd

Depth
2.70

0.60

Scale
1:25Logged
G. Hirst**Samples and In Situ Testing**

Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
0.10	ES		0.20			MADE GROUND: Dark brown gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to coarse angular to sub-rounded of limestone, sandstone and brick.
						MADE GROUND: Yellow brown gravelly fine to medium sand with frequent cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone and brick. Cobbles are angular to sub-rounded of sandstone.
			1.80			MADE GROUND: Firm dark brown black sandy gravelly clay (reworked). Gravel is fine to coarse angular to sub-rounded of sandstone, brick and concrete.
2.20	ES		2.70			End of pit at 2.70 m

Remarks: Complete.

Stability: Stable.





Trial Pit Log

Trialpit No

TP116

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
03/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Client: L F Europe Ltd

Depth
1.50

0.60

Scale
1:25Logged
G. Hirst**Samples and In Situ Testing**

Depth Type Results

Depth
(m)Level
(m)

Legend

Stratum Description

0.90

ES

0.20

0.60

1.50

MADE GROUND: Dark brown gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to medium sub-angular to sub-rounded of sandstone and brick.

MADE GROUND: Light brown gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub-rounded of limestone, sandstone and brick. Cobbles are angular to sub-angular of sandstone and brick.

MADE GROUND: Dark brown gravelly medium to coarse sand with cobbles and boulders. Gravel is fine to coarse angular to sub-rounded of sandstone, brick, concrete and slag. Cobbles and boulders are angular to sub-angular of sandstone and brick.

End of pit at 1.50 m

1

2

3

4

5

Remarks: Terminated at 1.50m bgl due to obstruction.

Stability: Stable.





Trial Pit Log

Trialpit No

TP117

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
03/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Client: L F Europe Ltd

Depth
2.30

0.60

Scale

1:25

Logged
G. Hirst**Samples and In Situ Testing**

Depth

Type

Results

Depth
(m)Level
(m)

Legend

Stratum Description

1.10

ES

0.30

1.20

2.30

MADE GROUND: Dark brown gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to medium sub-angular to sub-rounded of sandstone and brick.

MADE GROUND: Light brown gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone, rare coal and rare slag. Cobbles are angular to sub-angular of sandstone.

Brown gravelly fine to medium SAND with frequent cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone and rare coal. Cobbles are angular to sub-angular of sandstone.

End of pit at 2.30 m

1

2

3

4

5

Remarks: Terminated at 2.30m bgl due to collapse.

Stability: Unstable.





Trial Pit Log

Trialpit No

TP118

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
03/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Client: L F Europe Ltd

Depth
1.90

0.60

Scale
1:25Logged
G. Hirst**Samples and In Situ Testing**

Depth Type Results

Depth
(m)Level
(m)

Legend

Stratum Description

0.40

ES

0.90

1.90

MADE GROUND: Black gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub-rounded of brick, sandstone, slag, concrete, glass and ash. Cobbles are angular of brick.

MADE GROUND: Brown gravelly fine to medium sand with rootlets, cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone and brick. Cobbles are angular of brick and sandstone.

End of pit at 1.90 m

1

2

3

4

5

Remarks: Complete at 1.90m bgl on rock.

Stability: Stable.





Trial Pit Log

Trialpit No

TP119

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
03/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Client: L F Europe Ltd

Depth
2.70

0.60

Scale

1:25

Logged
G. Hirst**Samples and In Situ Testing**

Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
0.80	ES		0.30			MADE GROUND: Dark brown gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to coarse angular to sub-rounded of sandstone, mudstone and brick.
						MADE GROUND: Brown gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone, brick, slag, ceramic, wood and ash. Cobbles are angular to sub-angular of brick.
			1.50			MADE GROUND: Brown sandy gravelly clay (reworked) with cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone, brick, slag, glass, ceramic and ash. Cobbles are angular to sub-angular of brick.
2.30	ES		2.70			End of pit at 2.70 m

Remarks: Complete.

Stability: Stable.





Trial Pit Log

Trialpit No

TP120

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
03/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Client: L F Europe Ltd

Depth
2.50

0.60

Scale

1:25

Logged
G. Hirst**Samples and In Situ Testing**

Depth

Type

Results

Depth
(m)Level
(m)

Legend

Stratum Description

0.30

1.70

ES

1.50

2.00

2.10

ES

2.50

MADE GROUND: Dark brown gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to coarse angular to sub-rounded of sandstone and rare brick.

Brown gravelly fine to medium SAND with cobbles and boulders. Gravel is fine to coarse angular to sub-angular of sandstone. Cobbles and boulders are angular of sandstone.

Black slightly silty peaty fine to medium SAND.

Yellow brown gravelly clayey fine to medium SAND with cobbles and boulders. Gravel is fine to coarse angular to sub-rounded of sandstone and rare coal.

End of pit at 2.50 m

1

2

3

4

5

Remarks: Complete.

Stability: Stable.





Trial Pit Log

Trialpit No

TP121

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
03/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Client: L F Europe Ltd

Depth
0.60

0.60

Scale
1:25Logged
G. Hirst**Samples and In Situ Testing**

Depth

Type

Results

Depth
(m)Level
(m)

Legend

Stratum Description

0.30

ES

0.10

0.40

0.60

MADE GROUND: Black dark brown gravelly fine to medium sand. Gravel is fine to coarse angular to sub-rounded of limestone and sandstone.

MADE GROUND: Black gravelly medium to coarse sand. Gravel is fine to coarse angular to sub-rounded of sandstone, brick and ash.

Yellow brown gravelly fine to medium SAND with cobbles and boulders. Gravel is fine to coarse angular to sub-rounded of sandstone. Cobbles are angular to sub-angular of sandstone.

End of pit at 0.60 m

1

2

3

4

5

Remarks: Complete at 0.60m bgl on rock.

Stability: Stable.





Trial Pit Log

Trialpit No

TP122

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
03/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Client: L F Europe Ltd

Depth
2.80

0.60

Scale
1:25Logged
G. Hirst**Samples and In Situ Testing**

Depth Type Results

Depth
(m)Level
(m)

Legend

Stratum Description

1.00

ES

0.30

0.60

1.40

2.80

MADE GROUND: Dark brown slightly clayey gravelly fine to medium sand with rootlets. Gravel is fine to coarse sub-angular to sub-rounded of sandstone, mudstone and brick.

MADE GROUND: Brown gravelly medium to coarse sand with cobbles. Gravel is fine to coarse angular to sub-rounded of brick, sandstone, concrete and rare ash. Cobbles are angular to sub-angular of brick.

MADE GROUND: Brown sandy gravelly clay (reworked) with cobbles. Gravel is fine to coarse angular to sub-rounded of brick, sandstone and rare ash. Cobbles are angular to sub-angular of brick and sandstone.

MADE GROUND: Dark brown gravelly medium to coarse sand with cobbles. Gravel is fine to coarse angular to sub-rounded of brick, sandstone, glass, slate and clay pipe. Cobbles are angular to sub-angular of brick and sandstone.

End of pit at 2.80 m

1

2

3

4

5

Remarks: Complete.

Stability: Stable.





Trial Pit Log

Trialpit No

TP123

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
03/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Client: L F Europe Ltd

Depth
1.50

0.60

Scale
1:25Logged
G. Hirst**Samples and In Situ Testing**

Depth Type Results

Depth
(m)Level
(m)

Legend

Stratum Description

0.20

ES

0.30

1.00
1.00B
ES

1.50

Dark brown slightly gravelly fine to medium SAND (Topsoil) with rootlets.

Light brown slightly clayey gravelly fine to medium SAND with cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone. Cobbles are angular to sub-angular of sandstone.

End of pit at 1.50 m

1

2

3

4

5

Remarks: Complete at 1.50m bgl on rock.

Stability: Stable.





Trial Pit Log

Trialpit No

TP124

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
03/05/2017

Location: Huddersfield

Dimensions
(m):

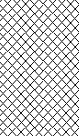
1.50

Client: L F Europe Ltd

Depth
1.70

0.60

Scale
1:25Logged
G. Hirst**Samples and In Situ Testing**

Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
0.20	ES					MADE GROUND: Dark brown slightly clayey slightly gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to coarse angular to sub-rounded of sandstone and brick.
			0.50			MADE GROUND: Brown slightly clayey slightly gravelly fine to medium sand. Gravel is fine to medium angular to sub-rounded of sandstone and brick.
			0.80			Yellow brown gravelly fine to medium SAND with cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone. Cobbles are angular of sandstone.
			1.70			End of pit at 1.70 m

1
2
3
4
5

Remarks: Complete on rock at 1.70m bgl.

Stability: Stable.





Trial Pit Log

Trialpit No

TP125

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
03/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Client: L F Europe Ltd

Depth
0.95

0.60

Scale
1:25Logged
G. Hirst**Samples and In Situ Testing**

Depth Type Results

Depth
(m)Level
(m)

Legend

Stratum Description

0.60

ES

0.20

0.90
0.95

MADE GROUND: Brown gravelly fine to medium sand. Gravel is fine to coarse angular to sub-rounded of limestone, sandstone and brick.

MADE GROUND: Dark brown gravelly medium to coarse sand with cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone, brick, concrete and slag. Cobbles are angular to sub-angular of sandstone and brick.

MADE GROUND: Concrete.

End of pit at 0.95 m

1

2

3

4

5

Remarks: Terminated at 0.95m bgl on concrete.

Stability: Stable.





Trial Pit Log

Trialpit No

TP126

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
04/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Client: L F Europe Ltd

Depth
2.30

0.60

Scale
1:25Logged
G. Hirst**Samples and In Situ Testing**

Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description	
0.60	ES		0.30			MADE GROUND: Brown sandy gravel. Gravel is fine to coarse angular to sub-rounded of limestone, sandstone and brick.	
			0.50			MADE GROUND: Yellow brown gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone, brick and ash. Cobbles are sub-angular of sandstone and brick.	
			1.00			MADE GROUND: Black brown gravelly medium to coarse sand. Gravel is fine to coarse angular to sub-rounded of ash, brick and sandstone.	
		HVP=82	1.60			Stiff high strength yellow brown sandy CLAY.	1
1.80	D					Stiff to very stiff very high strength light brown slightly sandy CLAY.	
2.00	ES	HP=172	2.30				2
						End of pit at 2.30 m	3
							4
							5

Remarks: Complete at 2.30m bgl on rock.

Stability: Stable.





Trial Pit Log

Trialpit No

TP127

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
04/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Client: L F Europe Ltd

Depth
1.20

0.60

Scale
1:25Logged
G. Hirst**Samples and In Situ Testing**

Depth

Type

Results

Depth
(m)Level
(m)

Legend

Stratum Description

0.40

ES

0.20
0.30

1.20

MADE GROUND: Brown gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to medium angular to sub-rounded of limestone and sandstone.

MADE GROUND: Grey black sandy gravel. Gravel is fine to medium angular to sub-angular of limestone.

MADE GROUND: Grey light brown sandy gravel. Gravel is medium to coarse angular to sub-angular of limestone.

End of pit at 1.20 m

1

2

3

4

5

Remarks: Complete on rock at 1.20m bgl.

Stability: Stable.





Trial Pit Log

Trialpit No

TP128

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
04/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Client: L F Europe Ltd

Depth
1.90

0.60

Scale
1:25Logged
G. Hirst**Samples and In Situ Testing**

Depth

Type

Results

Depth
(m)Level
(m)

Legend

Stratum Description

1.20

ES

0.20

1.90

Brown gravelly fine to medium SAND (Topsoil) with rootlets. Gravel is fine to coarse angular to sub-rounded of sandstone.

Brown slightly clayey gravelly fine to medium SAND with cobbles and boulders. Gravel is fine to coarse angular to sub-rounded of sandstone and siltstone. Cobbles and boulders are angular to sub-angular of sandstone.

End of pit at 1.90 m

1

2

3

4

5

Remarks: Terminated at 1.90m bgl due to continued collapse of side walls.

Stability: Unstable.





Trial Pit Log

Trialpit No

TP129

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
04/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Client: L F Europe Ltd

Depth
3.30

0.60

Scale

1:25

Logged
G. Hirst**Samples and In Situ Testing**

Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
1.50	ES		0.30			MADE GROUND: Brown gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to medium angular to sub-rounded of limestone and sandstone.
						MADE GROUND: Light brown gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone and rare slag. Cobbles are angular to sub-angular of sandstone.
			0.90			MADE GROUND: Dark brown black slightly clayey gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub-rounded of brick, slate, sandstone, slag, ash, coal and plastic. Cobbles are angular to sub-angular of brick.
			3.30			End of pit at 3.30 m

1

2

3

4

5

Remarks: Complete.

Stability: Stable.





Trial Pit Log

Trialpit No

TP130

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
04/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Client: L F Europe Ltd

Depth
2.00

0.60

Scale
1:25Logged
G. Hirst**Samples and In Situ Testing**

Depth Type Results

Depth
(m)Level
(m)

Legend

Stratum Description

0.10

ES

0.15

MADE GROUND: Grey brown sandy gravel. Gravel is medium to coarse angular to sub-rounded of limestone and brick.

MADE GROUND: Dark brown gravelly medium to coarse sand with cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone, brick and rare coal. Cobbles are angular to sub-angular of brick and sandstone.

0.90

Light brown gravelly fine to medium SAND with cobbles and occasional boulders. Gravel is fine to coarse angular to sub-rounded of sandstone and rare coal. Cobbles and boulders are angular of sandstone.

1.60

ES

2.00

End of pit at 2.00 m

1

2

3

4

5

Remarks: Walls collapsing from 0.90m bgl/

Stability: Unstable.





Trial Pit Log

Trialpit No

TP131

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
04/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Client: L F Europe Ltd

Depth
2.10

0.60

Scale

1:25

Logged
G. Hirst**Samples and In Situ Testing**

Depth

Type

Results

Depth
(m)Level
(m)

Legend

Stratum Description

0.90

ES

2.10

MADE GROUND: Black gravelly medium to coarse sand with cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone, ash, brick, slag, concrete and metal. Cobbles are angular to sub-angular of sandstone.

End of pit at 2.10 m

1

2

3

4

5

Remarks: Complete.

Stability: Stable.





Trial Pit Log

Trialpit No

TP132

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
04/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Client: L F Europe Ltd

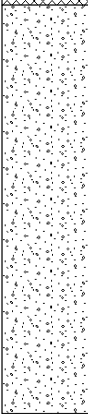
Depth
1.60

0.60

Scale

1:25

Logged
G. Hirst**Samples and In Situ Testing**

Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
0.20	ES		0.25			MADE GROUND: Dark brown gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to coarse angular to sub-rounded of sandstone and brick.
1.40	ES		1.60			Brown gravelly fine to medium SAND with cobbles and boulders. Gravel is fine to coarse angular to sub-rounded of sandstone.
End of pit at 1.60 m						

1

2

3

4

5

Remarks: Terminated due to walls collapsing.

Stability: Unstable.





Trial Pit Log

Trialpit No

TP133

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
04/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Client: L F Europe Ltd

Depth
1.30

0.60

Scale
1:25Logged
G. Hirst**Samples and In Situ Testing**

Depth

Type

Results

Depth
(m)Level
(m)

Legend

Stratum Description

1.00

ES

1.30

MADE GROUND: Dark brown gravelly fine to medium sand with cobbles and boulders. Gravel is fine to coarse angular to sub-rounded of sandstone, brick, concrete, limestone, plastic, ash and metal. Cobbles are angular of sandstone and brick. Boulders are angular of sandstone.

End of pit at 1.30 m

1

2

3

4

5

Remarks: Terminated at 1.30m bgl due to concrete obstruction.

Stability: Stable.





Trial Pit Log

Trialpit No

TP134

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
04/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Client: L F Europe Ltd

Depth
1.50

0.60

Scale
1:25Logged
G. Hirst**Samples and In Situ Testing**

Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
0.10	ES		0.20			MADE GROUND: Yellow brown sandy gravel. Gravel is medium to coarse sub-angular to sub-rounded of sandstone.
1.30	ES		1.50			MADE GROUND: Brown gravelly fine to medium sand with cobbles and boulders. Gravel is fine to coarse angular to sub-rounded of sandstone, brick, metal, concrete, slate, rare wood and rare slag. cobbles are angular to sub-angular of concrete and sandstone. Boulders are angular of concrete.
End of pit at 1.50 m						

1

2

3

4

5

Remarks: Terminated due to obstruction.

Stability: Stable.





Trial Pit Log

Trialpit No

TP135

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822Co-ords: -
Level:Date
04/05/2017

Location: Huddersfield

Dimensions
(m):

1.50

Client: L F Europe Ltd

Depth
1.70

0.60

Scale
1:25Logged
G. Hirst**Samples and In Situ Testing**

Depth Type Results

Depth
(m)Level
(m)

Legend

Stratum Description

1.60

ES

0.20

1.70

MADE GROUND: Black brown gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to medium sub-angular to sub-rounded of sandstone, brick and limestone.

MADE GROUND: Dark brown gravelly medium to coarse sand with cobbles and boulders. Gravel is fine to coarse angular to sub-rounded of sandstone, brick, slate, slag, ash, metal, glass, plastic and wood. Cobbles and boulders are angular to sub-angular of concrete, brick and sandstone.

End of pit at 1.70 m

1

2

3

4

5

Remarks: Terminated due to walls collapsing.

Stability: Unstable.





Borehole Log

Borehole No.

WS101

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 04/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10	ES	N=2 (1,1/0,0,1,1)	0.10			MADE GROUND: Grey sandy gravel. Gravel is fine to medium sub-angular of limestone.	1
		0.40			0.40			MADE GROUND: Light grey sandy gravel. Gravel is fine to coarse angular to sub-angular of sandstone.	
		0.70			1.00			MADE GROUND: Red brown slightly clayey gravelly fine to medium sand. Gravel is fine to medium angular to sub-angular of metal with white powder.	
		1.00			1.80			MADE GROUND: Very loose grey sandy gravel. Gravel is fine to coarse angular to sub-angular of concrete, sandstone.	
		2.00			3.00			MADE GROUND: Loose brown clayey sandy gravel. Gravel is fine to coarse angular to sub-angular of sandstone.	
		3.00	N=3 (2,2/1,1,1,0)	N=3 (2,2/1,1,1,0)	3.00			MADE GROUND: Very loose grey brown sandy gravel. Gravel is fine to coarse angular to sub-angular of sandstone.	3
		4.00			4.00				
		5.00			5.00				
		5.45	N=12 (3,3/3,3,3,3)	N=12 (3,3/3,3,3,3)	5.45			End of borehole at 5.45 m	5

Remarks

1. Complete. 2. Monitoring well installed.





Borehole Log

Borehole No.

WS102

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 02/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.05			Brown fine to medium SAND (Topsoil) with rootlets.	
					0.35			Weathered SANDSTONE.	
		1.00		N=8 (1,1/1,2,2,3)	0.90			Dark brown slightly gravelly clayey fine to medium SAND. Gravel is fine to medium sub-angular of coal and sandstone.	1
								Loose weathered SANDSTONE.	
		2.00		N=6 (1,1/1,1,2,2)	2.10 2.20			Soft light brown gravelly sandy CLAY. Gravel is fine to medium sub-angular of sandstone.	2
								Dense weathered SANDSTONE.	
		3.00		50 (6,6/50 for 60mm)					3
					3.45			End of borehole at 3.45 m	
									4
									5
									6
									7
									8
									9
									10

Remarks

Refused on sandstone at 3.45m bgl.





Borehole Log

Borehole No.

WS103

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

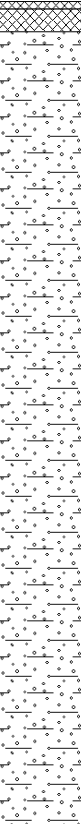
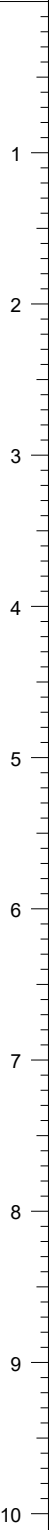
Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 02/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10	ES		0.05 0.20			MADE GROUND: Dark brown gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to coarse angular to sub-angular of concrete, brick and clinker. MADE GROUND: Dark grey gravelly fine to coarse sand. Gravel is fine to medium angular to sub-angular of clinker and ash. Loose light brown slightly clayey sandy GRAVEL. Gravel is fine to coarse angular to sub-rounded of sandstone.	
		1.00		N=7 (4,2/2,2,0,3)					
		2.00		N=10 (2,3/2,3,2,3)					
		3.00		N=9 (7,3/2,2,3,2)					
		4.00		N=8 (4,2/3,2,1,2)					
		5.00		N=11 (4,2/3,2,3,3)					
					5.45			End of borehole at 5.45 m	

Remarks
Complete.



Borehole Log

Borehole No.

WS104

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 02/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.10			MADE GROUND: Soft dark brown slightly gravelly clay (Topsoil) with rootlets. Gravel is fine to coarse angular to sub-angular of brick and sandstone.	
		1.00	ES	N=2 (1,1/0,0,1,1)	1.10			MADE GROUND: Dark brown clayey gravelly fine to medium sand. Gravel is fine to coarse angular to sub-rounded of sandstone and mudstone.	1
		1.20							
		2.00		N=4 (1,0/1,0,2,1)				MADE GROUND: Firm low strength to stiff medium strength brown slightly gravelly sandy clay. Gravel is fine to coarse angular to sub-angular of sandstone, brick and rare clinker.	2
		3.00		N=15 (1,1/2,0,5,8)					3
					3.50				
		4.00		N=4 (2,2/1,1,1,1)				Loose to medium dense light orange brown sandy GRAVEL. Gravel is fine to coarse angular to sub-angular of sandstone.	4
		5.00		N=14 (3,3/4,3,4,3)					5
					5.45			End of borehole at 5.45 m	6
									7
									8
									9
									10

Remarks

1. Complete. 2. Monitoring well installed.





Borehole Log

Borehole No.

WS105

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 02/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
			ES	N=9 (2,2/2,2,2,3)	0.08			MADE GROUND: Asphalt.	
					0.15			MADE GROUND: Light grey sandy gravel. Gravel is medium to coarse angular to sub-angular of limestone.	
					0.55			MADE GROUND: Red sandy gravel. Gravel is fine to coarse angular to sub-angular of sandstone and brick.	
		1.00			0.70			SANDSTONE cobbles	
		1.40			1.10			Loose light brown gravelly fine to medium SAND. Gravel is fine to medium angular to sub-angular of sandstone.	1
				50 (9,11/50 for 40mm)	1.50			Brown slightly clayey fine to medium SAND. Dense light brown sandy GRAVEL. Gravel is fine to coarse angular to sub-angular of sandstone.	2
		2.00							
					2.45			End of borehole at 2.45 m	
									3
									4
									5
									6
									7
									8
									9
									10

Remarks

Refused on sandstone at 2.45m bgl.





Borehole Log

Borehole No.

WS106

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 02/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.10			MADE GROUND: Asphalt.	
								Very loose light brown slightly clayey very gravelly fine to medium SAND. Gravel is fine to coarse angular to sub-angular of sandstone.	
		1.00		N=3 (1,1/0,1,1,1)					1
		2.00		N=2 (2,1/0,1,1,0)					2
		3.00		N=9 (2,2/2,3,2,2)					3
		4.00		N=8 (2,2/1,3,2,2)					4
		5.00		N=6 (3,2/2,1,1,2)					5
					5.45				
								End of borehole at 5.45 m	6
									7
									8
									9
									10

Remarks

1. Complete. 2. Monitoring well installed.





Borehole Log

Borehole No.

WS107

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 02/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
			ES	50 (25 for 35mm/50 for 30mm)	0.05			MADE GROUND: Dark brown slightly gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to coarse angular to subangular of sandstone. Very dense light brown sandy GRAVEL with occasional cobbles. Gravel is fine to coarse angular to sub-angular of sandstone. Cobbles are sub-angular of sandstone.	1
		0.50							
		1.00							
					1.45			End of borehole at 1.45 m	10

Remarks

Refused on sandstone at 1.45m bgl.





Borehole Log

Borehole No.

WS108

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 02/05/2017 -

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES		0.30			MADE GROUND: Grey brown sandy gravel. Gravel is fine to medium angular to sub-angular of limesotne.	
		1.00	ES	N=34 (3,3/6,5,9,14)	0.90			Yellow brown slightly clayey gravelly fine to medium SAND. Gravel is fine to medium angular to sub-rounded of sandstone.	
		1.10			1.20			Dense orange brown slightly clayey slightly gravelly fine to medium SAND. Gravel is fine to medium angular to sub-rounded of sandstone.	1
		1.60		50 (25 for 30mm/50 for 60mm)	1.80			Dense yellow brown gravelly fine to medium SAND. Gravel is fine to medium angular to sub-rounded of sandstone.	
								End of borehole at 1.80 m	2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks

Refused at 1.80m bgl.





Borehole Log

Borehole No.

WS109

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

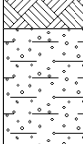
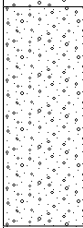
Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 02/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		0.10	ES	N=38 (5,7/8,10,10,10)	0.20			Dark brown slightly gravelly fine to medium SAND (Topsoil) with rootlets. Gravel is fine to medium sub-angular of sandstone.	1	
		1.00			1.00			Light brown slightly clayey sandy GRAVEL. Gravel is medium to coarse angular to sub-angular of sandstone.		
		2.00			50 (7,6/50 for 40mm)			Dense light brown very sandy GRAVEL. Gravel is fine to coarse angular to sub-angular of sandstone.		
				2.45		End of borehole at 2.45 m				2
										3
										4
										5
										6
										7
										8
										9
										10

Remarks

Refused on sandstone at 2.45m bgl.





Borehole Log

Borehole No.

WS110

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 04/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.20			MADE GROUND: Red brown sandy gravel. Gravel is fine to medium angular to sub-angular of mudstone.	
		0.55	ES		0.50			MADE GROUND: Light brown sandy gravel. Gravel is fine to coarse angular to sub-angular of sandstone.	
		1.00		N=6 (3,3/2,2,1,1)	0.65			MADE GROUND: Dark brown gravelly fine to medium sand. Gravel is fine to coarse angular to sub-angular of clinker and rare ash.	1
		2.00		N=6 (2,1/2,1,2,1)	1.85			MADE GROUND: Loose dark brown slightly clayey gravelly fine to medium sand. Gravel is fine to coarse sub-angular of sandstone.	2
		3.00		N=2 (4,2/1,0,0,1)				Loose light brown very gravelly fine to medium SAND. Gravel is fine to coarse angular to sub-angular of sandstone.	3
		4.00		N=8 (2,3/3,3,1,1)				Stiff medium strength brown very sandy CLAY.	4
		5.00		N=11 (2,3/1,1,1,8)	4.80				5
					5.45			End of borehole at 5.45 m	6
									7
									8
									9
									10

Remarks

1. Complete. 2. Monitoring well installed.





Borehole Log

Borehole No.

WS111

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 03/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.05			0.05			MADE GROUND: Dark brown gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to coarse angular to sub-angular of rare brick and sandstone.	
		0.20			0.20			MADE GROUND: Light grey brown gravelly fine to medium sand. Gravel is fine to coarse angular to sub-angular of sandstone and rare clinker.	
		1.00		N=4 (1,1/1,1,1,1)	1.50			Loose light brown slightly gravelly clayey fine to medium SAND. Gravel is fine to medium sub-angular of sandstone.	1
		2.00		N=1 (2,1/0,0,0,1)	2.20			Light brown sandy GRAVEL. Gravel is fine to coarse angular to sub-angular of sandstone.	2
		2.40			2.40			Firm light brown gravelly CLAY. Gravel is fine to medium angular to sub-angular of sandstone.	
		3.00		N=13 (3,3/2,3,5,3)				Medium dense to dense light brown sandy GRAVEL. Gravel is fine to coarse angular to sub-angular of sandstone.	3
		4.00		50 (6,6/50 for 50mm)	4.45				4
								End of borehole at 4.45 m	5
									6
									7
									8
									9
									10

Remarks

Refused on sandstone at 4.45m bgl.





Borehole Log

Borehole No.

WS112

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 03/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.15	ES	50 (8, 1/50 for 40mm)	0.15			MADE GROUND: Dark brown gravelly fine to medium sand. Gravel is fine to coarse angular to sub-angular of brick, concrete and sandstone. Light brown gravelly fine to medium SAND. Gravel is fine to coarse angular to sub-angular of sandstone. Very dense light brown sandy GRAVEL. Gravel is fine to coarse angular to sub-angular of sandstone. End of borehole at 1.05 m	1
		0.60			0.35				
					1.05				
									2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks

Refused on sandstone at 1.05m bgl.





Borehole Log

Borehole No.

WS113

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 03/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
			ES		0.08			MADE GROUND: Asphalt. Light brown slightly clayey gravelly fine to medium SAND. Gravel is fine to medium angular to sub-angular of sandstone.	1
		1.00 1.00		N=19 (2,2/3,3,6,7)	1.20				
		1.70		50 (25 for 30mm/50 for 45mm)	2.15			Dense light brown sandy GRAVEL. Gravel is fine to coarse angular to sub-angular of sandstone.	2
								End of borehole at 2.15 m	3
									4
									5
									6
									7
									8
									9
									10

Remarks

Refused on sandstone at 2.15m bgl.





Borehole Log

Borehole No.

WS114

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

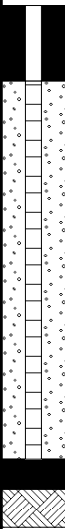
Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 03/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.10			MADE GROUND: Dark brown gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to medium angular to sub-angular of sandstone, concrete and coal.	
					0.40				
		1.00		N=8 (2,2/3,1,2,2)				MADE GROUND: Grey sandy gravel with cobbles. Gravel is fine to coarse angular to sub-angular of concrete. Cobbles are sub-angular of concrete.	1
		2.00 2.00	ES	N=14 (2,3/3,2,4,5)				Loose to dense light brown gravelly fine to medium SAND with occasional cobbles. Gravel is fine to coarse angular to sub-angular of sandstone. Cobbles are sub-angular of sandstone.	2
		3.00		50 (5,3/50 for 60mm)					3
					3.45			End of borehole at 3.45 m	4
									5
									6
									7
									8
									9
									10

Remarks

1. Refused on sandstone at 3.45m bgl. 2. Monitoring well installed.





Borehole Log

Borehole No.

WS115

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

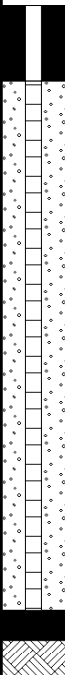
Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 03/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.20			MADE GROUND: Dark grey sandy gravel. Gravel is fine to medium angular to sub-angular of concrete, mudstone and rare brick.	
					0.70			MADE GROUND: Dark brown gravelly fine to medium sand with occasional cobbles. Gravel is fine to coarse angular to sub-angular of sandstone and clinker. Cobbles are sub-angular of sandstone.	1
		1.00		N=7 (2,2/2,2,1,2)					
		1.60	ES		1.50			MADE GROUND: Firm low strength light brown gravelly sandy clay. Gravel is fine to medium angular to sub-angular of mudstone and sandstone.	
		2.00		N=13 (4,3/3,3,3,4)				MADE GROUND: Medium dense dark red brown gravelly fine to coarse sand. Gravel is fine to medium angular to sub-angular of brick, mudstone and clinker.	2
		3.00		N=6 (1,1/1,1,2,2)					3
		4.00		50 (2,2/50 for 65mm)					4
					4.45			End of borehole at 4.45 m	5
									6
									7
									8
									9
									10

Remarks

1. Refused on concrete cobbles at 4.45m bgl. 2. Monitoring well installed.





Borehole Log

Borehole No.

WS116

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

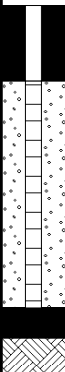
Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 03/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.40	ES		0.30			MADE GROUND: Dark grey slightly gravelly fine to medium sand. Gravel is fine to medium angular to sub-angular of brick and sandstone.	
					0.50			MADE GROUND: Dark grey fine to coarse sand.	
		1.00		N=12 (3,3/3,3,3,3)				Medium dense to dense brown slightly gravelly fine to medium SAND with occasional cobbles. Gravel is fine to coarse sub-angular of sandstone. Cobbles are sub-angular of sandstone.	1
		2.00		50 (25 for 50mm/50 for 30mm)					2
					2.45			End of borehole at 2.45 m	3
									4
									5
									6
									7
									8
									9
									10

Remarks

1. Refused on sandstone at 2.45m bgl. 2. Monitoring well installed.





Borehole Log

Borehole No.

WS117

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

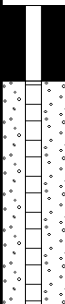
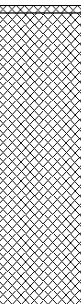
Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 04/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.40	ES		0.05			MADE GROUND: Brown gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to medium sub-angular of sandstone. MADE GROUND: Dark brown gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub-angular of brick, sandstone, shale and rare coal. Cobbles are sub-angular of brick, sandstone and concrete.	1
					2.05			End of borehole at 2.05 m	2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks

1. Refused on cobble at 2.05m bgl. 2. Monitoring well installed.





Borehole Log

Borehole No.

WS118

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

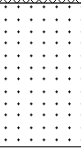
Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 04/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30	ES		0.50			MADE GROUND: Dark brown fine to medium sand (Topsoil) with rootlets.	
		1.00		50 (7,7/50 for 15mm)				Very dense weathered SANDSTONE.	1
					1.45			End of borehole at 1.45 m	
									2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks

Refused on sandstone at 1.45m bgl.





Borehole Log

Borehole No.

WS119

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

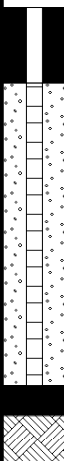
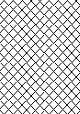
Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 04/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.08			MADE GROUND: Asphalt.	
		1.00		N=8 (2,2/2,2,2,2)	1.30			MADE GROUND: Loose brown gravelly fine to medium sand with cobbles. Gravel is fine to coarse sub-angular to sub-rounded of sandstone. Cobbles are sub-angular of sandstone.	1
		1.40	ES		1.50			MADE GROUND: Dark brown slightly gravelly clayey fine to medium sand. Gravel is fine sub-angular of sandstone and rare clinker.	
		2.00		N=38 (10,10/10,12,8,8)				Dense brown slightly gravelly clayey fine to medium SAND. Gravel is fine to medium sub-angular to sub-rounded of sandstone.	2
		2.50	ES		2.50			Very stiff very high strength brown sandy gravelly CLAY with cobbles. Gravel is fine to coarse angular to sub-angular of sandstone. Cobbles are sub-angular of sandstone.	
		2.60		50 (25 for 55mm/50 for 10mm)					3
					3.05			End of borehole at 3.05 m	
									4
									5
									6
									7
									8
							9		
							10		

Remarks

1. Refused on sandstone at 3.05m bgl. 2. Monitoring well installed.





Borehole Log

Borehole No.

WS120

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 03/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		0.40	ES	N=39 (2,8/7,8,9,15)	0.10			MADE GROUND: Dark grey sandy gravel. Gravel is angular to sub-angular of concrete, brick, ash and asphalt.	1	
					0.50					MADE GROUND: Dark grey black sandy gravel with cobbles. Gravel is fine to coarse angular to sub-angular of brick and asphalt. Cobbles are angular of brick.
		1.00	D		0.90					
		1.00	ES	1.30	MADE GROUND: Firm brown slightly gravelly sandy clay. Gravel is fine sub-angular of mudstone.					
		1.80		50 (25 for 45mm/50 for 40mm)				Firm light brown very sandy CLAY. Dense weathered SANDSTONE.		
				2.45			End of borehole at 2.45 m	2		
								3		
								4		
								5		
								6		
								7		
								8		
								9		
								10		

Remarks

Refused on sandstone at 2.45m bgl.





Borehole Log

Borehole No.

WS121

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 04/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30	ES		0.05			MADE GROUND: Asphalt.	
					0.20			MADE GROUND: Dark brown black gravelly fine to coarse sand. Gravel is fine to coarse angular to sub-angular of brick, glass, ash and coal.	
					0.45			MADE GROUND: Dark brown clayey gravelly fine to medium sand. Gravel is fine to coarse angular to sub-angular of brick and coal.	
		1.00		50 (5,6/50 for 60mm)	0.85			Firm light brown slightly gravelly sandy CLAY. Gravel is fine to coarse sub-angular of sandstone.	1
					1.45			Very dense weathered SANDSTONE.	2
								End of borehole at 1.45 m	3
									4
									5
									6
									7
									8
									9
									10

Remarks

Refused on sandstone at 1.45m bgl.





Borehole Log

Borehole No.

WS122

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

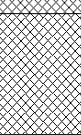
Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 04/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
			ES	50 (5,6/50 for 30mm)	0.10			MADE GROUND: Concrete.	1
		0.50						MADE GROUND: Dark brown slightly gravelly slightly clayey fine to medium sand. Gravel is fine sub-angular of rare brick and coal.	
		1.00			0.90			Very dense weathered SANDSTONE.	
					1.45			End of borehole at 1.45 m	
									2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks

Refused on sandstone at 1.45m bgl.





Borehole Log

Borehole No.

WS123

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

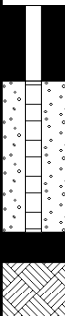
Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 04/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
			ES		0.10			MADE GROUND: Grey sandy gravel. Gravel is fine to medium angular to sub-angular of concrete, limestone and rare brick.	
					0.25			MADE GROUND: Black gravelly fine to medium sand. Gravel is fine to medium angular to sub-angular of brick and concrete.	
					0.45			MADE GROUND: Brick cobbles.	
		1.00		N=25 (3,4/3,5,7,10)	1.10			MADE GROUND: Dark brown clayey fine to medium sand.	1
		1.20						Dense light brown sandy GRAVEL. Gravel is fine to coarse angular to sub-angular of sandstone.	
		1.70		50 (9,10/50 for 5mm)					2
					2.15			End of borehole at 2.15 m	
									3
									4
									5
									6
									7
									8
									9
									10

Remarks

1. Refused on sandstone at 2.15m bgl. 2. Monitoring well installed.





Borehole Log

Borehole No.

WS124

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 04/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30	ES	50 (5,12/50 for 60mm)	0.15			MADE GROUND: Grey sandy gravel. Gravel is fine to medium angular to sub-angular of concrete, limestone and rare brick.	1
		0.60			0.40				
					1.05				
								Very dense brown sandy GRAVEL. Gravel is fine to coarse angular to sub-angular of sandstone. End of borehole at 1.05 m	10

Remarks

Refused on sandstone at 1.05m bgl.





Borehole Log

Borehole No.

WS125

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 04/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.25			MADE GROUND: Grey sandy gravel. Gravel is fine to medium angular to sub-angular of concrete, limestone and rare brick.	
					0.70			MADE GROUND: Dark brown slightly gravelly fine to medium sand. Gravel is fine to medium angular of brick. Cobbles are sub-angular of concrete.	
		0.90 1.00 1.00	ES D	50 (2,2/50 for 50mm)				Very stiff very high strength brown gravelly sandy CLAY. Gravel is fine to medium sub-angular of sandstone.	1
					1.45			End of borehole at 1.45 m	
									2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks

Refused on sandstone at 1.45m bgl.





Borehole Log

Borehole No.

WS126

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

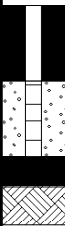
Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 04/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
			ES	50 (4,10/50 for 40mm)	0.10			MADE GROUND: Grey sandy gravel. Gravel is fine to coarse angular to sub-angular of concrete and sandstone.	1
		0.50			0.80			Light brown clayey gravelly fine to medium SAND. Gravel is fine to coarse sub-angular of sandstone.	
		1.00			1.45			Very stiff very high strength light brown slightly gravelly sandy CLAY. Gravel is fine to medium sub-angular of sandstone.	
								End of borehole at 1.45 m	
									2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks

1. Refused on sandstone at 1.45m bgl. 2. Monitoring well installed.





Borehole Log

Borehole No.

WS127

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 02/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
			ES	50 (13, 11/50 for 5mm)	0.10			Soft dark brown slightly gravelly CLAY (Topsoil) with rootlets. Gravel is fine to medium sub-angular of sandstone. Very dense light brown clayey sandy GRAVEL. Gravel is fine to coarse angular to sub-angular of sandstone.	1
		0.65							
		1.00							
					1.45			End of borehole at 1.45 m	2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks

Refused on sandstone at 1.45m bgl.





Borehole Log

Borehole No.

WS128

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 03/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.40	ES		0.20			MADE GROUND: Concrete.	
					0.60			MADE GROUND: Brown slightly gravelly clayey fine to medium sand. Gravel is fine to medium sub-angular of sandstone.	
		1.00		N=4 (1,1/1,1,1,1)				Loose light brown slightly gravelly fine to medium SAND. Gravel is medium to coarse sub-angular of sandstone.	1
		1.50	ES						
		2.00		N=4 (1,1/1,1,1,1)					2
		3.00		N=7 (1,1/1,2,2,2)					3
		4.00		N=10 (2,3/2,3,2,3)	4.10				4
		5.00		N=32 (2,3/4,10,11,7)				Medium dense light brown sandy GRAVEL. Gravel is fine to coarse angular to sub-angular of sandstone.	5
					5.45			End of borehole at 5.45 m	6
									7
									8
									9
									10

Remarks
Complete.



Borehole Log

Borehole No.

WS129

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 04/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
			ES	50 (6,8/13,16,21,)	0.05			MADE GROUND: Dark brown gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to coarse angular to sub-angular of concrete.	1
		0.90			0.80			Light brown sandy GRAVEL. Gravel is fine to coarse angular to sub-angular of sandstone.	
		1.00			1.45			Very dense brown clayey fine to medium SAND with cobbles of sandstone.	
								End of borehole at 1.45 m	
									2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks

Refused on sandstone at 1.45m bgl.





Borehole Log

Borehole No.

WS130

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

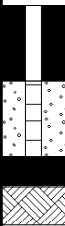
Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 04/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.05			MADE GROUND: Dark brown slightly gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to medium sub-angular of brick and sandstone.	
		1.00		N=13 (2,2/3,3,4,3)	0.85			Light brown sandy GRAVEL. Gravel is fine to coarse angular to sub-angular of sandstone.	1
		1.60		50 (25 for 25mm/50 for 20mm)	1.45			Medium dense brown slightly clayey gravelly fine to medium SAND. Gravel is fine to medium sub-angular to sub-rounded of sandstone.	2
								End of borehole at 1.45 m	3
									4
									5
									6
									7
									8
									9
									10

Remarks

1. Refused on sandstone at 1.45m bgl. 2. Monitoring well installed.





Borehole Log

Borehole No.

WS201

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES		0.30			Dark brown slightly gravelly fine to medium SAND (Topsoil) with rootlets. Gravel is fine to medium sub-angular to sub-rounded of sandstone.	
		1.00		N=22 (7,7/7,7,4,4)	0.80 1.10 1.40			Dense yellow brown slightly gravelly fine to medium SAND. Gravel is fine to coarse angular to sub-rounded of sandstone.	1
		1.70		50 (5,5/50 for 45mm)	1.70			Medium dense light brown slightly gravelly silty fine to medium SAND with occasional cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone.	
								Light brown gravelly fine to medium SAND. Gravel is fine to coarse angular to sub-angular of sandstone.	2
								Light brown slightly gravelly silty fine to medium SAND with occasional cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone.	3
								End of borehole at 1.70 m	4
									5
									6
									7
									8
									9
									10

Remarks

Refused at 1.70m bgl on suspected cobbles.





Borehole Log

Borehole No.

WS202

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.60 0.70	ES	60 (5,8/60 for 50mm)	0.30 0.70		 	Dark brown slightly gravelly fine to medium SAND (Topsoil) with rootlets. Gravel is fine to medium sub-angular to sub-rounded of sandstone. Yellow brown gravelly fine to coarse SAND with cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone. End of borehole at 0.70 m	1 2 3 4 5 6 7 8 9 10

Remarks

Refused at 0.70m bgl on rock.





Borehole Log

Borehole No.

WS203

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30			Dark brown slightly gravelly fine to medium SAND (Topsoil) with rootlets. Gravel is fine to medium sub-angular to sub-rounded of sandstone.	
		0.90 1.00	ES	50 (7,7/50 for 40mm)	1.00			Yellow brown gravelly medium to coarse SAND with cobbles. Gravel is fine to coarse angular to sub-angular of sandstone.	1
								End of borehole at 1.00 m	
									2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks

Refused at 1.00m bgl on rock.





Borehole Log

Borehole No.

WS204

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10	ES		0.30			Dark brown slightly gravelly fine to medium SAND (Topsoil) with rootlets. Gravel is fine to medium sub-angular to sub-rounded of sandstone.	
		1.00		N=14 (3,3/3,3,4,4)	0.80			Orange light brown gravelly medium to coarse SAND. Gravel is fine to coarse angular to sub-rounded of sandstone.	1
		1.70	ES					Medium dense to dense orange light brown slightly gravelly silty fine to medium SAND. Gravel is fine to medium angular to sub-rounded of sandstone.	
		2.00		50 (11,13/50 for 50mm)	2.00			End of borehole at 2.00 m	2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks

Refused at 2.00m bgl on rock.





Borehole Log

Borehole No.

WS205

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES		0.30			Dark brown slightly gravelly fine to medium SAND (Topsoil) with rootlets. Gravel is fine to medium sub-angular to sub-rounded of sandstone.	
		0.50	B		0.50			Orange brown slightly gravelly fine to medium SAND. Gravel is fine to medium angular to sub-rounded of sandstone.	
		1.00		50 (10,10/50 for 80mm)	1.00			Light brown gravelly fine to coarse SAND with occasional cobbles. Gravel is fine to coarse angular to sub-angular of sandstone. End of borehole at 1.00 m	1
									2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks

Refused at 1.00m bgl on rock.





Borehole Log

Borehole No.

WS206

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.50	ES		0.40			Dark brown slightly gravelly fine to medium SAND (Topsoil) with rootlets. Gravel is fine to medium sub-angular to sub-rounded of sandstone.	
		0.80		50 (7,7/50 for 50mm)	0.80			Orange brown gravelly fine to medium SAND with occasional cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone.	1
								End of borehole at 0.80 m	
									2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks

Refused at 0.80m bgl on rock.





Borehole Log

Borehole No.

WS207

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30	ES		0.40			MADE GROUND: Dark brown slightly gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to medium angular to sub-rounded of sandstone, coal and brick.	
		1.00		50 (25 for 40mm/50 for 25mm)	1.00			Yellow brown gravelly medium to coarse SAND with cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone.	1
								End of borehole at 1.00 m	
									2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks

Refused at 1.00m bgl on rock.





Borehole Log

Borehole No.

WS208

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10			0.10			MADE GROUND: Dark brown slightly gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to medium angular to sub-rounded of sandstone.	
		0.50			0.50			MADE GROUND: Yellow brown sandy gravel with cobbles. Gravel is medium to coarse angular to sub-angular of sandstone.	
		0.90			0.90			MADE GROUND: Dark brown gravelly medium to coarse sand with cobbles. Gravel is fine to coarse angular to sub-rounded of ssandstone, slag and brick.	1
		1.00	ES	50 (6,8/50 for 55mm)	1.00			Light brown gravelly medium to coarse SAND. Gravel is fine to coarse angular to sub-rounded of sandstone.	2
								End of borehole at 1.00 m	
									3
									4
									5
									6
									7
									8
									9
									10

Remarks





Borehole Log

Borehole No.

WS208a

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES		0.30			MADE GROUND: Dark brown slightly clayey slightly gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to medium angular to sub-rounded of sandstone and brick. Yellow brown gravelly fine to medium SAND with cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone. Brown slightly silty gravelly fine to medium SAND. Gravel is fine to medium angular to sub-rounded of sandstone. End of borehole at 1.00 m	
					0.70				
		1.00		50 (7,7/50 for 70mm)	1.00				1
									2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks





Borehole Log

Borehole No.

WS209

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

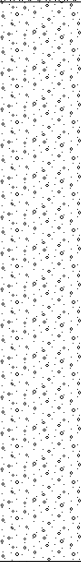
Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES		0.30			MADE GROUND: Dark brown slightly gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to medium angular to sub-rounded of sandstone, rare coal and glass.	
		1.00		N=5 (2,1/2,1,1,1)				Loose light brown sandy GRAVEL with cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone.	1
		2.00		N=11 (3,4/3,3,2,3)					2
		3.00		N=12 (4,4/3,4,3,2)					3
		3.80	ES						4
		4.00		50 (4,8/50 for 25mm)	4.00			End of borehole at 4.00 m	4
									5
									6
									7
									8
									9
									10

Remarks





Borehole Log

Borehole No.

WS210

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30	ES		0.30			MADE GROUND: Dark brown slightly gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to medium angular to sub-rounded of sandstone, coal and slag.	
		1.00		50 (4,6/50 for 69mm)	1.00			Orange brown gravelly medium to coarse SAND. Gravel is fine to coarse angular to sub-angular of sandstone.	1
								End of borehole at 1.00 m	
									2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks





Borehole Log

Borehole No.

WS211

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30			Dark brown slightly gravelly fine to medium SAND (Topsoil) with rootlets. Gravel is fine to medium sub-angular to sub-rounded of sandstone.	
		0.80 1.00	ES	50 (25 for 50mm/50 for 20mm)	1.00			Yellow brown gravelly medium to coarse SAND. Gravel is fine to coarse angular to sub-rounded of sandstone.	1
								End of borehole at 1.00 m	
									2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks





Borehole Log

Borehole No.

WS212

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10	ES		0.30			Grey brown gravelly fine to medium SAND (Topsoil) with rootlets. Gravel is fine to medium angular to sub-rounded of sandstone and rare coal.	
		1.00		50 (8,10/50 for 45mm)	0.90 1.00		 	Yellow brown gravelly fine to medium SAND with cobbles. Gravel is fine to coarse angular to sub-angular of sandstone. Light brown slightly silty slightly gravelly fine to medium SAND. Gravel is fine to medium sub-angular to sub-rounded of sandstone. End of borehole at 1.00 m	1 2 3 4 5 6 7 8 9 10

Remarks





Borehole Log

Borehole No.

WS213

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.40			Dark brown slightly gravelly fine to medium SAND (Topsoil) with rootlets. Gravel is fine to medium sub-angular to sub-rounded of sandstone.	
		0.70	ES					Yellow brown gravelly medium to coarse SAND with cobbles. Gravel is fine to coarse angular to sub-angular of sandstone.	1
		1.00		50 (25 for 160mm/50 for 0mm)	1.00			End of borehole at 0.70 m	
									2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks





Borehole Log

Borehole No.

WS214

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.40			Dark brown slightly gravelly fine to medium SAND (Topsoil) with rootlets. Gravel is fine to medium sub-angular to sub-rounded of sandstone and coal.	
		1.00		N=16 (4,4/4,4,4,4)	0.90			Yellow brown slightly silty gravelly fine to medium SAND with cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone.	1
		1.60	ES					Orange brown medium to coarse SAND.	
		2.00		50 (25 for 70mm/50 for 65mm)	2.00			End of borehole at 2.00 m	2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks

Refused at 2.00m bgl on rock.





Borehole Log

Borehole No.

WS215

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30			MADE GROUND: Dark brown slightly gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to medium sub-angular to sub-rounded of sandstone.	
		1.00		N=5 (1,0/1,2,1,1)	0.90			MADE GROUND: Brown gravelly medium to coarse sand with cobbles. Gravel is fine to coarse angular to sub-angular of sandstone.	1
					1.20			MADE GROUND: Loose grey light brown gravelly medium to coarse sand. Gravel is fine to coarse angular to sub-rounded of sandstone, slag, brick and glass.	
		2.00		N=0 (1,1/0,0,0,0)				MADE GROUND: Brown gravelly fine to medium sand. Gravel is fine to coarse angular to sub-rounded of brick, slate, concrete, ash and sandstone.	2
		2.20	ES						
					2.50				
		3.00		N=21 (3,3/4,5,6,6)				MADE GROUND: Medium dense yellow brown gravelly medium to coarse sand. Gravel is fine to coarse angular to sub-rounded of sandstone, slate and concrete.	3
		4.00		N=9 (3,2/3,2,2,2)					4
					4.10				
		4.60	ES					MADE GROUND: Dark brown gravelly medium to coarse sand with cobbles. Gravel is fine to coarse angular to sub-rounded of ash, slag, brick, glass and sandstone.	
		5.00		N=7 (0,0/1,2,2,2)	5.00				5
								End of borehole at 5.00 m	
									6
									7
									8
									9
									10

Remarks





Borehole Log

Borehole No.

WS201

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES		0.30			Dark brown slightly gravelly fine to medium SAND (Topsoil) with rootlets. Gravel is fine to medium sub-angular to sub-rounded of sandstone.	
					0.80			Dense yellow brown slightly gravelly fine to medium SAND. Gravel is fine to coarse angular to sub-rounded of sandstone.	
		1.00		N=22 (7,7/7,7,4,4)	1.10			Medium dense light brown slightly gravelly silty fine to medium SAND with occasional cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone.	1
					1.40			Light brown gravelly fine to medium SAND. Gravel is fine to coarse angular to sub-angular of sandstone.	2
		1.70		50 (5,5/50 for 45mm)	1.70			Light brown slightly gravelly silty fine to medium SAND with occasional cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone. End of borehole at 1.70 m	3
									4
									5
									6
									7
									8
									9
									10

Remarks

Refused at 1.70m bgl on suspected cobbles.





Borehole Log

Borehole No.

WS202

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.60 0.70	ES	60 (5,8/60 for 50mm)	0.30 0.70		 	Dark brown slightly gravelly fine to medium SAND (Topsoil) with rootlets. Gravel is fine to medium sub-angular to sub-rounded of sandstone. Yellow brown gravelly fine to coarse SAND with cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone. End of borehole at 0.70 m	1 2 3 4 5 6 7 8 9 10

Remarks

Refused at 0.70m bgl on rock.





Borehole Log

Borehole No.

WS203

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30			Dark brown slightly gravelly fine to medium SAND (Topsoil) with rootlets. Gravel is fine to medium sub-angular to sub-rounded of sandstone.	
		0.90 1.00	ES	50 (7,7/50 for 40mm)	1.00			Yellow brown gravelly medium to coarse SAND with cobbles. Gravel is fine to coarse angular to sub-angular of sandstone.	1
								End of borehole at 1.00 m	
									2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks

Refused at 1.00m bgl on rock.





Borehole Log

Borehole No.

WS204

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10	ES		0.30			Dark brown slightly gravelly fine to medium SAND (Topsoil) with rootlets. Gravel is fine to medium sub-angular to sub-rounded of sandstone.	
		1.00		N=14 (3,3/3,3,4,4)	0.80			Orange light brown gravelly medium to coarse SAND. Gravel is fine to coarse angular to sub-rounded of sandstone.	1
		1.70	ES					Medium dense to dense orange light brown slightly gravelly silty fine to medium SAND. Gravel is fine to medium angular to sub-rounded of sandstone.	
		2.00		50 (11,13/50 for 50mm)	2.00			End of borehole at 2.00 m	2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks

Refused at 2.00m bgl on rock.





Borehole Log

Borehole No.

WS205

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES		0.30			Dark brown slightly gravelly fine to medium SAND (Topsoil) with rootlets. Gravel is fine to medium sub-angular to sub-rounded of sandstone. Orange brown slightly gravelly fine to medium SAND. Gravel is fine to medium angular to sub-rounded of sandstone. Light brown gravelly fine to coarse SAND with occasional cobbles. Gravel is fine to coarse angular to sub-angular of sandstone. End of borehole at 1.00 m	
		0.50	B		0.50				
		1.00		50 (10,10/50 for 80mm)	1.00				1
									2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks

Refused at 1.00m bgl on rock.





Borehole Log

Borehole No.

WS206

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.50	ES		0.40			Dark brown slightly gravelly fine to medium SAND (Topsoil) with rootlets. Gravel is fine to medium sub-angular to sub-rounded of sandstone.	
		0.80		50 (7,7/50 for 50mm)	0.80			Orange brown gravelly fine to medium SAND with occasional cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone.	1
								End of borehole at 0.80 m	
									2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks

Refused at 0.80m bgl on rock.





Borehole Log

Borehole No.

WS207

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30	ES		0.40			MADE GROUND: Dark brown slightly gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to medium angular to sub-rounded of sandstone, coal and brick.	
		1.00		50 (25 for 40mm/50 for 25mm)	1.00			Yellow brown gravelly medium to coarse SAND with cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone.	1
								End of borehole at 1.00 m	
									2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks

Refused at 1.00m bgl on rock.





Borehole Log

Borehole No.

WS208

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.60	ES		0.10 0.50			MADE GROUND: Dark brown slightly gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to medium angular to sub-rounded of sandstone.	
		1.00		50 (6,8/50 for 55mm)	0.90 1.00			MADE GROUND: Yellow brown sandy gravel with cobbles. Gravel is medium to coarse angular to sub-angular of sandstone.	1
								MADE GROUND: Dark brown gravelly medium to coarse sand with cobbles. Gravel is fine to coarse angular to sub-rounded of ssandstone, slag and brick.	
								Light brown gravelly medium to coarse SAND. Gravel is fine to coarse angular to sub-rounded of sandstone.	2
								End of borehole at 1.00 m	
									3
									4
									5
									6
									7
									8
									9
									10

Remarks





Borehole Log

Borehole No.

WS208a

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES		0.30			MADE GROUND: Dark brown slightly clayey slightly gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to medium angular to sub-rounded of sandstone and brick. Yellow brown gravelly fine to medium SAND with cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone. Brown slightly silty gravelly fine to medium SAND. Gravel is fine to medium angular to sub-rounded of sandstone. End of borehole at 1.00 m	
					0.70				
		1.00		50 (7,7/50 for 70mm)	1.00				1
									2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks





Borehole Log

Borehole No.

WS209

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES		0.30			MADE GROUND: Dark brown slightly gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to medium angular to sub-rounded of sandstone, rare coal and glass. Loose light brown sandy GRAVEL with cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone.	
		1.00		N=5 (2,1/2,1,1,1)					1
		2.00		N=11 (3,4/3,3,2,3)					2
		3.00		N=12 (4,4/3,4,3,2)					3
		3.80 4.00	ES	50 (4,8/50 for 25mm)	4.00				4
								End of borehole at 4.00 m	5
									6
									7
									8
									9
									10

Remarks





Borehole Log

Borehole No.

WS210

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30	ES		0.30			MADE GROUND: Dark brown slightly gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to medium angular to sub-rounded of sandstone, coal and slag.	
		1.00		50 (4,6/50 for 69mm)	1.00			Orange brown gravelly medium to coarse SAND. Gravel is fine to coarse angular to sub-angular of sandstone.	1
								End of borehole at 1.00 m	
									2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks





Borehole Log

Borehole No.

WS211

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30			Dark brown slightly gravelly fine to medium SAND (Topsoil) with rootlets. Gravel is fine to medium sub-angular to sub-rounded of sandstone.	
		0.80 1.00	ES	50 (25 for 50mm/50 for 20mm)	1.00			Yellow brown gravelly medium to coarse SAND. Gravel is fine to coarse angular to sub-rounded of sandstone.	1
								End of borehole at 1.00 m	
									2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks





Borehole Log

Borehole No.

WS212

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10	ES		0.30			Grey brown gravelly fine to medium SAND (Topsoil) with rootlets. Gravel is fine to medium angular to sub-rounded of sandstone and rare coal.	
		1.00		50 (8,10/50 for 45mm)	0.90 1.00			Yellow brown gravelly fine to medium SAND with cobbles. Gravel is fine to coarse angular to sub-angular of sandstone.	1
								Light brown slightly silty slightly gravelly fine to medium SAND. Gravel is fine to medium sub-angular to sub-rounded of sandstone. End of borehole at 1.00 m	2 3 4 5 6 7 8 9 10

Remarks





Borehole Log

Borehole No.

WS213

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.40			Dark brown slightly gravelly fine to medium SAND (Topsoil) with rootlets. Gravel is fine to medium sub-angular to sub-rounded of sandstone.	
		0.70	ES					Yellow brown gravelly medium to coarse SAND with cobbles. Gravel is fine to coarse angular to sub-angular of sandstone.	1
		1.00		50 (25 for 160mm/50 for 0mm)	1.00			End of borehole at 0.70 m	
									2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks





Borehole Log

Borehole No.

WS214

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.40			Dark brown slightly gravelly fine to medium SAND (Topsoil) with rootlets. Gravel is fine to medium sub-angular to sub-rounded of sandstone and coal.	
		1.00		N=16 (4,4/4,4,4,4)	0.90			Yellow brown slightly silty gravelly fine to medium SAND with cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone.	1
		1.60	ES					Orange brown medium to coarse SAND.	
		2.00		50 (25 for 70mm/50 for 65mm)	2.00			End of borehole at 2.00 m	2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks

Refused at 2.00m bgl on rock.





Borehole Log

Borehole No.

WS215

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
WS

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 16/05/2017 - 16/05/2017

Logged By
G. Hirst

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30			MADE GROUND: Dark brown slightly gravelly fine to medium sand (Topsoil) with rootlets. Gravel is fine to medium sub-angular to sub-rounded of sandstone.	
		1.00		N=5 (1,0/1,2,1,1)	0.90			MADE GROUND: Brown gravelly medium to coarse sand with cobbles. Gravel is fine to coarse angular to sub-angular of sandstone.	1
					1.20			MADE GROUND: Loose grey light brown gravelly medium to coarse sand. Gravel is fine to coarse angular to sub-rounded of sandstone, slag, brick and glass.	
		2.00		N=0 (1,1/0,0,0,0)				MADE GROUND: Brown gravelly fine to medium sand. Gravel is fine to coarse angular to sub-rounded of brick, slate, concrete, ash and sandstone.	2
		2.20	ES						
					2.50				
		3.00		N=21 (3,3/4,5,6,6)				MADE GROUND: Medium dense yellow brown gravelly medium to coarse sand. Gravel is fine to coarse angular to sub-rounded of sandstone, slate and concrete.	3
		4.00		N=9 (3,2/3,2,2,2)					4
					4.10				
		4.60	ES					MADE GROUND: Dark brown gravelly medium to coarse sand with cobbles. Gravel is fine to coarse angular to sub-rounded of ash, slag, brick, glass and sandstone.	
		5.00		N=7 (0,0/1,2,2,2)	5.00				5
								End of borehole at 5.00 m	
									6
									7
									8
									9
									10

Remarks





Borehole Log

Borehole No.

CP101

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
CP

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 17/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30			0.30			MADE GROUND: Dark grey sandy gravel. Gravel is fine to medium angular to sub-angular of concrete, mudstone and rare brick.	
		0.70			0.70			MADE GROUND: Dark brown gravelly fine to coarse sand with occasional cobbles. Gravel is fine to coarse angular to sub-angular of sandstone, clinker, mudstone, brick and slag.	1
		1.20		N=11 (2,2/3,2,3,3)	1.50			MADE GROUND: Firm brown gravelly sandy clay. Gravel is fine to medium angular to sub-angular of mudstone and sandstone.	
		2.00		N=9 (1,2/4,2,2,1)				MADE GROUND: Dark brown gravelly fine to coarse sand with occasional cobbles. Gravel is fine to coarse angular to sub-angular of sandstone, clinker, mudstone, brick and slag.	2
		3.00		N=12 (1,3/3,2,2,5)					3
		4.00		N=14 (1,1/2,3,4,5)					4
		5.00		N=15 (1,2/3,3,4,5)					5
		6.10			6.10				6
		6.50		N=12 (0,1/2,3,3,4)				MADE GROUND: Grey brown sandy gravelly clay. Gravel is fine to coarse sub-angular of sandstone.	7
		7.80			7.80			Yellow SANDSTONE.	8
		8.00		50 (25 for 35mm/50 for 60mm)	8.25			End of borehole at 8.25 m	8
									9
									10

Remarks

1. Complete. 2. Monitoring well installed.





Borehole Log

Borehole No.

CP102

Sheet 1 of 1

Project Name: Black Cat Fireworks

Project No.
11822

Co-ords: -

Hole Type
CP

Location: Huddersfield

Level:

Scale
1:50

Client: L F Europe Ltd

Dates: 17/05/2017 -

Logged By
N. Sellars

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30			MADE GROUND: Brown sandy gravel. Gravel is medium to coarse sub-angular to sub-rounded of sandstone.	
		1.20		N=24 (3,4/5,7,6,6)				MADE GROUND: Brown clayey gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub-angular of sandstone and brick. Cobbles are sub-angular of brick and sandstone.	1
		2.00		N=21 (2,7/3,5,6,7)					2
		2.50		50 (25 for 5mm/50 for 3mm)	2.50 2.55			Yellow SANDSTONE. End of borehole at 2.55 m	3
									4
									5
									6
									7
									8
									9
									10

Remarks
Complete.

APPENDIX VII CHEMICAL TESTING RESULTS



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Analytical Report Number : 17-47749

Replaces Analytical Report Number : 17-47749, issue no. 1

Project / Site name:	Black Cat Fireworks	Samples received on:	05/05/2017
Your job number:	11-822	Samples instructed on:	08/05/2017
Your order number:	11822-5952-NS	Analysis completed by:	22/05/2017
Report Issue Number:	2	Report issued on:	22/05/2017
Samples Analysed:	4 leachate samples - 24 soil samples		

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

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

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

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 17-47749

Project / Site name: Black Cat Fireworks

Your Order No: 11822-5952-NS

Lab Sample Number				745665	745666	745667	745668	745669
Sample Reference				WS101	WS104	WS105	WS109	WS110
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.70	1.20	1.40	0.10	0.55
Date Sampled				02/05/2017	02/05/2017	02/05/2017	02/05/2017	04/05/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	18	21	13	16	8.2
Total mass of sample received	kg	0.001	NONE	0.45	0.97	0.45	0.47	0.43

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	-	Not-detected	-
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-	-

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.2	7.9	-	6.6	-
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Total Sulphate as SO ₄	mg/kg	50	MCERTS	240	540	-	420	-
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	13	64	-	31	-
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0064	0.032	-	0.016	-
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	6.4	31.9	-	15.6	-
Sulphide	mg/kg	1	MCERTS	5.0	< 1.0	-	< 1.0	-
Total Sulphur	mg/kg	50	MCERTS	140	310	-	260	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	1.3	-	-	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	-
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	0.15	< 0.05	0.62	7.2
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	0.36	< 0.05	0.63	3.7
Fluorene	mg/kg	0.05	MCERTS	-	0.29	< 0.05	0.52	2.9
Phenanthrene	mg/kg	0.05	MCERTS	-	2.5	< 0.05	3.4	28
Anthracene	mg/kg	0.05	MCERTS	-	2.2	< 0.05	0.57	5.8
Fluoranthene	mg/kg	0.05	MCERTS	-	3.0	< 0.05	3.7	33
Pyrene	mg/kg	0.05	MCERTS	-	2.9	< 0.05	3.3	28
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	1.3	< 0.05	2.1	16
Chrysene	mg/kg	0.05	MCERTS	-	1.1	< 0.05	1.9	14
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	1.0	< 0.05	1.4	15
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	0.92	< 0.05	1.3	6.5
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	1.0	< 0.05	1.5	14
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	0.71	< 0.05	0.50	5.9
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	0.16	1.2
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	0.77	< 0.05	0.95	6.8

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	18.3	< 0.80	22.5	188
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Analytical Report Number: 17-47749

Project / Site name: Black Cat Fireworks

Your Order No: 11822-5952-NS

Lab Sample Number				745665	745666	745667	745668	745669
Sample Reference				WS101	WS104	WS105	WS109	WS110
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.70	1.20	1.40	0.10	0.55
Date Sampled				02/05/2017	02/05/2017	02/05/2017	02/05/2017	04/05/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	35	15	3.6	13	19
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	43	-	92
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	-	0.38	-	0.58
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	2.7	0.5	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	260	44	-	18	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	7200	72	28	120	8300
Lead (aqua regia extractable)	mg/kg	1	MCERTS	1100	320	31	73	330
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	180	27	13	16	150
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Strontium (aqua regia extractable)	mg/kg	10	NONE	410	-	-	-	74
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	21	-	37
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	2200	130	57	90	920

Potassium (aqua regia extractable)	mg/kg	20	ISO 17025	6800	-	-	-	880
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Petroleum Hydrocarbons

TPH (C5 - C6)	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	-
TPH (C6 - C8)	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	-
TPH (C8 - C10)	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	-
TPH (C10 - C12)	mg/kg	2	MCERTS	2.8	< 2.0	< 2.0	3.6	-
TPH (C12 - C16)	mg/kg	4	MCERTS	6.7	6.4	5.7	11	-
TPH (C16 - C21)	mg/kg	1	MCERTS	16	19	8.6	27	-
TPH (C21 - C35)	mg/kg	1	MCERTS	82	34	26	49	-

Analytical Report Number: 17-47749

Project / Site name: Black Cat Fireworks

Your Order No: 11822-5952-NS

Lab Sample Number				745665	745666	745667	745668	745669
Sample Reference				WS101	WS104	WS105	WS109	WS110
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.70	1.20	1.40	0.10	0.55
Date Sampled				02/05/2017	02/05/2017	02/05/2017	02/05/2017	04/05/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	0.92	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	0.15	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	1.3	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	0.98	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.54	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	0.47	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.55	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.28	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.44	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.21	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.19	-	-	-	-

Analytical Report Number: 17-47749

Project / Site name: Black Cat Fireworks

Your Order No: 11822-5952-NS

Lab Sample Number				745670	745671	745672	745673	745674
Sample Reference				WS112	WS113	WS114	WS115	WS120
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.15	1.00	2.00	1.60	1.00
Date Sampled				03/05/2017	03/05/2017	03/05/2017	03/05/2017	04/05/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	7.6	11	11	15	14
Total mass of sample received	kg	0.001	NONE	1.0	0.47	0.47	0.97	0.49

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	-	Not-detected	-
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-	-

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	-	6.9	-	7.6	-
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Total Sulphate as SO ₄	mg/kg	50	MCERTS	-	150	-	1400	-
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	100	-	160	-
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	0.050	-	0.082	-
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	50.2	-	82.3	-
Sulphide	mg/kg	1	MCERTS	-	< 1.0	-	3.7	-
Total Sulphur	mg/kg	50	MCERTS	-	64	-	820	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	1.2	-	-	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	-	< 1.0	-	< 1.0	-
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	1.9	< 0.05	< 0.05	-	0.30
Anthracene	mg/kg	0.05	MCERTS	1.7	< 0.05	< 0.05	-	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	2.7	< 0.05	0.21	-	0.37
Pyrene	mg/kg	0.05	MCERTS	2.3	< 0.05	0.17	-	0.31
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.3	< 0.05	0.14	-	0.18
Chrysene	mg/kg	0.05	MCERTS	1.2	< 0.05	0.08	-	0.16
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	1.3	< 0.05	0.14	-	0.20
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.60	< 0.05	0.05	-	0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.3	< 0.05	0.11	-	0.12
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.66	< 0.05	< 0.05	-	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.73	< 0.05	< 0.05	-	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	15.5	< 0.80	0.90	-	1.69
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Analytical Report Number: 17-47749

Project / Site name: Black Cat Fireworks

Your Order No: 11822-5952-NS

Lab Sample Number				745670	745671	745672	745673	745674
Sample Reference				WS112	WS113	WS114	WS115	WS120
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.15	1.00	2.00	1.60	1.00
Date Sampled				03/05/2017	03/05/2017	03/05/2017	03/05/2017	04/05/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.5	2.1	3.0	120	3.3
Barium (aqua regia extractable)	mg/kg	1	MCERTS	230	-	52	-	45
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.78	-	0.59	-	0.80
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	39	-	250	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	66	20	24	1400	22
Lead (aqua regia extractable)	mg/kg	1	MCERTS	84	19	18	240	19
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	22	30	23	510	23
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Strontium (aqua regia extractable)	mg/kg	10	NONE	-	-	-	50	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	26	-	19	-	31
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	110	100	57	260	61
Potassium (aqua regia extractable)	mg/kg	20	ISO 17025	-	-	-	1200	-

Petroleum Hydrocarbons

TPH (C5 - C6)	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8)	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10)	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	2.3	< 2.0
TPH (C12 - C16)	mg/kg	4	MCERTS	9.2	7.3	< 4.0	23	< 4.0
TPH (C16 - C21)	mg/kg	1	MCERTS	57	8.8	< 1.0	94	2.4
TPH (C21 - C35)	mg/kg	1	MCERTS	94	25	< 1.0	500	< 1.0

Analytical Report Number: 17-47749

Project / Site name: Black Cat Fireworks

Your Order No: 11822-5952-NS

Lab Sample Number				745670	745671	745672	745673	745674
Sample Reference				WS112	WS113	WS114	WS115	WS120
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.15	1.00	2.00	1.60	1.00
Date Sampled				03/05/2017	03/05/2017	03/05/2017	03/05/2017	04/05/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
SVOCs								
Aniline	mg/kg	0.1	NONE	-	-	-	< 0.1	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	< 0.2	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	< 0.2	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	< 0.1	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	< 0.1	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	< 0.1	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	< 0.3	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	0.31	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	0.43	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	0.29	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	< 0.3	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	0.19	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	0.15	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	0.22	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	0.13	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	0.07	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-

Analytical Report Number: 17-47749

Project / Site name: Black Cat Fireworks

Your Order No: 11822-5952-NS

Lab Sample Number				745675	745676	745677	745678	745679
Sample Reference				WS122	WS124	WS127	WS129	TP103
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.30	0.05	0.90	0.50
Date Sampled				04/05/2017	04/05/2017	04/05/2017	04/05/2017	02/05/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	43
Moisture Content	%	N/A	NONE	13	18	22	14	7.7
Total mass of sample received	kg	0.001	NONE	0.47	0.43	0.53	0.47	0.50

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	Chrysotile	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Detected	Not-detected	-	-
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	< 0.001	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	< 0.001	-	-	-

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.0	7.1	-	7.4	7.5
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Total Sulphate as SO ₄	mg/kg	50	MCERTS	290	830	-	300	77
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	37	120	-	27	18
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.018	0.061	-	0.013	0.0092
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	18.4	61.2	-	13.3	9.2
Sulphide	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
Total Sulphur	mg/kg	50	MCERTS	180	520	-	150	< 50
Total Organic Carbon (TOC)	%	0.1	MCERTS	1.0	-	-	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	2.8	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.25	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	7.6	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	5.7	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.96	49	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	0.16	9.9	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	1.9	56	0.32	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	1.9	48	0.23	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.3	24	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	1.1	26	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	1.3	21	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.82	15	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.2	23	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.60	12	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.09	2.1	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.93	13	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	12.2	314	< 0.80	< 0.80	< 0.80
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Analytical Report Number: 17-47749

Project / Site name: Black Cat Fireworks

Your Order No: 11822-5952-NS

Lab Sample Number				745675	745676	745677	745678	745679
Sample Reference				WS122	WS124	WS127	WS129	TP103
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.30	0.05	0.90	0.50
Date Sampled				04/05/2017	04/05/2017	04/05/2017	04/05/2017	02/05/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.2	30	7.2	1.2	2.4
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	62	-	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	-	0.73	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	0.3
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	12	21	-	15	44
Copper (aqua regia extractable)	mg/kg	1	MCERTS	19	78	22	8.2	19
Lead (aqua regia extractable)	mg/kg	1	MCERTS	42	330	41	11	29
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	8.1	21	18	15	45
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1.1	< 1.0	< 1.0	< 1.0	< 1.0
Strontium (aqua regia extractable)	mg/kg	10	NONE	-	-	-	-	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	24	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	39	130	150	59	83
Potassium (aqua regia extractable)	mg/kg	20	ISO 17025	-	-	-	-	-

Petroleum Hydrocarbons

TPH (C5 - C6)	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8)	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10)	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	3.9	< 2.0	< 2.0	< 2.0
TPH (C12 - C16)	mg/kg	4	MCERTS	4.1	56	< 4.0	< 4.0	< 4.0
TPH (C16 - C21)	mg/kg	1	MCERTS	17	290	4.2	1.1	< 1.0
TPH (C21 - C35)	mg/kg	1	MCERTS	33	380	21	12	3.4



Analytical Report Number: 17-47749

Project / Site name: Black Cat Fireworks

Your Order No: 11822-5952-NS

Lab Sample Number				745675	745676	745677	745678	745679
Sample Reference				WS122	WS124	WS127	WS129	TP103
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.30	0.05	0.90	0.50
Date Sampled				04/05/2017	04/05/2017	04/05/2017	04/05/2017	02/05/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
SVOCs								
Aniline	mg/kg	0.1	NONE	-	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-	-

Analytical Report Number: 17-47749

Project / Site name: Black Cat Fireworks

Your Order No: 11822-5952-NS

Lab Sample Number	745680	745681	745682	745683	745684
Sample Reference	TP104	TP108a	TP110	TP113	TP128
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.10	0.20	1.50	0.50	1.20
Date Sampled	02/05/2017	02/05/2017	02/05/2017	03/05/2017	03/05/2017
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	7.9	7.6
Total mass of sample received	kg	0.001	NONE	0.45	0.58
				0.50	0.52
				0.50	0.54

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	Chrysotile	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Detected	Not-detected	-	-
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	< 0.001	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	< 0.001	-	-	-

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	-	7.9	-	7.1	6.6
Total Cyanide	mg/kg	1	MCERTS	3	< 1	< 1	< 1	< 1
Total Sulphate as SO ₄	mg/kg	50	MCERTS	-	1100	-	110	130
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	46	-	7.5	24
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	0.023	-	0.0038	0.012
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	22.9	-	3.8	12.2
Sulphide	mg/kg	1	MCERTS	-	1.4	-	< 1.0	< 1.0
Total Sulphur	mg/kg	50	MCERTS	-	480	-	< 50	57
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	1.6	-	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	-	< 1.0	-	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.88	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	2.0	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	1.3	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.35	1.7	13	< 0.05	0.24
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.28	2.9	< 0.05	0.22
Fluoranthene	mg/kg	0.05	MCERTS	0.22	2.2	19	< 0.05	0.24
Pyrene	mg/kg	0.05	MCERTS	0.25	1.9	16	< 0.05	0.30
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.17	1.1	7.7	< 0.05	0.18
Chrysene	mg/kg	0.05	MCERTS	0.14	1.3	7.9	< 0.05	0.18
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.13	1.2	7.7	< 0.05	0.06
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.08	0.80	4.2	< 0.05	0.18
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.09	1.0	7.2	< 0.05	0.11
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.45	3.7	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.67	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.73	4.6	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	1.43	12.7	99.0	< 0.80	1.71
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Analytical Report Number: 17-47749

Project / Site name: Black Cat Fireworks

Your Order No: 11822-5952-NS

Lab Sample Number				745680	745681	745682	745683	745684
Sample Reference				TP104	TP108a	TP110	TP113	TP128
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.20	1.50	0.50	1.20
Date Sampled				02/05/2017	02/05/2017	02/05/2017	03/05/2017	03/05/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	5.7	140	19	< 1.0	2.7
Barium (aqua regia extractable)	mg/kg	1	MCERTS	69	-	170	-	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.61	-	0.71	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	0.8
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	1500	-	29	36
Copper (aqua regia extractable)	mg/kg	1	MCERTS	49	1400	47	19	22
Lead (aqua regia extractable)	mg/kg	1	MCERTS	25	180	95	16	37
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	140	6900	29	29	33
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Strontium (aqua regia extractable)	mg/kg	10	NONE	-	-	-	-	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	19	-	25	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	49	170	140	73	110
Potassium (aqua regia extractable)	mg/kg	20	ISO 17025	-	-	-	-	-

Petroleum Hydrocarbons

TPH (C5 - C6)	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8)	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10)	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	< 2.0	5.0	< 2.0	< 2.0
TPH (C12 - C16)	mg/kg	4	MCERTS	5.1	8.9	19	< 4.0	< 4.0
TPH (C16 - C21)	mg/kg	1	MCERTS	8.5	84	94	< 1.0	< 1.0
TPH (C21 - C35)	mg/kg	1	MCERTS	14	400	130	< 1.0	2.9

Analytical Report Number: 17-47749

Project / Site name: Black Cat Fireworks

Your Order No: 11822-5952-NS

Lab Sample Number				745680	745681	745682	745683	745684
Sample Reference				TP104	TP108a	TP110	TP113	TP128
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.20	1.50	0.50	1.20
Date Sampled				02/05/2017	02/05/2017	02/05/2017	03/05/2017	03/05/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
SVOCs								
Aniline	mg/kg	0.1	NONE	-	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-	-

Analytical Report Number: 17-47749

Project / Site name: Black Cat Fireworks

Your Order No: 11822-5952-NS

Lab Sample Number				745685	745686	745687	745688	
Sample Reference				TP131	TP132	TP134	TP135	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				0.40	0.20	1.30	1.60	
Date Sampled				03/05/2017	03/05/2017	03/05/2017	03/05/2017	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
Moisture Content	%	N/A	NONE	15	8.2	13	15	
Total mass of sample received	kg	0.001	NONE	0.37	0.48	0.50	0.49	

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	Amosite	
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	Not-detected	Detected	
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	< 0.001	
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	< 0.001	

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	-	8.1	9.5	8.3	
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	
Total Sulphate as SO ₄	mg/kg	50	MCERTS	-	360	1200	850	
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	53	490	75	
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	0.026	0.25	0.037	
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	26.4	246	37.3	
Sulphide	mg/kg	1	MCERTS	-	12	13	7.6	
Total Sulphur	mg/kg	50	MCERTS	-	310	720	550	
Total Organic Carbon (TOC)	%	0.1	MCERTS	3.8	-	-	-	

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.62	0.63	-	0.50	
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	0.14	
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.77	-	0.82	
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.76	-	0.64	
Phenanthrene	mg/kg	0.05	MCERTS	0.73	5.6	-	8.3	
Anthracene	mg/kg	0.05	MCERTS	0.68	1.0	-	1.5	
Fluoranthene	mg/kg	0.05	MCERTS	0.56	6.2	-	12	
Pyrene	mg/kg	0.05	MCERTS	0.36	6.0	-	9.5	
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.58	2.9	-	4.8	
Chrysene	mg/kg	0.05	MCERTS	0.38	3.9	-	5.5	
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.22	2.9	-	4.0	
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.10	1.6	-	3.6	
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.09	3.1	-	4.6	
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	1.1	-	2.3	
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.24	-	0.51	
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	1.5	-	2.9	

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	4.32	38.2	-	61.2	
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Analytical Report Number: 17-47749

Project / Site name: Black Cat Fireworks

Your Order No: 11822-5952-NS

Lab Sample Number				745685	745686	745687	745688	
Sample Reference				TP131	TP132	TP134	TP135	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				0.40	0.20	1.30	1.60	
Date Sampled				03/05/2017	03/05/2017	03/05/2017	03/05/2017	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	31	3.9	9.7	26	
Barium (aqua regia extractable)	mg/kg	1	MCERTS	500	-	-	-	
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.9	-	-	-	
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.7	0.5	< 0.2	< 0.2	
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	17	20	20	
Copper (aqua regia extractable)	mg/kg	1	MCERTS	190	26	37	60	
Lead (aqua regia extractable)	mg/kg	1	MCERTS	270	120	180	340	
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	55	16	15	15	
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
Strontium (aqua regia extractable)	mg/kg	10	NONE	38	-	41	34	
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	53	-	-	-	
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	290	63	69	110	
Potassium (aqua regia extractable)	mg/kg	20	ISO 17025	1400	-	1300	950	

Petroleum Hydrocarbons

TPH (C5 - C6)	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	-	
TPH (C6 - C8)	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	-	
TPH (C8 - C10)	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	-	
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	3.2	18	-	
TPH (C12 - C16)	mg/kg	4	MCERTS	< 4.0	16	67	-	
TPH (C16 - C21)	mg/kg	1	MCERTS	4.6	59	160	-	
TPH (C21 - C35)	mg/kg	1	MCERTS	14	190	430	-	

Analytical Report Number: 17-47749

Project / Site name: Black Cat Fireworks

Your Order No: 11822-5952-NS

Lab Sample Number				745685	745686	745687	745688	
Sample Reference				TP131	TP132	TP134	TP135	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				0.40	0.20	1.30	1.60	
Date Sampled				03/05/2017	03/05/2017	03/05/2017	03/05/2017	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
SVOCs								
Aniline	mg/kg	0.1	NONE	-	-	< 0.1	-	
Phenol	mg/kg	0.2	ISO 17025	-	-	1.3	-	
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	< 0.1	-	
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	< 0.2	-	
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	< 0.2	-	
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	< 0.1	-	
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	< 0.2	-	
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	< 0.1	-	
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	1.1	-	
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	< 0.05	-	
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	-	
4-Methylphenol	mg/kg	0.2	NONE	-	-	2.2	-	
Isophorone	mg/kg	0.2	MCERTS	-	-	< 0.2	-	
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	< 0.3	-	
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	1.0	-	
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	< 0.3	-	
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	-	
Naphthalene	mg/kg	0.05	MCERTS	-	-	11	-	
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	< 0.3	-	
4-Chloroaniline	mg/kg	0.1	NONE	-	-	< 0.1	-	
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	< 0.1	-	
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	< 0.1	-	
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	< 0.1	-	
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	< 0.2	-	
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	6.2	-	
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	< 0.1	-	
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	< 0.1	-	
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	< 0.1	-	
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	
Acenaphthene	mg/kg	0.05	MCERTS	-	-	4.3	-	
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	< 0.2	-	
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	3.2	-	
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	< 0.3	-	
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	< 0.2	-	
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	< 0.2	-	
Fluorene	mg/kg	0.05	MCERTS	-	-	5.0	-	
Azobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	-	
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	< 0.2	-	
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	-	
Phenanthrene	mg/kg	0.05	MCERTS	-	-	21	-	
Anthracene	mg/kg	0.05	MCERTS	-	-	4.6	-	
Carbazole	mg/kg	0.3	MCERTS	-	-	2.3	-	
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	< 0.2	-	
Anthraquinone	mg/kg	0.3	MCERTS	-	-	1.6	-	
Fluoranthene	mg/kg	0.05	MCERTS	-	-	15	-	
Pyrene	mg/kg	0.05	MCERTS	-	-	14	-	
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	< 0.3	-	
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	8.0	-	
Chrysene	mg/kg	0.05	MCERTS	-	-	9.4	-	
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	5.5	-	
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	4.5	-	
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	6.6	-	
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	2.5	-	
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	0.96	-	
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	3.5	-	



Analytical Report Number **17-47749**

Project / Site name: **Black Cat Fireworks**

Your Order No: **11822-5952-NS**

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
745676	WS124	0.30	100	Loose Fibres	Chrysotile	< 0.001	< 0.001
745681	TP108a	0.20	140	Loose Fibres	Chrysotile	< 0.001	< 0.001
745688	TP135	1.60	114	Loose Fibres	Amosite	< 0.001	< 0.001

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.



Analytical Report Number: 17-47749

Project / Site name: Black Cat Fireworks

Your Order No: 11822-5952-NS

Lab Sample Number	745689	745690	745691	745692
Sample Reference	WS101	WS104	WS115	TP135
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.70	1.20	1.60	1.60
Date Sampled	02/05/2017	02/05/2017	03/05/2017	04/05/2017
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status	

General Inorganics

pH	pH Units	N/A	ISO 17025	8.3	7.7	7.8	8.1
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10
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Speciated PAHs

Naphthalene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1.1	ISO 17025	4.3	1.7	4.2	7.9
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08	< 0.08
Chromium (hexavalent)	µg/l	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	5.3	1.5	4.0	3.2
Copper (dissolved)	µg/l	0.7	ISO 17025	12	9.5	15	9.4
Lead (dissolved)	µg/l	1	ISO 17025	2.3	1.7	4.4	6.4
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	1.5	0.8	8.5	0.9
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	< 4.0	< 4.0
Zinc (dissolved)	µg/l	0.4	ISO 17025	8.3	8.8	2.5	4.5

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	10	NONE	< 10	< 10	< 10	< 10



Analytical Report Number: 17-47749

Project / Site name: Black Cat Fireworks

Your Order No: 11822-5952-NS

Lab Sample Number	745689	745690	745691	745692	
Sample Reference	WS101	WS104	WS115	TP135	
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)	0.70	1.20	1.60	1.60	
Date Sampled	02/05/2017	02/05/2017	03/05/2017	04/05/2017	
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status		

Petroleum Hydrocarbons

TPH1 (C10 - C40)	µg/l	10	NONE	< 10	< 10	< 10	< 10	
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TPH-CWG - Aliphatic >C5 - C6	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	

TPH-CWG - Aromatic >C5 - C7	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aromatic >C7 - C8	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aromatic >C8 - C10	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	

Analytical Report Number : 17-47749

Project / Site name: Black Cat Fireworks

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
745665	WS101	None Supplied	0.70	Brown loam and sand with gravel and rubble.
745666	WS104	None Supplied	1.20	Brown clay and sand.
745667	WS105	None Supplied	1.40	Brown sandy clay.
745668	WS109	None Supplied	0.10	Brown loam and sand.
745669	WS110	None Supplied	0.55	Brown loam and sand with gravel and rubble.
745670	WS112	None Supplied	0.15	Brown loam and sand with gravel and brick.
745671	WS113	None Supplied	1.00	Light brown sandy clay.
745672	WS114	None Supplied	2.00	Light brown clay and sand with gravel.
745673	WS115	None Supplied	1.60	Brown gravelly loam with rubble.
745674	WS120	None Supplied	1.00	Light brown clay and sand.
745675	WS122	None Supplied	0.50	Brown loam and sand with gravel and vegetation.
745676	WS124	None Supplied	0.30	Brown loam and sand with gravel.
745677	WS127	None Supplied	0.05	Brown loam and clay with vegetation.
745678	WS129	None Supplied	0.90	Light brown loam and sand with vegetation.
745679	TP103	None Supplied	0.50	Brown loam and sand with gravel and stones.
745680	TP104	None Supplied	0.10	Brown loam and clay with gravel and vegetation.
745681	TP108a	None Supplied	0.20	Brown loam and sand with gravel and vegetation.
745682	TP110	None Supplied	1.50	Brown loam and clay.
745683	TP113	None Supplied	0.50	Light brown clay and sand.
745684	TP128	None Supplied	1.20	Brown clay and sand with gravel.
745685	TP131	None Supplied	0.40	Brown gravelly loam with rubble.
745686	TP132	None Supplied	0.20	Light brown loam and sand with gravel and rubble.
745687	TP134	None Supplied	1.30	Light brown sand with gravel and rubble.
745688	TP135	None Supplied	1.60	Brown sand with gravel.

Analytical Report Number : 17-47749

Project / Site name: Black Cat Fireworks

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in ouse method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
BS EN 12457-1 (2:1) Leachate Prep	2:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-1.	L043-PL	W	NONE
BTEX and MTBE in leachates (Monoaromatics)	Determination of BTEX and MTBE in leachates by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Cations in soil by ICP-OES	Determination of cations in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	ISO 17025
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in leachate	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH at 20oC in leachate	Determination of pH in leachate by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Speciated EPA-16 PAHs in leachate	Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L102B-PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS

Iss No 17-47749-2 Black Cat Fireworks 11-822

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The results included within the report are representative of the samples submitted for analysis.

Page 21 of 22

Analytical Report Number : 17-47749

Project / Site name: Black Cat Fireworks

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total cyanide in leachate	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests"	L009-PL	D	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding.	L076-PL	D	NONE
TPH1 (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

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

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

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Analytical Report Number : 17-47860

Replaces Analytical Report Number : 17-47860, issue no. 1

Project / Site name:	Black Cat Fireworks	Samples received on:	09/05/2017
Your job number:	11-822	Samples instructed on:	09/05/2017
Your order number:	1182-5952-NS	Analysis completed by:	22/05/2017
Report Issue Number:	2	Report issued on:	22/05/2017
Samples Analysed:	1 leachate sample - 2 soil samples		

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

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

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

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Analytical Report Number: 17-47860

Project / Site name: Black Cat Fireworks

Your Order No: 1182-5952-NS

Lab Sample Number				746382	746383			
Sample Reference				WS117	WS118			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.40	0.30			
Date Sampled				03/05/2017	04/05/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	16	12			
Total mass of sample received	kg	0.001	NONE	0.44	1.0			

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile	-			
Asbestos in Soil	Type	N/A	ISO 17025	Detected	Not-detected			
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	< 0.001	-			
Asbestos Quantification Total	%	0.001	ISO 17025	< 0.001	-			

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	-	6.3			
Total Cyanide	mg/kg	1	MCERTS	-	< 1			
Total Sulphate as SO ₄	mg/kg	50	MCERTS	-	660			
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	33			
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	0.016			
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	16.4			
Sulphide	mg/kg	1	MCERTS	-	< 1.0			
Total Sulphur	mg/kg	50	MCERTS	-	370			

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	-	< 1.0			
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.33	0.94			
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthene	mg/kg	0.05	MCERTS	0.33	1.2			
Fluorene	mg/kg	0.05	MCERTS	0.45	1.1			
Phenanthrene	mg/kg	0.05	MCERTS	3.4	7.9			
Anthracene	mg/kg	0.05	MCERTS	0.80	1.4			
Fluoranthene	mg/kg	0.05	MCERTS	5.8	10			
Pyrene	mg/kg	0.05	MCERTS	5.1	9.0			
Benzo(a)anthracene	mg/kg	0.05	MCERTS	3.2	4.7			
Chrysene	mg/kg	0.05	MCERTS	2.9	5.3			
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	3.2	4.4			
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	1.4	2.7			
Benzo(a)pyrene	mg/kg	0.05	MCERTS	3.0	4.6			
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.7	2.1			
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.25	0.45			
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	2.1	2.4			

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	33.9	58.4			
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Analytical Report Number: 17-47860

Project / Site name: Black Cat Fireworks

Your Order No: 1182-5952-NS

Lab Sample Number				746382	746383			
Sample Reference				WS117	WS118			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.40	0.30			
Date Sampled				03/05/2017	04/05/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	24			
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	0.3			
Chromium (hexavalent)	mg/kg	4	MCERTS	-	< 4.0			
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	18			
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	46			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	95			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	< 0.3			
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	14			
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0			
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	92			

Petroleum Hydrocarbons

TPH (C5 - C6)	mg/kg	1	NONE	< 1.0	< 1.0			
TPH (C6 - C8)	mg/kg	0.1	NONE	< 0.1	< 0.1			
TPH (C8 - C10)	mg/kg	0.1	NONE	< 0.1	< 0.1			
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	2.1			
TPH (C12 - C16)	mg/kg	4	MCERTS	8.2	15			
TPH (C16 - C21)	mg/kg	1	MCERTS	67	61			
TPH (C21 - C35)	mg/kg	1	MCERTS	610	160			



Analytical Report Number: **17-47860**
Project / Site name: **Black Cat Fireworks**
Your Order No: **1182-5952-NS**

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
746382	WS117	0.40	117	Loose Fibres	Chrysotile	< 0.001	< 0.001

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.



Analytical Report Number: 17-47860

Project / Site name: Black Cat Fireworks

Your Order No: 1182-5952-NS

Lab Sample Number				746384			
Sample Reference				WS118			
Sample Number				None Supplied			
Depth (m)				0.30			
Date Sampled				04/05/2017			
Time Taken				None Supplied			
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status				

General Inorganics

pH	pH Units	N/A	ISO 17025	6.3			
Total Cyanide	µg/l	10	ISO 17025	< 10			

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10			
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Speciated PAHs

Naphthalene	µg/l	0.01	NONE	< 0.01			
Acenaphthylene	µg/l	0.01	NONE	< 0.01			
Acenaphthene	µg/l	0.01	NONE	< 0.01			
Fluorene	µg/l	0.01	NONE	< 0.01			
Phenanthrene	µg/l	0.01	NONE	< 0.01			
Anthracene	µg/l	0.01	NONE	< 0.01			
Fluoranthene	µg/l	0.01	NONE	< 0.01			
Pyrene	µg/l	0.01	NONE	< 0.01			
Benzo(a)anthracene	µg/l	0.01	NONE	< 0.01			
Chrysene	µg/l	0.01	NONE	< 0.01			
Benzo(b)fluoranthene	µg/l	0.01	NONE	< 0.01			
Benzo(k)fluoranthene	µg/l	0.01	NONE	< 0.01			
Benzo(a)pyrene	µg/l	0.01	NONE	< 0.01			
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01			
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01			
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01			

Total PAH

Total EPA-16 PAHs	µg/l	0.2	NONE	< 0.2			
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1.1	ISO 17025	2.1			
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08			
Chromium (hexavalent)	µg/l	5	NONE	< 5.0			
Chromium (dissolved)	µg/l	0.4	ISO 17025	1.9			
Copper (dissolved)	µg/l	0.7	ISO 17025	18			
Lead (dissolved)	µg/l	1	ISO 17025	3.3			
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5			
Nickel (dissolved)	µg/l	0.3	ISO 17025	0.8			
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0			
Zinc (dissolved)	µg/l	0.4	ISO 17025	5.4			



Analytical Report Number: 17-47860

Project / Site name: Black Cat Fireworks

Your Order No: 1182-5952-NS

Lab Sample Number				746384			
Sample Reference				WS118			
Sample Number				None Supplied			
Depth (m)				0.30			
Date Sampled				04/05/2017			
Time Taken				None Supplied			
Analytical Parameter (Leachate Analysis)				Units	Limit of detection	Accreditation Status	

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0			
Toluene	µg/l	1	ISO 17025	< 1.0			
Ethylbenzene	µg/l	1	ISO 17025	< 1.0			
p & m-xylene	µg/l	1	ISO 17025	< 1.0			
o-xylene	µg/l	1	ISO 17025	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/l	10	NONE	< 10			

Petroleum Hydrocarbons

TPH1 (C10 - C40)	µg/l	10	NONE	< 10			
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TPH-CWG - Aliphatic >C5 - C6	µg/l	1	NONE	< 1.0			
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	NONE	< 1.0			
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	NONE	< 1.0			
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10			
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10			
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10			
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10			
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10			

TPH-CWG - Aromatic >C5 - C7	µg/l	1	NONE	< 1.0			
TPH-CWG - Aromatic >C7 - C8	µg/l	1	NONE	< 1.0			
TPH-CWG - Aromatic >C8 - C10	µg/l	1	NONE	< 1.0			
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10			
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10			
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10			
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10			
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10			



Analytical Report Number: 17-47860

Project / Site name: Black Cat Fireworks

Your Order No: 1182-5952-NS

Lab Sample Number	
Sample Reference	
Sample Number	
Depth (m)	
Date Sampled	
Time Taken	
Analytical Parameter (Leachate Analysis)	Units Limit of detection Accreditation Status

General Inorganics

pH	pH Units	N/A	ISO 17025
Total Cyanide	µg/l	10	ISO 17025

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025
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Speciated PAHs

Naphthalene	µg/l	0.01	NONE
Acenaphthylene	µg/l	0.01	NONE
Acenaphthene	µg/l	0.01	NONE
Fluorene	µg/l	0.01	NONE
Phenanthrene	µg/l	0.01	NONE
Anthracene	µg/l	0.01	NONE
Fluoranthene	µg/l	0.01	NONE
Pyrene	µg/l	0.01	NONE
Benzo(a)anthracene	µg/l	0.01	NONE
Chrysene	µg/l	0.01	NONE
Benzo(b)fluoranthene	µg/l	0.01	NONE
Benzo(k)fluoranthene	µg/l	0.01	NONE
Benzo(a)pyrene	µg/l	0.01	NONE
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE
Dibenz(a,h)anthracene	µg/l	0.01	NONE
Benzo(ghi)perylene	µg/l	0.01	NONE

Total PAH

Total EPA-16 PAHs	µg/l	0.2	NONE
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1.1	ISO 17025
Cadmium (dissolved)	µg/l	0.08	ISO 17025
Chromium (hexavalent)	µg/l	5	NONE
Chromium (dissolved)	µg/l	0.4	ISO 17025
Copper (dissolved)	µg/l	0.7	ISO 17025
Lead (dissolved)	µg/l	1	ISO 17025
Mercury (dissolved)	µg/l	0.5	ISO 17025
Nickel (dissolved)	µg/l	0.3	ISO 17025
Selenium (dissolved)	µg/l	4	ISO 17025
Zinc (dissolved)	µg/l	0.4	ISO 17025



Analytical Report Number: 17-47860

Project / Site name: Black Cat Fireworks

Your Order No: 1182-5952-NS

Lab Sample Number				
Sample Reference				
Sample Number				
Depth (m)				
Date Sampled				
Time Taken				
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status	

Monoaromatics

Benzene	µg/l	1	ISO 17025	
Toluene	µg/l	1	ISO 17025	
Ethylbenzene	µg/l	1	ISO 17025	
p & m-xylene	µg/l	1	ISO 17025	
o-xylene	µg/l	1	ISO 17025	
MTBE (Methyl Tertiary Butyl Ether)	µg/l	10	NONE	

Petroleum Hydrocarbons

TPH1 (C10 - C40)	µg/l	10	NONE	
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TPH-CWG - Aliphatic >C5 - C6	µg/l	1	NONE	
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	NONE	
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	NONE	
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	

TPH-CWG - Aromatic >C5 - C7	µg/l	1	NONE	
TPH-CWG - Aromatic >C7 - C8	µg/l	1	NONE	
TPH-CWG - Aromatic >C8 - C10	µg/l	1	NONE	
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	



Analytical Report Number : 17-47860

Project / Site name: Black Cat Fireworks

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
746382	WS117	None Supplied	0.40	Brown loam and clay with gravel and vegetation.
746383	WS118	None Supplied	0.30	Brown loam and clay with vegetation.

Analytical Report Number : 17-47860

Project / Site name: Black Cat Fireworks

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in ouse method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
BS EN 12457-1 (2:1) Leachate Prep	2:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-1.	L043-PL	W	NONE
BTEX and MTBE in leachates (Monoaromatics)	Determination of BTEX and MTBE in leachates by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in leachate	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH at 20oC in leachate	Determination of pH in leachate by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in leachate	Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L102B-PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS

Iss No 17-47860-2 Black Cat Fireworks 11-822

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The results included within the report are representative of the samples submitted for analysis.

Page 10 of 11

Analytical Report Number : 17-47860

Project / Site name: Black Cat Fireworks

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total cyanide in leachate	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding.	L076-PL	D	NONE
TPH1 (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

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

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

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Analytical Report Number : 17-48722

Project / Site name:	Black Cat Fireworks	Samples received on:	17/05/2017
Your job number:	11-822	Samples instructed on:	17/05/2017
Your order number:	11822-6015-GH	Analysis completed by:	24/05/2017
Report Issue Number:	1	Report issued on:	24/05/2017
Samples Analysed:	2 leachate samples - 14 soil samples		

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

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

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

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

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 17-48722

Project / Site name: Black Cat Fireworks

Your Order No: 11822-6015-GH

Lab Sample Number	751054	751055	751056	751057	751058
Sample Reference	WS201	WS202	WS203	WS204	WS205
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.20	0.60	0.90	1.70	0.20
Date Sampled	16/05/2017	16/05/2017	16/05/2017	16/05/2017	16/05/2017
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	10	9.7
Total mass of sample received	kg	0.001	NONE	0.48	0.48

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	-	-	Not-detected

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	-	-	8.3	-	5.7
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	-	< 1
Total Sulphate as SO ₄	mg/kg	50	MCERTS	-	-	65	-	500
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-	< 2.5	-	< 2.5
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	< 1.25	-	< 1.25
Water Soluble SO ₄ as SO ₄ (2:1) Gallery 16h extraction	g/l	0.00125	MCERTS	-	-	< 0.0013	-	< 0.0013
Sulphide	mg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
Total Sulphur	mg/kg	50	MCERTS	-	-	< 50	-	340
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	0.2	-	0.7	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	0.31
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.12	< 0.05	< 0.05	-	0.45
Fluorene	mg/kg	0.05	MCERTS	0.14	< 0.05	< 0.05	-	0.40
Phenanthrene	mg/kg	0.05	MCERTS	0.89	< 0.05	< 0.05	-	2.6
Anthracene	mg/kg	0.05	MCERTS	0.15	< 0.05	< 0.05	-	0.43
Fluoranthene	mg/kg	0.05	MCERTS	1.2	< 0.05	< 0.05	-	2.6
Pyrene	mg/kg	0.05	MCERTS	1.1	< 0.05	< 0.05	-	2.4
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.69	< 0.05	< 0.05	-	1.5
Chrysene	mg/kg	0.05	MCERTS	0.68	< 0.05	< 0.05	-	1.4
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.78	< 0.05	< 0.05	-	1.6
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.32	< 0.05	< 0.05	-	0.40
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.62	< 0.05	< 0.05	-	1.3
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.31	< 0.05	< 0.05	-	0.56
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.12	< 0.05	< 0.05	-	0.21
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.37	< 0.05	< 0.05	-	0.72

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	7.46	< 0.80	< 0.80	-	16.7
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Analytical Report Number: 17-48722

Project / Site name: Black Cat Fireworks

Your Order No: 11822-6015-GH

Lab Sample Number	751054	751055	751056	751057	751058
Sample Reference	WS201	WS202	WS203	WS204	WS205
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.20	0.60	0.90	1.70	0.20
Date Sampled	16/05/2017	16/05/2017	16/05/2017	16/05/2017	16/05/2017
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	16	1.8	2.0	-	15
Barium (aqua regia extractable)	mg/kg	1	MCERTS	59	39	-	-	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.58	0.77	-	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	-	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	-	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	8.5	-	25
Copper (aqua regia extractable)	mg/kg	1	MCERTS	28	11	5.7	-	27
Lead (aqua regia extractable)	mg/kg	1	MCERTS	59	21	8.8	-	66
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.4	< 0.3	< 0.3	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	14	24	5.8	-	13
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	-	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	23	25	-	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	82	68	24	-	88

Petroleum Hydrocarbons

TPH (C5 - C6)	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	-	< 1.0
TPH (C6 - C8)	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	-	< 0.1
TPH (C8 - C10)	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	-	< 0.1
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	-	< 2.0
TPH (C12 - C16)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	-	< 4.0
TPH (C16 - C21)	mg/kg	1	MCERTS	6.3	< 1.0	< 1.0	-	9.8
TPH (C21 - C35)	mg/kg	1	MCERTS	25	< 1.0	< 1.0	-	32

Analytical Report Number: 17-48722

Project / Site name: Black Cat Fireworks

Your Order No: 11822-6015-GH

Lab Sample Number				751059	751060	751061	751062	751063
Sample Reference				WS207	WS208	WS209	WS209	WS210
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.60	0.10	3.80	0.30
Date Sampled				16/05/2017	16/05/2017	16/05/2017	16/05/2017	16/05/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	48	27	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	10	9.7	10	10	16
Total mass of sample received	kg	0.001	NONE	0.50	0.48	0.50	0.46	0.49

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	-	Not-detected

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	6.3	-	6.3	-	-
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Total Sulphate as SO ₄	mg/kg	50	MCERTS	360	-	230	-	-
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	4.1	-	< 2.5	-	-
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	2.04	-	< 1.25	-	-
Water Soluble SO ₄ as SO ₄ (2:1) Gallery 16h extraction	g/l	0.00125	MCERTS	0.0020	-	< 0.0013	-	-
Sulphide	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	-
Total Sulphur	mg/kg	50	MCERTS	230	-	180	-	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	1.1	-	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	-
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	14	0.15	< 0.05	0.22
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.26	0.30	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	11	0.15	< 0.05	0.30
Fluorene	mg/kg	0.05	MCERTS	< 0.05	8.5	0.27	< 0.05	0.21
Phenanthrene	mg/kg	0.05	MCERTS	0.37	71	3.0	< 0.05	2.0
Anthracene	mg/kg	0.05	MCERTS	0.08	15	0.34	< 0.05	0.39
Fluoranthene	mg/kg	0.05	MCERTS	0.48	73	3.5	< 0.05	2.7
Pyrene	mg/kg	0.05	MCERTS	0.42	63	2.8	< 0.05	2.4
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.29	43	1.4	< 0.05	1.5
Chrysene	mg/kg	0.05	MCERTS	0.25	32	1.4	< 0.05	1.4
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.26	40	1.5	< 0.05	1.5
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.15	17	0.83	< 0.05	0.84
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.27	33	1.4	< 0.05	1.4
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.14	15	0.76	< 0.05	0.70
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.05	4.8	0.23	< 0.05	0.24
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.18	18	0.93	< 0.05	0.81

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	2.94	459	18.9	< 0.80	16.7
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Analytical Report Number: 17-48722

Project / Site name: Black Cat Fireworks

Your Order No: 11822-6015-GH

Lab Sample Number				751059	751060	751061	751062	751063
Sample Reference				WS207	WS208	WS209	WS209	WS210
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.60	0.10	3.80	0.30
Date Sampled				16/05/2017	16/05/2017	16/05/2017	16/05/2017	16/05/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	14	7.7	1.3	35
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	94	-	68	91
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	0.72	-	0.85	0.86
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	0.5	0.5	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	10	-	19	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	16	28	27	12	47
Lead (aqua regia extractable)	mg/kg	1	MCERTS	40	47	62	14	120
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	0.5
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	8.0	20	20	25	16
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	30	-	28	31
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	32	58	84	55	53

Petroleum Hydrocarbons

TPH (C5 - C6)	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8)	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10)	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	15	< 2.0	< 2.0	< 2.0
TPH (C12 - C16)	mg/kg	4	MCERTS	< 4.0	92	< 4.0	< 4.0	< 4.0
TPH (C16 - C21)	mg/kg	1	MCERTS	1.4	400	11	< 1.0	18
TPH (C21 - C35)	mg/kg	1	MCERTS	5.4	660	23	< 1.0	68

Analytical Report Number: 17-48722

Project / Site name: Black Cat Fireworks

Your Order No: 11822-6015-GH

Lab Sample Number	751064	751065	751066	751067	
Sample Reference	WS213	WS214	WS215	WS215	
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)	0.70	1.60	2.20	4.60	
Date Sampled	16/05/2017	16/05/2017	16/05/2017	16/05/2017	
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	9.2	15
Total mass of sample received	kg	0.001	NONE	0.53	0.56

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	Chrysotile-Bitumen
Asbestos in Soil	Type	N/A	ISO 17025	-	-	-	Detected

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	-	-	-	8.0
Total Cyanide	mg/kg	1	MCERTS	-	< 1	-	< 1
Total Sulphate as SO ₄	mg/kg	50	MCERTS	-	-	-	530
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-	-	100
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-	51.9
Water Soluble SO ₄ as SO ₄ (2:1) Gallery 16h extraction	g/l	0.00125	MCERTS	-	-	-	0.0519
Sulphide	mg/kg	1	MCERTS	-	-	-	14
Total Sulphur	mg/kg	50	MCERTS	-	-	-	550
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.7	-	1.3	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-	-	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.56
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.61
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.10
Fluoranthene	mg/kg	0.05	MCERTS	-	0.27	-	1.5
Pyrene	mg/kg	0.05	MCERTS	-	0.15	-	1.5
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	0.07	-	1.1
Chrysene	mg/kg	0.05	MCERTS	-	0.06	-	1.1
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	1.4
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.83
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.67
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.67
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.20
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.72

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	< 0.80	-	11.0
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Analytical Report Number: 17-48722

Project / Site name: Black Cat Fireworks

Your Order No: 11822-6015-GH

Lab Sample Number				751064	751065	751066	751067
Sample Reference				WS213	WS214	WS215	WS215
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.70	1.60	2.20	4.60
Date Sampled				16/05/2017	16/05/2017	16/05/2017	16/05/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	2.8	-	14
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	21	-	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	0.57	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	< 0.2	-	2.4
Chromium (hexavalent)	mg/kg	4	MCERTS	-	< 4.0	-	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	93
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	17	-	170
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	16	-	210
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	< 0.3	-	1.8
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	12	-	22
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0	-	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	16	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	42	-	290

Petroleum Hydrocarbons

TPH (C5 - C6)	mg/kg	1	NONE	-	< 1.0	-	< 1.0
TPH (C6 - C8)	mg/kg	0.1	NONE	-	< 0.1	-	< 0.1
TPH (C8 - C10)	mg/kg	0.1	NONE	-	< 0.1	-	0.5
TPH (C10 - C12)	mg/kg	2	MCERTS	-	< 2.0	-	17
TPH (C12 - C16)	mg/kg	4	MCERTS	-	< 4.0	-	49
TPH (C16 - C21)	mg/kg	1	MCERTS	-	< 1.0	-	110
TPH (C21 - C35)	mg/kg	1	MCERTS	-	< 1.0	-	850



Analytical Report Number: 17-48722

Project / Site name: Black Cat Fireworks

Your Order No: 11822-6015-GH

Lab Sample Number	751068	751069			
Sample Reference	WS203	WS215			
Sample Number	None Supplied	None Supplied			
Depth (m)	0.90	2.20			
Date Sampled	16/05/2017	16/05/2017			
Time Taken	None Supplied	None Supplied			
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status		

General Inorganics

pH	pH Units	N/A	ISO 17025	7.0	8.0			
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10			

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10			
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Speciated PAHs

Naphthalene	µg/l	0.01	NONE	< 0.01	< 0.01			
Acenaphthylene	µg/l	0.01	NONE	< 0.01	< 0.01			
Acenaphthene	µg/l	0.01	NONE	< 0.01	< 0.01			
Fluorene	µg/l	0.01	NONE	< 0.01	< 0.01			
Phenanthrene	µg/l	0.01	NONE	< 0.01	< 0.01			
Anthracene	µg/l	0.01	NONE	< 0.01	< 0.01			
Fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01			
Pyrene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(a)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01			
Chrysene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(b)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(k)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(a)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01			
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01			
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01			

Total PAH

Total EPA-16 PAHs	µg/l	0.2	NONE	< 0.2	< 0.2			
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1.1	ISO 17025	< 1.1	1.9			
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08			
Chromium (hexavalent)	µg/l	5	NONE	< 5.0	< 5.0			
Chromium (dissolved)	µg/l	0.4	ISO 17025	1.7	0.8			
Copper (dissolved)	µg/l	0.7	ISO 17025	8.3	25			
Lead (dissolved)	µg/l	1	ISO 17025	3.5	3.1			
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5			
Nickel (dissolved)	µg/l	0.3	ISO 17025	1.0	3.2			
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0			
Zinc (dissolved)	µg/l	0.4	ISO 17025	4.8	36			



Analytical Report Number: 17-48722

Project / Site name: Black Cat Fireworks

Your Order No: 11822-6015-GH

Lab Sample Number				751068	751069			
Sample Reference				WS203	WS215			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.90	2.20			
Date Sampled				16/05/2017	16/05/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Leachate Analysis)				Units	Limit of detection	Accreditation Status		

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/l	10	NONE	< 10	< 10			

Petroleum Hydrocarbons

TPH1 (C10 - C40)	µg/l	10	NONE	< 10	< 10			
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TPH-CWG - Aliphatic >C5 - C6	µg/l	1	NONE	< 1.0	< 1.0			
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	NONE	< 1.0	< 1.0			
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	NONE	< 1.0	< 1.0			
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10			

TPH-CWG - Aromatic >C5 - C7	µg/l	1	NONE	< 1.0	< 1.0			
TPH-CWG - Aromatic >C7 - C8	µg/l	1	NONE	< 1.0	< 1.0			
TPH-CWG - Aromatic >C8 - C10	µg/l	1	NONE	< 1.0	< 1.0			
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10			

Analytical Report Number : 17-48722

Project / Site name: Black Cat Fireworks

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
751054	WS201	None Supplied	0.20	Brown sandy loam with gravel and vegetation.
751055	WS202	None Supplied	0.60	Light brown sandy clay with gravel.
751056	WS203	None Supplied	0.90	Light brown sandy clay with gravel and stones.
751057	WS204	None Supplied	1.70	Brown sandy clay.
751058	WS205	None Supplied	0.20	Brown loam and clay with gravel and vegetation.
751059	WS207	None Supplied	0.30	Brown loam and sand with gravel and vegetation.
751060	WS208	None Supplied	0.60	Brown clay and loam with gravel and stones.
751061	WS209	None Supplied	0.10	Brown loam and clay with vegetation and stones.
751062	WS209	None Supplied	3.80	Light brown clay and sand with gravel and vegetation.
751063	WS210	None Supplied	0.30	Brown loam and clay with gravel and vegetation.
751064	WS213	None Supplied	0.70	Light brown clay and sand with gravel and vegetation.
751065	WS214	None Supplied	1.60	Light brown sandy clay.
751066	WS215	None Supplied	2.20	Brown clay and sand with gravel.
751067	WS215	None Supplied	4.60	Brown clay and sand with gravel and rubble.

Analytical Report Number : 17-48722

Project / Site name: Black Cat Fireworks

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
BS EN 12457-1 (2:1) Leachate Prep	2:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-1.	L043-PL	W	NONE
BTEX and MTBE in leachates (Monoaromatics)	Determination of BTEX and MTBE in leachates by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in leachate	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH at 20oC in leachate	Determination of pH in leachate by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS

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Project / Site name: Black Cat Fireworks

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Speciated EPA-16 PAHs in leachate	Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L102B-PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil by Gallery 16hr	Determination of water soluble Sulphate by discrete analyser (precipitation method).	In house method based on BS1377-3: 1990.	L082B-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total cyanide in leachate	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests"	L009-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding.	L076-PL	D	NONE
TPH1 (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

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

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