



## VectorMap Local

Published 2017

### Source map scale - 1:10,000

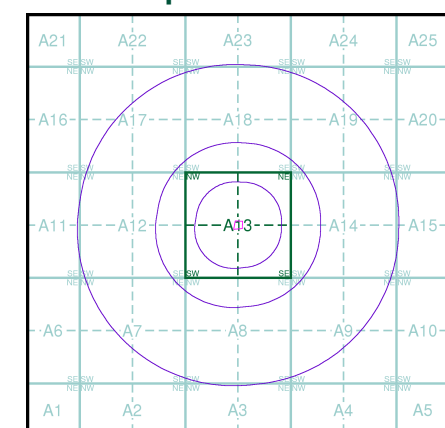
VectorMap Local (Raster) is Ordnance Survey's highest detailed 'backdrop' mapping product. These maps are produced from OS's VectorMap Local, a simple vector dataset at a nominal scale of 1:10,000, covering the whole of Great Britain, that has been designed for creating graphical mapping. OS VectorMap Local is derived from large-scale information surveyed at 1:1250 scale (covering major towns and cities), 1:2500 scale (smaller towns, villages and developed rural areas), and 1:10 000 scale (mountain, moorland and river estuary areas).

### Map Name(s) and Date(s)

SD71SE  
2017  
Variable

SD70NE  
2017  
Variable

### Historical Map - Slice A



**Order Details**

Order Number: 121530175\_1\_1  
Customer Ref: 16-0790.02  
National Grid Reference: 377560, 411100  
Slice: A  
Site Area (Ha): 0.26  
Search Buffer (m): 1000

**Site Details**

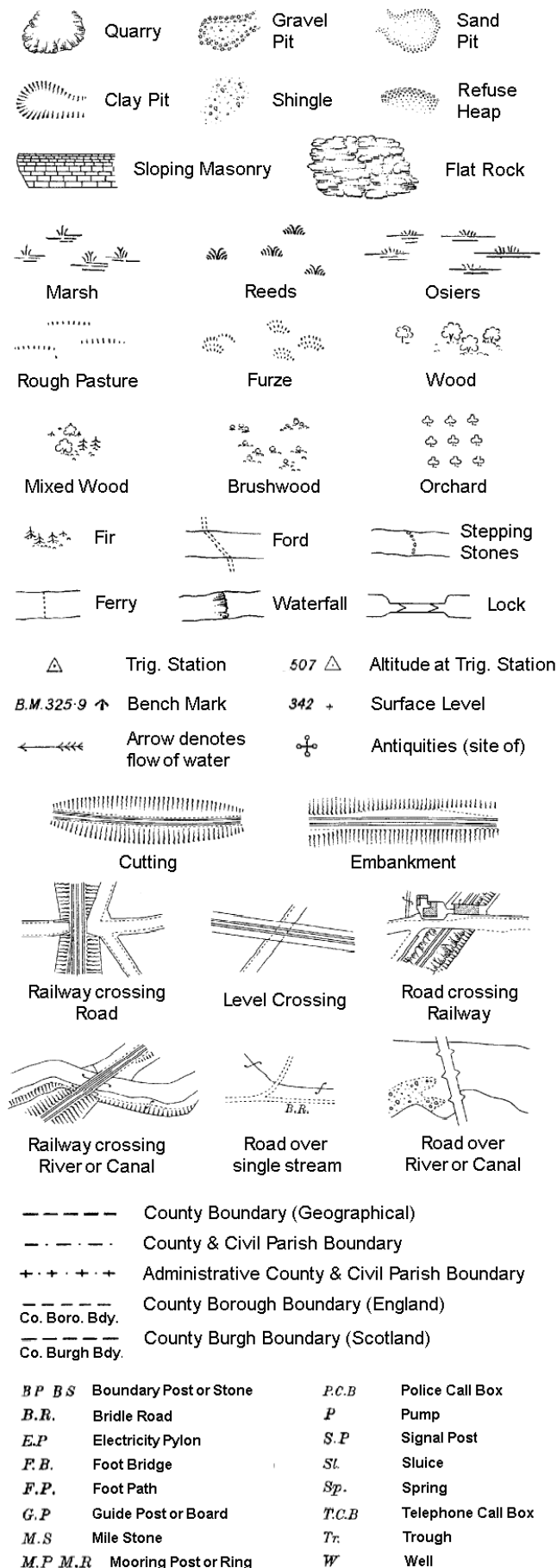
18, Lowercroft Road, BURY, BL8 2EY

**Landmark**  
INFORMATION GROUP

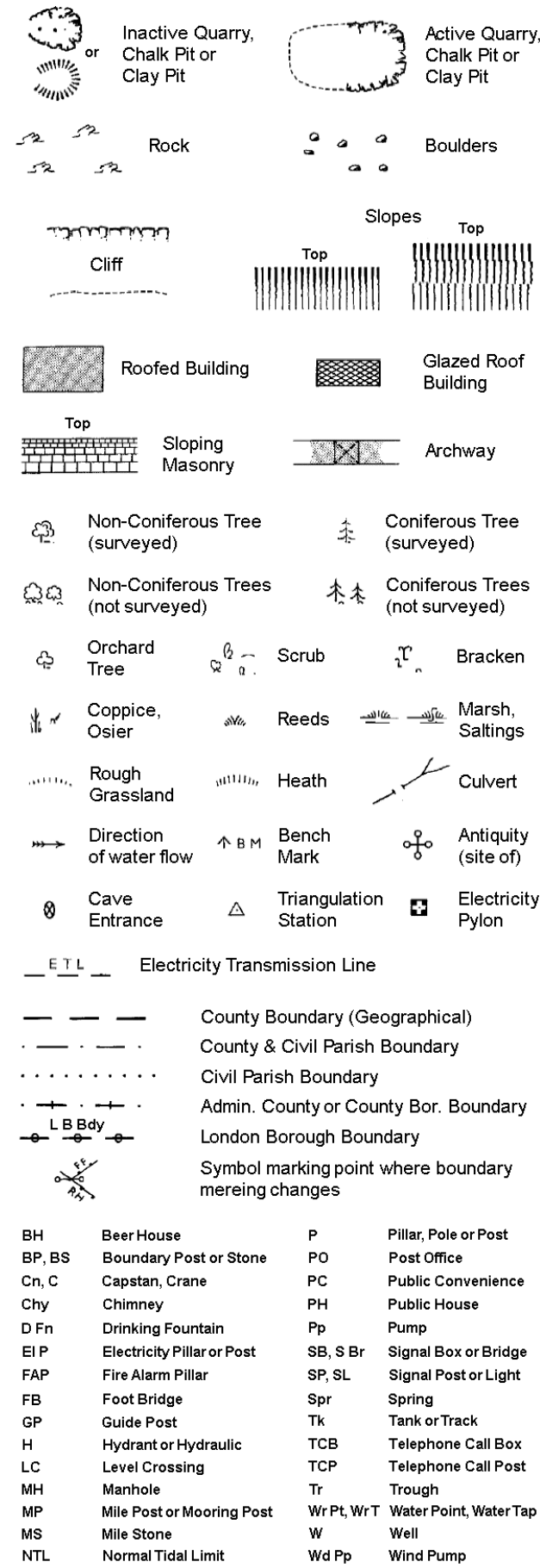
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Web: www.envirocheck.co.uk

# Historical Mapping Legends

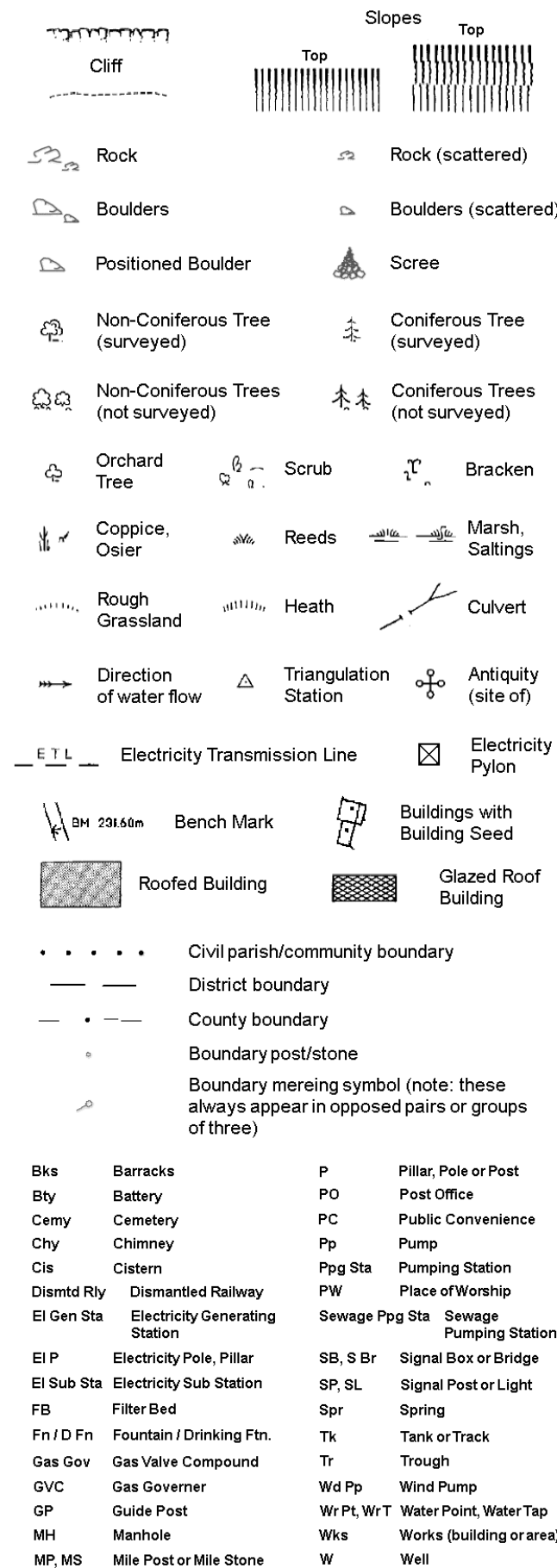
## Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



## Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250



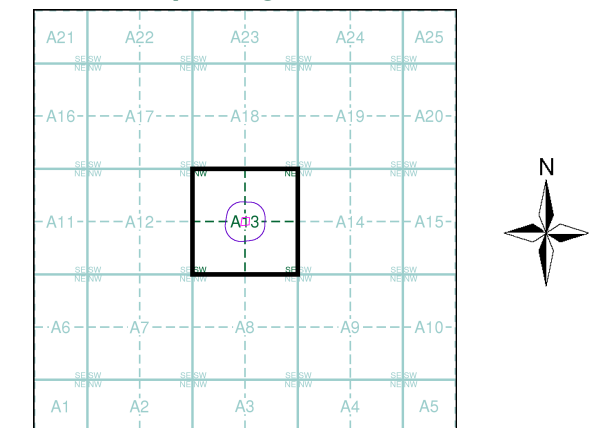
## Large-Scale National Grid Data 1:2,500 and 1:1,250



## Historical Mapping & Photography included:

| Mapping Type                   | Scale   | Date        | Pg |
|--------------------------------|---------|-------------|----|
| Lancashire And Furness         | 1:2,500 | 1893        | 2  |
| Lancashire And Furness         | 1:2,500 | 1910        | 3  |
| Lancashire And Furness         | 1:2,500 | 1929 - 1930 | 4  |
| Lancashire And Furness         | 1:2,500 | 1937 - 1939 | 5  |
| Ordnance Survey Plan           | 1:2,500 | 1957 - 1967 | 6  |
| Ordnance Survey Plan           | 1:1,250 | 1957 - 1959 | 7  |
| Ordnance Survey Plan           | 1:1,250 | 1969 - 1974 | 8  |
| Ordnance Survey Plan           | 1:1,250 | 1977        | 9  |
| Additional SIMs                | 1:1,250 | 1979 - 1984 | 10 |
| Large-Scale National Grid Data | 1:1,250 | 1992        | 11 |
| Large-Scale National Grid Data | 1:1,250 | 1993        | 12 |
| Large-Scale National Grid Data | 1:1,250 | 1994        | 13 |
| Historical Aerial Photography  | 1:2,500 | 2001        | 14 |

## Historical Map - Segment A13



## Order Details

Order Number: 121530175\_1\_1  
Customer Ref: 16-0790.02  
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Slice: A  
Site Area (Ha): 0.26  
Search Buffer (m): 100

## Site Details

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## Lancashire And Furness

Published 1893

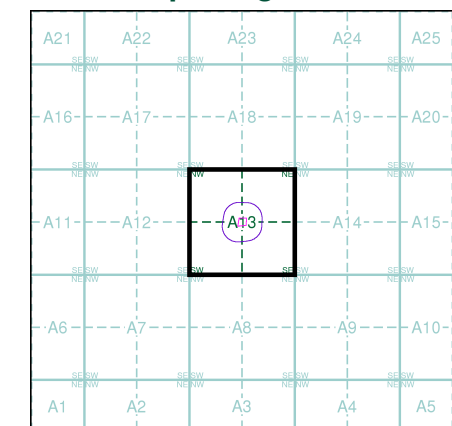
Source map scale - 1:2,500

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 and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below 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.

### Map Name(s) and Date(s)

|                           |                           |
|---------------------------|---------------------------|
| 087_07<br>1893<br>1:2,500 | 087_08<br>1893<br>1:2,500 |
| 087_11<br>1893<br>1:2,500 | 087_12<br>1893<br>1:2,500 |

### Historical Map - Segment A13

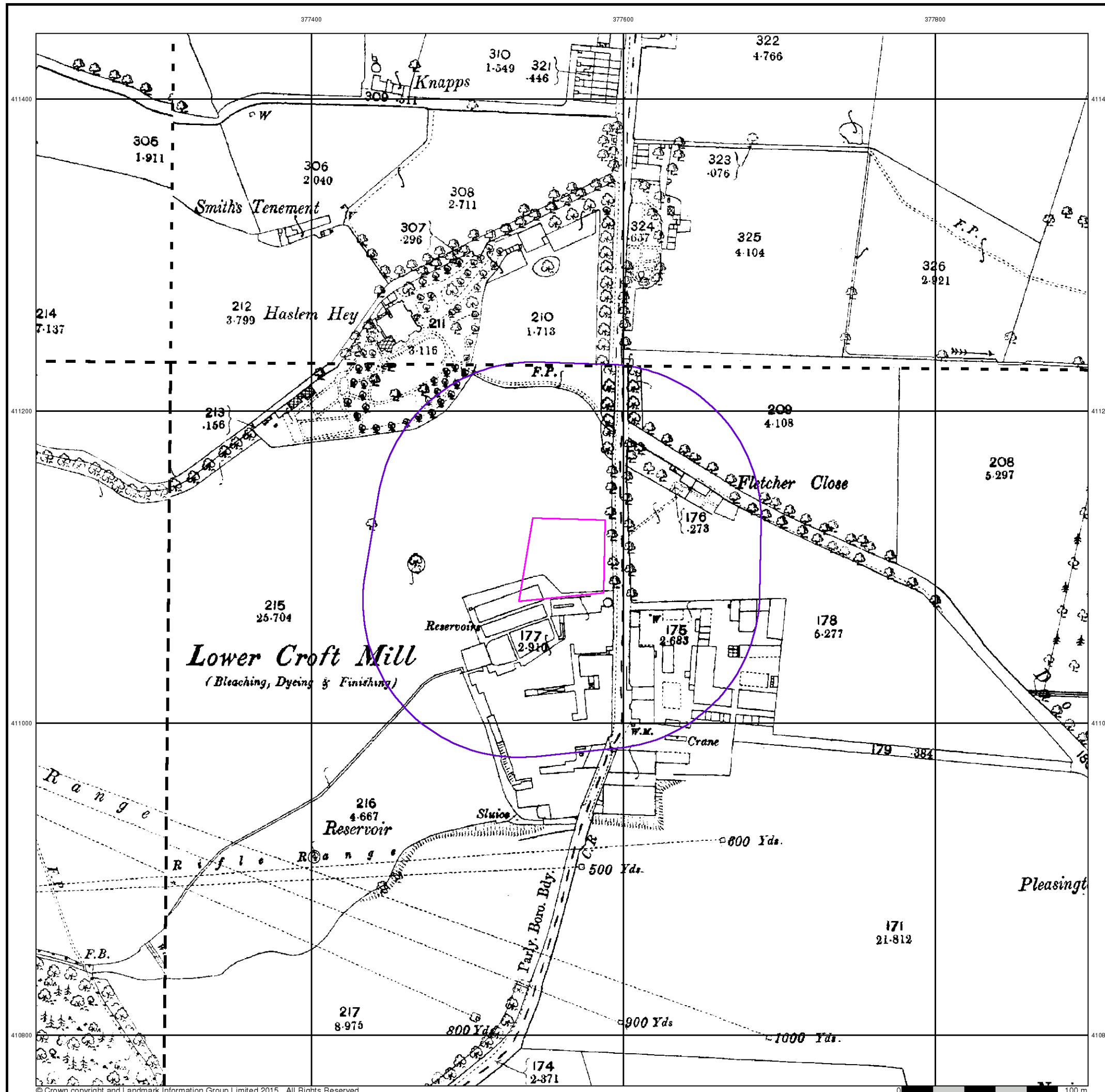


### Order Details

Order Number: 121530175\_1\_1  
 Customer Ref: 16-0790.02  
 National Grid Reference: 377560, 411100  
 Slice: A  
 Site Area (Ha): 0.26  
 Search Buffer (m): 100

### Site Details

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## Lancashire And Furness

Published 1910

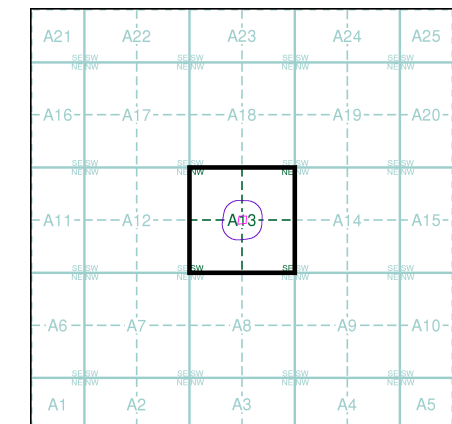
Source map scale - 1:2,500

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 and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below 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.

### Map Name(s) and Date(s)

|                           |                           |
|---------------------------|---------------------------|
| 087_07<br>1910<br>1:2,500 | 087_08<br>1910<br>1:2,500 |
| 087_11<br>1910<br>1:2,500 | 087_12<br>1910<br>1:2,500 |

### Historical Map - Segment A13

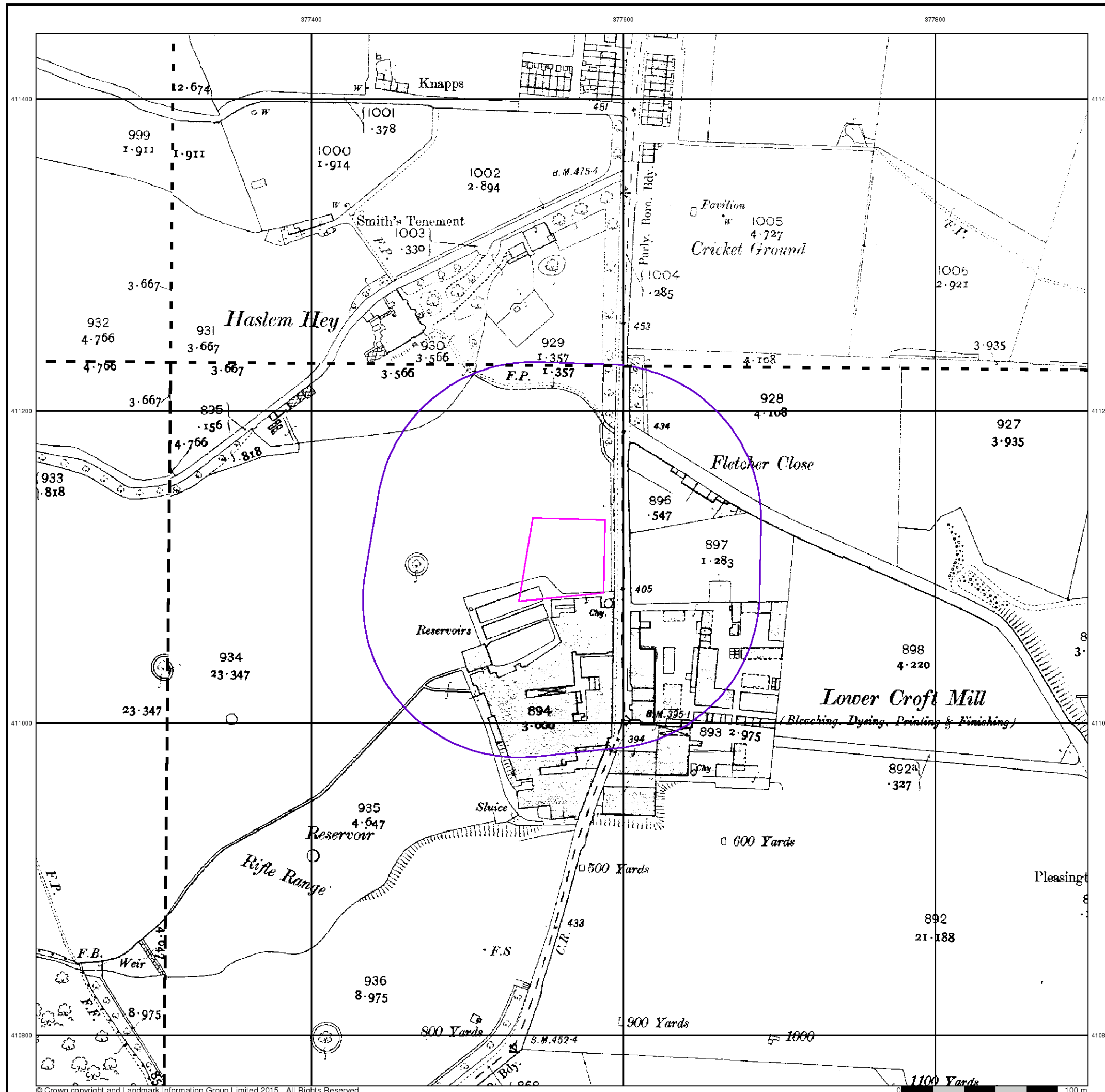


### Order Details

Order Number: 121530175\_1\_1  
 Customer Ref: 16-0790.02  
 National Grid Reference: 377560, 411100  
 Slice: A  
 Site Area (Ha): 0.26  
 Search Buffer (m): 100

### Site Details

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## Lancashire And Furness

Published 1929 - 1930

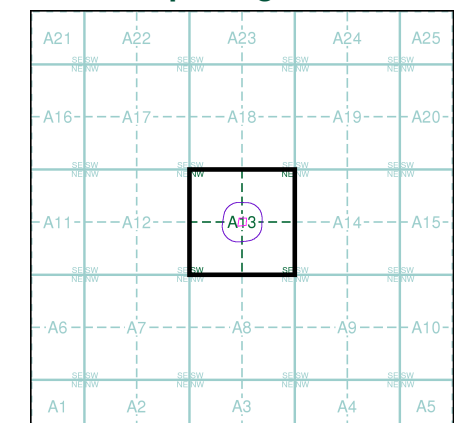
Source map scale - 1:2,500

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 and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below 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.

### Map Name(s) and Date(s)

|                           |                           |
|---------------------------|---------------------------|
| 087_08<br>1930<br>1:2,500 | 087_12<br>1929<br>1:2,500 |
| 087_11<br>1930<br>1:2,500 |                           |

### Historical Map - Segment A13

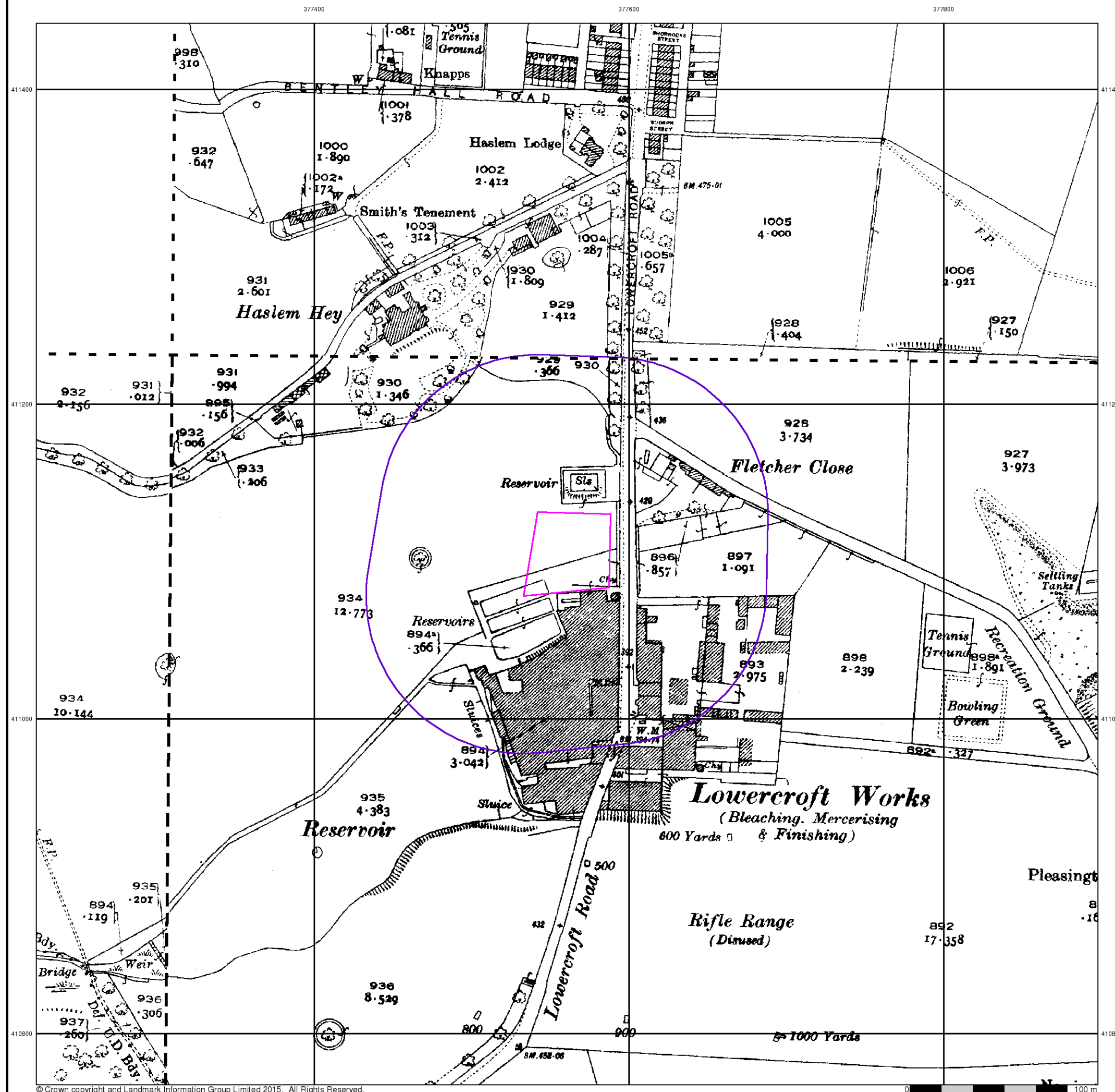


### Order Details

Order Number: 121530175\_1\_1  
 Customer Ref: 16-0790.02  
 National Grid Reference: 377560, 411100  
 Slice: A  
 Site Area (Ha): 0.26  
 Search Buffer (m): 100

### Site Details

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## Lancashire And Furness

Published 1937 - 1939

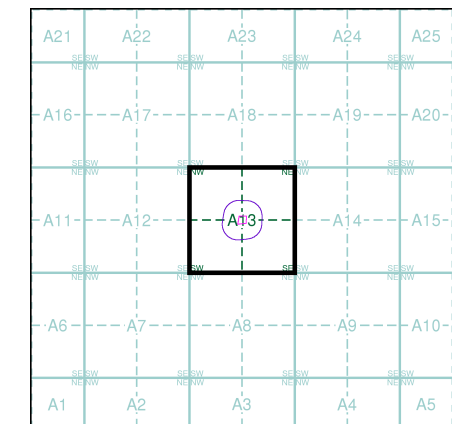
Source map scale - 1:2,500

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 and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below 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.

### Map Name(s) and Date(s)

|                           |                           |
|---------------------------|---------------------------|
| 087_07<br>1937<br>1:2,500 |                           |
| 087_11<br>1939<br>1:2,500 | 087_12<br>1939<br>1:2,500 |

### Historical Map - Segment A13

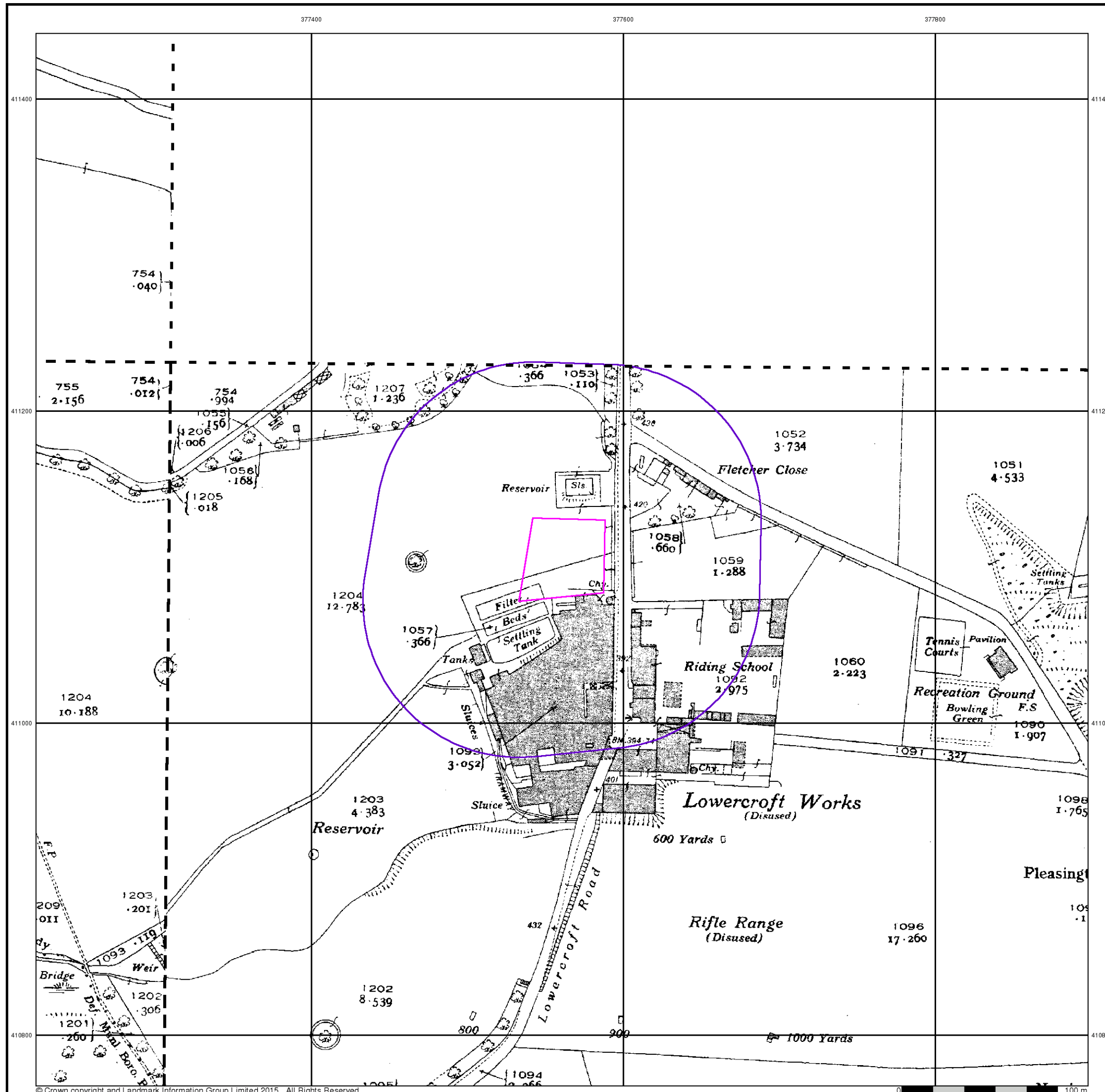


### Order Details

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 Customer Ref: 16-0790.02  
 National Grid Reference: 377560, 411100  
 Slice: A  
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 Search Buffer (m): 100

### Site Details

18, Lowercroft Road, BURY, BL8 2EY





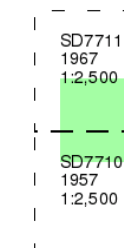
## Ordnance Survey Plan

Published 1957 - 1967

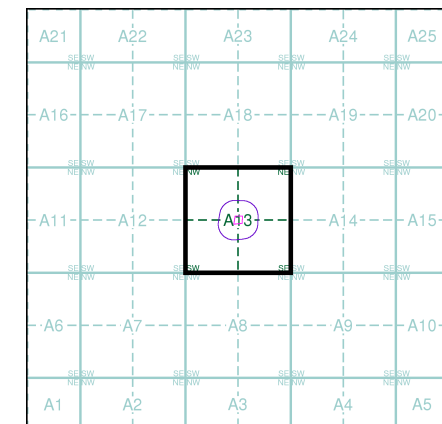
Source map scale - 1:2,500

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 and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below 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.

### Map Name(s) and Date(s)



### Historical Map - Segment A13



### Order Details

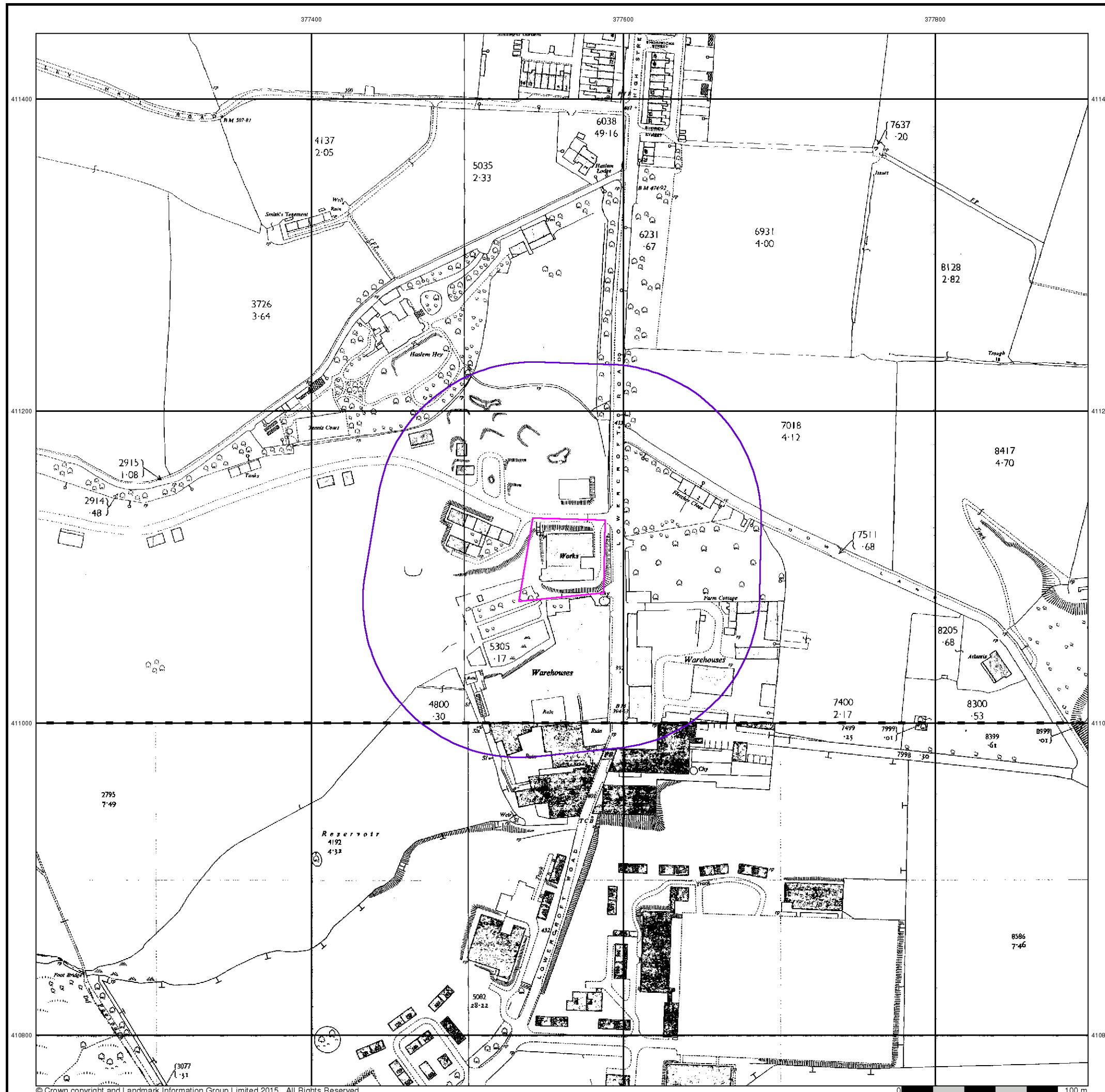
Order Number: 121530175\_1\_1  
Customer Ref: 16-0790.02  
National Grid Reference: 377560, 411100  
Slice: A  
Site Area (Ha): 0.26  
Search Buffer (m): 100

### Site Details

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## Ordnance Survey Plan

Published 1957 - 1959

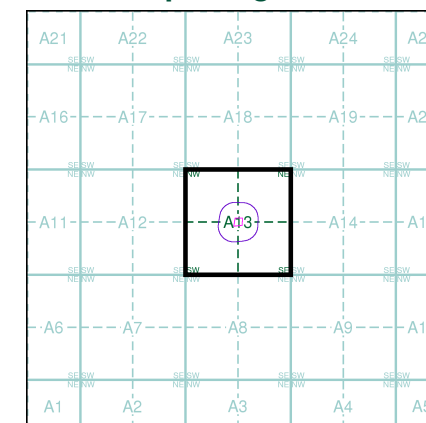
Source map scale - 1:1,250

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 and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below 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.

### Map Name(s) and Date(s)

|                             |                             |
|-----------------------------|-----------------------------|
| SD7711SW<br>1959<br>1:1,250 | SD7711SE<br>1959<br>1:1,250 |
| SD7710NW<br>1957<br>1:1,250 | SD7710NE<br>1957<br>1:1,250 |

### Historical Map - Segment A13



### Order Details

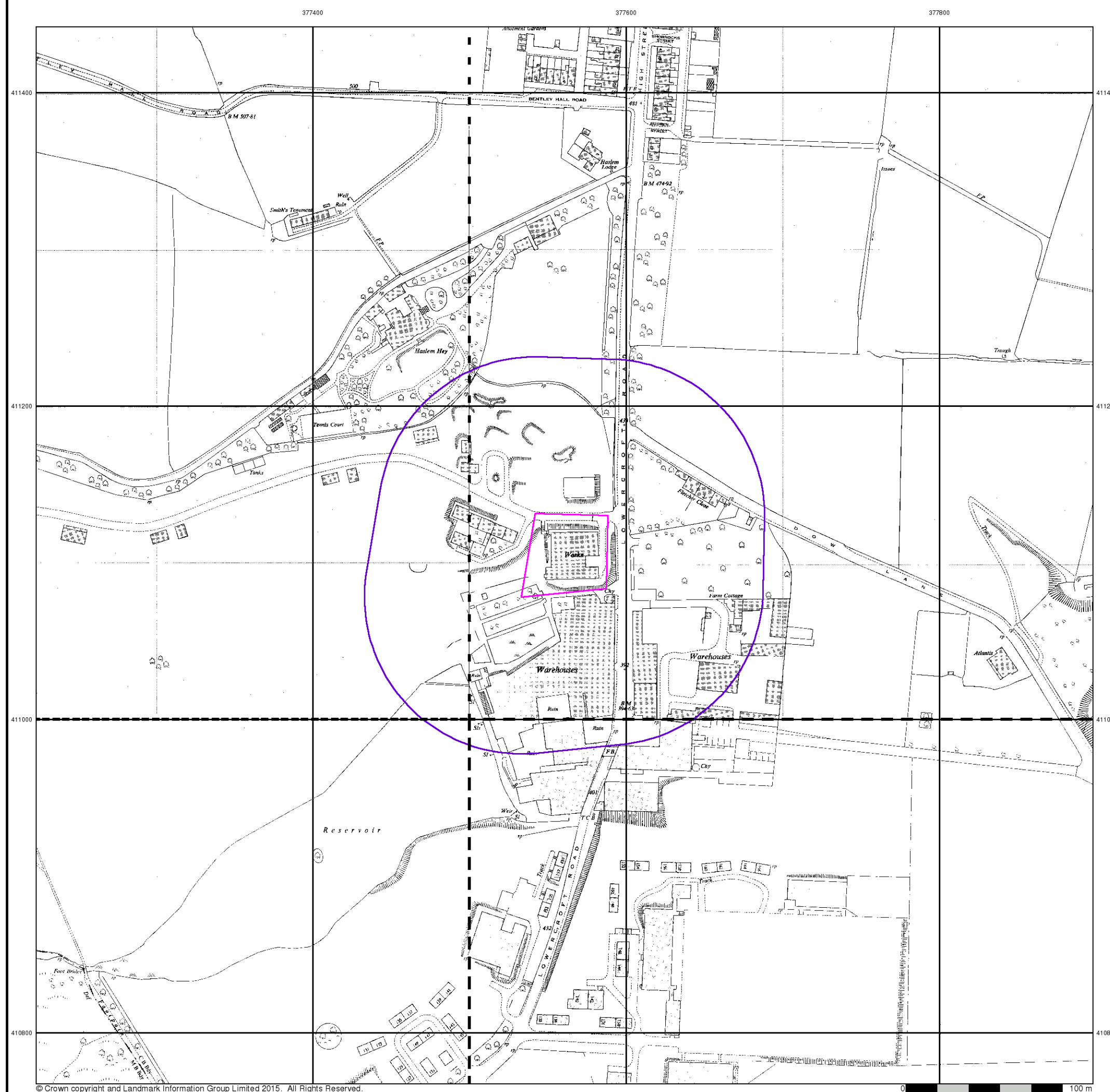
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Customer Ref: 16-0790.02  
National Grid Reference: 377560, 411100  
Slice: A  
Site Area (Ha): 0.26  
Search Buffer (m): 100

### Site Details

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**Landmark**  
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## Ordnance Survey Plan

Published 1969 - 1974

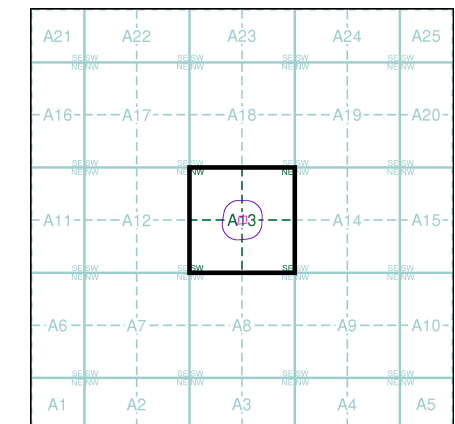
Source map scale - 1:1,250

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 and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below 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.

### Map Name(s) and Date(s)

|          |          |
|----------|----------|
|          | SD7711SE |
|          | 1974     |
|          | 1:1,250  |
| SD7710NW | SD7710NE |
| 1969     | 1969     |
| 1:1,250  | 1:1,250  |

### Historical Map - Segment A13



### Order Details

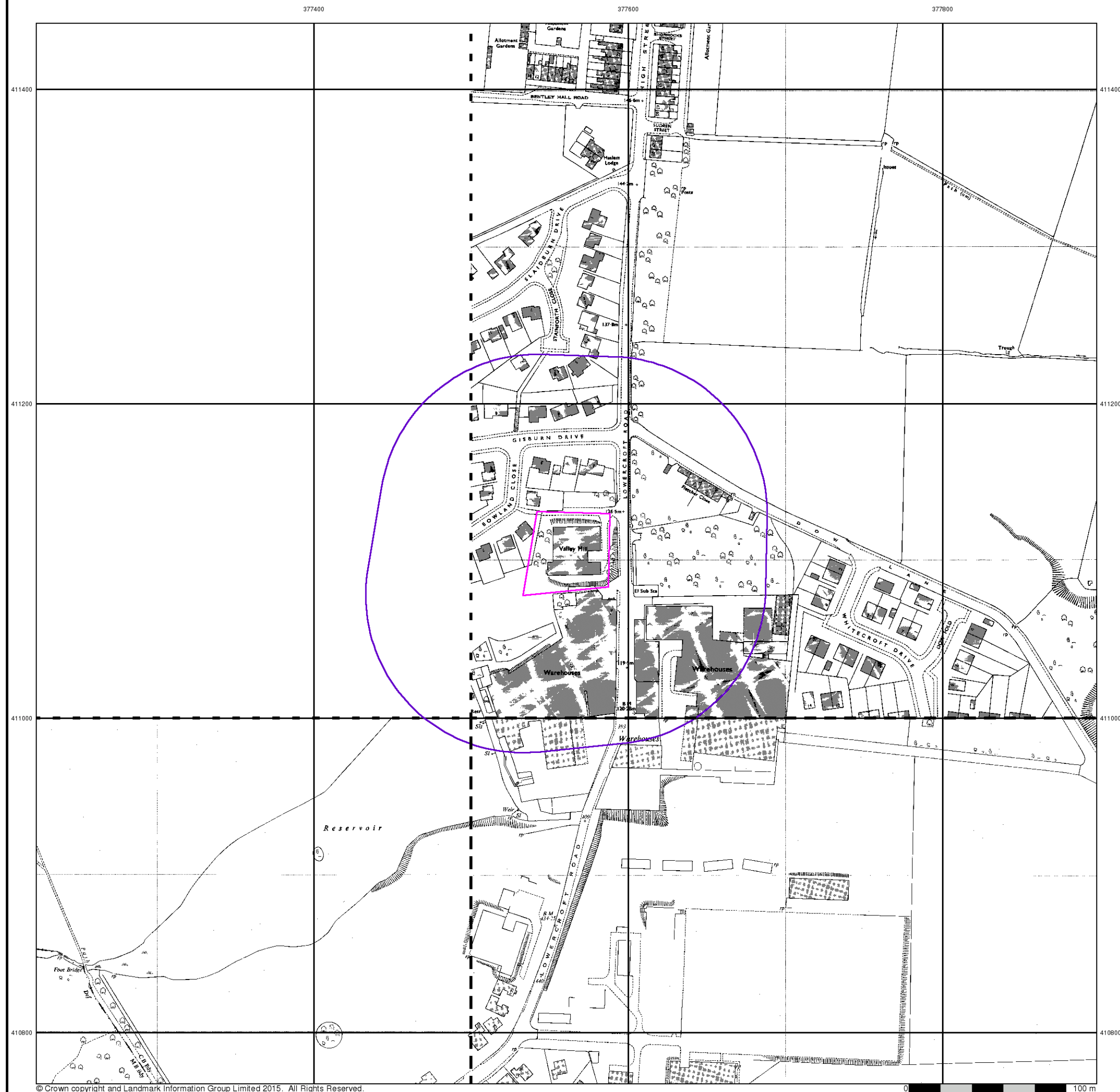
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Search Buffer (m): 100

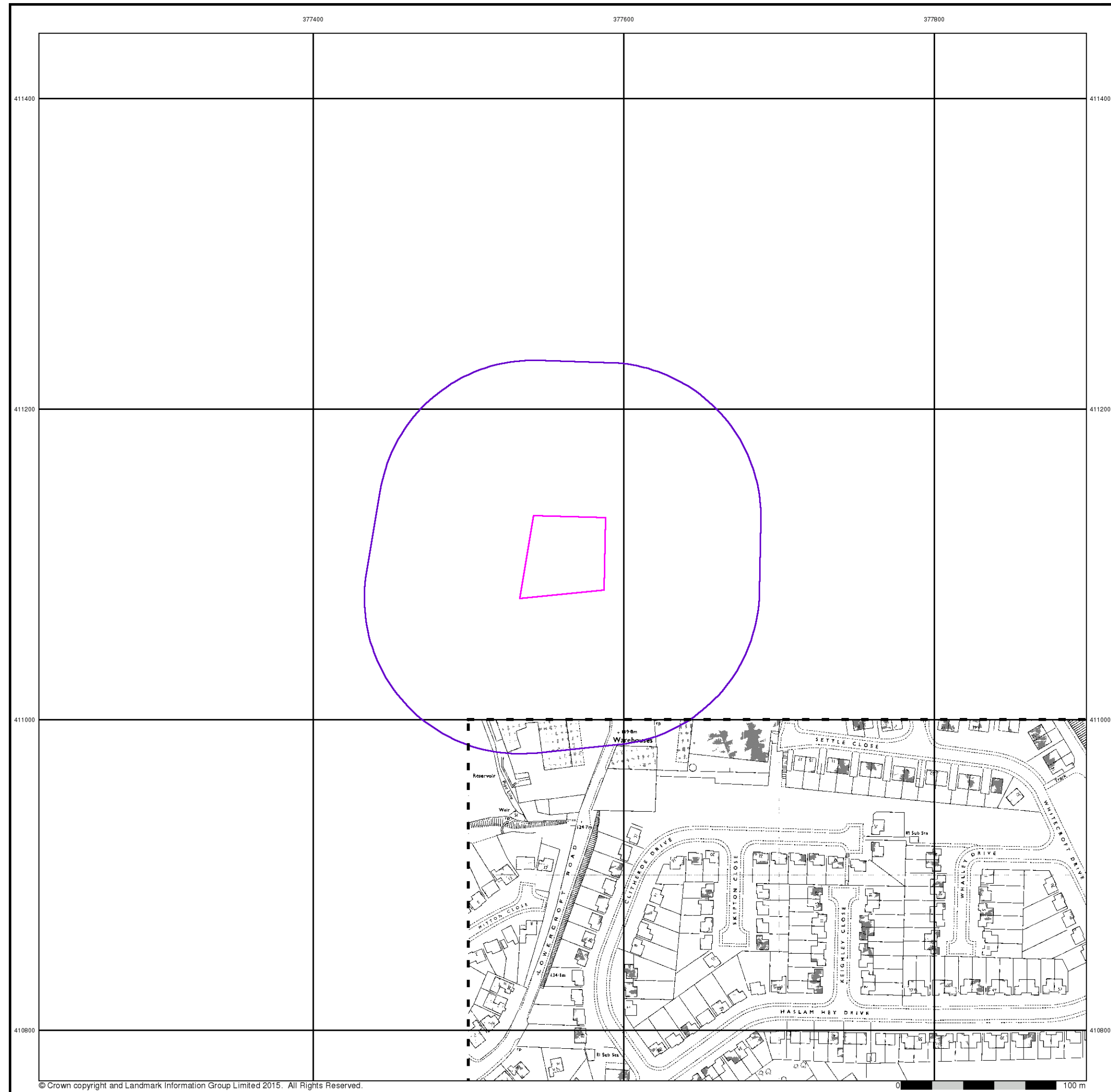
### Site Details

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**Landmark**  
INFORMATION GROUP

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Web: [www.envirocheck.co.uk](http://www.envirocheck.co.uk)

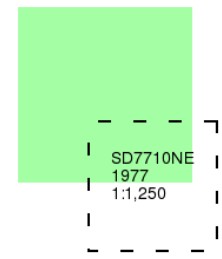




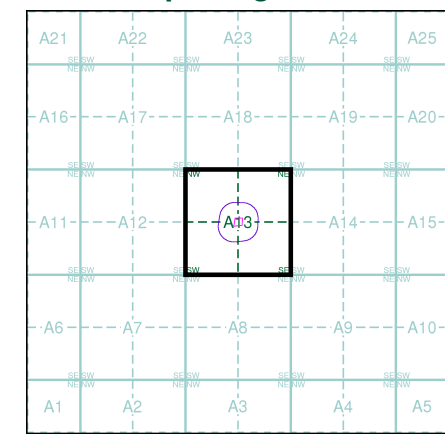
**Ordnance Survey Plan**  
**Published 1977**  
**Source map scale - 1:1,250**

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 and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below 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.

**Map Name(s) and Date(s)**



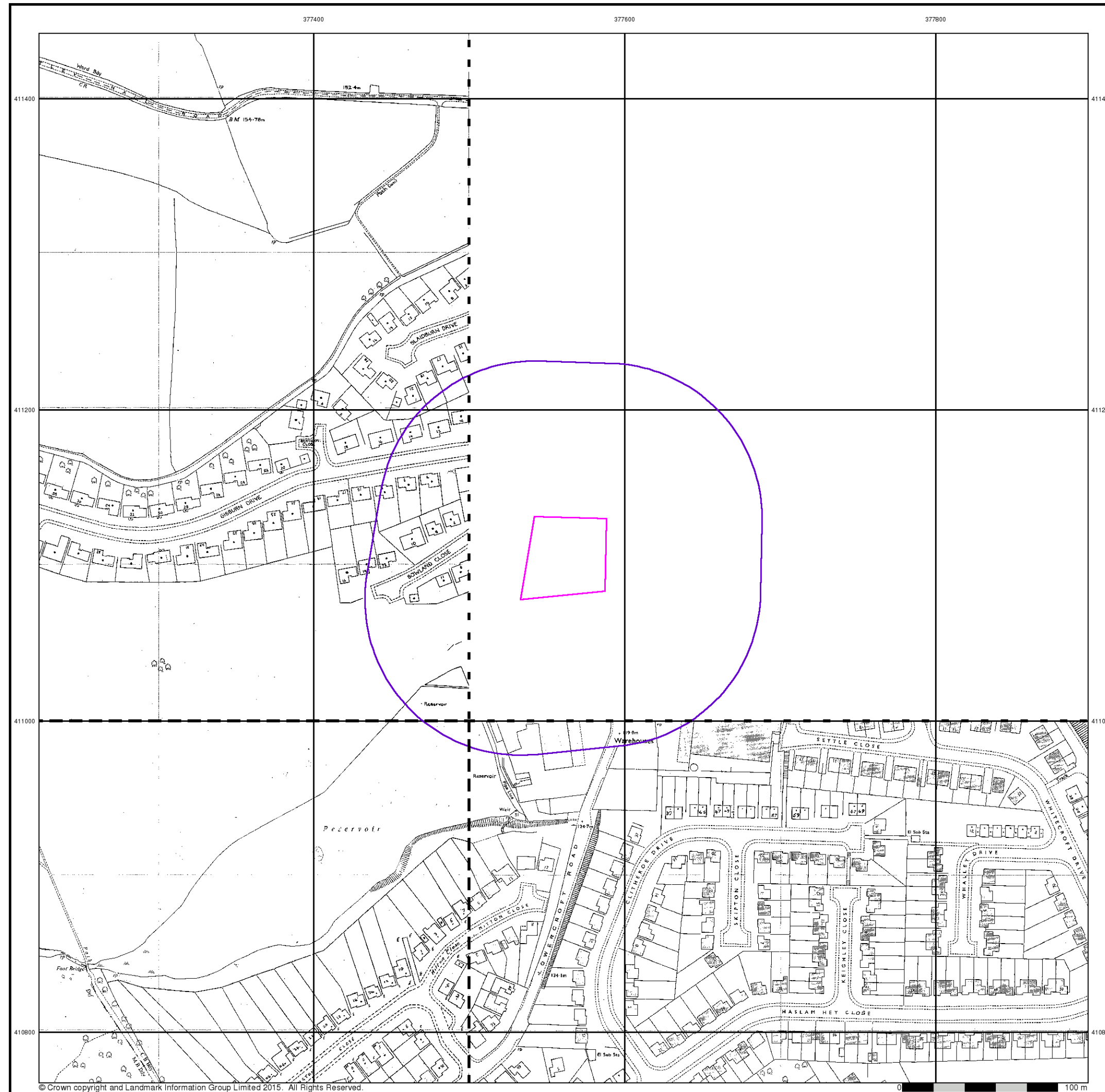
**Historical Map - Segment A13**



**Order Details**

Order Number: 121530175\_1\_1  
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National Grid Reference: 377560, 411100  
Slice: A  
Site Area (Ha): 0.26  
Search Buffer (m): 100

**Site Details**  
18, Lowercroft Road, BURY, BL8 2EY



### Additional SIMs

Published 1979 - 1984

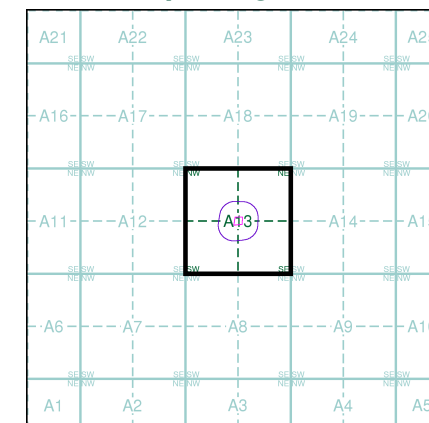
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

### Map Name(s) and Date(s)

|          |          |
|----------|----------|
| SD7711SW |          |
| 1984     |          |
| 1:1,250  |          |
| SD7710NW | SD7710NE |
| 1979     | 1981     |
| 1:1,250  | 1:1,250  |

### Historical Map - Segment A13



### Order Details

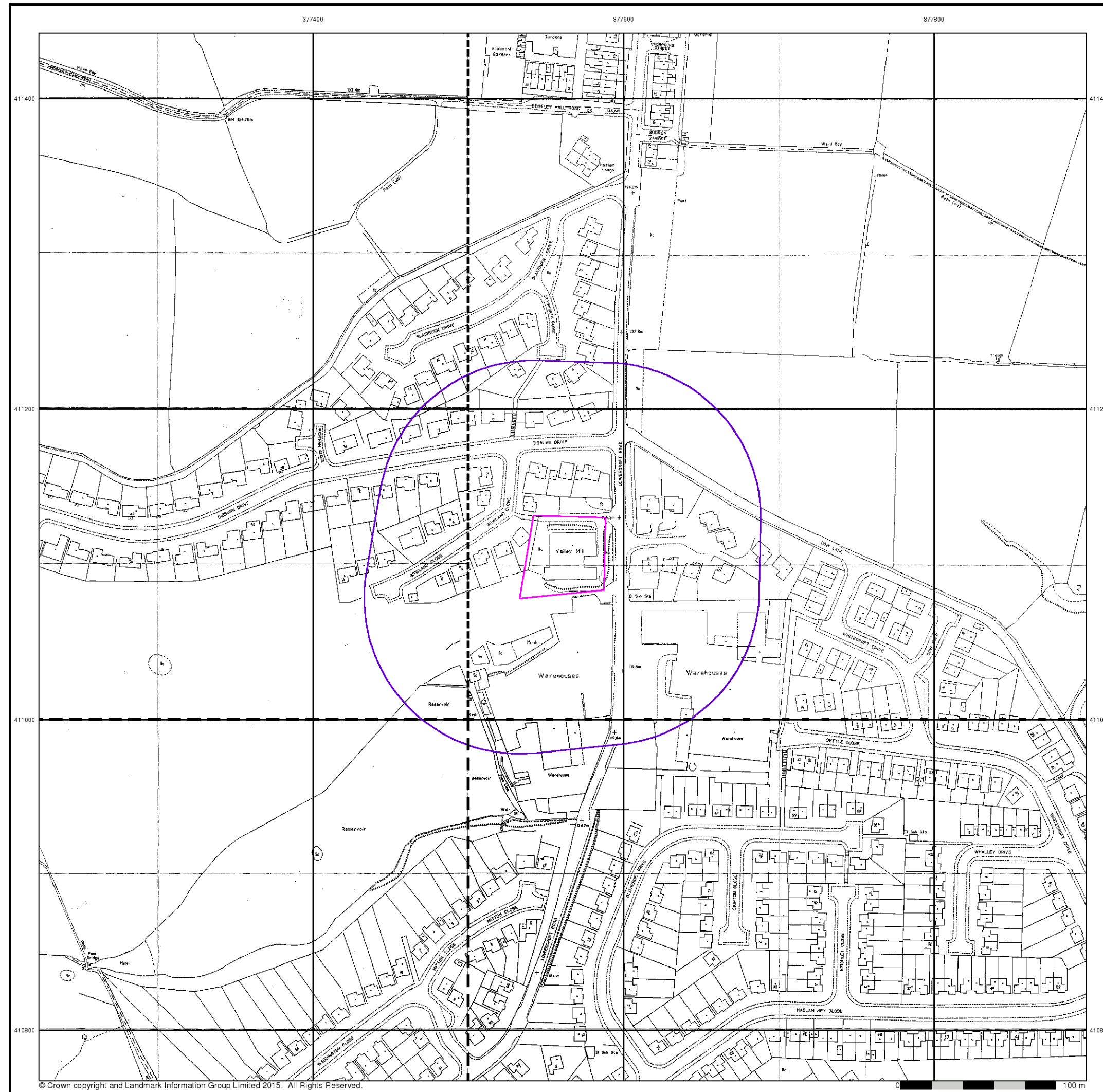
Order Number: 121530175\_1\_1  
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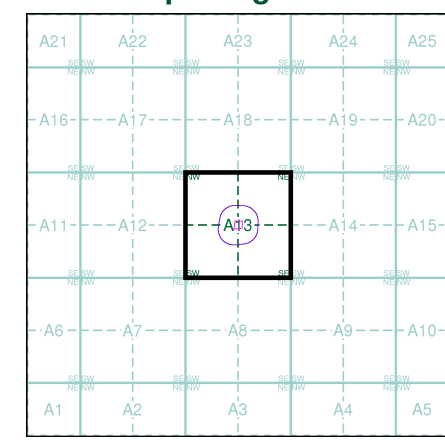
## Large-Scale National Grid Data Published 1992 Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

### Map Name(s) and Date(s)

|                             |                             |
|-----------------------------|-----------------------------|
| SD7711SW<br>1992<br>1:1,250 | SD7711SE<br>1992<br>1:1,250 |
| SD7710NW<br>1992<br>1:1,250 | SD7710NE<br>1992<br>1:1,250 |

### Historical Map - Segment A13



### Order Details

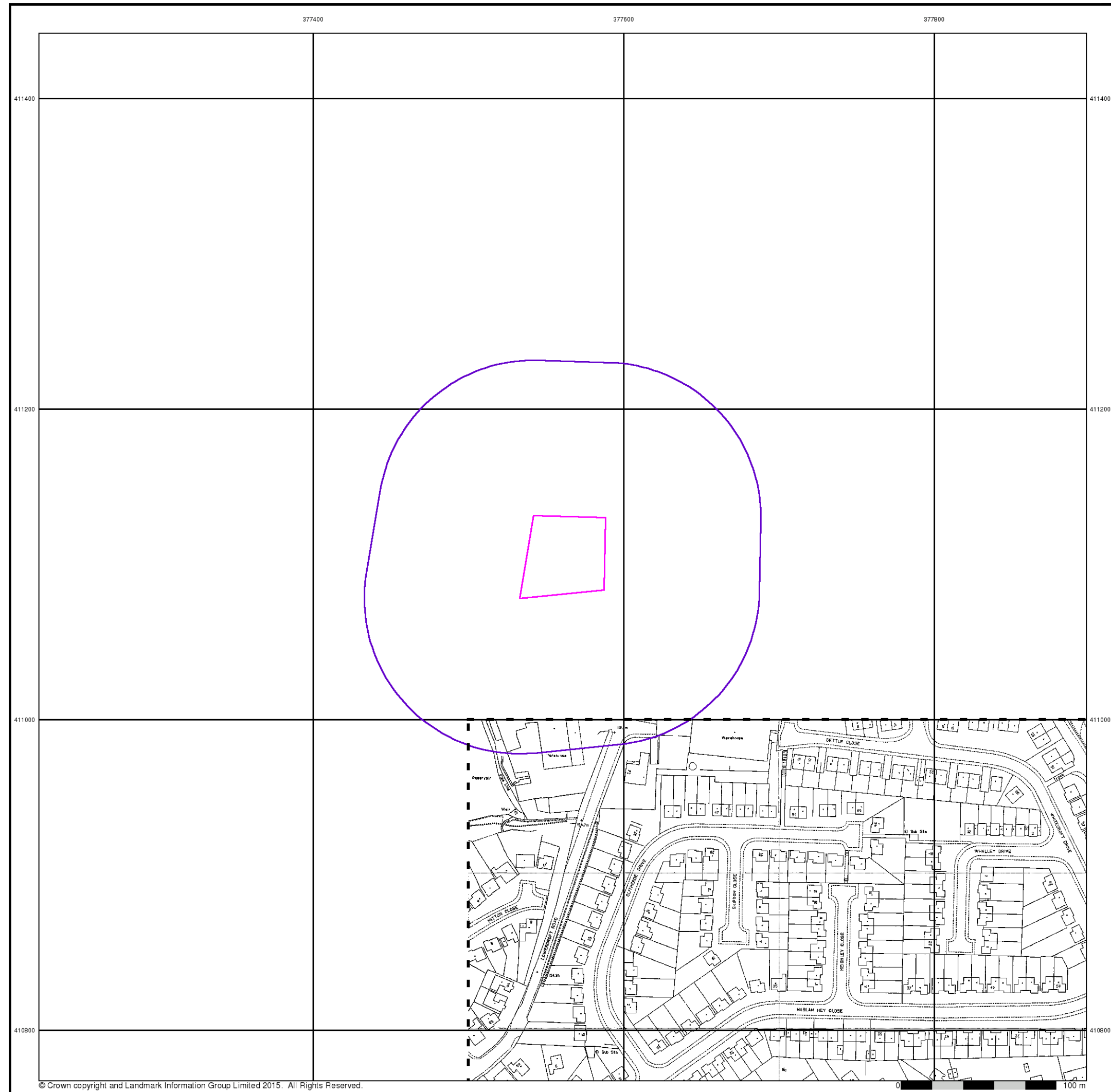
Order Number: 121530175\_1\_1  
Customer Ref: 16-0790.02  
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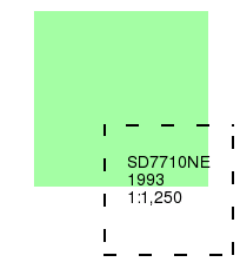
## Large-Scale National Grid Data

### Published 1993

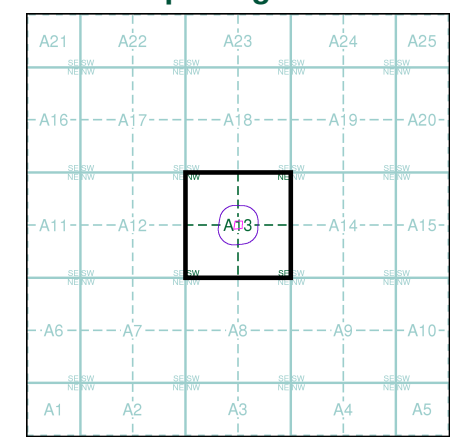
### Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

### Map Name(s) and Date(s)



### Historical Map - Segment A13



### Order Details

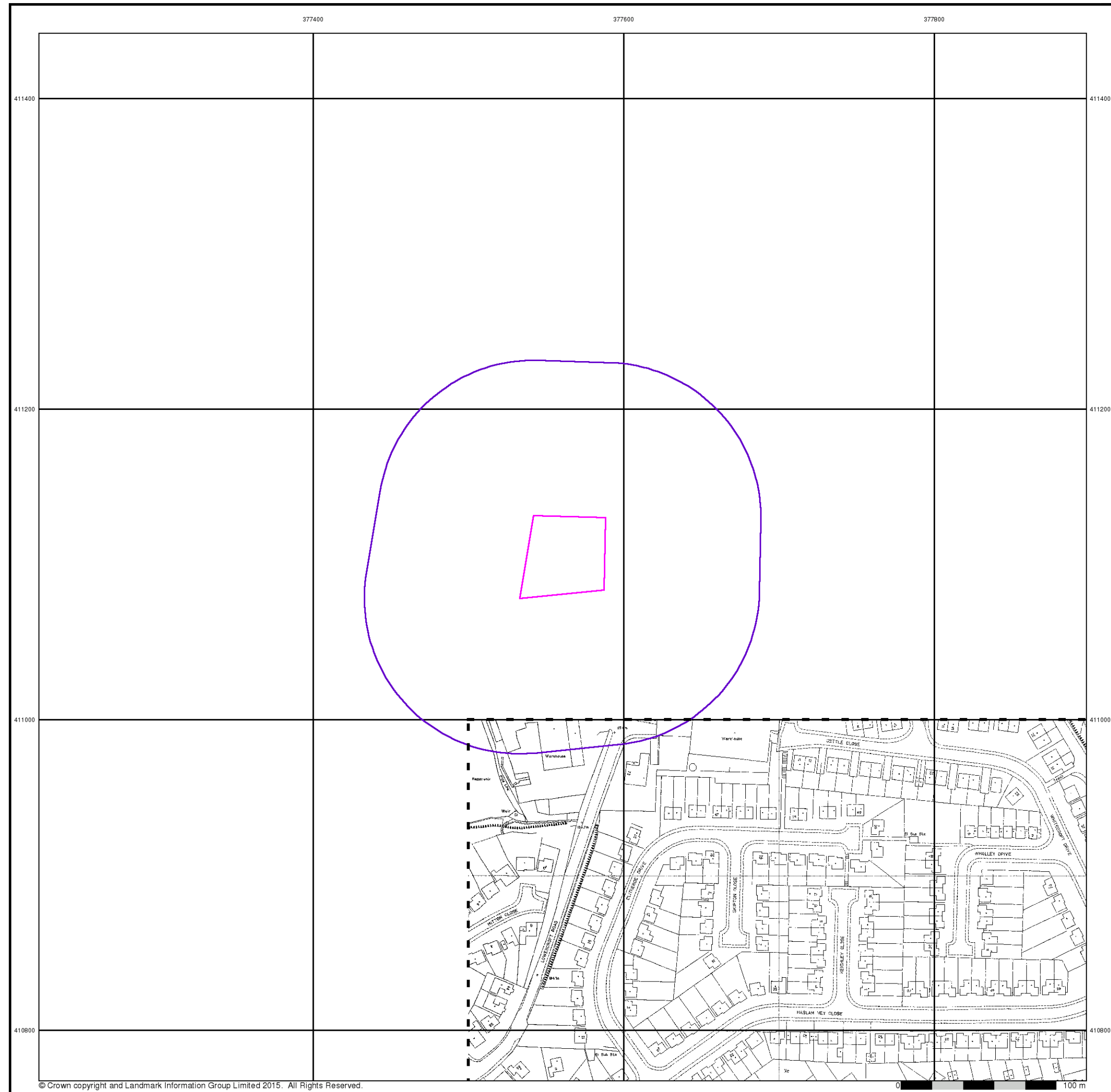
Order Number: 121530175\_1\_1  
Customer Ref: 16-0790.02  
National Grid Reference: 377560, 411100  
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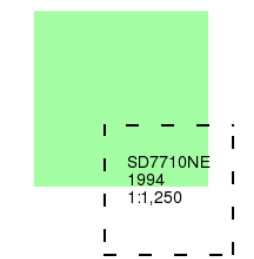
Tel: 0844 844 9952  
Fax: 0844 844 9951  
Web: www.envirocheck.co.uk



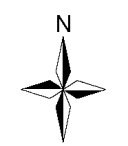
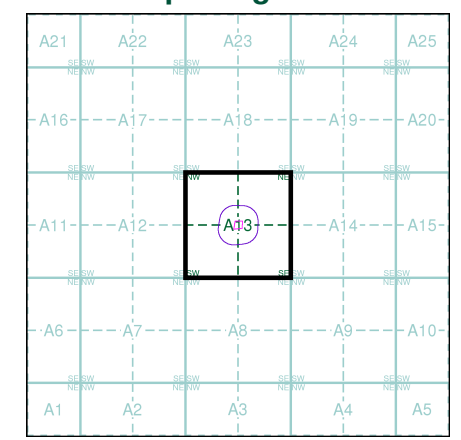
**Large-Scale National Grid Data**  
**Published 1994**  
**Source map scale - 1:1,250**

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

**Map Name(s) and Date(s)**



**Historical Map - Segment A13**



**Order Details**

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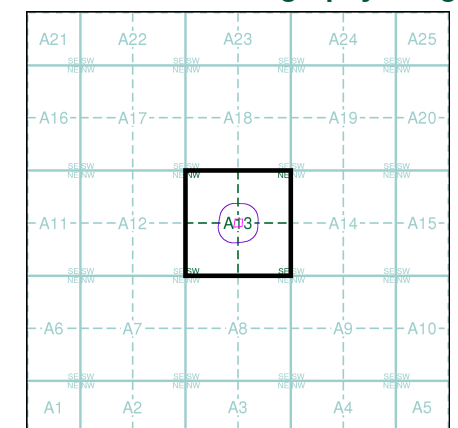


## Historical Aerial Photography

Published 2001

This aerial photography was produced by Getmapping, these vertical aerial photographs provide a seamless, full colour survey of the whole of Great Britain

### Historical Aerial Photography - Segment A13



### Order Details

Order Number: 121530175\_1\_1  
Customer Ref: 16-0790.02  
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**Landmark**  
INFORMATION GROUP

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## Appendix D - Risk Definitions

## Land Contamination Risk Definitions

The following methodology is based on the methodology presented in CIRIA C552 Contaminated Land Risk Assessment: A Guide to Good Practice 2001. It requires the classification of the:

- ▲ Magnitude of the potential consequence (severity) of the Risk occurring: and
- ▲ Magnitude of the Probability (likelihood) of the Risk occurring.

The classifications are then compared to indicate the risk presented by each pollutant linkage.

### Consequence to Receptor Definition Matrix

|                    | Human Health                                                                                                       | Controlled Waters                                                     | Buildings/Services                                                                                       |
|--------------------|--------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| Severe Consequence | Acute or chronic permanent impact on human health.                                                                 | Sensitive controlled water pollution ongoing, or just about to occur. | Catastrophic collapse                                                                                    |
| Medium Consequence | Chronic permanent impact on human health                                                                           | Gradual pollution of sensitive controlled water                       | Degradation of materials                                                                                 |
| Mild Consequence   | Chronic temporary impact on human health                                                                           | Gradual pollution of non-sensitive controlled water                   | Damage to building rendering it unsafe to occupy (eg foundation damage resulting in instability).        |
| Minor Consequence  | Non-permanent health effects to human health (easily prevented by means such as personal protective clothing etc). | Slight discoloration of water                                         | Easily repairable effects of damage to buildings, structures and services, i.e discoloration of concrete |

### Probability Definitions

| Probability    | Definition in Context                                                                                                                                                                                                                                                                                              |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Higher         | There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution.<br><br>Positive evidence of source, pathway and receptor.                                                         |
| Likely         | There is a pollution linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.<br><br>Suspect source, pathway, and receptor |
| Low Likelihood | There is a pollution linkage and circumstances are possible under which an event could occur.<br><br>However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term.                                                                        |
| Unlikely       | There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term<br><br>No evidence of hazard, pathway, and receptor                                                                                                                             |

## Standard Risk Matrix

|             |                | Consequence/ Magnitude of impact |              |              |              |
|-------------|----------------|----------------------------------|--------------|--------------|--------------|
|             |                | Severe                           | Medium       | Mild         | Minor        |
| Probability | High           | Very High                        | High         | Moderate     | Moderate/Low |
|             | Likely         | High                             | Moderate     | Moderate/low | Low          |
|             | Low Likelihood | Moderate                         | Moderate/low | Low          | Very Low     |
|             | Unlikely       | Moderate/low                     | Low          | Very Low     | Very Low     |

## Classified risks and likely action

| Significance Level | Definition/Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Very High Risk     | <p>There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening.</p> <p>This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.</p> <p>Demonstrable contaminated land situation, highest threat &amp; liability level, urgent action recommended.</p>                                                       |
| High Risk          | <p>Harm is likely to arise to a designated receptor from an identified hazard.</p> <p>Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short term and are likely over the longer term.</p> <p>Likely contaminated land situation, risk assessment and action recommended.</p>                                                                                                                                                     |
| Moderate           | <p>It is possible that harm could arise to a designated receptor from an identified hazard. However, if is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild</p> <p>Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.</p> <p>Plausible contaminated land situation, risk assessment and possible action recommended.</p> |
| Low Risk           | <p>It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.</p> <p>Unlikely contaminated land situation, possible risk assessment and possible action.</p>                                                                                                                                                                                                                                                                                      |
| Very Low Risk      | <p>There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe.</p> <p>Negligible risk, no action recommended except vigilance for changes in conditions.</p>                                                                                                                                                                                                                                                                                                                       |

## Appendix E - Key to Logs, Field Records & Compliance Certificates

## KEY TO BOREHOLE AND TRIAL PIT LOGS

### MATERIAL LEGENDS

|                                                                                     |                               |                                                                                     |                                 |                                                                                       |                                 |
|-------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|---------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
|    | Made Ground                   |    | Topsoil                         |    | Clay                            |
|    | Gravel                        |    | Sand                            |    | Silt                            |
|    | Peat                          |    | Boulders                        |    | Cobbles                         |
|    | Chalk                         |    | Conglomerate                    |    | Volcaniclastic                  |
|    | Asphalt                       |    | Void                            |    | Mudstone                        |
|    | Siltstone                     |    | Sandstone                       |    | Limestone                       |
|   | Ironstone                     |   | Mudstone / Siltstone            |   | Breccia                         |
|  | Coal                          |  | Gypsum                          |  | Bedrock                         |
|  | Igneous<br>(Fine Grained)     |  | Igneous<br>(Medium Grained)     |  | Igneous<br>(Coarse Grained)     |
|  | Metamorphic<br>(Fine Grained) |  | Metamorphic<br>(Medium Grained) |  | Metamorphic<br>(Coarse Grained) |
|  | Shale                         |                                                                                     |                                 |                                                                                       |                                 |

### INSTALLATION/BACKFILL DETAILS

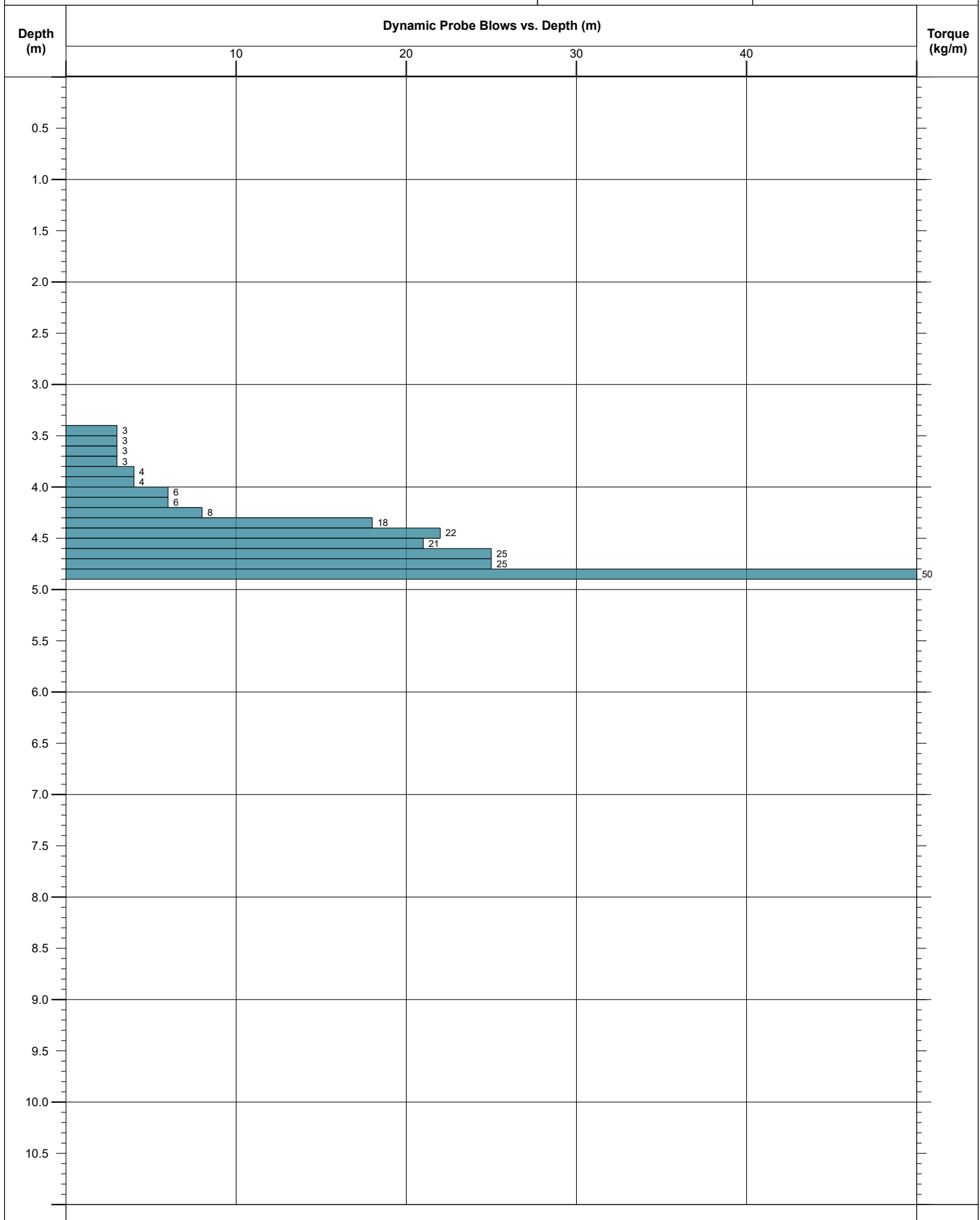
|                                                                                     |                |                                                                                     |              |                                                                                       |                            |
|-------------------------------------------------------------------------------------|----------------|-------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|----------------------------|
|  | Arisings       |  | Concrete     |  | Bentonite cement grout     |
|  | Bentonite seal |  | Filter       |  | Pea Gravel                 |
|  | Plain pipe     |  | Slotted pipe |  | Piezometer / Standpipe tip |

**Note:**  
Legend symbols in accordance with BS 5930 (1999)

**Dynamic Probe Log**

Date: **20/04/2017**

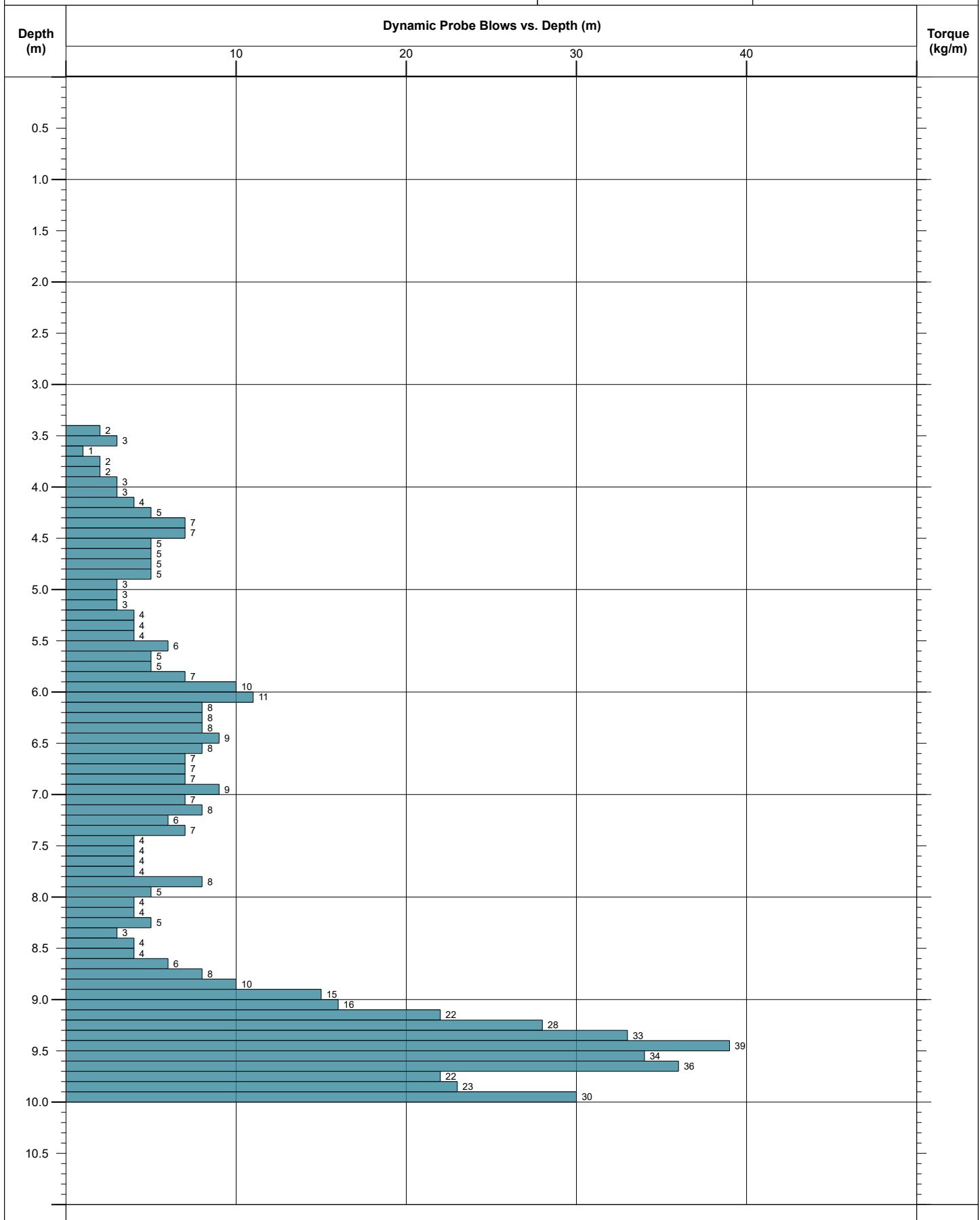
Client: **Cornell Group**



**Dynamic Probe Log**

Date: **20/04/2017**

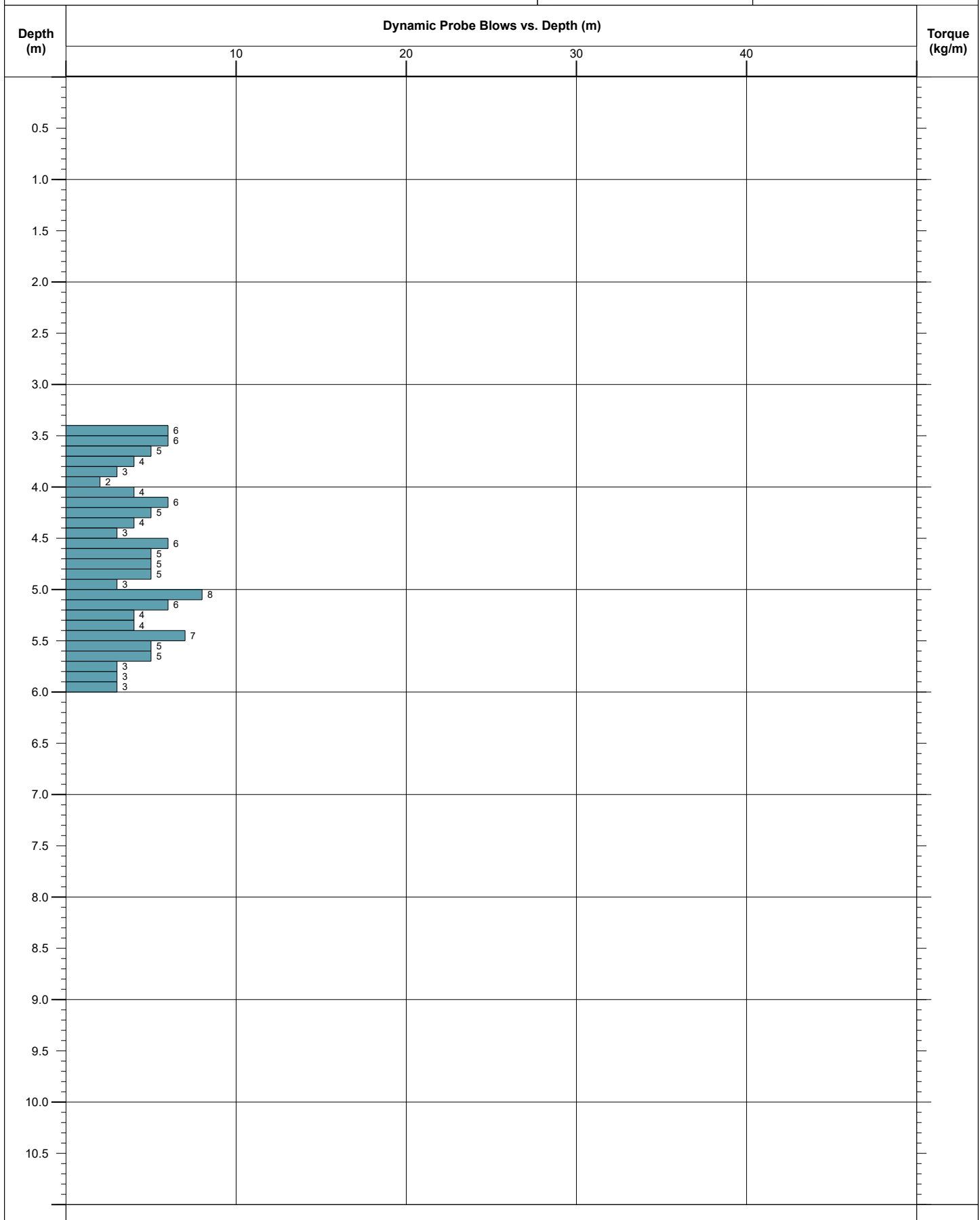
Client: **Cornell Group**



**Dynamic Probe Log**

Date: **20/04/2017**

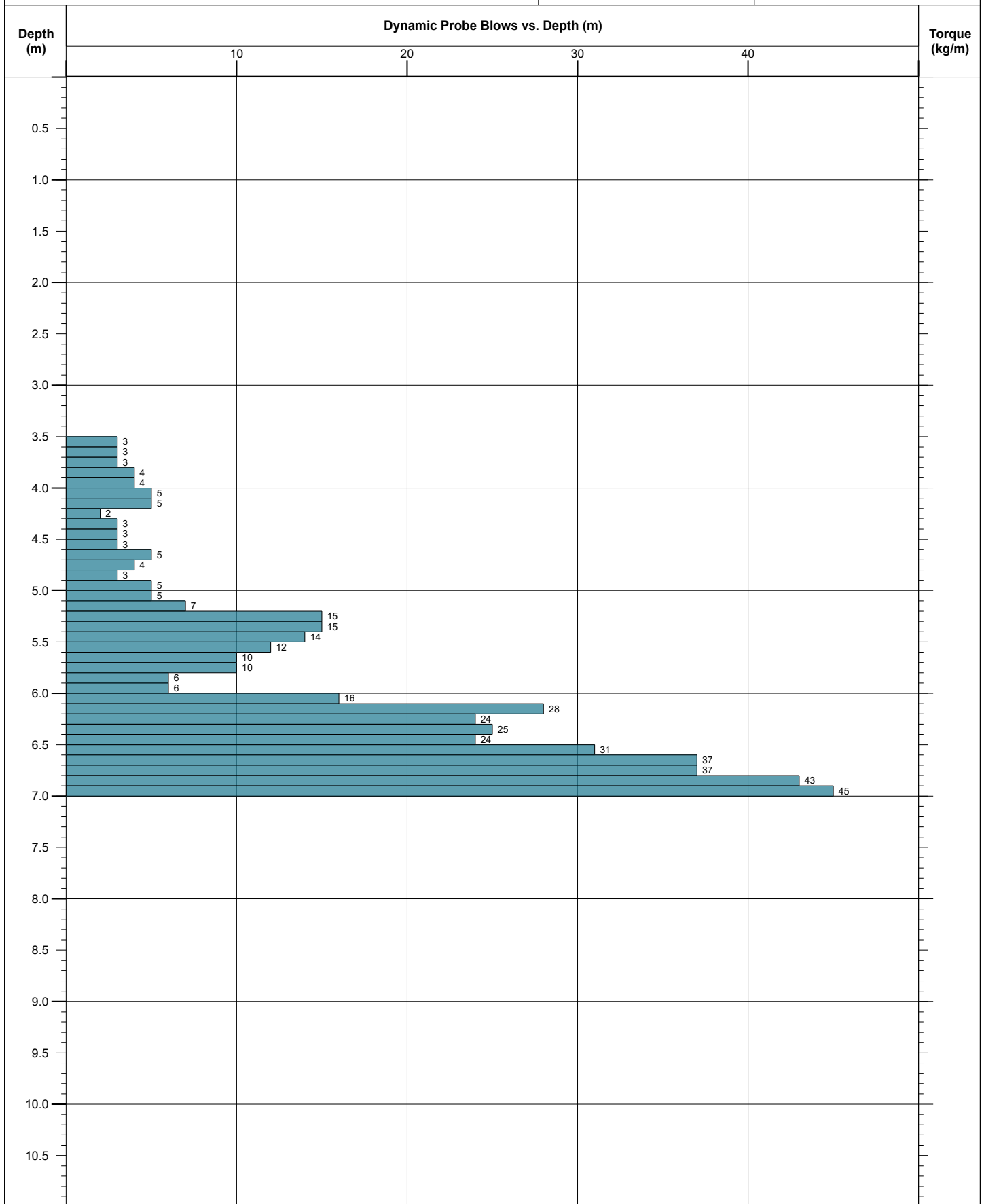
Client: **Cornell Group**



**Dynamic Probe Log**

Date: **20/04/2017**

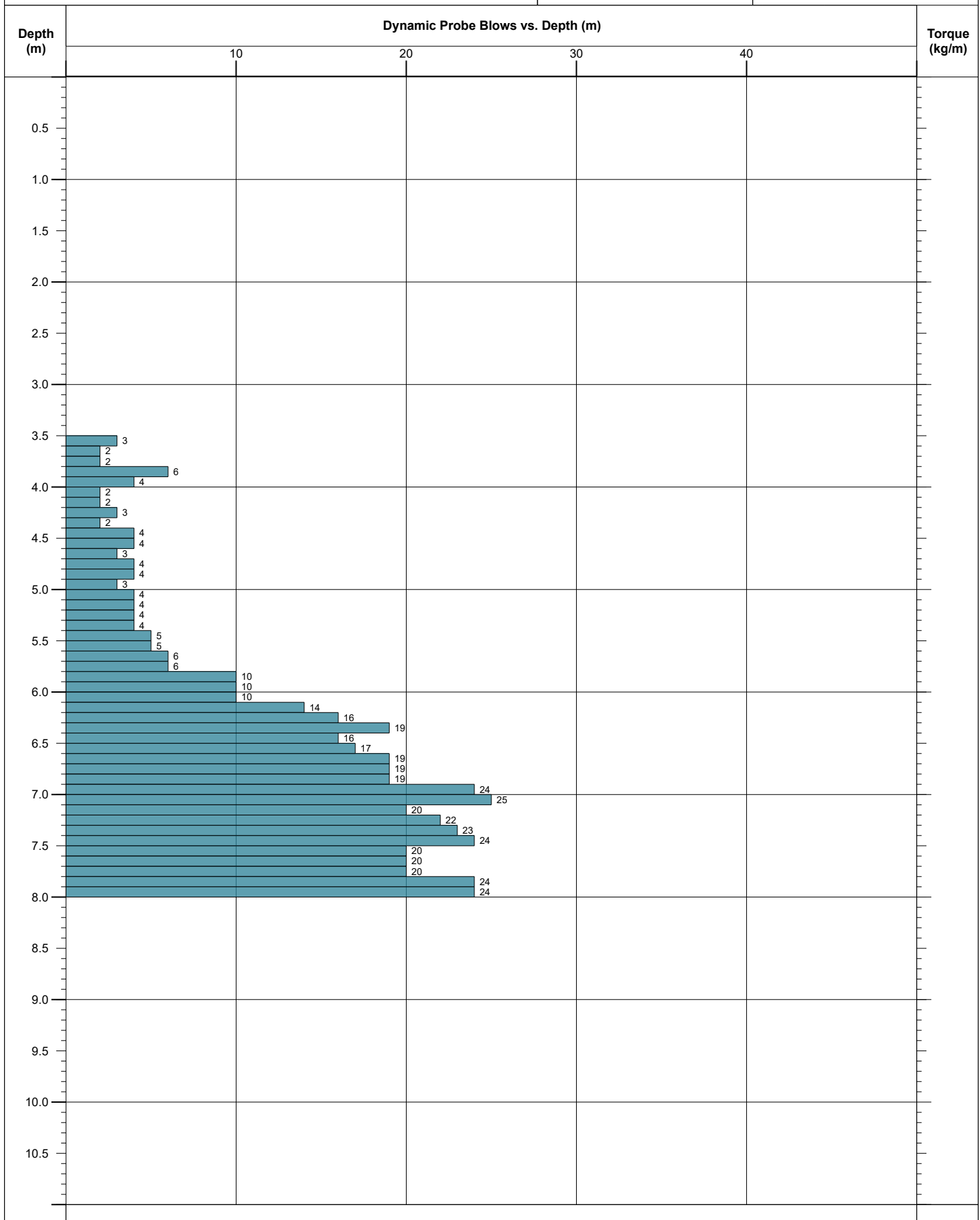
Client: **Cornell Group**

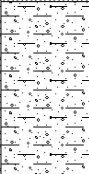
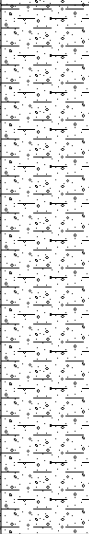


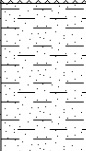
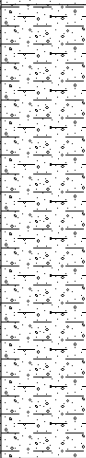
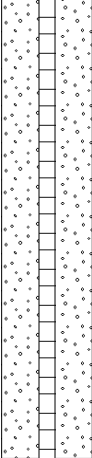
**Dynamic Probe Log**

Date: **20/04/2017**

Client: **Cornell Group**



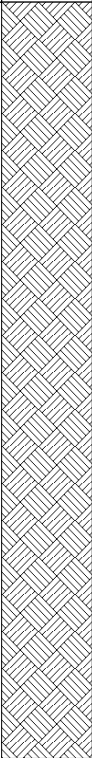
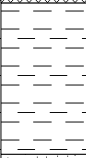
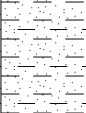
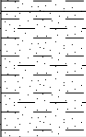
| <div><div><b>Head Office</b><br/>3 Henley Way, Doddington Road<br/>Lincoln, LN6 3QR<br/>Tel: +44 (0) 1522 882555<br/>Email: info@deltasimons.com</div></div> |                                                                                    |                      |                      |                                                | Project No:<br><b>16-0790.02</b>         |                                     | Hole ID:<br><b>DS101</b>        |                      | Page:<br><b>1 of 1</b> |                        |                              |          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------|----------------------|------------------------------------------------|------------------------------------------|-------------------------------------|---------------------------------|----------------------|------------------------|------------------------|------------------------------|----------|
|                                                                                                                                                                                                                                              |                                                                                    |                      |                      |                                                | Project:<br><b>Lowercroft Road, Bury</b> |                                     |                                 |                      |                        |                        |                              |          |
| <b>Dynamic Sampler Log</b>                                                                                                                                                                                                                   |                                                                                    |                      |                      |                                                | Date:<br><b>20/04/2017</b>               |                                     | Client:<br><b>Cornell Group</b> |                      |                        |                        |                              |          |
| Description of Strata                                                                                                                                                                                                                        | Legend                                                                             | Strata Depth (m bgl) | Strata Thickness (m) | Reduced Level (mAOD)                           | Casing Diameter (mm)                     | Water                               | Sample Details                  |                      |                        | Test Details           |                              | Backfill |
|                                                                                                                                                                                                                                              |                                                                                    |                      |                      |                                                |                                          |                                     | Depth (m)                       | Type                 | Ref                    | Depth (m)              | Results                      |          |
| MADE GROUND: Soft dark brown sandy CLAY with frequent brick, timber and root fragments. Sand is fine.                                                                                                                                        |   | 0.20                 | (0.20)               |                                                |                                          |                                     | 0.10                            | ES                   | 1                      |                        |                              |          |
| Firm reddish brown slightly sandy slightly gravelly CLAY. Sand is fine. Gravel is subangular to subrounded fine to coarse sandstone. (TILL)                                                                                                  |   |                      | (0.70)               |                                                |                                          |                                     | 0.30                            | ES                   | 2                      |                        |                              |          |
|                                                                                                                                                                                                                                              |                                                                                    |                      |                      |                                                |                                          |                                     | 0.50                            | D                    | 3                      |                        |                              |          |
| Stiff reddish brown slightly sandy slightly gravelly CLAY. Sand is fine. Gravel is subangular to subrounded fine to coarse sandstone. (TILL)                                                                                                 |  | 0.90                 |                      |                                                |                                          |                                     |                                 |                      |                        | 1.00 - 1.45            | SPT(S) N=10<br>(1,1/2,2,2,4) |          |
|                                                                                                                                                                                                                                              |                                                                                    |                      | (2.10)               |                                                |                                          |                                     | 1.50                            | D                    | 4                      |                        |                              |          |
|                                                                                                                                                                                                                                              |                                                                                    |                      |                      |                                                |                                          |                                     |                                 |                      |                        | 2.00 - 2.45            | SPT(S) N=13<br>(1,2/3,3,2,5) |          |
|                                                                                                                                                                                                                                              |                                                                                    |                      |                      |                                                |                                          |                                     | 2.50                            | D                    | 5                      |                        |                              |          |
|                                                                                                                                                                                                                                              |                                                                                    | 3.00                 |                      |                                                |                                          |                                     |                                 |                      |                        |                        |                              |          |
| Borehole complete at 3.00 m bgl.                                                                                                                                                                                                             |                                                                                    |                      |                      |                                                |                                          |                                     |                                 |                      |                        | 3.00 - 3.45            | SPT(S) N=13<br>(1,2/3,3,4,3) |          |
| Remarks:<br>1. Logged in general accordance to BS 5930:2015.<br>2. Area CAT scanned prior to excavation.<br>3. Borehole remained dry upon completion.                                                                                        |                                                                                    |                      |                      |                                                | Water Strike                             |                                     |                                 | Water Level          |                        | Borehole Diameter      |                              |          |
|                                                                                                                                                                                                                                              |                                                                                    |                      |                      |                                                | Date                                     | Time                                | Depth Strike                    | Duration             | Depth Water            | Depth Base             | Diameter                     |          |
|                                                                                                                                                                                                                                              |                                                                                    |                      |                      |                                                |                                          |                                     |                                 |                      |                        |                        |                              |          |
| Coordinates:                                                                                                                                                                                                                                 |                                                                                    | Elevation (mAOD):    |                      | Drilled By:<br><b>Paul Blackledge Drilling</b> |                                          | Plant Used:<br><b>Dando Terrier</b> |                                 | Logged:<br><b>AH</b> | Checked:<br><b>PH</b>  | Approved:<br><b>PH</b> | Scale:<br><b>1:30</b>        |          |

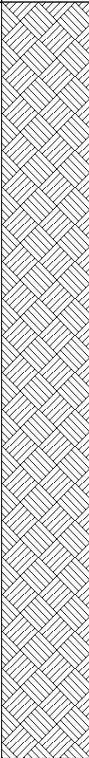
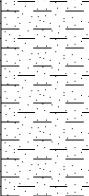
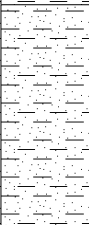
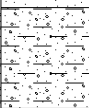
| <div><div>Environment - Health &amp; Safety - Sustainability</div></div> <div><div>Head Office</div><div>3 Henley Way, Doddington Road<br/>Lincoln, LN6 3QR<br/>Tel: +44 (0) 1522 882555<br/>Email: info@deltasimons.com</div></div> |                                                                                    |                      |                      |                                                | Project No:<br><b>16-0790.02</b>         |                                     | Hole ID:<br><b>DS102</b>        |                      | Page:<br><b>1 of 1</b> |                        |                       |                                                                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------|----------------------|------------------------------------------------|------------------------------------------|-------------------------------------|---------------------------------|----------------------|------------------------|------------------------|-----------------------|---------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                      |                                                                                    |                      |                      |                                                | Project:<br><b>Lowercroft Road, Bury</b> |                                     |                                 |                      |                        |                        |                       |                                                                                       |
| Dynamic Sampler Log                                                                                                                                                                                                                                                                                                  |                                                                                    |                      |                      |                                                | Date:<br><b>20/04/2017</b>               |                                     | Client:<br><b>Cornell Group</b> |                      |                        |                        |                       |                                                                                       |
| Description of Strata                                                                                                                                                                                                                                                                                                | Legend                                                                             | Strata Depth (m bgl) | Strata Thickness (m) | Reduced Level (mAOD)                           | Casing Diameter (mm)                     | Water                               | Sample Details                  |                      |                        | Test Details           |                       | Backfill                                                                              |
|                                                                                                                                                                                                                                                                                                                      |                                                                                    |                      |                      |                                                |                                          |                                     | Depth (m)                       | Type                 | Ref                    | Depth (m)              | Results               |                                                                                       |
| MADE GROUND: Soft dark brown sandy CLAY with frequent brick, timber and root fragments. Sand is fine.                                                                                                                                                                                                                |   | 0.60                 | (0.60)               |                                                |                                          |                                     | 0.30                            | ES                   | 1                      |                        |                       |    |
| Soft yellowish brown slightly sandy CLAY. Sand is fine. Lenses of grey fine sand approximately 50 mm in thickness noted. (TILL)                                                                                                                                                                                      |   | 1.20                 | (0.60)               |                                                |                                          |                                     | 0.60                            | ES                   | 2                      |                        |                       |    |
| Firm reddish brown slightly sandy damp CLAY with rare subangular fine to medium sandstone gravel. Sand is fine. (TILL)                                                                                                                                                                                               |  | 3.00                 | (1.80)               |                                                |                                          |                                     | 1.00                            | D                    | 3                      |                        |                       |   |
| Borehole complete at 3.00 m bgl.                                                                                                                                                                                                                                                                                     |                                                                                    |                      |                      |                                                |                                          |                                     | 2.00                            | D                    | 4                      |                        |                       |  |
|                                                                                                                                                                                                                                                                                                                      |                                                                                    |                      |                      |                                                |                                          |                                     | 3.00                            | D                    | 5                      |                        |                       |                                                                                       |
| Remarks:<br>1. Logged in general accordance to BS 5930:2015.<br>2. Area CAT scanned prior to excavation.<br>3. Installed with a 63 mm HDPE standpipe to 3.00 m bgl with raised cover.                                                                                                                                |                                                                                    |                      |                      |                                                | Water Strike                             |                                     |                                 | Water Level          |                        | Borehole Diameter      |                       |                                                                                       |
|                                                                                                                                                                                                                                                                                                                      |                                                                                    |                      |                      |                                                | Date                                     | Time                                | Depth Strike                    | Duration             | Depth Water            | Depth Base             | Diameter              |                                                                                       |
|                                                                                                                                                                                                                                                                                                                      |                                                                                    |                      |                      |                                                |                                          |                                     |                                 |                      |                        |                        |                       |                                                                                       |
| Coordinates:                                                                                                                                                                                                                                                                                                         |                                                                                    | Elevation (mAOD):    |                      | Drilled By:<br><b>Paul Blackledge Drilling</b> |                                          | Plant Used:<br><b>Dando Terrier</b> |                                 | Logged:<br><b>AH</b> | Checked:<br><b>PH</b>  | Approved:<br><b>PH</b> | Scale:<br><b>1:30</b> |                                                                                       |

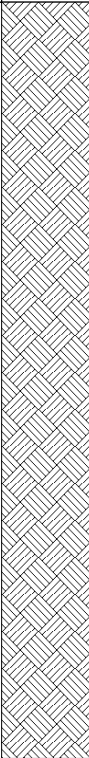






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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------|----------------------|------------------------------------------------|------------------------------------------|-------------------------------------|----------------|---------------------------------|-----------------------|------------------------|-----------------------------------|--------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                       |                                                                                    |                      |                      |                                                | Project:<br><b>Lowercroft Road, Bury</b> |                                     |                |                                 |                       |                        |                                   |                                                                                      |
| <b>Dynamic Sampler Log</b>                                                                                                                                                                                                            |                                                                                    |                      |                      |                                                | Date:<br><b>20/04/2017</b>               |                                     |                | Client:<br><b>Cornell Group</b> |                       |                        |                                   |                                                                                      |
| Description of Strata                                                                                                                                                                                                                 | Legend                                                                             | Strata Depth (m bgl) | Strata Thickness (m) | Reduced Level (mAOD)                           | Casing Diameter (mm)                     | Water                               | Sample Details |                                 |                       | Test Details           |                                   | Backfill                                                                             |
|                                                                                                                                                                                                                                       |                                                                                    |                      |                      |                                                |                                          |                                     | Depth (m)      | Type                            | Ref                   | Depth (m)              | Results                           |                                                                                      |
| MADE GROUND: Paviling slab.                                                                                                                                                                                                           |   | 0.07                 |                      |                                                |                                          |                                     | 0.10           | ES                              | 1                     | 1.00 - 1.65            | SPT(S) N=4 (1 for 75mm/1,1,1,1)   |  |
| MADE GROUND: Black gravelly fine to coarse SAND. Gravel is subangular fine to medium brick, clinker, igneous.                                                                                                                         |                                                                                    | 0.20                 | (0.13)               |                                                |                                          |                                     | 0.30           | ES                              | 2                     |                        |                                   |                                                                                      |
| MADE GROUND: Soft yellowish brown slightly sandy CLAY with rare subangular medium brick gravel. Sand is fine. Lenses of 5cm of grey fine sand approximately 50mm thick noted.                                                         |                                                                                    |                      |                      | (1.20)                                         |                                          |                                     |                |                                 |                       |                        |                                   |                                                                                      |
|                                                                                                                                                                                                                                       |                                                                                    |                      |                      |                                                |                                          |                                     |                |                                 |                       |                        |                                   |                                                                                      |
|                                                                                                                                                                                                                                       |                                                                                    |                      |                      |                                                |                                          |                                     |                |                                 |                       |                        |                                   |                                                                                      |
| Soft dark brownish black CLAY with frequent rootlets. (TILL)                                                                                                                                                                          |   | 1.40                 |                      |                                                |                                          |                                     | 1.50           | ES                              | 3                     |                        |                                   |                                                                                      |
|                                                                                                                                                                                                                                       |                                                                                    |                      |                      | (0.60)                                         |                                          |                                     |                |                                 |                       |                        |                                   |                                                                                      |
| Soft yellowish brown slightly sandy CLAY. Sand is fine. Lenses of 5cm of grey fine sand approximately 50 mm in thickness noted. (TILL)                                                                                                |   | 2.00                 |                      |                                                |                                          |                                     | 2.00           | D                               | 4                     | 2.00 - 2.45            | SPT(S) 3 (1 for 75mm/3 for 225mm) |                                                                                      |
|                                                                                                                                                                                                                                       |                                                                                    |                      |                      | (0.50)                                         |                                          |                                     |                |                                 |                       |                        |                                   |                                                                                      |
| Firm reddish brown slightly sandy CLAY with rare subangular fine to medium sandstone gravel. Sand is fine. (TILL)                                                                                                                     |  | 2.50                 |                      |                                                |                                          |                                     |                |                                 |                       |                        |                                   |                                                                                      |
|                                                                                                                                                                                                                                       |                                                                                    |                      |                      | (0.50)                                         |                                          |                                     |                |                                 |                       |                        |                                   |                                                                                      |
| Borehole complete at 3.00 m bgl.                                                                                                                                                                                                      |                                                                                    | 3.00                 |                      |                                                |                                          |                                     |                |                                 |                       | 3.00 - 3.45            | SPT(S) N=18 (3,3/3,5,5,5)         |                                                                                      |
| Remarks:<br>1. Engineer verified logged in general accordance to BS 5930:2015.<br>2. Area CAT scanned prior to excavation.<br>3. Borehole remained dry upon completion.                                                               |                                                                                    |                      |                      |                                                | Water Strike                             |                                     |                | Water Level                     |                       | Borehole Diameter      |                                   |                                                                                      |
|                                                                                                                                                                                                                                       |                                                                                    |                      |                      |                                                | Date                                     | Time                                | Depth Strike   | Duration                        | Depth Water           | Depth Base             | Diameter                          |                                                                                      |
|                                                                                                                                                                                                                                       |                                                                                    |                      |                      |                                                |                                          |                                     |                |                                 |                       |                        |                                   |                                                                                      |
| Coordinates:                                                                                                                                                                                                                          |                                                                                    | Elevation (mAOD):    |                      | Drilled By:<br><b>Paul Blackledge Drilling</b> |                                          | Plant Used:<br><b>Dando Terrier</b> |                | Logged:<br><b>AH</b>            | Checked:<br><b>PH</b> | Approved:<br><b>PH</b> | Scale:<br><b>1:30</b>             |                                                                                      |

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------|----------------------|----------------------|------------------------------------------|-------|---------------------------------|----------------------|------------------------|------------------------|-----------------------|--------------------------------------------------------------------------------------|--------------------------|
|                                                                                                                                                                                                                                       |                                                                                     |                                                |                      |                      | Project:<br><b>Lowercroft Road, Bury</b> |       |                                 |                      |                        |                        |                       |                                                                                      |                          |
| Dynamic Sampler Log                                                                                                                                                                                                                   |                                                                                     |                                                |                      |                      | Date:<br><b>20/04/2017</b>               |       | Client:<br><b>Cornell Group</b> |                      |                        |                        |                       |                                                                                      |                          |
| Description of Strata                                                                                                                                                                                                                 | Legend                                                                              | Strata Depth (m bgl)                           | Strata Thickness (m) | Reduced Level (mAOD) | Casing Diameter (mm)                     | Water | Sample Details                  |                      |                        | Test Details           |                       | Backfill                                                                             |                          |
|                                                                                                                                                                                                                                       |                                                                                     |                                                |                      |                      |                                          |       | Depth (m)                       | Type                 | Ref                    | Depth (m)              | Results               |                                                                                      |                          |
| MADE GROUND: Black gravelly fine to coarse SAND. Gravel is subangular fine to medium brick, clinker, igneous.                                                                                                                         |    | 0.20                                           | (0.20)               |                      |                                          |       | 0.10                            | ES                   | 1                      |                        |                       |  |                          |
| Soft yellowish brown slightly sandy CLAY. Sand is fine. Lenses of grey fine sand approximately 50 mm in thickness noted. (TILL)                                                                                                       |    |                                                | (0.80)               |                      |                                          |       | 0.40                            | ES                   | 2                      |                        |                       |                                                                                      |                          |
|                                                                                                                                                                                                                                       |                                                                                     |                                                |                      |                      |                                          | 0.50  | D                               | 3                    |                        |                        |                       |                                                                                      |                          |
| Soft dark brown CLAY with frequent rootlets. (TILL)                                                                                                                                                                                   |    | 1.00                                           |                      |                      |                                          |       |                                 |                      |                        |                        |                       |                                                                                      |                          |
|                                                                                                                                                                                                                                       |                                                                                     |                                                | (0.70)               |                      |                                          |       | 1.50                            | D                    | 4                      |                        | 1.20 - 1.65           |                                                                                      | SPT(S) N=6 (1,1/1,1,2,2) |
|                                                                                                                                                                                                                                       |                                                                                     | 1.70                                           |                      |                      |                                          |       |                                 |                      |                        |                        |                       |                                                                                      |                          |
| Soft brown sandy CLAY. Sand is fine. (TILL)                                                                                                                                                                                           |   |                                                | (0.90)               |                      |                                          |       |                                 |                      |                        |                        | 2.00 - 2.45           | SPT(S) 3 (1 for 75mm/3 for 225mm)                                                    |                          |
|                                                                                                                                                                                                                                       |                                                                                     | 2.60                                           |                      |                      |                                          |       |                                 | 2.50                 | D                      | 5                      |                       |                                                                                      |                          |
| Firm reddish brown slightly sandy slightly gravelly CLAY. Sand is fine. Gravel is subangular fine to medium sandstone. (TILL)                                                                                                         |  | 3.00                                           | (0.40)               |                      |                                          |       |                                 |                      |                        |                        | 3.00 - 3.45           | SPT(S) N=23 (2,2/3,12,5,3)                                                           |                          |
| Borehole complete at 3.00 m bgl.                                                                                                                                                                                                      |                                                                                     |                                                |                      |                      |                                          |       |                                 |                      |                        |                        |                       |                                                                                      |                          |
| Remarks:<br>1. Engineer verified logged in general accordance to BS 5930:2015.<br>2. Area CAT scanned prior to excavation.<br>3. Borehole remained dry upon completion.                                                               |                                                                                     |                                                |                      |                      | Water Strike                             |       |                                 | Water Level          |                        | Borehole Diameter      |                       |                                                                                      |                          |
|                                                                                                                                                                                                                                       |                                                                                     |                                                |                      |                      | Date                                     | Time  | Depth Strike                    | Duration             | Depth Water            | Depth Base             | Diameter              |                                                                                      |                          |
|                                                                                                                                                                                                                                       |                                                                                     |                                                |                      |                      |                                          |       |                                 |                      |                        |                        |                       |                                                                                      |                          |
| Coordinates:                                                                                                                                                                                                                          | Elevation (mAOD):                                                                   | Drilled By:<br><b>Paul Blackledge Drilling</b> |                      |                      | Plant Used:<br><b>Dando Terrier</b>      |       |                                 | Logged:<br><b>AH</b> | Checked:<br><b>PH</b>  | Approved:<br><b>PH</b> | Scale:<br><b>1:30</b> |                                                                                      |                          |

|  <div> <b>Head Office</b><br/> 3 Henley Way, Doddington Road<br/> Lincoln, LN6 3QR<br/> Tel: +44 (0) 1522 882555<br/> Email: info@deltasimons.com </div> |                                                                                   |                      |                      |                                                | Project No: <b>16-0790.02</b>         |                                     | Hole ID: <b>DS105</b>        |                      | Page: <b>1 of 1</b>   |                        |                                   |                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------|----------------------|------------------------------------------------|---------------------------------------|-------------------------------------|------------------------------|----------------------|-----------------------|------------------------|-----------------------------------|--------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                          |                                                                                   |                      |                      |                                                | Project: <b>Lowercroft Road, Bury</b> |                                     |                              |                      |                       |                        |                                   |                                                                                      |
| <b>Dynamic Sampler Log</b>                                                                                                                                                                                                               |                                                                                   |                      |                      |                                                | Date: <b>20/04/2017</b>               |                                     | Client: <b>Cornell Group</b> |                      |                       |                        |                                   |                                                                                      |
| Description of Strata                                                                                                                                                                                                                    | Legend                                                                            | Strata Depth (m bgl) | Strata Thickness (m) | Reduced Level (mAOD)                           | Casing Diameter (mm)                  | Water                               | Sample Details               |                      |                       | Test Details           |                                   | Backfill                                                                             |
|                                                                                                                                                                                                                                          |                                                                                   |                      |                      |                                                |                                       |                                     | Depth (m)                    | Type                 | Ref                   | Depth (m)              | Results                           |                                                                                      |
| MADE GROUND: Brown slightly sandy CLAY with rare subangular fine to medium brick gravel. Sand is fine.                                                                                                                                   |  | 0.40                 | (0.40)               |                                                |                                       |                                     | 0.30                         | ES                   | 1                     | 1.20 - 1.65            | SPT(S) 5 (1 for 75mm/5 for 225mm) |  |
| MADE GROUND: Dark brown slightly sandy CLAY with rare subangular fine brick gravel. Sand is fine.                                                                                                                                        |                                                                                   | 1.40                 | (1.00)               |                                                |                                       |                                     | 1.40                         | ES                   | 2                     |                        |                                   |                                                                                      |
| Soft brown slightly sandy slightly gravelly CLAY. Sand is fine. Gravel is subangular fine sandstone. (TILL)                                                                                                                              |                                                                                   | 2.00                 | (0.60)               |                                                |                                       |                                     | 2.00                         | D                    | 3                     |                        |                                   |                                                                                      |
| Firm reddish brown slightly sandy slightly gravelly CLAY. Sand is fine. Gravel is subangular fine to medium sandstone. (TILL)                                                                                                            |                                                                                   | 3.00                 | (1.00)               |                                                |                                       |                                     | 3.00                         | D                    | 4                     |                        |                                   |                                                                                      |
| Borehole complete at 3.00 m bgl.                                                                                                                                                                                                         |                                                                                   |                      |                      |                                                |                                       |                                     |                              |                      |                       |                        |                                   |                                                                                      |
| Remarks:<br>1. Engineer verified logged in general accordance to BS 5930:2015.<br>2. Area CAT scanned prior to excavation.<br>3. Borehole remained dry upon completion.                                                                  |                                                                                   |                      |                      |                                                | Water Strike                          |                                     |                              | Water Level          |                       | Borehole Diameter      |                                   |                                                                                      |
|                                                                                                                                                                                                                                          |                                                                                   |                      |                      |                                                | Date                                  | Time                                | Depth Strike                 | Duration             | Depth Water           | Depth Base             | Diameter                          |                                                                                      |
|                                                                                                                                                                                                                                          |                                                                                   |                      |                      |                                                |                                       |                                     |                              |                      |                       |                        |                                   |                                                                                      |
| Coordinates:                                                                                                                                                                                                                             |                                                                                   | Elevation (mAOD):    |                      | Drilled By:<br><b>Paul Blackledge Drilling</b> |                                       | Plant Used:<br><b>Dando Terrier</b> |                              | Logged:<br><b>AH</b> | Checked:<br><b>PH</b> | Approved:<br><b>PH</b> | Scale:<br><b>1:30</b>             |                                                                                      |

## Appendix F - Borehole Falling Head Test Results

# PIEZOMETER VARIABLE HEAD PERMEABILITY TEST

|                                                 |                       |
|-------------------------------------------------|-----------------------|
| PROJECT NUMBER                                  | 16-0790.02            |
| PROJECT TITLE                                   | Lowercroft Road, Bury |
| BOREHOLE REF                                    | DS102                 |
| DATE                                            | 27-Apr-17             |
| BOREHOLE DIAMETER (mm)                          | 50                    |
| STATIC WATER LEVEL (m bd)                       | 2.79                  |
| "L" LENGTH SLOTTED SCREEN (m)                   | 2.00                  |
| BASE OF STANDPIPE (m)                           | 3.00                  |
| STRATA TYPE                                     | Clay                  |
| "D" BOREHOLE DIAMETER (m)                       | 5.00E-02              |
| "SCENARIO (a,b,c,d1,d2,e or f - case sensitive) | d1                    |
| "F" VALUE                                       | 2.87E+00              |
| "A" AREA OF BOREHOLE (m <sup>2</sup> )          | 1.96E-03              |

| TIME (mins) | Hi(mbd) | H(head) | H/Ho   |
|-------------|---------|---------|--------|
| 0.00        | 0.220   | 2.570   | 1.000  |
| 1.00        | 0.250   | 2.540   | 0.988  |
| 2.00        | 0.260   | 2.530   | 0.984  |
| 4.00        | 0.280   | 2.510   | 0.977  |
| 9.00        | 0.300   | 2.490   | 0.969  |
| 14.00       | 0.310   | 2.480   | 0.965  |
| 19.00       | 0.330   | 2.460   | 0.957  |
| 24.00       | 0.340   | 2.450   | 0.953  |
| 29.00       | 0.360   | 2.430   | 0.946  |
| 34.00       | 0.370   | 2.420   | 0.942  |
| 39.00       | 0.370   | 2.420   | 0.942  |
| 44.00       | 0.380   | 2.410   | 0.938  |
| 49.00       | 0.380   | 2.410   | 0.938  |
| 54.00       | 0.390   | 2.400   | 0.9339 |
| 59.00       | 0.390   | 2.400   | 0.934  |
|             |         | 2.790   | 1.086  |
|             |         | 2.790   | 1.086  |
|             |         | 2.790   | 1.086  |
|             |         | 2.790   | 1.086  |
|             |         | 2.790   | 1.086  |

## BASIC TIME LAG METHOD (after BS5930:1999)

$$K = A/(F \cdot T)$$

T = TIME FOR H/Ho:0.37

T = 0.00 (min)

T = 0.00 (sec)

K = #DIV/0! (m/s)

K = #DIV/0! (m/d)

## GENERAL METHOD (after BS5930:1999)

$$k = \frac{A}{F(t_2 - t_1)} \log_e \frac{H_1}{H_2}$$

t1 = 0.00 (min)

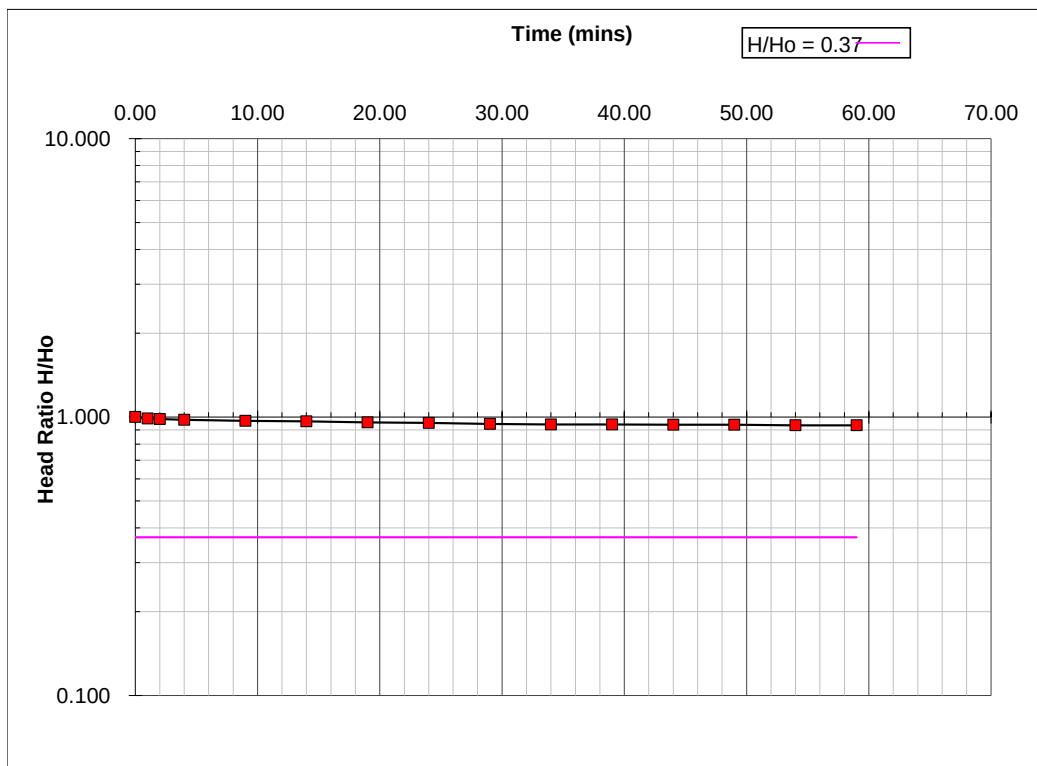
t2 = 59.00 (min)

H(head)1 = 2.57 (m)

H(head)2 = 2.40 (m)

K = 1.32E-08 (m/s)

K = 0.001 (m/d)



## Appendix G - Monitoring Records



**Sheet:**

|          |           |          |
|----------|-----------|----------|
| <b>1</b> | <b>of</b> | <b>1</b> |
|----------|-----------|----------|

|               |                       |
|---------------|-----------------------|
| Project Name: | Lowercroft Road, Bury |
|---------------|-----------------------|

Weather Conditions: Cloudy, 5c

**Date:**

|                 |            |
|-----------------|------------|
| Project Number: | 16-0790.02 |
|-----------------|------------|

Gas Kit Model: GFM436

**27/04/2017**

|            |    |
|------------|----|
| Personnel: | DP |
|------------|----|

Gas Kit Serial No:

[illegible]

## GUIDE TO PURGING VOLUMES

To calculate the number of litres to be purged from a well with a different diameter, use the formula  $3\pi r^2 h$  (where  $r$  = radius of the well and  $h$  = height of the water column). Use the formula  $\pi r^2 h$  to calculate the volume of a bailer. Please note that the standard bailers Delta-Simons use are typically 0.95 m in length.

|                         |    |    |    |    |    |     |
|-------------------------|----|----|----|----|----|-----|
| Diameter of Casing (mm) | 19 | 35 | 50 | 50 | 75 | 100 |
| Diameter of Bailer (mm) | 18 | 19 | 19 | 38 | 38 | 38  |
| No. bails per m         | 4  | 12 | 22 | 6  | 13 | 23  |



**Sheet:**

|   |    |   |
|---|----|---|
| 1 | of | 1 |
|---|----|---|

|               |                       |
|---------------|-----------------------|
| Project Name: | Lowercroft Road, Bury |
|---------------|-----------------------|

Weather Conditions: Sunny, Windy, 12c

Date:

|                 |            |
|-----------------|------------|
| Project Number: | 16-0790.02 |
|-----------------|------------|

|                |        |
|----------------|--------|
| Gas Kit Model: | GFM436 |
|----------------|--------|

**03/05/2017**

|            |    |
|------------|----|
| Personnel: | DP |
|------------|----|

Gas Kit Serial No:

[illegible]

## GUIDE TO PURGING VOLUMES

To calculate the number of litres to be purged from a well with a different diameter, use the formula  $3\pi r^2 h$  (where  $r$  = radius of the well and  $h$  = height of the water column). Use the formula  $\pi r^2 h$  to calculate the volume of a bailer. Please note that the standard bailers Delta-Simons use are typically 0.95 m in length.

|                         |    |    |    |    |    |     |
|-------------------------|----|----|----|----|----|-----|
| Diameter of Casing (mm) | 19 | 35 | 50 | 50 | 75 | 100 |
| Diameter of Bailer (mm) | 18 | 19 | 19 | 38 | 38 | 38  |
| No. bails per m         | 4  | 12 | 22 | 6  | 13 | 23  |



## Appendix H - Chemical Analysis



## Amended Report

---

**Report No.:** 17-09788-3

**Initial Date of Issue:** 02-May-2017 **Date of Re-Issue:** 09-May-2017

**Client:** Delta Simons

**Client Address:** 3 Henley Office Park  
Doddington Road  
Lincoln  
Lincolnshire  
LN6 3QR

**Contact(s):** Andrew Howells

**Project:** 16-0790.02 - Lowercroft Road, Bury

**Quotation No.:** **Date Received:** 24-Apr-2017

**Order No.:** DS32722 **Date Instructed:** 25-Apr-2017

**No. of Samples:** 4

**Turnaround (Wkdays):** 10 **Results Due:** 09-May-2017

**Date Approved:** 09-May-2017

**Approved By:**

**Details:** Keith Jones, Technical Manager  
Robert Monk, Technical Development  
Chemist

---

## Results - Soil

|                              |                             |            |              |            |                      |                      |                      |              |
|------------------------------|-----------------------------|------------|--------------|------------|----------------------|----------------------|----------------------|--------------|
| <b>Client:</b> Delta Simons  | <b>Chemtest Job No.:</b>    |            |              |            | 17-09788             | 17-09788             | 17-09788             | 17-09788     |
| Quotation No.:               | <b>Chemtest Sample ID.:</b> |            |              |            | 443220               | 443224               | 443228               | 443229       |
| Order No.: DS32722           | Client Sample Ref.:         |            |              |            | DS101                | DS103                | DS104                | DS104        |
|                              | Client Sample ID.:          |            |              |            | ES1                  | ES1                  | ES1                  | ES2          |
|                              | Sample Type:                |            |              |            | SOIL                 | SOIL                 | SOIL                 | SOIL         |
|                              | Top Depth (m):              |            |              |            | 0.10                 | 0.20                 | 0.10                 | 0.40         |
|                              | Date Sampled:               |            |              |            | 20-Apr-2017          | 20-Apr-2017          | 20-Apr-2017          | 20-Apr-2017  |
|                              | Asbestos Lab:               |            |              |            | COVENTRY             | COVENTRY             | COVENTRY             |              |
| <b>Determinand</b>           | <b>Accred.</b>              | <b>SOP</b> | <b>Units</b> | <b>LOD</b> |                      |                      |                      |              |
| ACM Type                     | U                           | 2192       |              | N/A        | -                    | -                    | -                    |              |
| Asbestos Identification      | U                           | 2192       | %            | 0.001      | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected |              |
| Moisture                     | N                           | 2030       | %            | 0.020      | 13                   | 10                   |                      | 16           |
| Soil Colour                  | N                           | 2040       |              | N/A        | Brown                | Black                |                      | Brown        |
| Other Material               | N                           | 2040       |              | N/A        | Stones               | Stones               |                      | Stones, Wood |
| Soil Texture                 | N                           | 2040       |              | N/A        | Sand                 | Sand                 |                      | Clay         |
| Boron (Hot Water Soluble)    | M                           | 2120       | mg/kg        | 0.40       | 1.3                  | 0.67                 |                      | < 0.40       |
| Arsenic                      | M                           | 2450       | mg/kg        | 1.0        | 19                   | 120                  |                      | 8.2          |
| Cadmium                      | M                           | 2450       | mg/kg        | 0.10       | 0.32                 | 0.76                 |                      | < 0.10       |
| Chromium                     | M                           | 2450       | mg/kg        | 1.0        | 18                   | 71                   |                      | 18           |
| Copper                       | M                           | 2450       | mg/kg        | 0.50       | 49                   | 160                  |                      | 12           |
| Mercury                      | M                           | 2450       | mg/kg        | 0.10       | 0.19                 | 0.38                 |                      | 0.10         |
| Nickel                       | M                           | 2450       | mg/kg        | 0.50       | 19                   | 72                   |                      | 14           |
| Lead                         | M                           | 2450       | mg/kg        | 0.50       | 170                  | 240                  |                      | 18           |
| Selenium                     | M                           | 2450       | mg/kg        | 0.20       | < 0.20               | 6.2                  |                      | < 0.20       |
| Zinc                         | M                           | 2450       | mg/kg        | 0.50       | 100                  | 230                  |                      | 31           |
| Fuel Type                    | N                           | 2670       |              | N/A        | N/A                  | PAH                  |                      | N/A          |
| Total TPH >C6-C40            | M                           | 2670       | mg/kg        | 10         | < 10                 | 9400                 |                      | < 10         |
| Aliphatic TPH >C5-C6         | N                           | 2680       | mg/kg        | 1.0        |                      | < 1.0                |                      |              |
| Aliphatic TPH >C6-C8         | N                           | 2680       | mg/kg        | 1.0        |                      | < 1.0                |                      |              |
| Aliphatic TPH >C8-C10        | M                           | 2680       | mg/kg        | 1.0        |                      | < 1.0                |                      |              |
| Aliphatic TPH >C10-C12       | M                           | 2680       | mg/kg        | 1.0        |                      | < 1.0                |                      |              |
| Aliphatic TPH >C12-C16       | M                           | 2680       | mg/kg        | 1.0        |                      | < 1.0                |                      |              |
| Aliphatic TPH >C16-C21       | M                           | 2680       | mg/kg        | 1.0        |                      | 56                   |                      |              |
| Aliphatic TPH >C21-C35       | M                           | 2680       | mg/kg        | 1.0        |                      | 250                  |                      |              |
| Aliphatic TPH >C35-C44       | N                           | 2680       | mg/kg        | 1.0        |                      | < 1.0                |                      |              |
| Total Aliphatic Hydrocarbons | N                           | 2680       | mg/kg        | 5.0        |                      | 300                  |                      |              |
| Aromatic TPH >C5-C7          | N                           | 2680       | mg/kg        | 1.0        |                      | < 1.0                |                      |              |
| Aromatic TPH >C7-C8          | N                           | 2680       | mg/kg        | 1.0        |                      | < 1.0                |                      |              |
| Aromatic TPH >C8-C10         | M                           | 2680       | mg/kg        | 1.0        |                      | < 1.0                |                      |              |
| Aromatic TPH >C10-C12        | M                           | 2680       | mg/kg        | 1.0        |                      | 1.3                  |                      |              |
| Aromatic TPH >C12-C16        | M                           | 2680       | mg/kg        | 1.0        |                      | 100                  |                      |              |
| Aromatic TPH >C16-C21        | U                           | 2680       | mg/kg        | 1.0        |                      | 2500                 |                      |              |
| Aromatic TPH >C21-C35        | M                           | 2680       | mg/kg        | 1.0        |                      | 5000                 |                      |              |
| Aromatic TPH >C35-C44        | N                           | 2680       | mg/kg        | 1.0        |                      | 280                  |                      |              |
| Total Aromatic Hydrocarbons  | N                           | 2680       | mg/kg        | 5.0        |                      | 7900                 |                      |              |
| Total Petroleum Hydrocarbons | N                           | 2680       | mg/kg        | 10.0       |                      | 8200                 |                      |              |

## Results - Soil

|                             |                             |            |              |            |             |             |             |             |
|-----------------------------|-----------------------------|------------|--------------|------------|-------------|-------------|-------------|-------------|
| <b>Client:</b> Delta Simons | <b>Chemtest Job No.:</b>    |            |              |            | 17-09788    | 17-09788    | 17-09788    | 17-09788    |
| Quotation No.:              | <b>Chemtest Sample ID.:</b> |            |              |            | 443220      | 443224      | 443228      | 443229      |
| Order No.: DS32722          | Client Sample Ref.:         |            |              |            | DS101       | DS103       | DS104       | DS104       |
|                             | Client Sample ID.:          |            |              |            | ES1         | ES1         | ES1         | ES2         |
|                             | Sample Type:                |            |              |            | SOIL        | SOIL        | SOIL        | SOIL        |
|                             | Top Depth (m):              |            |              |            | 0.10        | 0.20        | 0.10        | 0.40        |
|                             | Date Sampled:               |            |              |            | 20-Apr-2017 | 20-Apr-2017 | 20-Apr-2017 | 20-Apr-2017 |
|                             | Asbestos Lab:               |            |              |            | COVENTRY    | COVENTRY    | COVENTRY    |             |
| <b>Determinand</b>          | <b>Accred.</b>              | <b>SOP</b> | <b>Units</b> | <b>LOD</b> |             |             |             |             |
| Naphthalene                 | M                           | 2700       | mg/kg        | 0.10       | < 0.10      | 2.7         |             | < 0.10      |
| Acenaphthylene              | M                           | 2700       | mg/kg        | 0.10       | < 0.10      | 2.0         |             | < 0.10      |
| Acenaphthene                | M                           | 2700       | mg/kg        | 0.10       | < 0.10      | 6.7         |             | < 0.10      |
| Fluorene                    | M                           | 2700       | mg/kg        | 0.10       | < 0.10      | 11          |             | < 0.10      |
| Phenanthrene                | M                           | 2700       | mg/kg        | 0.10       | < 0.10      | 120         |             | 0.87        |
| Anthracene                  | M                           | 2700       | mg/kg        | 0.10       | < 0.10      | 62          |             | 0.48        |
| Fluoranthene                | M                           | 2700       | mg/kg        | 0.10       | < 0.10      | 390         |             | 3.5         |
| Pyrene                      | M                           | 2700       | mg/kg        | 0.10       | < 0.10      | 370         |             | 3.5         |
| Benzo[a]anthracene          | M                           | 2700       | mg/kg        | 0.10       | < 0.10      | 240         |             | 3.3         |
| Chrysene                    | M                           | 2700       | mg/kg        | 0.10       | < 0.10      | 270         |             | 2.6         |
| Benzo[b]fluoranthene        | M                           | 2700       | mg/kg        | 0.10       | < 0.10      | 280         |             | 2.6         |
| Benzo[k]fluoranthene        | M                           | 2700       | mg/kg        | 0.10       | < 0.10      | 100         |             | 0.75        |
| Benzo[a]pyrene              | M                           | 2700       | mg/kg        | 0.10       | < 0.10      | 190         |             | 1.7         |
| Indeno(1,2,3-c,d)Pyrene     | M                           | 2700       | mg/kg        | 0.10       | < 0.10      | 110         |             | < 0.10      |
| Dibenz(a,h)Anthracene       | M                           | 2700       | mg/kg        | 0.10       | < 0.10      | 38          |             | < 0.10      |
| Benzo[g,h,i]perylene        | M                           | 2700       | mg/kg        | 0.10       | < 0.10      | 85          |             | < 0.10      |
| Total Of 16 PAH's           | M                           | 2700       | mg/kg        | 2.0        | < 2.0       | 2300        |             | 19          |

| SOP  | Title                                                               | Parameters included                                                                                                                                                                                                                                           | Method summary                                                                                       |
|------|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| 2030 | Moisture and Stone Content of Soils(Requirement of MCERTS)          | Moisture content                                                                                                                                                                                                                                              | Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C. |
| 2040 | Soil Description(Requirement of MCERTS)                             | Soil description                                                                                                                                                                                                                                              | As received soil is described based upon BS5930                                                      |
| 2120 | Water Soluble Boron, Sulphate, Magnesium & Chromium                 | Boron; Sulphate; Magnesium; Chromium                                                                                                                                                                                                                          | Aqueous extraction / ICP-OES                                                                         |
| 2192 | Asbestos                                                            | Asbestos                                                                                                                                                                                                                                                      | Polarised light microscopy / Gravimetry                                                              |
| 2450 | Acid Soluble Metals in Soils                                        | Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc                                                                                                      | Acid digestion followed by determination of metals in extract by ICP-MS.                             |
| 2670 | Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID               | TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40                                                                                                                                                                                | Dichloromethane extraction / GC-FID                                                                  |
| 2680 | TPH A/A Split                                                       | Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44                                                                                 | Dichloromethane extraction / GCxGC FID detection                                                     |
| 2700 | Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID | Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenzo[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene | Dichloromethane extraction / GC-FID                                                                  |

## **Report Information**

### **Key**

---

- U UKAS accredited
- M MCERTS and UKAS accredited
- N Unaccredited
- S This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
- SN This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
- T This analysis has been subcontracted to an unaccredited laboratory
- I/S Insufficient Sample
- U/S Unsuitable Sample
- N/E not evaluated
- < "less than"
- > "greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

### **Sample Deviation Codes**

---

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container

### **Sample Retention and Disposal**

---

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

[customerservices@chemtest.co.uk](mailto:customerservices@chemtest.co.uk)

**Andrew Howells**

Delta-Simons  
3 Henley Office Park  
Doddington Road  
Lincoln  
LN6 3QR

i2 Analytical Ltd.  
7 Woodshots Meadow,  
Croxley Green  
Business Park,  
Watford,  
Herts,  
WD18 8YS

**t:** 01923 225404

**f:** 01923 237404

**e:** reception@i2analytical.com

**e:** andrew.howells@deltasimons.com

## **Analytical Report Number : 17-46461**

|                             |                       |                               |            |
|-----------------------------|-----------------------|-------------------------------|------------|
| <b>Project / Site name:</b> | Lowercroft Road, Bury | <b>Samples received on:</b>   | 21/04/2017 |
| <b>Your job number:</b>     | 16-0790.02            | <b>Samples instructed on:</b> | 21/04/2017 |
| <b>Your order number:</b>   | DS32723               | <b>Analysis completed by:</b> | 02/05/2017 |
| <b>Report Issue Number:</b> | 1                     | <b>Report issued on:</b>      | 02/05/2017 |
| <b>Samples Analysed:</b>    | 3 soil samples        |                               |            |

**Signed:**

Emma Winter  
Assistant 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: 17-46461**

**Project / Site name: Lowercroft Road, Bury**

**Your Order No: DS32723**

|                                                 |              |                               |                                 |               |               |               |  |  |
|-------------------------------------------------|--------------|-------------------------------|---------------------------------|---------------|---------------|---------------|--|--|
| <b>Lab Sample Number</b>                        |              |                               |                                 | 738921        | 738922        | 738923        |  |  |
| <b>Sample Reference</b>                         |              |                               |                                 | DS101         | DS103C        | DS105         |  |  |
| <b>Sample Number</b>                            |              |                               |                                 | None Supplied | None Supplied | None Supplied |  |  |
| <b>Depth (m)</b>                                |              |                               |                                 | 0.50          | 2.00          | 3.00          |  |  |
| <b>Date Sampled</b>                             |              |                               |                                 | 20/04/2017    | 20/04/2017    | 20/04/2017    |  |  |
| <b>Time Taken</b>                               |              |                               |                                 | None Supplied | None Supplied | None Supplied |  |  |
| <b>Analytical Parameter<br/>(Soil Analysis)</b> | <b>Units</b> | <b>Limit of<br/>detection</b> | <b>Accreditation<br/>Status</b> |               |               |               |  |  |
| Stone Content                                   | %            | 0.1                           | NONE                            | < 0.1         | < 0.1         | < 0.1         |  |  |
| Moisture Content                                | %            | N/A                           | NONE                            | 14            | 23            | 10            |  |  |
| Total mass of sample received                   | kg           | 0.001                         | NONE                            | 0.23          | 0.95          | 0.27          |  |  |

#### General Inorganics

|                                                                         |          |         |        |       |       |         |  |  |
|-------------------------------------------------------------------------|----------|---------|--------|-------|-------|---------|--|--|
| pH - Automated                                                          | pH Units | N/A     | MCERTS | 6.7   | 6.8   | 6.6     |  |  |
| Water Soluble SO <sub>4</sub> 16hr extraction (2:1 Leachate Equivalent) | g/l      | 0.00125 | MCERTS | 0.049 | 0.062 | 0.018   |  |  |
| Total Sulphur                                                           | %        | 0.005   | MCERTS | 0.010 | 0.047 | < 0.005 |  |  |



**Analytical Report Number : 17-46461**

**Project / Site name: Lowercroft Road, Bury**

\* 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 *                 |
|-------------------|------------------|---------------|-----------|--------------------------------------|
| 738921            | DS101            | None Supplied | 0.50      | Brown clay and sand with vegetation. |
| 738922            | DS103C           | None Supplied | 2.00      | Brown clay and sand with vegetation. |
| 738923            | DS105            | None Supplied | 3.00      | Brown clay and sand with gravel.     |

**Analytical Report Number : 17-46461**

**Project / Site name: Lowercroft Road, Bury**

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

| Analytical Test Name                               | Analytical Method Description                                                                                                                             | Analytical Method Reference                                                                                                       | Method number | Wet / Dry Analysis | Accreditation Status |
|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|---------------|--------------------|----------------------|
| Moisture Content                                   | Moisture content, determined gravimetrically.                                                                                                             | In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests                                                  | L019-UK/PL    | W                  | NONE                 |
| 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               |
| 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               |
| Total Sulphur in soil as %                         | 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          | W                  | MCERTS               |

**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.**

## Appendix I - Geotechnical Testing



## TEST CERTIFICATE

### Determination of Moisture Content

Tested in Accordance with BS 1377-2:1990: Clause 3.2

i2 Analytical Ltd  
7 Woodshots Meadow  
Croxley Green Business Park  
Watford Herts WD18 8YS



Client: Delta-Simons  
Client Address: 3 Henley Office Park  
Doddington Road  
Lincoln  
LN6 3QR  
Contact: Andrew Howells  
Site Name: Lowercroft Road, Bury  
Site Address: Not Given

Client Reference: 16-0790.02  
Job Number: 17-46380  
Date Sampled: 20/04/2017  
Date Received: 21/04/2017  
Date Tested: 28/04/2017  
Sampled By: Not Given

### Test results

| Laboratory Reference | Sample Reference | Location | Depth Top [m] | Depth Base [m] | Sample Type | Description                                 | Moisture Content [%] |
|----------------------|------------------|----------|---------------|----------------|-------------|---------------------------------------------|----------------------|
| 738450               | Not Given        | DS101    | 0.5           | Not Given      | D           | Brown gravelly very sandy CLAY              | 20                   |
| 738451               | Not Given        | DS101    | 1.5           | Not Given      | D           | Orangish brown slightly gravelly sandy CLAY | 14                   |
| 738452               | Not Given        | DS102    | 1             | Not Given      | D           | Brownish grey slightly gravelly clayey SAND | 19                   |
| 738453               | Not Given        | DS102    | 3             | Not Given      | D           | Orangish brown slightly gravelly sandy CLAY | 13                   |
| 738454               | Not Given        | DS103C   | 2             | Not Given      | D           | Dark brown slightly gravelly sandy CLAY     | 35                   |
| 738455               | Not Given        | DS104    | 0.5           | Not Given      | D           | Dark brown slightly gravelly clayey SAND    | 26                   |
| 738456               | Not Given        | DS104    | 2.5           | Not Given      | D           | Brown slightly sandy CLAY                   | 24                   |
| 738457               | Not Given        | DS105    | 3             | Not Given      | D           | Orangish brown gravelly very sandy CLAY     | 12                   |
|                      |                  |          |               |                |             |                                             |                      |
|                      |                  |          |               |                |             |                                             |                      |

Remarks

Approved:

Dariusz Piotrowski  
PL Laboratory Manager  
Geotechnical Section

Signed:

Sushil Sharda  
Technical Manager  
(Geotechnical Division)

Date Reported: 05/05/2017

for and on behalf of i2 Analytical Ltd

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The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland."



# TEST CERTIFICATE

## Determination of Liquid and Plastic Limits

i2 Analytical Ltd  
7 Woodshots Meadow  
Croxley Green Business Park  
Watford Herts WD18 8YS



Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

Client: Delta-Simons  
Client Address: 3 Henley Office Park  
Doddington Road  
Lincoln  
LN6 3QR  
Contact: Andrew Howells  
Site Name: Lowercroft Road, Bury  
Site Address: Not Given

Client Reference: 16-0790.02  
Job Number: 17-46380  
Date Sampled: 20/04/2017  
Date Received: 21/04/2017  
Date Tested: 28/04/2017  
Sampled By: Not Given

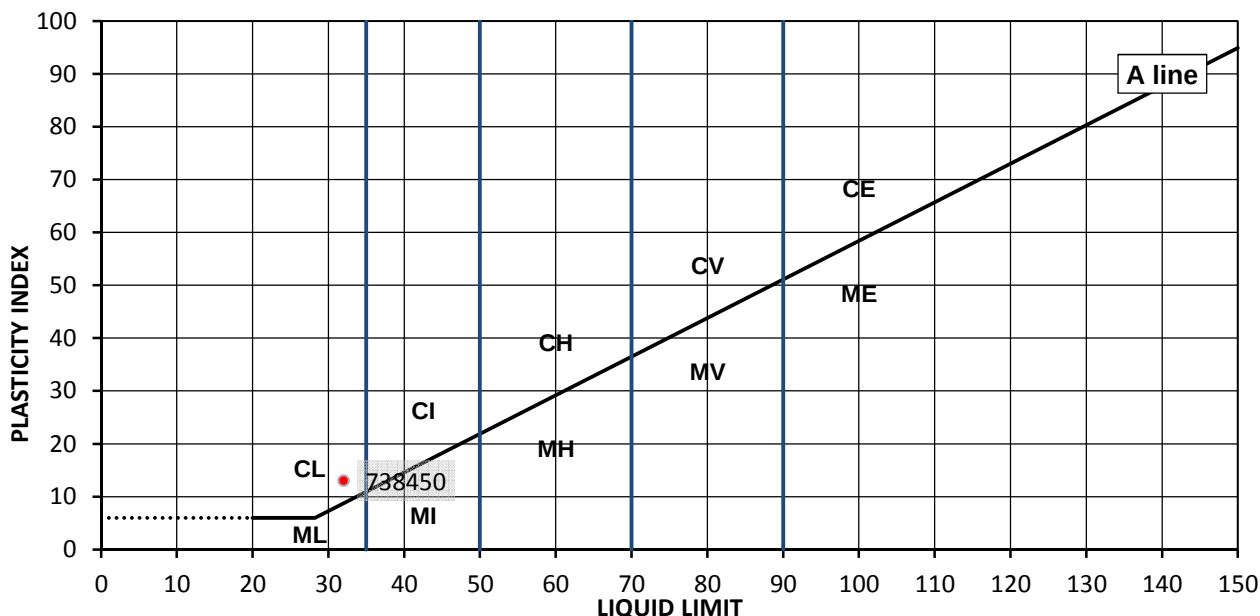
### TEST RESULTS

Laboratory Reference: 738450  
Sample Reference: Not Given

Description: Brown gravelly very sandy CLAY  
Location: DS101  
Sample Preparation: Tested after washing to remove >425um

Sample Type: D  
Depth Top [m]: 0.5  
Depth Base [m]: Not Given

| As Received Moisture Content [%] | Liquid Limit [%] | Plastic Limit [%] | Plasticity Index [%] | % Passing 425µm BS Test Sieve |
|----------------------------------|------------------|-------------------|----------------------|-------------------------------|
| 20                               | 32               | 19                | 13                   | 86                            |



Legend, based on BS 5930:2015 Code of practice for site investigations

|         | Plasticity       | Liquid Limit                                             |
|---------|------------------|----------------------------------------------------------|
| C       | Clay             | below 35                                                 |
| M       | Silt             | 35 to 50                                                 |
|         | L Low            | 50 to 70                                                 |
|         | I Medium         | 70 to 90                                                 |
|         | H High           | exceeding 90                                             |
|         | V Very high      |                                                          |
|         | E Extremely high |                                                          |
| Organic | O                | append to classification for organic material ( eg CHO ) |

Remarks

Approved:

Signed:

Dariusz Piotrowski  
PL Laboratory  
Manager Geotechnical  
Section

Sushil Sharda  
Technical Manager  
(Geotechnical Division)

Date Reported: 05/05/2017

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# TEST CERTIFICATE

## Determination of Liquid and Plastic Limits

i2 Analytical Ltd  
7 Woodshots Meadow  
Croxley Green Business Park  
Watford Herts WD18 8YS



Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

Client: Delta-Simons  
Client Address: 3 Henley Office Park  
Doddington Road  
Lincoln  
LN6 3QR  
Contact: Andrew Howells  
Site Name: Lowercroft Road, Bury  
Site Address: Not Given

Client Reference: 16-0790.02  
Job Number: 17-46380  
Date Sampled: 20/04/2017  
Date Received: 21/04/2017  
Date Tested: 28/04/2017  
Sampled By: Not Given

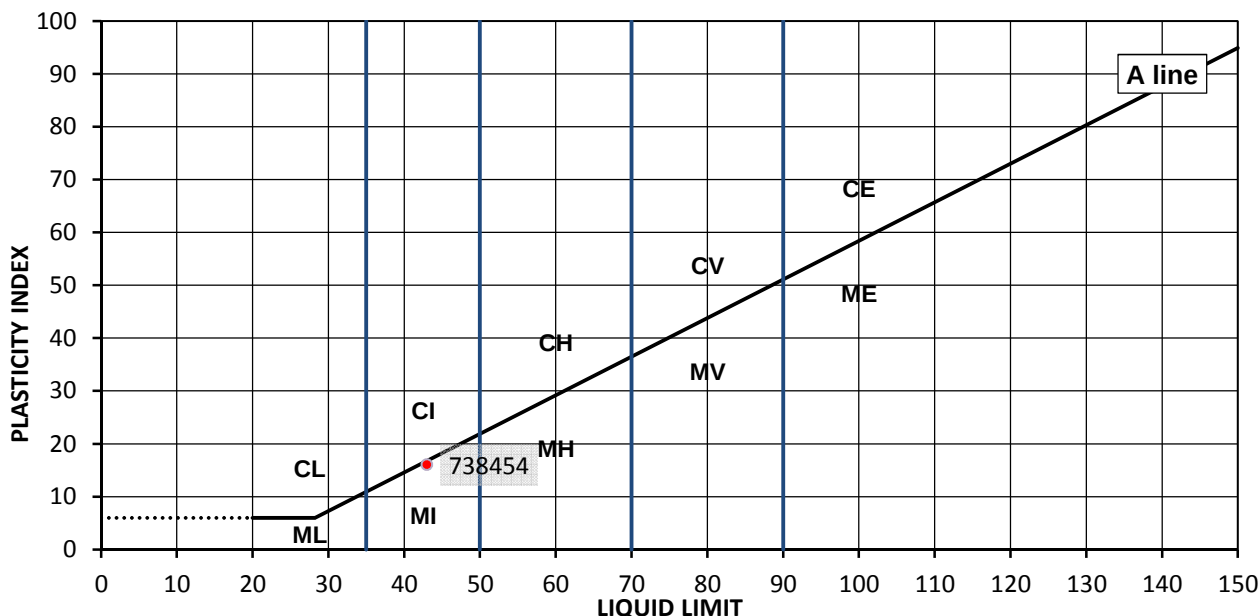
### TEST RESULTS

Laboratory Reference: 738454  
Sample Reference: Not Given

Description: Dark brown slightly gravelly sandy CLAY  
Location: DS103C  
Sample Preparation: Tested after washing to remove >425um

Sample Type: D  
Depth Top [m]: 2  
Depth Base [m]: Not Given

| As Received Moisture Content [%] | Liquid Limit [%] | Plastic Limit [%] | Plasticity Index [%] | % Passing 425µm BS Test Sieve |
|----------------------------------|------------------|-------------------|----------------------|-------------------------------|
| 35                               | 43               | 27                | 16                   | 82                            |



Legend, based on BS 5930:2015 Code of practice for site investigations

|         | Plasticity | Liquid Limit                                             |
|---------|------------|----------------------------------------------------------|
| C       | Clay       | below 35                                                 |
| M       | Silt       | 35 to 50                                                 |
|         | L          | Low                                                      |
|         | I          | Medium                                                   |
|         | H          | High                                                     |
|         | V          | Very high                                                |
|         | E          | Extremely high                                           |
|         |            | exceeding 90                                             |
| Organic | O          | append to classification for organic material ( eg CHO ) |

Remarks

Approved:

Dariusz Piotrowski  
PL Laboratory  
Manager Geotechnical  
Section

Date Reported: 05/05/2017

Signed:

Sushil Sharda  
Technical Manager  
(Geotechnical Division)

for and on behalf of i2 Analytical Ltd

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# TEST CERTIFICATE

## Determination of Liquid and Plastic Limits

i2 Analytical Ltd  
7 Woodshots Meadow  
Croxley Green Business Park  
Watford Herts WD18 8YS



Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

Client: Delta-Simons  
Client Address: 3 Henley Office Park  
Doddington Road  
Lincoln  
LN6 3QR  
Contact: Andrew Howells  
Site Name: Lowercroft Road, Bury  
Site Address: Not Given

Client Reference: 16-0790.02  
Job Number: 17-46380  
Date Sampled: 20/04/2017  
Date Received: 21/04/2017  
Date Tested: 28/04/2017  
Sampled By: Not Given

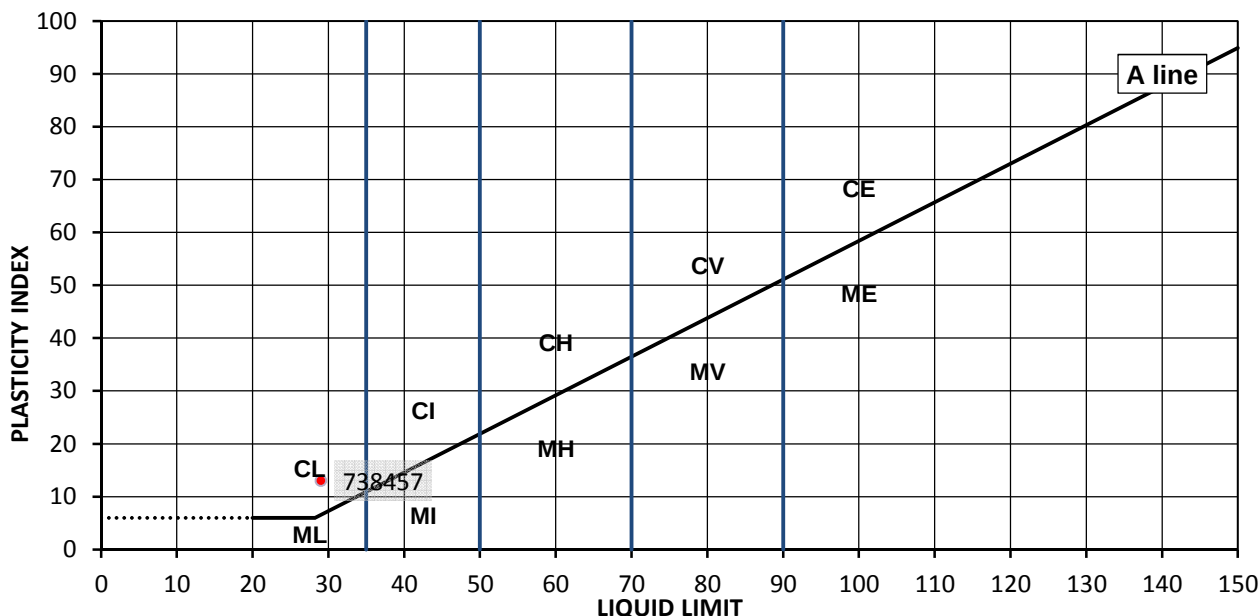
### TEST RESULTS

Laboratory Reference: 738457  
Sample Reference: Not Given

Description: Orangish brown gravelly very sandy CLAY  
Location: DS105  
Sample Preparation: Tested after washing to remove >425um

Sample Type: D  
Depth Top [m]: 3  
Depth Base [m]: Not Given

| As Received Moisture Content [%] | Liquid Limit [%] | Plastic Limit [%] | Plasticity Index [%] | % Passing 425µm BS Test Sieve |
|----------------------------------|------------------|-------------------|----------------------|-------------------------------|
| 12                               | 29               | 16                | 13                   | 65                            |



Legend, based on BS 5930:2015 Code of practice for site investigations

|         | Plasticity       | Liquid Limit                                             |
|---------|------------------|----------------------------------------------------------|
| C       | Clay             | below 35                                                 |
| M       | Silt             | 35 to 50                                                 |
|         | L Low            | 50 to 70                                                 |
|         | I Medium         | 70 to 90                                                 |
|         | H High           | exceeding 90                                             |
|         | V Very high      |                                                          |
|         | E Extremely high |                                                          |
| Organic | O                | append to classification for organic material ( eg CHO ) |

Remarks

Approved:

Signed:

Dariusz Piotrowski  
PL Laboratory  
Manager Geotechnical  
Section

Sushil Sharda  
Technical Manager  
(Geotechnical Division)

Date Reported: 05/05/2017

for and on behalf of i2 Analytical Ltd

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## TEST CERTIFICATE

### Summary of Classification Test Results

i2 Analytical Ltd  
7 Woodshots Meadow  
Croxley Green Business Park  
Watford Herts WD18 8YS



Client: Delta-Simons  
Client Address: 3 Henley Office Park  
Doddington Road  
Lincoln  
LN6 3QR  
Contact: Andrew Howells  
Site Name: Lowercroft Road, Bury  
Site Address: Not Given

Client Reference: 16-0790.02  
Job Number: 17-46380  
Date Sampled: 20/04/2017  
Date Received: 21/04/2017  
Date Tested: 28/04/2017  
Sampled By: Not Given

### Test results

| Laboratory<br>Reference | Hole No. | Sample    |                  |                   |      | Soil Description                        | Density |       | M/C | Atterberg       |    |    |    | PD    |
|-------------------------|----------|-----------|------------------|-------------------|------|-----------------------------------------|---------|-------|-----|-----------------|----|----|----|-------|
|                         |          | Reference | Top depth<br>[m] | Base depth<br>[m] | Type |                                         | bulk    | dry   |     | % Passing 425um | LL | PL | PI |       |
|                         |          |           |                  |                   |      |                                         | Mg/m3   | Mg/m3 |     | %               | %  | %  | %  | Mg/m3 |
| 738450                  | DS101    | Not Given | 0.50             | Not Given         | D    | Brown gravelly very sandy CLAY          |         |       | 20  | 86              | 32 | 19 | 13 |       |
| 738454                  | DS103C   | Not Given | 2.00             | Not Given         | D    | Dark brown slightly gravelly sandy CLAY |         |       | 35  | 82              | 43 | 27 | 16 |       |
| 738457                  | DS105    | Not Given | 3.00             | Not Given         | D    | Orangish brown gravelly very sandy CLAY |         |       | 12  | 65              | 29 | 16 | 13 |       |
|                         |          |           |                  |                   |      |                                         |         |       |     |                 |    |    |    |       |
|                         |          |           |                  |                   |      |                                         |         |       |     |                 |    |    |    |       |
|                         |          |           |                  |                   |      |                                         |         |       |     |                 |    |    |    |       |
|                         |          |           |                  |                   |      |                                         |         |       |     |                 |    |    |    |       |
|                         |          |           |                  |                   |      |                                         |         |       |     |                 |    |    |    |       |
|                         |          |           |                  |                   |      |                                         |         |       |     |                 |    |    |    |       |
|                         |          |           |                  |                   |      |                                         |         |       |     |                 |    |    |    |       |

Comments:

Approved:

Dariusz Piotrowski  
PL Laboratory Manager  
Geotechnical Section

Date Reported: 05/05/2017

Signed:

Sushil Sharda  
Technical Manager (Geotechnical  
Division)

for and on behalf of i2 Analytical Ltd

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## Appendix J - Generic Assessment Criteria

## Commercial – CAT 1 Limited Investigation

A tiered risk assessment approach is used for the assessment of soil analysis results considering the 'pollutant linkages' on the basis of a 'source-pathway-receptor' relationship.

The following tables presents conservative Generic Assessment Criteria (GAC) used by Delta-Simons to provide an initial assessment of risk to Human Health in the context of the proposed redevelopment of the Site.

GACs are intended to assess:

- ▲ Chronic (long-term) on-site exposure risk to contaminants in the soil to future users and occupiers of the Site.
- ▲ Concentrations below the GAC considered tolerable or to pose a minimal risk to human health, or low risk in relation to the Category 4 Screening Levels (C4SLs).

GACs are not relevant for assessing:

- ▲ Acute (short-term) exposure risks (e.g. construction workers during development);
- ▲ Non-human receptors such as controlled waters, ecosystems, buildings and services, animals, domestic pets or plants;
- ▲ Aesthetic issues which may render a soil unsuitable for use such as odour or colour;
- ▲ GACs do not take account of other non-soil based sources of contamination such as contamination in groundwater or surface waters; and
- ▲ GACs are not suitable for assessing whether a soil provides a suitable growing medium for crops or plants.

## Exceedances of Generic Assessment Criteria

An exceedance of a GAC:

- ▲ Is not an indicator of a significant risk to human health;
- ▲ Is an indication that the contaminant may pose a possibility harm to human health and, therefore, further consideration is required.

In assessing the significance of an exceedance consideration should be given to:

- ▲ The nature of the contaminant (e.g. volatile or non-volatile contaminants)
- ▲ Site design and potential exposure pathways (e.g. hard cover, buildings, landscaping)
- ▲ The distribution of exceedances (widespread or localised, numerous or few exceedances – NB: Consider data limitations – site coverage and gaps in data.
- ▲ The margin of the exceedance(s);
- ▲ The duration and frequency of exposure; and
- ▲ Any other site specific factors.

| Commercial – CAT 1 Limited Investigation |              |        |                                                |
|------------------------------------------|--------------|--------|------------------------------------------------|
| Compound                                 | GAC          | Source | Comment                                        |
| Arsenic                                  | 640          | C4SL   |                                                |
| Cadmium                                  | 410          | LQM    |                                                |
| Chromium (III)                           | 8600         | LQM    |                                                |
| Chromium (VI)                            | 33           | LQM    |                                                |
| Copper                                   | 68000        | LQM    |                                                |
| Lead                                     | 2300         | C4SL   |                                                |
| Mercury (inorganic)                      | 1100         | LQM    |                                                |
| Nickel                                   | 980          | LQM    |                                                |
| Selenium                                 | 12000        | LQM    |                                                |
| Zinc                                     | 730000       | LQM    |                                                |
| Benzo[a]pyrene                           | 35           | LQM    |                                                |
| Dibenz[ah]anthracene                     | 3.5          | LQM    |                                                |
| Naphthalene                              | 190          | LQM    |                                                |
| Benzene                                  | 27           | C4SL   |                                                |
| Toluene                                  | 5000         | LQM    | Capped at 5000 based on professional judgement |
| Ethylbenzene                             | 5000         | LQM    | Capped at 5000 based on professional judgement |
| Xylene – m/p                             | 5000         | LQM    | Capped at 5000 based on professional judgement |
| Xylene - o                               | 5000         | LQM    | Capped at 5000 based on professional judgement |
| Total Petroleum Hydrocarbons (TPH)       | 500          |        | Professional judgement                         |
| Aliphatic EC5-EC6                        | 3200         | LQM    |                                                |
| Aliphatic >EC6-EC8                       | 5000         | LQM    | Capped at 5000 based on professional judgement |
| Aliphatic >EC8-EC10                      | 2000         | LQM    |                                                |
| Aliphatic >EC10-EC12                     | 5000         | LQM    | Capped at 5000 based on professional judgement |
| Aliphatic >EC12-EC16                     | 5000         | LQM    | Capped at 5000 based on professional judgement |
| Aromatic >EC5-EC7                        | 5000         | LQM    | Capped at 5000 based on professional judgement |
| Aromatic >EC7-EC8                        | 5000         | LQM    | Capped at 5000 based on professional judgement |
| Aromatic >EC8-EC10                       | 3500         | LQM    |                                                |
| Aromatic >EC10-EC12                      | 5000         | LQM    | Capped at 5000 based on professional judgement |
| Aromatic >EC12-EC16                      | 5000         | LQM    | Capped at 5000 based on professional judgement |
| Aromatic >EC16-EC21                      | 5000         | LQM    | Capped at 5000 based on professional judgement |
| Aromatic >EC21-EC35                      | 5000         | LQM    | Capped at 5000 based on professional judgement |
| Asbestos                                 | Not Detected |        |                                                |

The respective sources are:

- ▲ Soil Guidance Values (**SGV**) published by the EA;
- ▲ Category 4 Screening Levels (**C4SLs**) published by DEFRA;

- ▲ The 2014 Land Quality Management (**LQM**) / Chartered Institute of Environmental Health (CIEH) Suitable for Use Levels for Human Health Risk Assessment (S4ULs);
- ▲ The guidance values produced by the Environmental Industries Commission (**EIC**), the Association of Geotechnical and Geoenvironmental Specialists (AGS) and Contaminated Land: Application in Real Environments (CL:AIRE) in December 2009; and
- ▲ In house Generic Screening Values (**DS-GACs**) derived by Delta-Simons.