

### RMS 100 year Return Flood Map (1:10,000)

#### General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

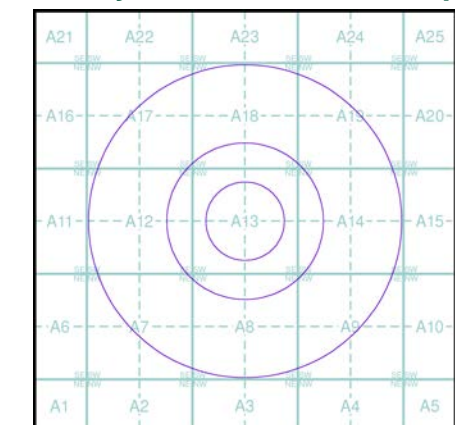
#### RMS 100 year Return Flood Data

Flood Depth (mm)	Flood Type		Pluvial & Minor River Flood (flood depth n/s)
	Defended Flood	Undefended Flood	
0 - 200			
201 - 500			
501 - 2000			
2001 +			

#### Contours (height in metres)

Standard Contour		*167.3	Spot Height
Index Contour		*45.8	Air Height

### RMS 100 year Return Flood Map - Slice A



#### Order Details

Order Number: 43193165\_1\_1  
 Customer Ref: 110601  
 National Grid Reference: 525590, 185880  
 Slice: A  
 Site Area (Ha): 0.01  
 Search Buffer (m): 1000

#### Site Details

36, Ferncroft Avenue, London, NW3 7PE



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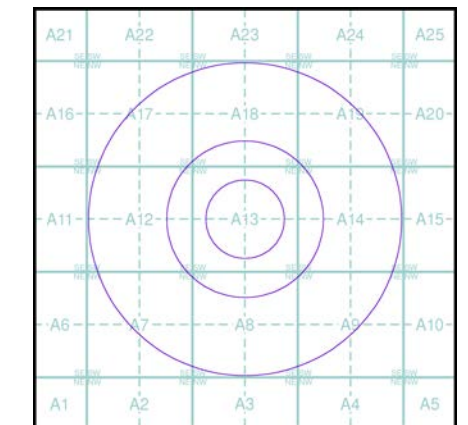
#### RMS 1000 year Return Flood Data

Flood Depth (mm)	Flood Type		Pluvial & Minor River Flood (flood depth n/s)
	Defended Flood	Undefended Flood	
0 - 200			
201 - 500			
501 - 2000			
2001 +			

#### Contours (height in metres)

Standard Contour		105		*167.3	Spot Height
Index Contour		100		*45.8	Air Height

### RMS 1000 year Return Flood Map - Slice A



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### EA Detailed River Network Map (1:10,000)

#### General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID

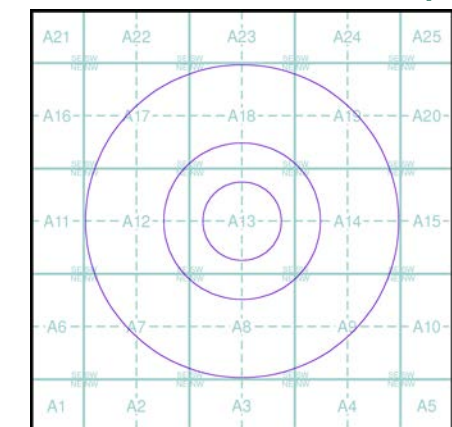
#### EA Detailed River Network Data

- |                          |   |
|--------------------------|---|
| Primary River            | Extended Culvert (greater than 50m)         |
| Secondary River          | Underground River (inferred)                |
| Tertiary River           | Underground River (local knowledge)         |
| Canal                    | Downstream of High Water Mark               |
| Canal Tunnel             | Downstream of Seaward Extension             |
| Undefined River          | Not assigned River feature                  |
| Lake/Reservoir           |   |
| Source                   | Not assigned River feature                  |
| Junction                 | Pseudo Node (general)                       |
| Sink                     | Pseudo Node (High Water Mark)               |
| Non-interactive Node     | Pseudo Node (OS MasterMap polygon boundary) |
| Offline Drainage Feature |   |

#### Contours (height in metres)

- |                  |  |       |             |
|------------------|--|-------|-------------|
| Standard Contour |  | 167.3 | Spot Height |
| Index Contour    |  | 45.8  | Air Height  |

### EA Detailed River Network Map - Slice A

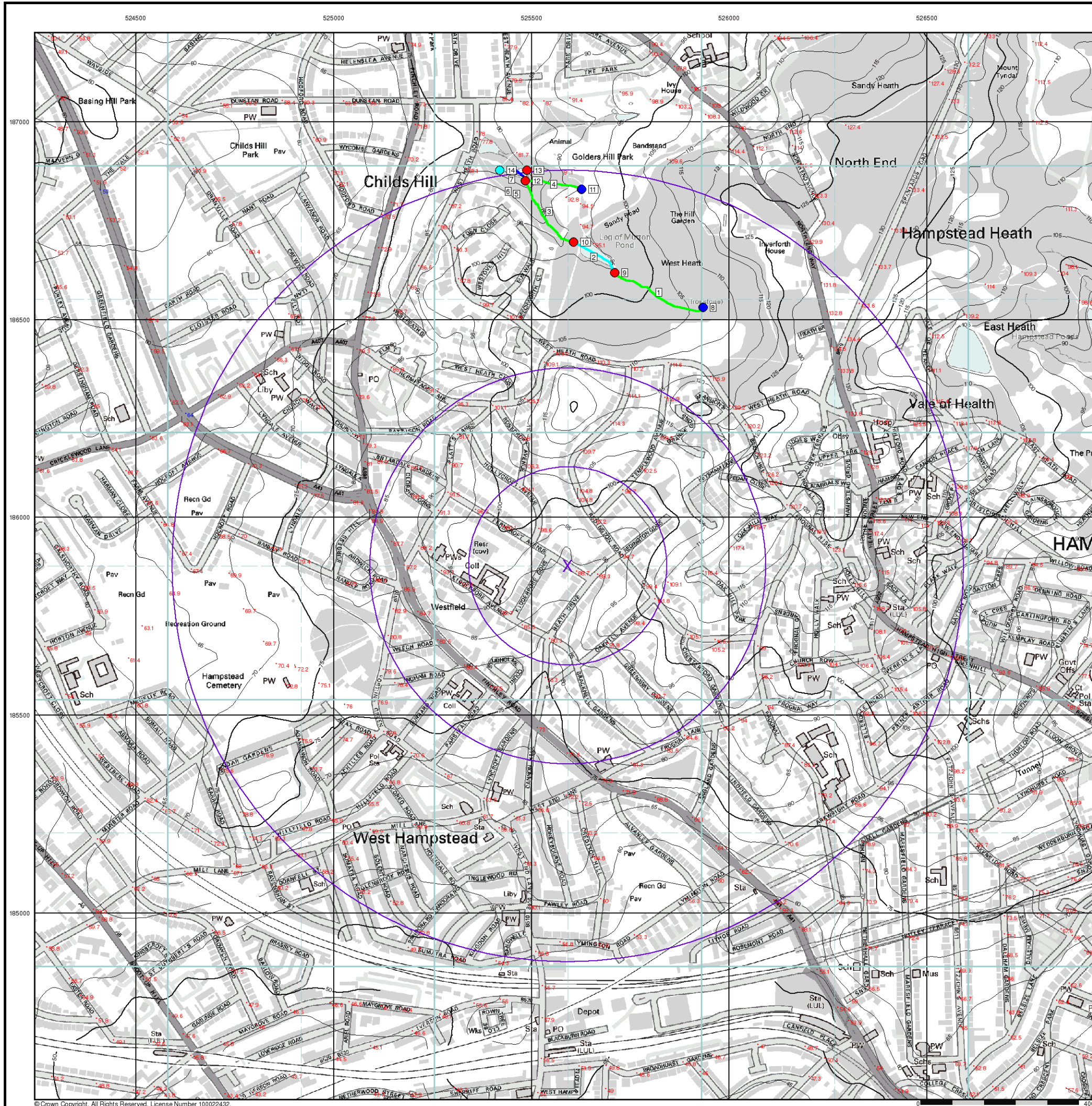


#### Order Details

Order Number: 43193165\_1\_1  
 Customer Ref: 110601  
 National Grid Reference: 525590, 185880  
 Slice: A  
 Site Area (Ha): 0.01  
 Search Buffer (m): 1000

#### Site Details

36, Ferncroft Avenue, London, NW3 7PE



### EA Historic Flood Map (1:10,000)

#### General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID

#### EA Historic Flood Events Data

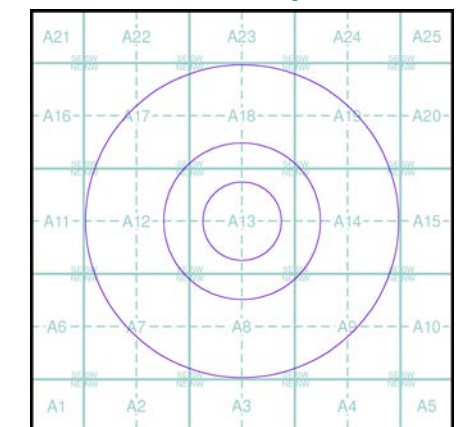
- |  |                                       |
|--|---------------------------------------|
| Channel Capacity Exceeded (no raised defences) | Obstruction/Blockage - Culvert        |
| Groundwater/High Water Table                   | Obstruction/Blockage - Debris Screen  |
| Local Drainage/Surface Water                   | Operational Failure/Breach of Defence |
| Mechanical Failure                             | Other                                 |
| Obstruction/Blockage - Bridge                  | Overtopping of Defences               |
| Obstruction/Blockage - Channel                 | Unknown                               |

#### Historical Flood Liabilities

#### Contours (height in metres)

- Standard Contour - 105
- Index Contour - 100
- Spot Height - 167.3
- Air Height - 45.8

### EA Historic Flood Map - Slice A



#### Order Details

Order Number: 43193165\_1\_1  
 Customer Ref: 110601  
 National Grid Reference: 525590, 185880  
 Slice: A  
 Site Area (Ha): 0.01  
 Search Buffer (m): 1000

#### Site Details

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## Envirocheck<sup>®</sup> Report: Flood Screening Report Datasheet

### Order Details:

**Order Number:**

43193165\_1\_1

**Customer Reference:**

110601

**National Grid Reference:**

525590, 185880

**Slice:**

A

**Site Area (Ha):**

0.01

**Search Buffer (m):**

1000

### Site Details:

36, Ferncroft Avenue

London

NW3 7PE

### Client Details:

Mr T Attwood

Alan Conisbee &amp; Associates

1-5 Offord Street

London

N1 1DH

Report Section and Details	Page Number
<b>Summary</b>	-
<p>The Summary section provides an overview of the data contained within the report, detailing the number of data set features or the existence of a data set in relation to the buffer(s) selected. For ease of reference, the report is broken down into seven sections of data.</p>	
<b>EA / CEH Flood Data</b>	-
<p>This section details data from the Environment Agency and the Centre for Ecology and Hydrology.</p> <p>The EA data is reported to a distance of 250m from the edge of the site polygon and details both Zone 2 (extreme) and Zone 3 flood extents, as well as flood defences, flood water storage areas and areas benefiting from flood defences.</p> <p>The CEH data is reported to a distance of 250m from the edge of the site polygon and covers flood data for Scotland, divided into levels based on the frequency and magnitude of a predicted 100 year term.</p> <p>All data sets within this section are plotted and feature on the EA / CEH Flood Data (1:10,000) map. For added value, OS Contour data is also plotted, detailing contours, spot heights and air heights.</p>	
<b>RMS Flood Data</b>	<b>1</b>
<p>This section contains the Risk Management Solutions flood data. The data is based upon the likelihood of a flood occurrence for 3 flood return periods; these being 75 years, 100 years and 1000 years.</p> <p>Each return period is depicted on a separate 1:10,000 scale map and reports features to a distance of 250m from the edge of the site polygon.</p> <p>Each return period can detail both defended and/or undefended flood features, with each feature also reporting an associated flood depth. In addition pluvial flood features are also detailed where applicable, but tidal flooding is not included. For added value, OS Contour data is also plotted, detailing contours, spot heights and air heights.</p>	
<b>BGS Flood Data</b>	<b>2</b>
<p>This section contains two BGS data sets; namely Geological Indicators of Flooding and Groundwater Flooding Susceptibility, both of which report features out to a possible 1000m, with coverage in England, Wales and Scotland.</p> <p>Each data set is plotted on a separate BGS Flood Data (1:50,000) map.</p>	
<b>EA Detailed River Network Data</b>	<b>3</b>
<p>This section details 3 sources of data that depict and detail the river network of England and Wales, captured primarily from the water features theme of Ordnance Survey's OS MasterMap Topography Layer.</p> <p>The DRN Lines data set details all the types of rivers, drains and streams which can be found in England and Wales.</p> <p>The DRN Nodes data set details the river, drain and stream node intersections which divide the detailed river network data. All nodes are defined as being one of the following: A source, sink, junction, or pseudo node, interactions or not assigned.</p> <p>The DRN Offline Drainage dataset details water features from OS MasterMap that do not connect into the river network and are generally limited in length.</p> <p>All data sets within this section are plotted and feature on the EA Detailed River Network (1:10,000) map. For added value, OS Contour data is also plotted, detailing contours, spot heights and air heights.</p>	
<b>EA Historic Flood Events Data</b>	-
<p>This section details Historic Flood data sourced from the Environment Agency and from data held by Landmark. The EA Historic Flood Events data is reported to a distance of 1000m from the edge of the site polygon and details recorded historic flood events from 1703 to October 2008. The data also contains information on the source and cause of the flood, and how the flood outline was established.</p> <p>Also included in this section is Landmark's Historical Flood Liabilities data set, which identifies areas that are liable to flood based on systematic analysis of historical mapping dating back to the mid 19th century.</p> <p>Both data sets within this section are plotted and feature on the EA Historical Flood (1:10,000) map. For added value, OS Contour data is also plotted, detailing contours, spot heights and air heights.</p>	

<b>EA NaFRA Data</b>	<b>-</b>
<p>This section details the National Flood Risk Assessment (NaFRA) data sourced from the Environment Agency and is reported to a distance of 1000m from the edge of the site polygon. The NaFRA data provides an indication of flood risk at a national level. The data has been created by calculating the actual likelihood of flooding to areas of land within the flood plain of an extreme flood (0.1% or 1 in 1000 chance in any year).</p> <p>The method considers the probability that the flood defences will overtop or breach, and the distance of the impact cell from the river or the sea. It enables a comparison of the relative risks and their distribution within each of these catchments, rather than a detailed, local assessment of the risk at a specific location. EA do not hold information on properties (including floor levels). NaFRA data can therefore only be assessed if there are properties within the impact cells where EA have assessed the flood risk.</p> <p>The data within this section is plotted and featured on the EA NaFRA Data (1:50,000) map.</p>	
<b>Flood Insurance Risk Data</b>	<b>5</b>
<p>This section contains flood risk data from Crawford and Company. This dataset is not plotted on any of the associated Flood maps.</p> <p>Crawford &amp; Co have generated an Insurance Claims rating for Flood Risk. The risk is determined by comparing the number of flood insurance claims made to the number of properties in the postcode sector. The data will also include flood claims from domestic accidents or blocked drains, as well as flooding from river or tidal events. Flood insurance claim ratings are reported for the site only.</p>	
<b>Data Currency</b>	<b>6</b>
<b>Data Suppliers</b>	<b>7</b>
<b>Useful Contacts</b>	<b>8</b>

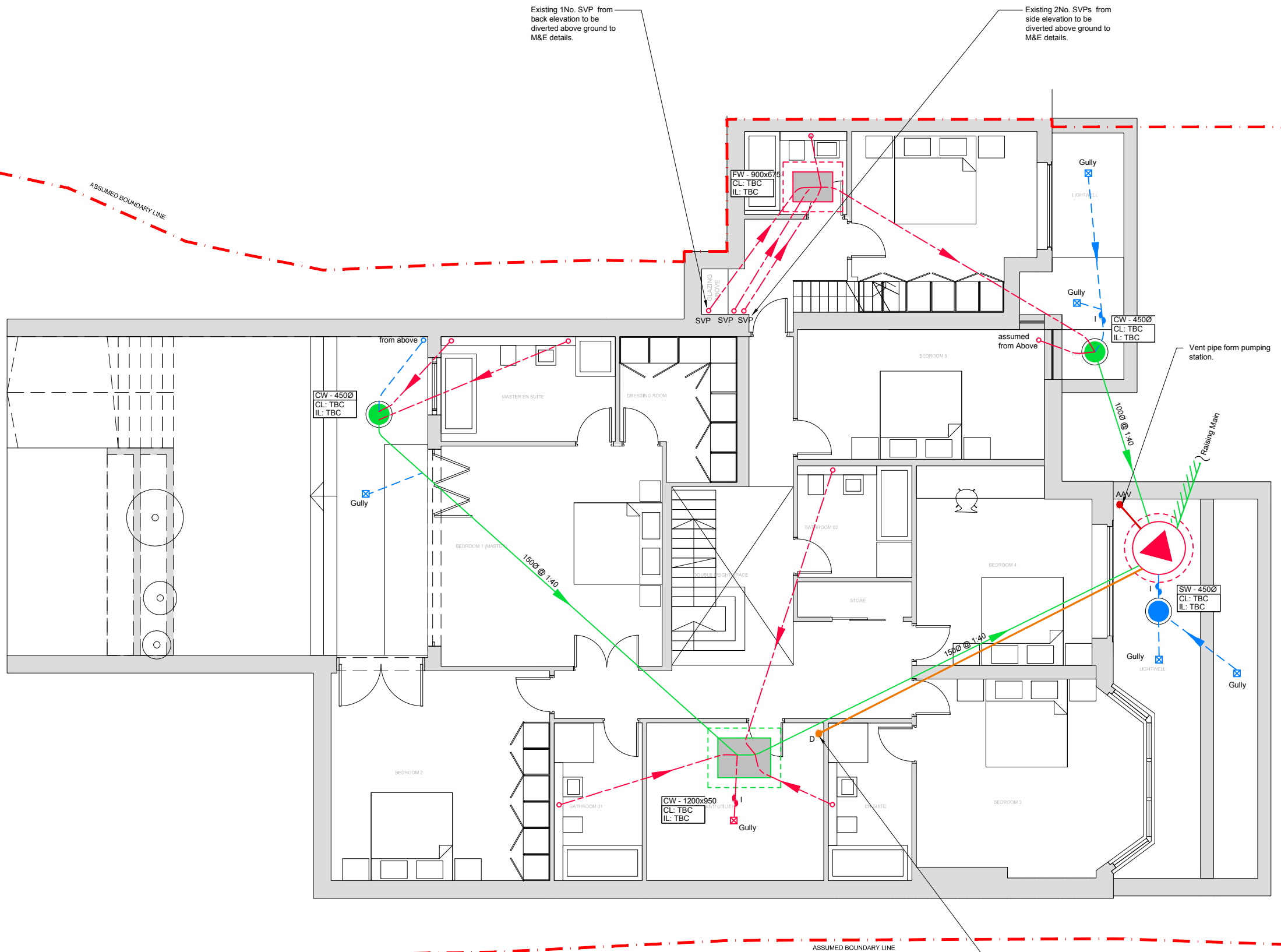
Report Version v47.0

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<b>Postcode Sector Flood Insurance Claim Ratings</b> Insurance Rating: Medium Flood Insurance Claim Rating Postcode Sector: NW3 7	A13NE (N)	0	4	525592 185877



**APPENDIX E**

**Preliminary Drainage Layout & Site Proposals**



**NOTES**

- CDM note: All pipework, silt traps, catchpits, trapped gullies, attenuation tanks and pump chambers to be regularly inspected every three months and cleared out on a regular frequency for the first nine months. After this period the frequency can be reduced to every six months. Pump sets to be inspected and maintained in accordance with the recommendations of the manufacturer/pump provider. Porous surface to be regularly swept three times a year to remove the silt. Grease traps/interceptors are to be inspected/emptied at least once a month and, preferably, every two weeks.
- This drawing is to be read in conjunction with all relevant Conisbee drawings.
- HEALTH AND SAFETY:** The works shall be carried out by specialist competent and experienced contractors who are members of a recognised national organisation. Operatives shall have received full and appropriate training for the operations they are to undertake. All work shall be carried out in accordance with all pertinent Health and Safety Regulations.
- Private Pipe Concrete Encasement: All drain runs constructed with less than 900mm cover between finished ground level and crown of the pipe are to be encased with a minimum of 150mm grade ST4 concrete. The casing concrete is to be jointed at every pipe joint position with 20mm flexcell board to form joint and provide joint flexibility.
- Adoptable Pipe Concrete Encasement: All drain runs constructed with less than 1200mm cover between finished ground level and crown of the pipe are to be encased with a minimum of 150mm grade ST4 concrete. The casing concrete is to be jointed at every pipe joint position with 20mm flexcell board to form joint and provide joint flexibility.
- Before commencing any Sewer or drainage works, the Groundworker must satisfy themselves, The Client and the Local Authority of actual levels and conditions of existing sewers.
- Where groundwater ingress is encountered, consider the use of a sump / pump arrangement. Where excavations are >1m deep, consider the use of full perimeter trench support.
- The existing sewer connections are to be successfully confirmed prior to commencing any upstream drainage works.

**LEGEND**

- Existing private sewer
- GRP package pumping station. Details to be confirmed.
- uPVC duct for electrical cables and termination point. Details to be confirmed.
- Private surface water pipe and chamber. Pipe diameter, gradient and chamber diameter and levels indicated.
- Private foul water pipe and chamber. Pipe diameter, gradient and chamber diameter and levels indicated.
- Private combined water pipe and chamber. Pipe diameter, gradient and chamber diameter and levels indicated.
- Polypropylene universal inspection chambers, 450 dia, 100 inlet / outlet connections (6 no. max) or 150 inlet/outlet connections (4 no max).
- Internal RC manhole with sealed prefabricated inspection chambers.
- Proposed trapped gully to Architect's Specification.
- Proposed intercepting trap.

**Design Notes:**

Total existing building area (including terraces at back):	370 m <sup>2</sup>
Existing peak rate run off:	5.14 l/s
Existing foul water discharge (1 no. domestic property):	<1.00 l/s
Total proposed building area (including terrace & lightwells):	390 m <sup>2</sup>
Proposed surface water discharge rate:	5.42 l/s
Proposed peak foul water discharge	<1.00 l/s

All RWP's, SVP's & stub stacks are assumed and to be confirmed.

**NOTES**

- Invert levels and positions of existing drains / chambers / sewers where new connections are to be made must be checked and confirmed to the engineer prior to the commencement of any works.
- All drainage works shall be carried out in accordance with the requirements of the Local Authority, the Environment Agency and in conjunction with all relevant British Standards, Codes of Practice.
- All drainage shall comply with the typical details and the requirements of BS EN 752 and Part H of the Building Regulations.
- Any part of the existing drainage system to be retained as part of the new scheme shall be cleaned and inspected. Any structural defects shall be repaired using appropriate and approved means.
- For setting-out dimensions of SVP's, RWP's etc, refer to Architect's or Mechanical Engineer's drawings. Positions shown are indicative and subject to final design.
- All foul and RWP connections shall be 100mm diameter unless otherwise specified.
- All precast concrete units used in the drainage works shall be manufactured using sulphate resisting cement.
- Manhole covers and frames shall be BS EN 124 and shall be Kitemarked. Covers and frames shall be heavy duty D400 in carriageways and vehicular areas and medium duty B125 in footways and soft landscaping. In blocked/concrete paved areas covers shall be recessed fabricated steel. All recessed covers shall be in accordance with the FACTA association gradings.
- All internal inspection chambers to be recessed, double sealed with screw down covers.
- Cover levels are to be adjusted locally to suit finished ground levels.
- At least one soil pipe at the head of each foul run shall vent to the atmosphere.
- Existing drainage to be removed is to be broken out to bed level and void backfilled with granular material, compacted in layers not exceeding 250mm.
- All drain runs from SVP's, stub stacks or FW gullies to be 100mm dia laid at 1:40 gradient unless otherwise stated. All RWP's to be 100mm dia laid 1:80 min unless otherwise stated.
- Access panels are to be provided to all rainwater pipes, max 600 above finished ground level.
- All manholes / inspection chambers in block paved areas, to have recessed covers. MH covers in paved areas to have cover & frame orientated 'square' with paving to minimise cut slabs or blocks.
- All Gradients at drainage runs are indicative. runs to be laid invert to invert.
- Generally pipes to have granular Bed & Surround in accordance with manufacturers recommendations, ensuring adequate protection with respect to depth and location.
- All private drainage to be laid to levels shown using flexibly jointed pipes, either uPVC to BS 4660 and BS 5481 or vitrified clayware to BS EN 295.
- Rodding eyes, etc are to be laid to manufacturers minimum cover and depth to allow adequate fall from adjoining unit.
- Where new sewers are constructed within 5m of a new or existing tree the sewer shall be concrete encased against root intrusion. Refer to drainage details.
- All new drainage to be jetted and CCTV surveyed on completion. Contractor to make sure that the drainage is fully operational. Refer to Drainage maintenance manual for maintenance details.
- All runs connecting into the public drainage network to be vitrified clay, extra length to BS EN 295 or BS65 with plain sleeved or socketed flexible joints.

P1 11.03.13 Issued for inclusion in FRA. DN TG

Rev	Date	Description	Drawn	Check

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 Consulting Civil Engineers

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Drawing Status	Date	FEB '13
<b>PRELIMINARY</b>	Scale	1:50 @ A1
Project	Drawn	DN
<b>44 FERNCROFT AVENUE</b>	Engineer	TG
Project No		<b>110601</b>
Title	Drawing No	<b>C100</b>
<b>DRAINAGE LAYOUT BASEMENT</b>	Revision	<b>P1</b>

**NOTES**

1. For general notes refer to drawing no. C100 - Basement Drainage Layout

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Drawing Status: PRELIMINARY Date: FEB '13

Scale: 1:50 @ A1

Project: 44 FERNCROFT AVENUE Drawn: DN

Engineer: TG

Project No: **110601**

Drawing No: **C101**

Revision: **P1**

Title: DRAINAGE LAYOUT GROUND FLOOR

