

ID: NL_TE_25_3WXX_740442		View extent: 206m, 122m		<b>Do not proceed without further consultation</b>		Map 1 of 1 (GAS)	
USER: GEA-Ltd	DATE: 17/07/2018	DATA DATE: 16/07/2018	REF: E18479	This plan shows those pipes owned by National Grid Gas plc in its role as a Licensed Gas Transporter (GTP). Gas pipes owned by other GTPs, or otherwise privately owned, may be present in this area. Information with regard to such pipes should be obtained from the relevant owners. The information shown on this plan is given without warranty, the accuracy thereof cannot be guaranteed. Service pipes, valves, syphons, stub connections, etc., are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by National Grid Gas plc or their agents, servants or contractors for any error or omission. Safe digging practices, in accordance with HSG47, must be used to verify and establish the actual position of mains, pipes, services and other apparatus on site before any mechanical plant is used. It is your responsibility to ensure that this information is provided to all persons (either direct labour or contractor's) working for you on or near gas apparatus. The information included on this plan should not be referred to beyond a period of 28 days from the date of issue.		This plan is reproduced from or based on the OS map by National Grid Gas plc, with the sanction of the controller of HM Stationery Office. Crown Copyright Reserved. Ordnance Survey Licence number 100024686	
MAP REF: TQ2684	CENTRE: 526319, 184972	Legend: LP MAINS MP MAINS P MAINS LFP MAINS NFP MAINS Approximate scale 1:500 on A3 Colour Landscape 0m 10m		Legend: Valve Depth of Cover Syphon Diameter Change Material Change Out of Service		<b>Cadent</b> Your Gas Network Requested by: Geotechnical & Environmental Associates OS map by National Grid Gas plc, with the sanction of the controller of HM Stationery Office. Crown Copyright Reserved. Ordnance Survey Licence number 100024686	



# ENQUIRY SUMMARY

## Received Date

17/07/2018

## Your Reference

E18479

## Location

Centre Point: 526319, 184972

X Extent: 37

Y Extent: 34

Postcode: NW3 5RN

Location Description: 13 Netherhall Gardens

## Map Options

Paper Size: A3

Orientation: LANDSCAPE

Requested Scale: 500

Actual Scale: 1:500 (GAS)

Real World Extents: 206m x 122m (GAS)

## Start Date

30/07/2018

## Recipients

tacita@gea-ltd.co.uk

## Enquirer Details

Organisation Name: Geotechnical & Environmental Associates

Contact Name: Su Connor

Email Address: tacita@gea-ltd.co.uk

Telephone: 01727 824666 (01727 824666)

Address: Widbury Barn, Widbury Hill, Ware, Herts, SG12 7QE

## Description of Works

Advance two boreholes to depths of 30 m (using a standard cable percussion) and the other at 20 m using a dismantlable rig, plus three shallow boreholes

## Enquiry Type

Scheduled Works

## Activity Type

General Excavation

## Work Types

Work Type: Boring/Moling/Horizontal Drilling greater than 300mm

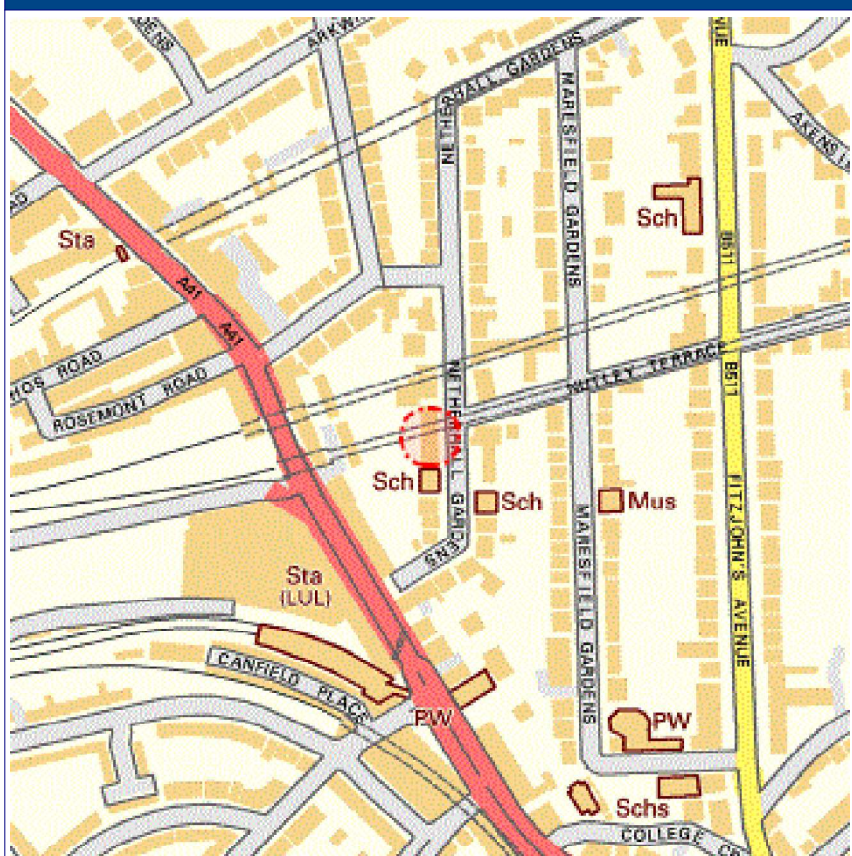
**Enquirer**

Name	Mrs Su Connor	Phone	01727824666
Company	GEA	Mobile	Not Supplied
Address	Widbury Barn Widbury Hill Ware Hertfordshire SG12 7QE		
Email	tacita@gea-ltd.co.uk		

**Enquiry Details**

Scheme/Reference	E18479		
Enquiry type	Planned Works	Work category	Excavations Non Utility
Start date	30/07/2018	Work type	Single excavation site
End date	03/08/2018	Site size	50 metres diameter
Searched location	NW3 5RN	Work type buffer*	25 metres
Confirmed location	526324 184900		
Site Contact Name	Not Supplied	Site Phone No	Not Supplied
Description of Works	Not Supplied		

\* The WORK TYPE BUFFER is a distance added to your search area based on the Work type you have chosen.

**Site Map**


## Asset Owners

**Terms and Conditions.** Please note that this enquiry is subject always to our standard terms and conditions available at [www.lineasearchbeforeudig.co.uk](http://www.lineasearchbeforeudig.co.uk) ("Terms of Use") and the disclaimer at the end of this document. Please note that in the event of any conflict or ambiguity between the terms of this Enquiry Confirmation and the Terms of Use, the Terms of Use shall take precedence.

**Notes.** Please ensure your contact details are correct and up to date on the system in case the LSBUD Members need to contact you.

**Validity and search criteria.** The results of this enquiry are based on the confirmed information you entered and are valid only as at the date of the enquiry. It is your responsibility to ensure that the Enquiry Details are correct, and LineasearchbeforeUdig accepts no responsibility for any errors or omissions in the Enquiry Details or any consequences thereof. LSBUD Members update their asset information on a regular basis so you are advised to consider this when undertaking any works. It is your responsibility to choose the period of time after which you need to resubmit any enquiry but the maximum time (after which your enquiry will no longer be dealt with by the LSBUD Helpdesk and LSBUD Members) is 28 days. If any details of the enquiry change, particularly including, but not limited to, the location of the work, then a further enquiry must be made.

**Asset Owners & Responses.** Please note the enquiry results include the following:

1. "LSBUD Members" who are asset owners who have registered their assets on the LSBUD service.
2. "Non LSBUD Members" are asset owners who have not registered their assets on the LSBUD service but LSBUD is aware of their existence. Please note that there could be other asset owners within your search area.

Below are three lists of asset owners:

1. LSBUD Members who have assets registered within your search area. ("Affected")
  - a. These LSBUD Members will either:
    - i. Ask for further information ("Email Additional Info" noted in status). The additional information includes: Site contact name and number, Location plan, Detailed plan (minimum scale 1:2500), Cross sectional drawings (if available), Work Specification.
    - ii. Respond directly to you ("Await Response"). In this response they may either send plans directly to you or ask for further information before being able to do so, particularly if any payments or authorisations are required.
2. LSBUD Members who do not have assets registered within your search area. ("Not Affected")
3. Non LSBUD Members who may have assets within your search area. Please note that this list is not exhaustive and all details are provided as a guide only. It is your responsibility to identify and consult with all asset owners before proceeding.

**National Grid.** Please note that the LSBUD service only contains information on National Grid's Gas above 7 bar asset, all National Grid Electricity Transmission assets and National Grid's Gas Distribution Limited above 2 bar asset.

For National Grid Gas Distribution Ltd below 2 bar asset information please go to [www.beforeyoudig.nationalgrid.com](http://www.beforeyoudig.nationalgrid.com)



**LSBUD Members who have assets registered on the LSBUD service within the vicinity of your search area.**

### List of affected LSBUD members

Asset Owner	Phone/Email	Emergency Only	Status
UK Power Networks	08000565866	08000565866	Await response

**LSBUD Members who do not have assets registered on the LSBUD service within the vicinity of your search area. Please be aware that LSBUD Members make regular changes to their assets and this list may vary for new enquiries in the same area.**

### List of not affected LSBUD members

AWE Pipeline	BOC Limited (A Member of the Linde Group)	BP Exploration Operating Company Limited
BPA	Carrington Gas Pipeline	CATS Pipeline c/o Wood Group PSN
Cemex	Centrica Storage Ltd	CLH Pipeline System Ltd
Concept Solutions People Ltd	ConocoPhillips (UK) Ltd	DIO (MOD Abandoned Pipelines)
E.ON UK CHP Limited	EirGrid	Electricity North West Limited
ENI & Himor c/o Penspen Ltd	EnQuest NNS Limited	EP Langage Limited
ESP Utilities Group	ESSAR	Esso Petroleum Company Limited
Fulcrum Pipelines Limited	Gamma	Gateshead Energy Company
Gigaclear PLC	Gtt	Hafren Dyfrdwy
Humbly Grove Energy	IGas Energy	INEOS FPS Pipelines
INEOS Manufacturing (Scotland and TSEP)	INOVYN Enterprises Limited	Intergen (Coryton Energy or Spalding Energy)
Mainline Pipelines Limited	Manchester Jetline Limited	Manx Cable Company
Marchwood Power Ltd (Gas Pipeline)	Melbourn Solar Limited	National Grid Gas (Above 7 bar), National Grid Gas Distribution Limited (Above 2 bar) and National Grid Electricity Transmission
Northumbrian Water Group	NPower CHP Pipelines	Oikos Storage Limited
Ørsted	Perenco UK Limited (Purbeck Southampton Pipeline)	Petroineos
Phillips 66	Premier Transmission Ltd (SNIP)	Prysmian Cables & Systems Ltd (c/o Western Link)
Redundant Pipelines - LPDA	RWEnpower (Little Barford and South Haven)	SABIC UK Petrochemicals
Scottish Power Generation	Seabank Power Ltd	Severn Trent (Chester area only)
SGN	Shell (St Fergus to Mossmorran)	Shell Pipelines
SSE (Peterhead Power Station)	Tata Communications (c/o JSM Construction Ltd)	Total (Colnbrook & Colwick Pipelines)
Total Finaline Pipelines	Transmission Capital	Uniper UK Ltd
Vattenfall	Veolia ES SELCHP Limited	Western Power Distribution
Westminster City Council	Wingas Storage UK Ltd	Zayo Group UK Ltd c/o JSM Group Ltd

The following Non-LSBUD Members may have assets in your search area. It is **YOUR RESPONSIBILITY** to contact them before proceeding. Please be aware this list is not exhaustive and it is your responsibility to identify and contact all asset owners within your search area.

Non-LSBUD members (Asset owners not registered on LSBUD)			
Asset Owner	Preferred contact method	Phone	Status
BT	<a href="https://www.swns.bt.com/pls/mbe/welcome.home">https://www.swns.bt.com/pls/mbe/welcome.home</a>	08009173993	Not Notified
CenturyLink Communications UK Limited	<a href="mailto:plantenquiries@instalcom.co.uk">plantenquiries@instalcom.co.uk</a>	02087314613	Not Notified
CityFibre	<a href="mailto:asset.team@cityfibre.com">asset.team@cityfibre.com</a>	033 3150 7282	Not Notified
Colt	<a href="mailto:plantenquiries@catelecomuk.com">plantenquiries@catelecomuk.com</a>	01227768427	Not Notified
Energetics Electricity	<a href="mailto:plantenquiries@energetics-uk.com">plantenquiries@energetics-uk.com</a>	01698404646	Not Notified
ENGIE	<a href="mailto:nrswa@cofely-gdfsuez.com">nrswa@cofely-gdfsuez.com</a>	01293 549944	Not Notified
GTC	<a href="https://pe.gtc-uk.co.uk/PlantEnqMembership">https://pe.gtc-uk.co.uk/PlantEnqMembership</a>	01359240363	Not Notified
Interoute	<a href="mailto:interoute.enquiries@plancast.co.uk">interoute.enquiries@plancast.co.uk</a>	02070259000	Not Notified
KPN (c/-Instalcom)	<a href="mailto:kpn.plantenquiries@instalcom.co.uk">kpn.plantenquiries@instalcom.co.uk</a>	n/a	Not Notified
Mobile Broadband Network Limited	<a href="mailto:mbnl.plant.enquiries@turntown.com">mbnl.plant.enquiries@turntown.com</a>	01212 621 100	Not Notified
National Grid Gas Distribution (below 2 bar)	<a href="mailto:plantprotection@nationalgrid.com">plantprotection@nationalgrid.com</a>	0800688588	Not Notified
Network Rail	<a href="mailto:OPBuriedServicesEnquiries@networkrail.co.uk">OPBuriedServicesEnquiries@networkrail.co.uk</a>	01904523401	Not Notified
Sky UK Limited	<a href="mailto:nrswa@sky.uk">nrswa@sky.uk</a>	02070323234	Not Notified
Sota	<a href="mailto:SOTA.plantenquiries@instalcom.co.uk">SOTA.plantenquiries@instalcom.co.uk</a>		Not Notified
Teliasonera	<a href="mailto:telentelia.plantenquiries@telent.com">telentelia.plantenquiries@telent.com</a>	0800526015	Not Notified
Thames Water	<a href="http://www.digdat.co.uk">http://www.digdat.co.uk</a>	08450709145	Not Notified
Utility assets Ltd	<a href="mailto:assetrecords@utilityassets.co.uk">assetrecords@utilityassets.co.uk</a>		Not Notified
Verizon Business	<a href="mailto:osp-team@uk.verizonbusiness.com">osp-team@uk.verizonbusiness.com</a>	01293611736	Not Notified
Virgin Media	<a href="http://www.digdat.co.uk">http://www.digdat.co.uk</a>	08708883116	Not Notified
Vodafone	<a href="mailto:osm.enquiries@atkinsglobal.com">osm.enquiries@atkinsglobal.com</a>	01454662881	Not Notified
Vtesse Networks	<a href="https://plant.interoute.com/plant-enquiries/">https://plant.interoute.com/plant-enquiries/</a>	01992532100	Not Notified

### Disclaimer

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The results of this Enquiry are personal to the Enquirer and shall not be shared with or relied upon by any other party. The asset information on which the Enquiry results are based has been provided by LSBUD Members, therefore LineasearchbeforeUdig will provide no guarantee that such information is accurate or reliable nor does it monitor such asset information for accuracy and reliability going forward. There may also be asset owners which do not participate in the enquiry service operated by LineasearchbeforeUdig, including but not exclusively those set out above. Therefore, LineasearchbeforeUdig cannot make any representation or give any guarantee or warranty as to the completeness of the information contained in the enquiry results or accept any responsibility for the accuracy of the mapping images used. LineasearchbeforeUdig and its employees, agents and consultants accept no liability (save that nothing in this Enquiry Confirmation excludes or limits our liability for death or personal injury arising from our negligence, or our fraud or fraudulent misrepresentation, or any other liability that cannot be excluded or limited by English law) arising in respect thereof or in any other way for errors or omissions including responsibility to any person by reason of negligence.





**London Underground**  
Infrastructure Protection

3<sup>rd</sup> Floor  
Albany House  
55 Broadway  
London SW1H 0BD

[www.tfl.gov.uk/tube](http://www.tfl.gov.uk/tube)

Your ref: E18479  
Our ref: 24211-SI-5-230718

Tacita Wallace  
Geotechnical and Environmental Associates  
[tacita@gea-ltd.co.uk](mailto:tacita@gea-ltd.co.uk)

23 July 2018

Dear Tacita,

**13 Netherall Gardens London NW3 5RN**

Thank you for your communication of 17<sup>th</sup> July 2018.

I can confirm that London Underground assets will not be affected by works at the above location.

However, there are Network Rail assets close to this site.

Please contact the following to query what affect if any your proposals will have on the railway:

Asset Protection Anglia Route  
Network Rail  
Floor 11  
One Stratford Place  
Stratford  
London  
E20 1EJ

Email: [TownPlanningSE@networkrail.co.uk](mailto:TownPlanningSE@networkrail.co.uk)

If I can be of further assistance, please contact me.

Yours sincerely

**Shahina Inayathusein**  
Information Manager  
Email: [locationenquiries@tube.tfl.gov.uk](mailto:locationenquiries@tube.tfl.gov.uk)  
Direct line: 020 3054 1365

London Underground Limited  
trading as London Underground  
whose registered office is  
55 Broadway  
London SW1H 0BD

Registered in England and Wales  
Company number 1900907

VAT number 238 7244 46

London Underground Limited is  
a company controlled by a local  
authority within the meaning of  
Part V Local Government and  
Housing Act 1989. The controlling  
authority is Transport for London.



Underground Services Team  
National Records Centre  
Audax Road  
YORK

NRSWA Asset Enquiries

YO30 4GS

Tel: 01904 386391

Date: 07 August 2018

**MA1**

Your Reference **2018\_23138**

Our Reference: **LNE186362**

Dear NRSWA,

**Re: Underground Services Search: \*\*OP\*\* 13 Netherhall Gardens, London**

**Please find information available as per the checklist.**

The information contained herein is based on Network Rail's records and, where appropriate, third parties such as utility companies. The search enclosed does not cover a search of local council records. Also, schematic Signal and Telecom (S&T) cables plans are not provided as part of the search results, therefore you must assume S&T cables are present until proven otherwise.

Although at the date of this letter the information is as up to date as possible, it is **NOT** a statement of validity, accuracy or completeness as to any of the enclosed search information and must not be relied on as such.

Your risk assessment **MUST** take into account:

- That the information supplied, including the services shown on the map from the Rail Infrastructure Network Model (RINM), does not provide any guarantee as to the accuracy of the actual location of services on site and **MUST** be considered as for guidance purposes only.
- That new/unrecorded services are likely to be present
- That the enclosed Underground Services search information has been collated only for the ELR and Mileage boundaries as stated on the original request form

Included in your underground services search is a list of local engineers and managers you **MUST** contact before any ground disturbance is carried out, to check whether further information is held locally.

Further guidance can be obtained from the Health and Safety Executive publication HSG47 "Avoiding Danger from Underground Services" and the Network Rail Publication NR/L2/INI/CP1030.

Should you become aware of any additional underground services or assets within the locality during your investigations and/or works, including redundant assets, please identify them as a matter of urgency to the site manager. Records of the location of these assets should be kept for onward transmission and entry into the Hazard Directory.

Yours sincerely

**Mandy Adams**

Distribution Administrator





## UNDERGROUND SERVICES INFORMATION CHECKLIST

YOUR REF	2018_23138	OUR REF	LNE186362
LOCATION	**OP** 13 Netherhall Gardens, London	ELR	SPC1
MILEAGE FROM	3.0570	MILEAGE TO	3.0740
Utility Company/Internal Source	Category	Enc	Notes
Site Map	GIS Systems	Yes	
Hazard Directory	Hazard	Yes	
Civils LNW	NRG	Yes	
eB	NRG	No	NIL RETURN - see below

**NIL RETURN:** After interrogating the information made available to us, no records containing underground services information have been returned for this worksite.

However, reference must be made to the guidelines supplied with this underground services search, which contain important information on safe working practices.

**Upon receipt can you please check that the information provided agrees with this listing and if there are any discrepancies please contact the Underground Services Team at:**

**National Records Centre, Audax Road, York. YO30 4GS**

**[buriedservicesnst@networkrail.co.uk](mailto:buriedservicesnst@networkrail.co.uk)**

Checklist printed on: 07/08/18



## Asset Information Services

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[GeospatialReportingAnalysis@NetworkRail.co.uk](mailto:GeospatialReportingAnalysis@NetworkRail.co.uk)

### LOCAL CONTACTS LIST - LNE IMDMs

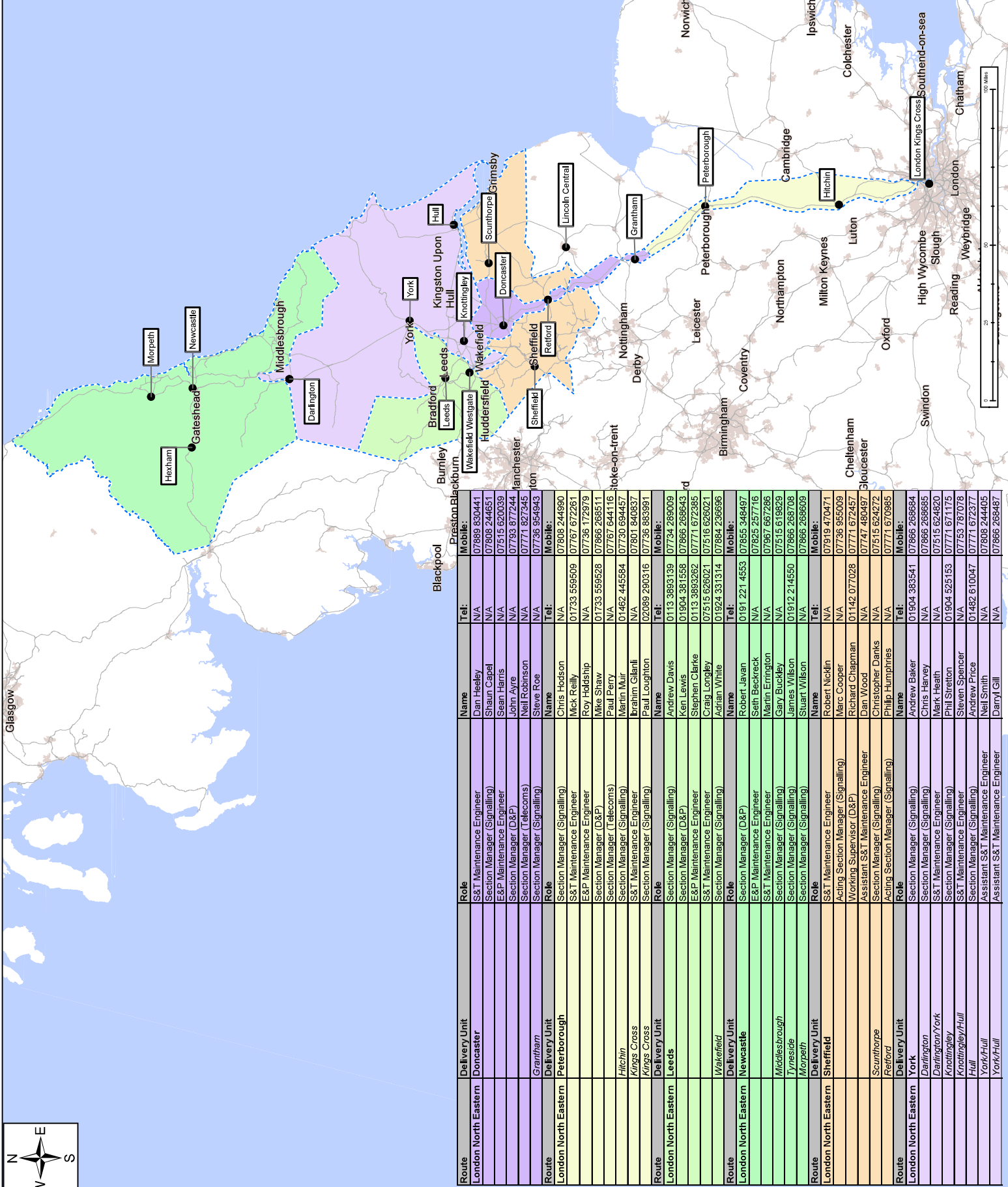
#### BURIED SERVICES

JOB NO.:	10104.112		
SCALE:	1:1,800,000 @ A3		
USE TYPE:	INTERNAL	DATE:	17/05/2018
VERSION:	1	QA BY:	SD
		PRODUCED BY:	DJ

#### LEGEND

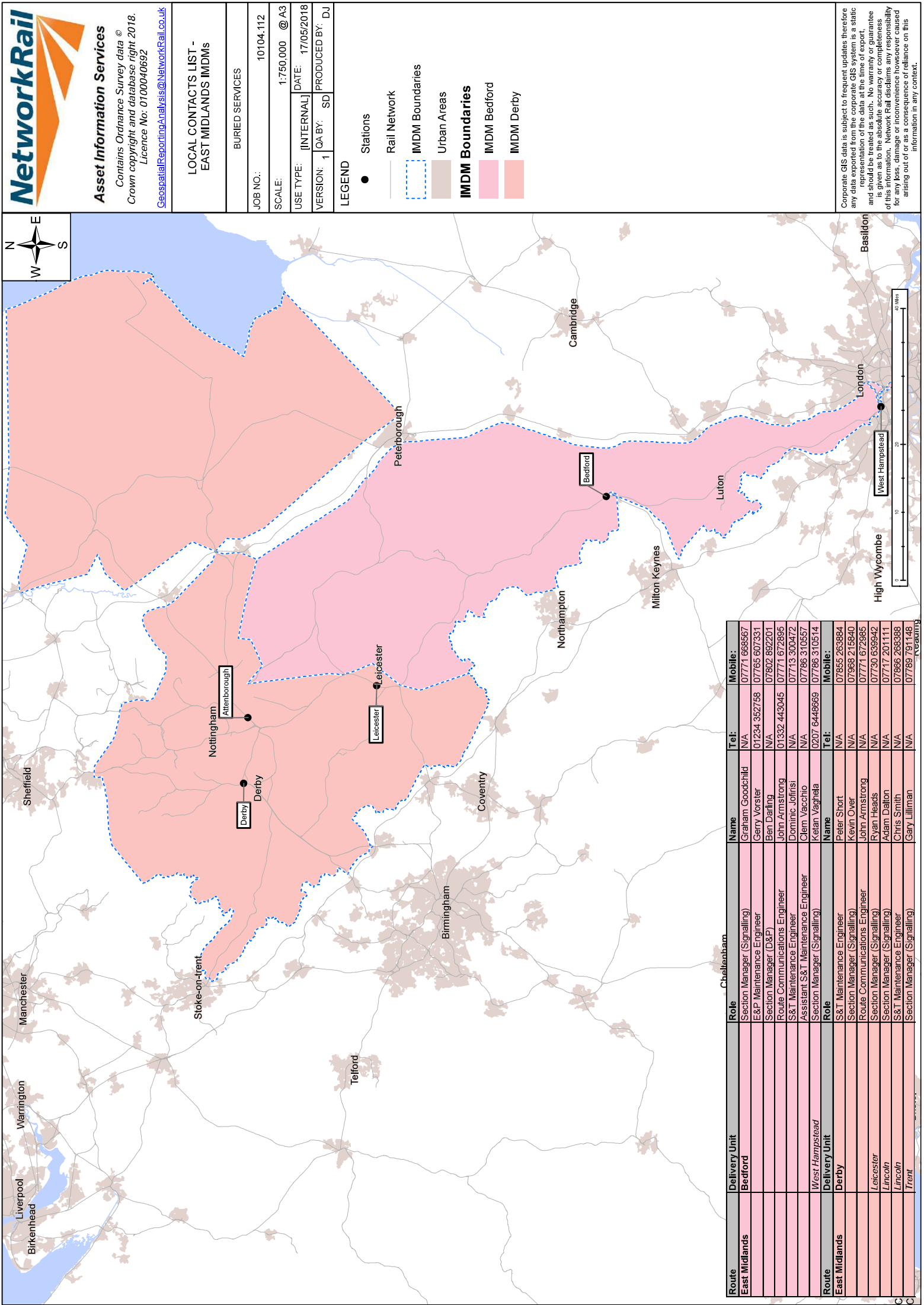
- Stations
- Rail Network
- IMDM Boundaries
- Urban Areas
- IMDM Boundaries**
- IMDM Doncaster
- IMDM Leeds
- IMDM Newcastle
- IMDM Peterborough
- IMDM Sheffield
- IMDM York

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Route	Delivery Unit	Role	Name	Tel:	Mobile:
London North Eastern	Doncaster	S&T Maintenance Engineer	Dan Healey	N/A	07889 830441
		Section Manager (Signalling)	Shaun Capel	N/A	07808 244651
		E&P Maintenance Engineer	Sean Harris	N/A	07515 620039
		Section Manager (D&P)	John Ayre	N/A	07793 877244
London North Eastern	Grantham	Section Manager (Telecoms)	Neil Robinson	N/A	07771 827345
		Section Manager (Signalling)	Steve Roe	N/A	07736 954943
		Section Manager (Signalling)	Chris Hodson	N/A	07808 244990
		S&T Maintenance Engineer	Mike Kelly	01733 559509	07767 67281
London North Eastern	Leeds	E&P Maintenance Engineer	Roy Holdship	N/A	07736 172979
		Section Manager (D&P)	Mike Shaw	01733 559528	07866 268511
		Section Manager (Telecoms)	Paul Perry	N/A	07761 644116
		Section Manager (Signalling)	Martin Muir	01462 445584	07730 694457
London North Eastern	Kings Cross	S&T Maintenance Engineer	Trathin Glanil	N/A	07801 840837
		Section Manager (Signalling)	Paul Loughton	02088 280316	07736 883991
		Section Manager (Signalling)	Andrew Davis	0113 3893139	07734 289009
		Section Manager (D&P)	Ken Lewis	01904 381558	07866 268643
London North Eastern	Wakefield	E&P Maintenance Engineer	Stephen Clarke	0113 3893282	07771 672385
		S&T Maintenance Engineer	Craig Longley	07515 626021	07884 236696
		Section Manager (Signalling)	Adrian White	01924 331314	07884 236696
		Section Manager (D&P)	Robert Javan	0191 221 4553	07855 348497
London North Eastern	Newcastle	E&P Maintenance Engineer	Seth Beckreck	N/A	07825 257116
		S&T Maintenance Engineer	Martin Errington	N/A	07987 667286
		Section Manager (Signalling)	Gary Buckley	N/A	07515 619829
		Section Manager (Signalling)	James Wilson	01912 214550	07866 268708
London North Eastern	Middlesbrough	Section Manager (Signalling)	Stuart Wilson	N/A	07866 268609
		S&T Maintenance Engineer	Robert Nicklin	N/A	07919 470471
		Acting Section Manager (Signalling)	Marc Cooper	N/A	07736 955009
		Working Supervisor (D&P)	Richard Chapman	01142 077028	07771 672457
London North Eastern	Scunthorpe	Assistant S&T Maintenance Engineer	Dan Wood	N/A	07747 480497
		Section Manager (Signalling)	Christopher Danks	N/A	07515 624272
		Acting Section Manager (Signalling)	Philip Humphries	N/A	07771 670985
		Section Manager (Signalling)	Andrew Baker	01904 383541	07866 268684
London North Eastern	Darlington	Section Manager (Signalling)	Chris Harvey	N/A	07866 268685
		S&T Maintenance Engineer	Mark Heath	N/A	07515 624820
		Section Manager (Signalling)	Phil Stretton	01904 525153	07771 671175
		S&T Maintenance Engineer	Steven Spencer	N/A	07753 787078
London North Eastern	Hull	Section Manager (Signalling)	Andrew Price	01482 610047	07771 672377
		Assistant S&T Maintenance Engineer	Nell Smith	N/A	07808 244405
		Assistant S&T Maintenance Engineer	Darryl Gill	N/A	07866 268487







# GEO-RINM


This material from the Rail Infrastructure Network Model (RINM) is a guide only and although every effort will be made to ensure that the information is correct you should be aware that the information may be incomplete, inaccurate or out of date. Network Rail shall not be liable for any loss or damage, which may arise from the use of any information, contained.





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☐ Infrastructure Features





 Tunnel Bore

☐ Infrastructure Network Model

 Track Link

☐ OS MasterMap

☐ Points

-  General Feature, Positioned...
-  General Feature, Positioned...
- Height Control, Bench Mark
- Historic Interest, Structure
- Inland Water, Culvert
-  Political Or Administrative, Boundary...
- Rail, Structure
- Roadside, Structure
- Structure,
-  Structure, Triangulation Point Or Pillar
- Terrain And Height, Spot Height

☐ Symbols

-  Bench Mark
-  Boundary Half Mereing
-  Direction of Flow
-  Switch
-  Road Related Flow

☐ Line Features

- Building
- Building
- Building Overhead
- General Feature Edge
- General Feature

-- General Feature Underground

-- Top of Slope

-- Bottom of Slope

-- Bottom of Slope

— Narrow Gauge Railway

— Standard Gauge Railway

-- Overhead Construction

— Validate General Feature

— Rail

-- Mean High Water

— Mean High Water

-- Mean Low Water

— Mean Low Water

☐ Boundaries

— Political Or Administrative, County

-- Political Or Administrative, District

-- Political Or Administrative, Electoral

— Political Or Administrative, Parish


-- Political Or Administrative, Parliamentary

☐ Buried Services - Network Rail

— Historic Cable Route


☐ Land Information


☐ Company Ownership


 Freehold Ownership

 Leasehold Ownership

 Prohibitive Interest

 Bridge (Rail over Rail)

 Bridge (Rail over River)

 Bridge (Rail over Road)

 Bridge (Road over Rail)

 Level Crossing

 Tunnel





Please note that this map is not suitable for legally binding documents. If you require a map for a legally binding document, please contact the land information team: [landinformation@networkrail.co.uk](mailto:landinformation@networkrail.co.uk)

## Legend

- Tunnel Bore
- Track Link
- Points
- General Feature, Positioned
- Coniferous Tree
- General Feature, Positioned
- Nonconiferous Tree
- Height Control, Bench Mark
- Historic Interest, Structure
- Inland Water, Culvert
- Political Or Administrative, Boundary Post Or Stone
- Rail, Structure
- Roadside, Structure
- Structure, Triangulation Point Or Pillar
- Terrain And Height, Spot Height
- Symbols
- Bench Mark
- Boundary Half Mering
- Direction of Flow
- Switch
- Road Related Flow
- Line Features
- Building
- Building
- Building Overhead
- General Feature Edge
- General Feature
- General Feature Underground
- Top of Slope
- Bottom of Slope
- Bottom of Slope
- Narrow Gauge Railway
- Standard Gauge Railway
- Overhead Construction
- Validate General Feature
- Rail
- Mean High Water
- Mean High Water
- Mean Low Water



LINE 186362

13 Netherhall Gardens, London

Scale

1 : 2,500

Plot Date

07/08/18 09:44

Printed By

Output created from GeorINM Viewer

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**National**

**Hazard**

**Directory**

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## **Terms and Conditions**

The National Hazard Directory (NHD) is issued by Network Rail to provide information on those hazards recorded as present on Network Rail's infrastructure. Its' purpose is to alert users to the typical hazards they may come across whilst working on Network Rail's Infrastructure. The National Hazard Directory is maintained by Network Rail to provide its employees and contractors with information on known hazards present on the infrastructure in order to assist in the identification of the associated risks working 'on or near the line'.

The records are updated regularly and therefore Network Rail believe that the contents are reasonably accurate at the time of issue, but some of the information can vary in age and accuracy so for that reason Network Rail will give no warranty as to the suitability of its use. It is recommended that all searches (in particular for buried services) should be conducted together with a site specific risk assessment/site visit, taking into account the requirements of the appropriate track safety rules, rule books/industry standards and so on. Network Rail will accept no liability in respect of the content or subsequent use of the National Hazard Directory or any of the information contained within.

Users of the Directory must note that when working on or near the line that the appropriate requirements of the Rule Book, especially the provisions of the track safety rules, must be applied as appropriate to the activity concerned.

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## National Hazard Directory

## Customised Report

Search Criteria: ELR(s) = SPC1; Mileage From = 3.0570; Mileage To = 3.0740

Date: 07/08/2018

22 Hazards found.

ELR	ELR Name	Mileage From	Mileage To	Hazard Code	Hazard Description	Local Name	Track ID	Free Text
SPC1	ST PANCRA - BEDFORD	0.0000	5.1430	HC	Hazard- Clearance	Restricted Warning Times	Unknown	ZIAR Ref No_271897_ Interim Reference No_HZ_10415 _Notes: Sourced from Issue 1. Dated 25/3/97. of the Hazards Directory
SPC1	ST PANCRA - BEDFORD	0.0000	50.0000	HEO	25Kv Overhead Electrification	25 KV Overhead Line Equipment	All/Multiple Tracks	ZIAR Ref No_271894_ Interim Reference No_HZ_10412 _Notes: Sourced from Issue 1. Dated 25/3/97. of the Hazards Directory
SPC1	ST PANCRA - BEDFORD	0.0000	144.1496	EKR	Road/Rail Noise	Beware of Noise		ZIAR Ref No_271893_ Interim Reference No_HZ_10411 _Notes: Noise from Wind, Road Traffic and Low Flying Aircraft. Sourced from Issue 1. Dated 25/3/97. of the Hazards Directory
SPC1	ST PANCRA - BEDFORD	1.1564	3.0860	HE	Electrification	HV 25kV Cable F02/75A TO F05/14A	Down Main/Fast	New 25kV 400sq/mm insulated cable installed as part of the OLE ATF route. Areas such as bridges,tunnels, signal gantries and footbridges all cabled. Cable terminates either side on structure anchors and is troughed between. Cable is placed in ducts through, or troughing around platforms.Any invasive work within 1M will require HV assessment.
SPC1	ST PANCRA - BEDFORD	1.1637	3.0836	HE	Electrification	HV 25kV Cable F03/02 TO F05/11A	Up Slow	New 25kV 400sq/mm insulated cable installed as part of the OLE ATF route. Areas such as bridges,tunnels, signal gantries and footbridges all cabled. Cable terminates either side on structure anchors and is troughed between. Cable is placed in ducts through, or troughing around platforms.Any invasive work within 1M will require HV assessment.
SPC1	ST PANCRA - BEDFORD	2.0286	3.0787	HWR	Red Zone Working Prohibited	Lismore Circus & Belsize Tunnel	All/Multiple Tracks	Tracks: 1200, 2200, 1100, 2100. No POS as per RT/LS/S/019. Rimini: DVD 248/05
SPC1	ST PANCRA - BEDFORD	2.0638	3.0748	HCC	Restricted Clearance	Belsize Tunnel - Slow Lines, Limited Clearance	Down Slow	ZIAR Ref No_271901_ Interim Reference No_HZ_10419 _Notes: Sourced from Issue 1. Dated 25/3/97. of the Hazards Directory
SPC1	ST PANCRA - BEDFORD	2.0638	3.0748	HCC	Restricted Clearance	Belsize Tunnel - Slow Lines, Limited Clearance	Up Slow	ZIAR Ref No_271901_ Interim Reference No_HZ_10419 _Notes: Sourced from Issue 1. Dated 25/3/97. of the Hazards Directory
SPC1	ST PANCRA	2.0640	3.0715	ESC	Conservation Area	Fitzjohns/Netherhall CA.		Conservation Area ZIAR Ref No_273191_ Interim

ELR	ELR Name	Mileage From	Mileage To	Hazard Code	Hazard Description	Local Name	Track ID	Free Text
	- BEDFORD							Reference No_HZ_15101 _Notes: Area Extended Feb.1998. Area Over Belsize Tunnels Between Belsize Lane And Finchley Road, Nw3. See Also Under Hampstead Heath. Heritage Record No: HR09432/7003
SPC1	ST PANCRAS - BEDFORD	2.0640	3.0747	HCC	Restricted Clearance	Limited Clearance at Tunnel 29	Up Slow	ZIAR Ref No_266360_ Interim Reference No_HZ_3791 _Notes:
SPC1	ST PANCRAS - BEDFORD	2.0640	3.0747	HCC	Restricted Clearance	Limited Clearance at Tunnel 29	Down Main/Fast	ZIAR Ref No_266360_ Interim Reference No_HZ_3791 _Notes:
SPC1	ST PANCRAS - BEDFORD	2.0726	3.0748	HCC	Restricted Clearance	Belsize Tunnel - Fast Lines, Limited Clearance	Down Main/Fast	ZIAR Ref No_271902_ Interim Reference No_HZ_10420 _Notes: Sourced from Issue 1. Dated 25/3/97. of the Hazards Directory
SPC1	ST PANCRAS - BEDFORD	2.0726	3.0748	HCC	Restricted Clearance	Belsize Tunnel - Fast Lines, Limited Clearance	Up Main/Fast	ZIAR Ref No_271902_ Interim Reference No_HZ_10420 _Notes: Sourced from Issue 1. Dated 25/3/97. of the Hazards Directory
SPC1	ST PANCRAS - BEDFORD	2.0736	3.0710	HCC	Restricted Clearance	Limited Clearance at Tunnel 30	Up Main/Fast	ZIAR Ref No_266362_ Interim Reference No_HZ_3793 _Notes:
SPC1	ST PANCRAS - BEDFORD	2.0736	3.0710	HCC	Restricted Clearance	Limited Clearance at Tunnel 30	Down Main/Fast	ZIAR Ref No_266362_ Interim Reference No_HZ_3793 _Notes:
SPC1	ST PANCRAS - BEDFORD	3.0715	3.0715	HCC	Restricted Clearance	Limited Clearance at Tunnel31	Up Slow	ZIAR Ref No_266363_ Interim Reference No_HZ_3794 _Notes:
SPC1	ST PANCRAS - BEDFORD	3.0715	3.0715	HCC	Restricted Clearance	Limited Clearance at Bridge 32	Up Slow	ZIAR Ref No_266364_ Interim Reference No_HZ_3795 _Notes:
SPC1	ST PANCRAS - BEDFORD	3.0715	3.0715	HBF	Buried Foul Water Service	Fitzjohns Av	Up Main/Fast	ZIAR Ref No 319688. Sewer in road over Belsize New Tunnel and Belsize Tunnel, running right angles.
SPC1	ST PANCRAS - BEDFORD	3.0715	3.0715	EPR	Preserved Tree (TPO)	Two Trees At No.48 Fitzjohns Avenue, NW3.		ZIAR Ref No_273192_ Interim Reference No_HZ_15102 _Notes: Over Tunnel. TPO No.24. Order Confirmed By Council On 7.8.58. Property Sold On 30.9.64 To Henard. Edmonton. Ltd. Heritage Record No: HR09432/7001
SPC1	ST PANCRAS - BEDFORD	3.0715	3.0715	HCC	Restricted Clearance	Limited Clearance at Tunnel31	Down Slow	ZIAR Ref No_266363_ Interim Reference No_HZ_3794 _Notes:
SPC1	ST PANCRAS - BEDFORD	3.0715	3.0715	HCC	Restricted Clearance	Limited Clearance at Bridge 32	Down Main/Fast	ZIAR Ref No_266364_ Interim Reference No_HZ_3795 _Notes:
SPC1	ST PANCRAS	3.0730	3.0730	HBF		Nutley Terrace	Up Main/Fast	ZIAR Ref No_273192. Foul water sewer runs parallel with



ELR	ELR Name	Mileage From	Mileage To	Hazard Code	Hazard Description	Local Name	Track ID	Free Text
	- BEDFORD				Buried Foul Water Service			tracks U/F 7 D/F above belsize Tunnel for lengths of Nutley Terrace. Information from Thames Water plans

## Adams Mandy

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**From:** Linton Tom on behalf of NRG Enquiries  
**Sent:** 06 August 2018 10:13  
**To:** OP Buried Services Enquiries  
**Cc:** BS\_Transmittals  
**Subject:** Underground Services search: \*\*OP\*\* 13 Netherhall Gardens, London (LNE186362)

Thank you for your recent enquiry for buried services records from the NRG.

In reference to \*\*OP\*\* 13 Netherhall Gardens, London

x	No records have been found
	Record(s) sent via email
	Record(s) sent via CD/DVD
	Record(s) sent via SharePoint

**Please note that all other aspects including the Utility Companies search results will be sent to you separately by the Underground Services Team.**

**Please direct all queries to [undergroundservices@networkrail.co.uk](mailto:undergroundservices@networkrail.co.uk).**

Kind regards,  
National Records Group

The information contained in these records is indicative only and should not be relied on for any purpose. No warranty or guarantee is given as to its accuracy or completeness and no liability is accepted by Network Rail for any errors or omissions or for the consequences of reliance on this information for any purpose. The actual position of infrastructure, plant, equipment and boundaries must be verified on site and the position of any underground cables or service pipes verified by cable detector or other suitable means. This information is confidential and should not be divulged to any other person or used for a purpose other than the purpose for which it was requested. The document may not be reproduced, stored in a retrieval system or transmitted in any form or by any means without the permission of Network Rail.

**Tom Linton**  
Records Assistant



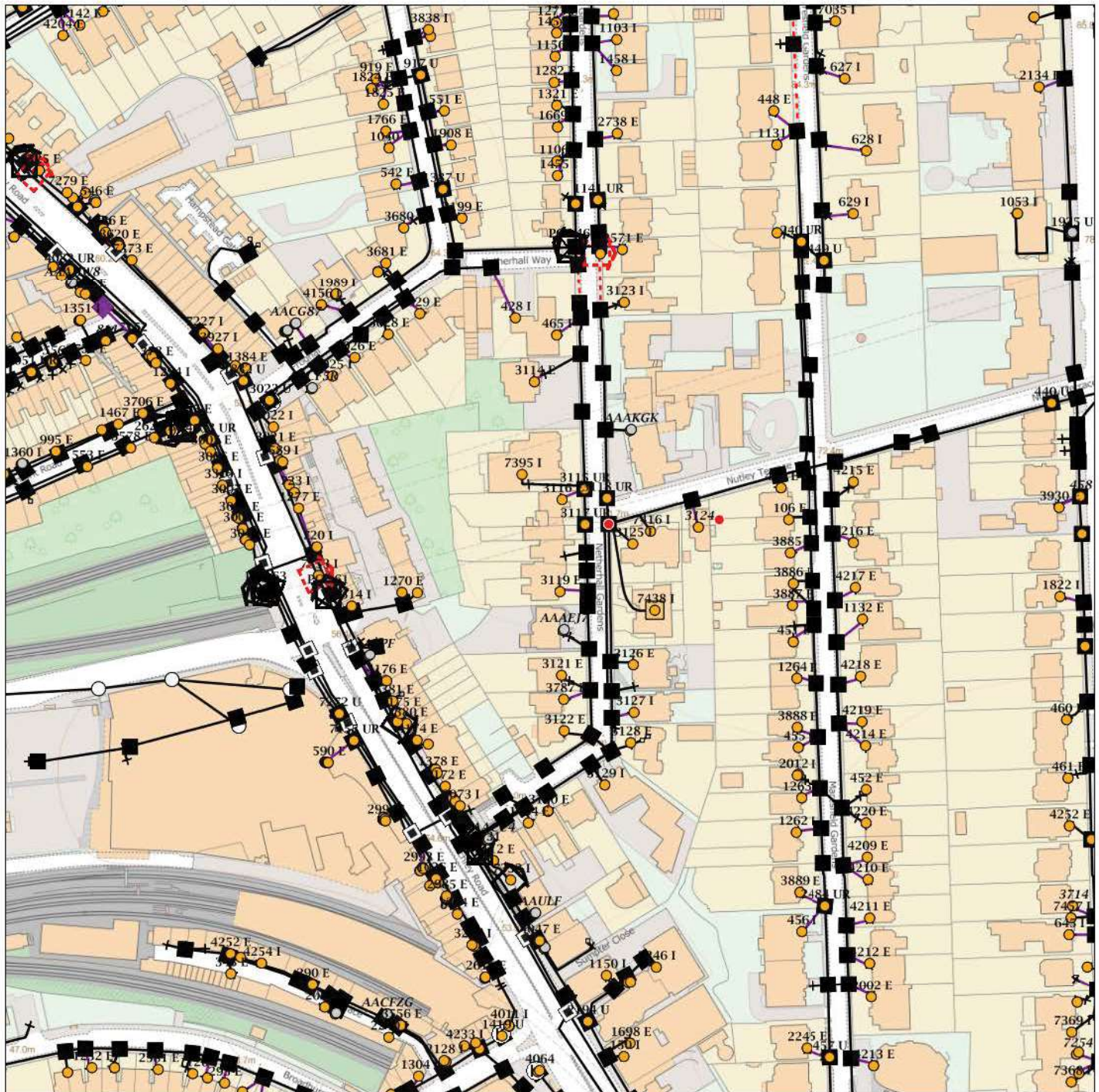
**Route Services | National Records Group**

National Record Centre | Audax Road | Clifton Moor | York YO30 4US  
T 01904 386352 | E [Tom.Linton@networkrail.co.uk](mailto:Tom.Linton@networkrail.co.uk)  
W [networkrail.co.uk](http://networkrail.co.uk)





Maps by email Plant Information Reply



## IMPORTANT WARNING

Information regarding the location of BT apparatus is given for your assistance and is intended for general guidance only. No guarantee is given of its accuracy.

It should not be relied upon in the event of excavations or other works being made near to BT apparatus which may exist at various depths and may deviate from the marked route.



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## CLICK BEFORE YOU DIG






















FOR PROFESSIONAL FREE ON SITE ASSISTANCE PRIOR  
TO COMMENCEMENT OF EXCAVATION WORKS  
INCLUDING LOCATE AND MARKING SERVICE

email [cbyd@openreach.co.uk](mailto:cbyd@openreach.co.uk)

ADVANCE NOTICE REQUIRED

(Office hours: Monday - Friday 08.00 to 17.00)  
[www.openreach.co.uk/cbyd](http://www.openreach.co.uk/cbyd)

## KEY TO BT SYMBOLS

DP		Planned Pole	
Planned DP		Joint Box	
PCP		Change Of State	
Planned PCP		Split Coupling	
Built		Duct Tee	
Planned		Planned Box	
Inferred		Manhole	
Duct		Planned Manhole	
Building		Cabinet	
Kiosk		Planned Cabinet	
Hatchings			

Other proposed plant is shown using dashed lines.

Other proposed plant is shown using dashed lines.  
BT Symbols not listed above maybe disregarded.  
Existing BT Plant may not be recorded.  
Information valid at time of preparation

BT Ref : LYA01523K

Map Reference : (centre) TQ2632484900

Easting/Northing : (centre) 526324,184900

Issued : 17/07/2018 13:52:50

Reproduced from the Ordnance Survey map by BT  
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**WARNING: IF PLANNED WORKS FALL INSIDE HATCHED AREA IT IS ESSENTIAL BEFORE PROCEEDING THAT YOU CONTACT THE NATIONAL NOTICE HANDLING CENTRE. PLEASE SEND E-MAIL TO: [nnhc@openreach.co.uk](mailto:nnhc@openreach.co.uk)**





GEA

[www.gea-ltd.co.uk](http://www.gea-ltd.co.uk)

Herts | 01727 824666 Notts | 01509 674888

## Site Plan

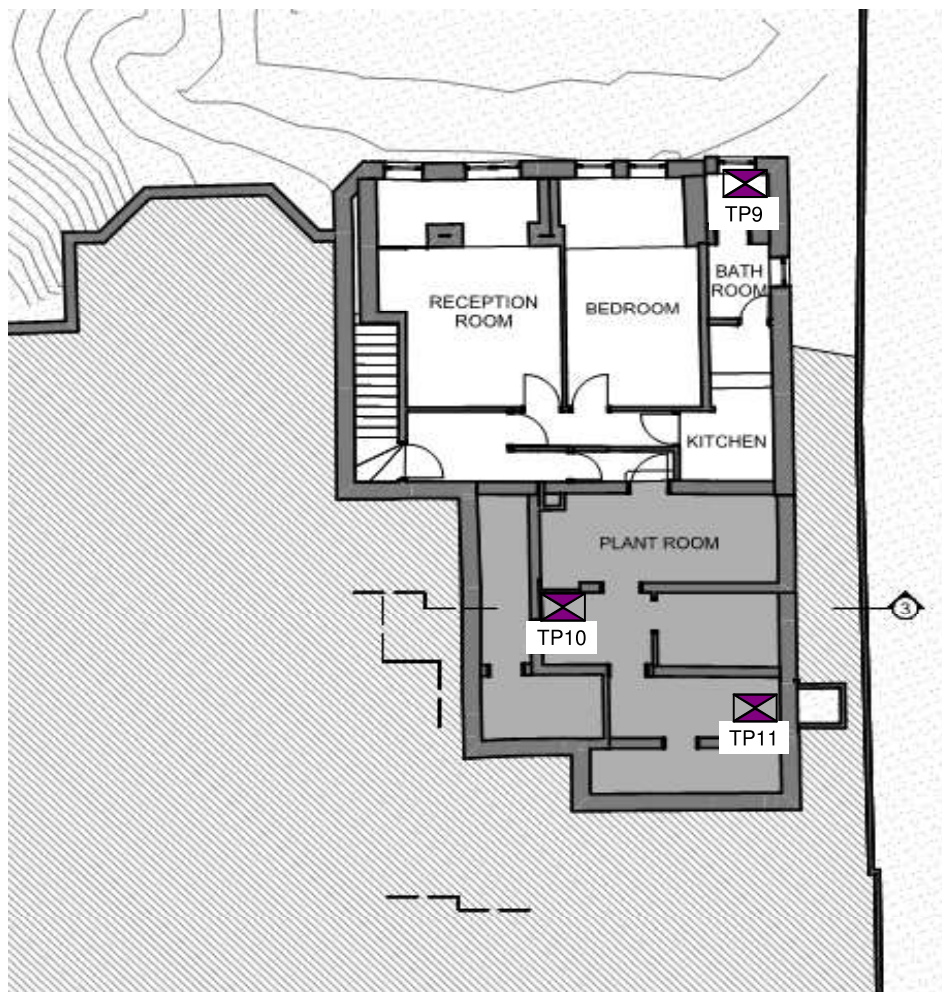
**Site** 13 Netherhall Gardens, London, NW3

**Client** Re-Creo Developments Ltd

**Engineer** Elliott Wood

**Job Number**  
J18176

**Sheet**  
1 / 1





GEA

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Herts | 01727 824666 Notts | 01509 674888

## Site Plan

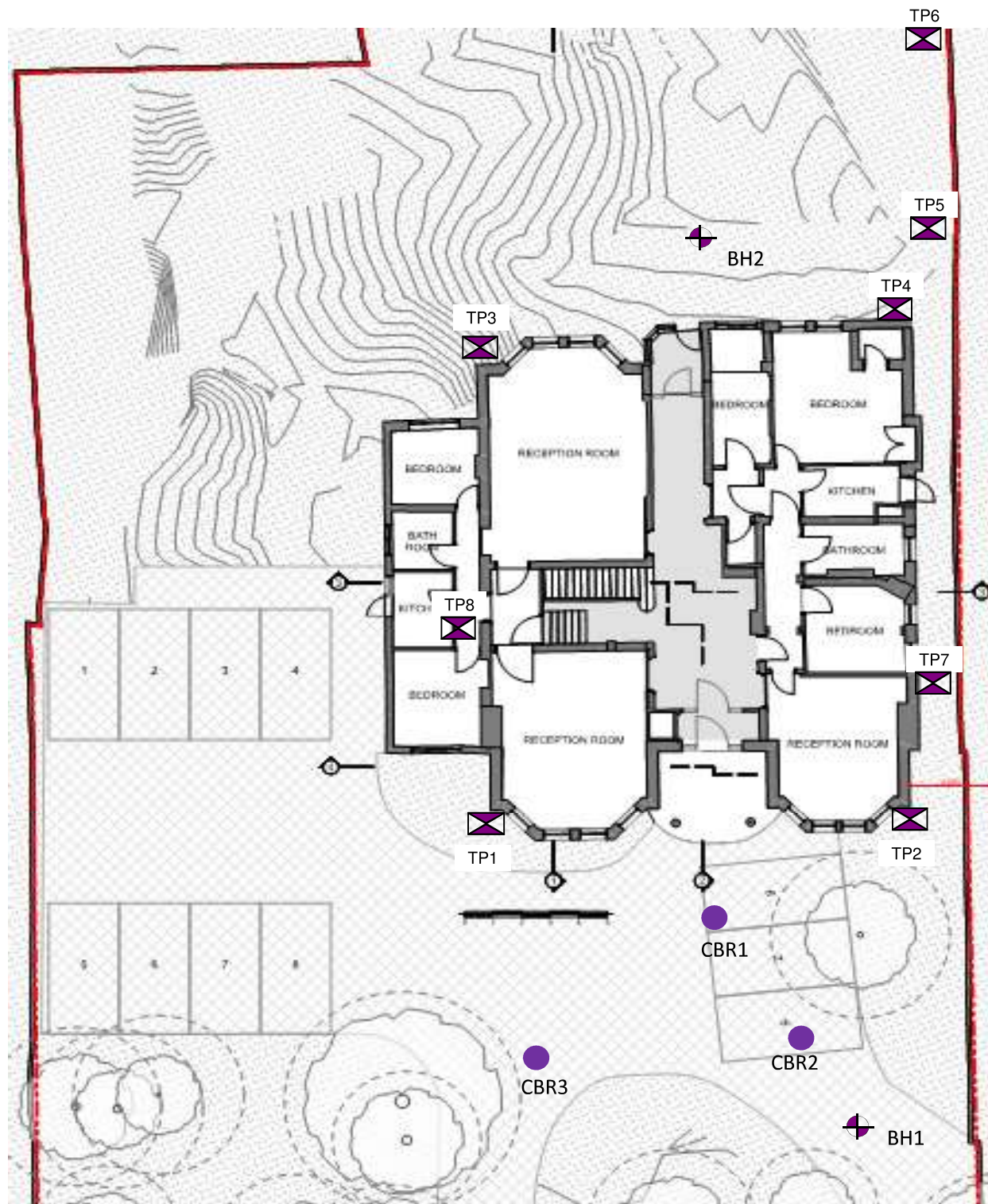
**Site** 13 Netherhall Gardens, London, NW3

**Client** Re-Creo Developments Ltd

**Engineer** Elliott Wood

**Job Number**  
J18176

**Sheet**  
1 / 1





## APPENDIX 2

### **P-Disp**

Short Term P-Disp Contour Plot Basement level

Short Term P-Disp Contour Plot Ground level

Total P-Disp Contour Plot Basement level

Total P-Disp Contour Plot Ground level

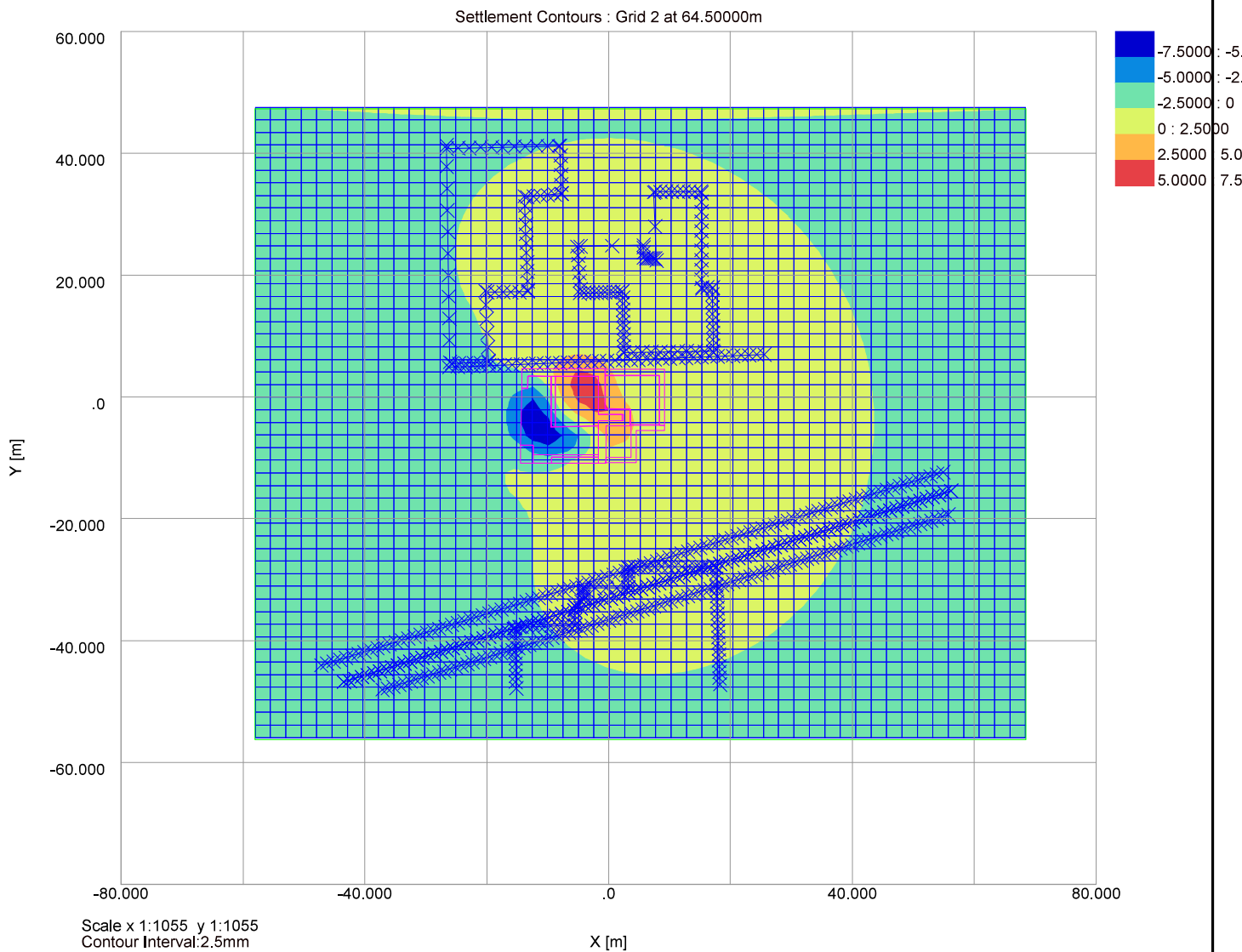
Tunnel Displacement Line charts

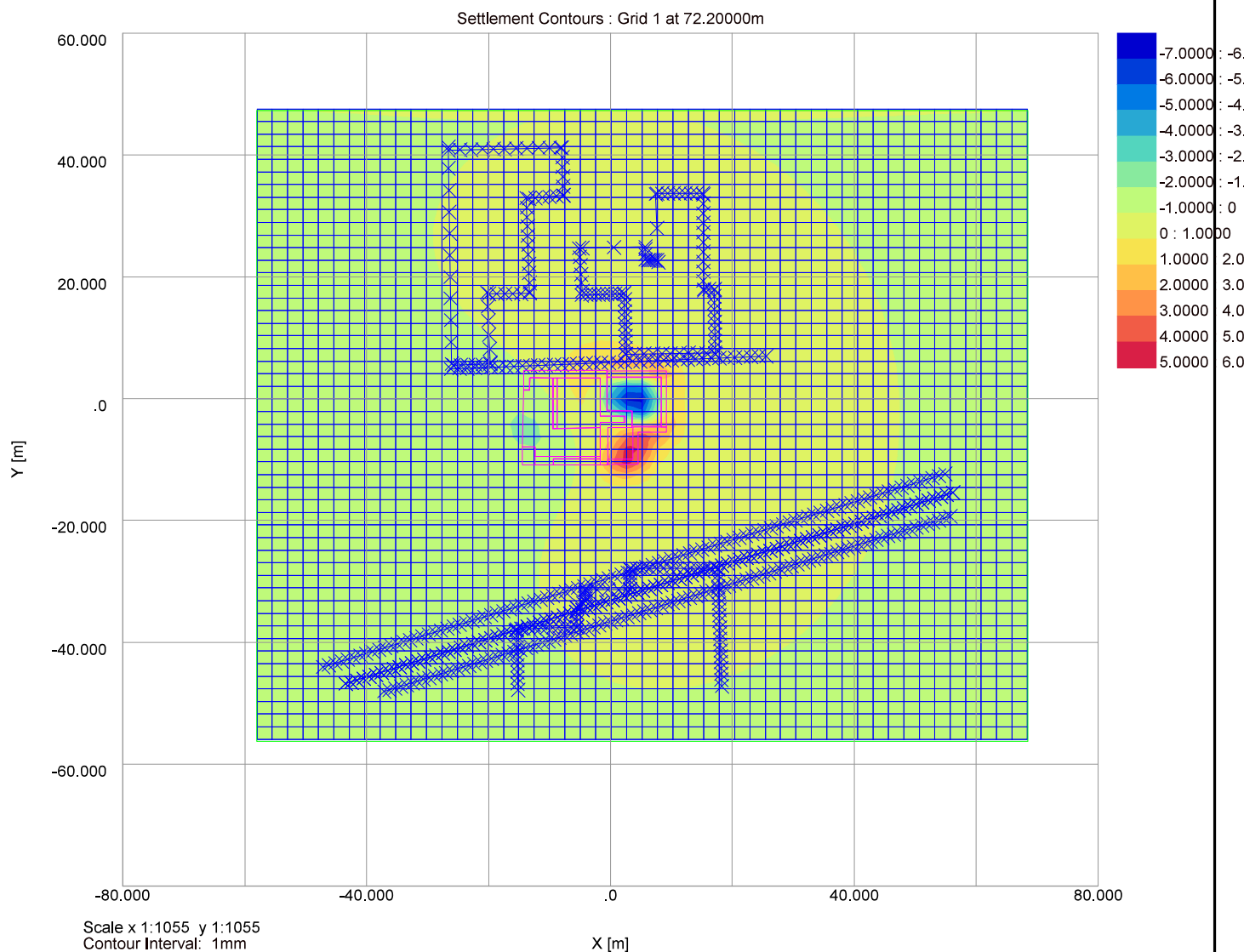
### **X-Disp**

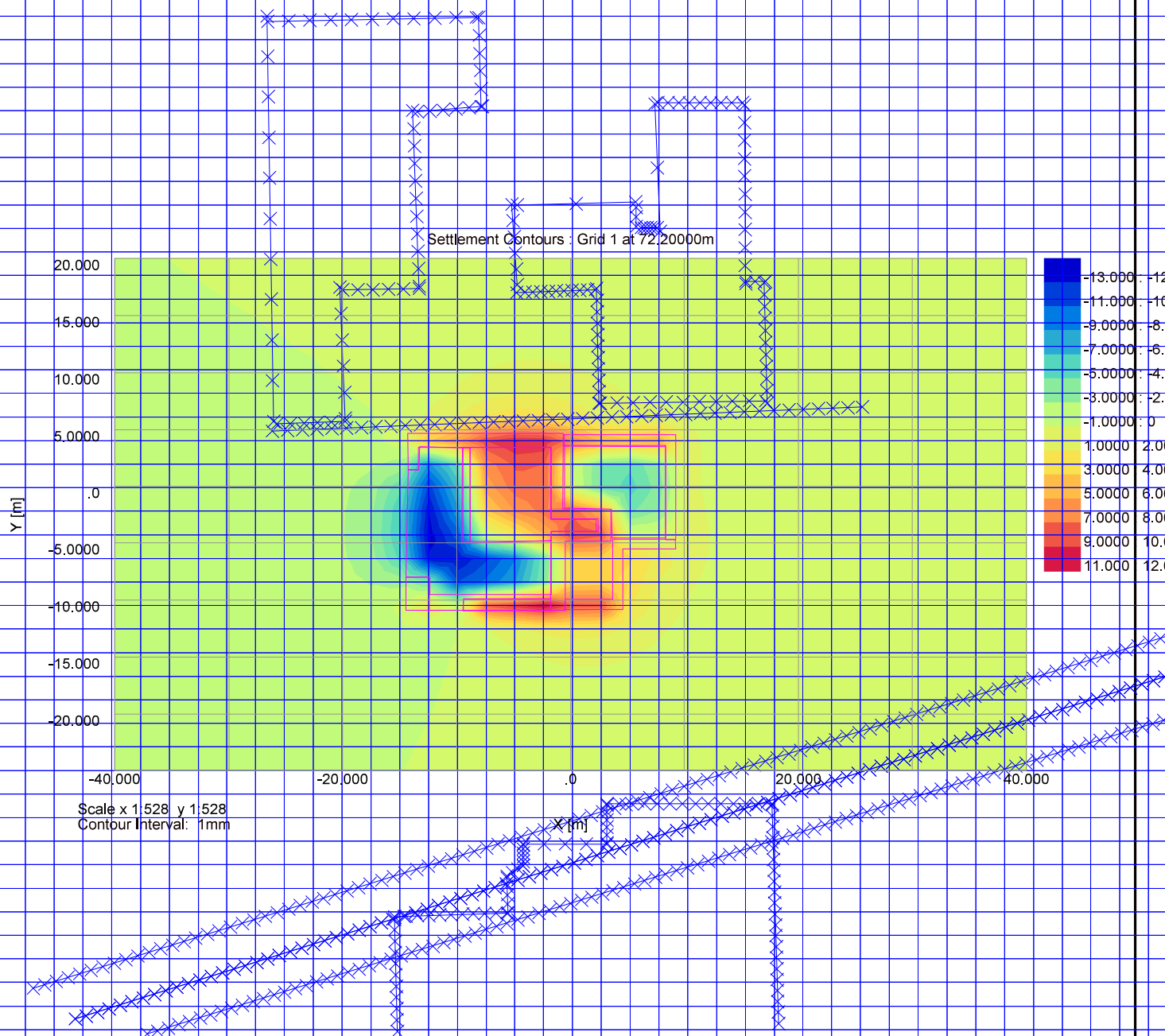
Vertical Movement Contour Plot

Horizontal Movement Contour Plot

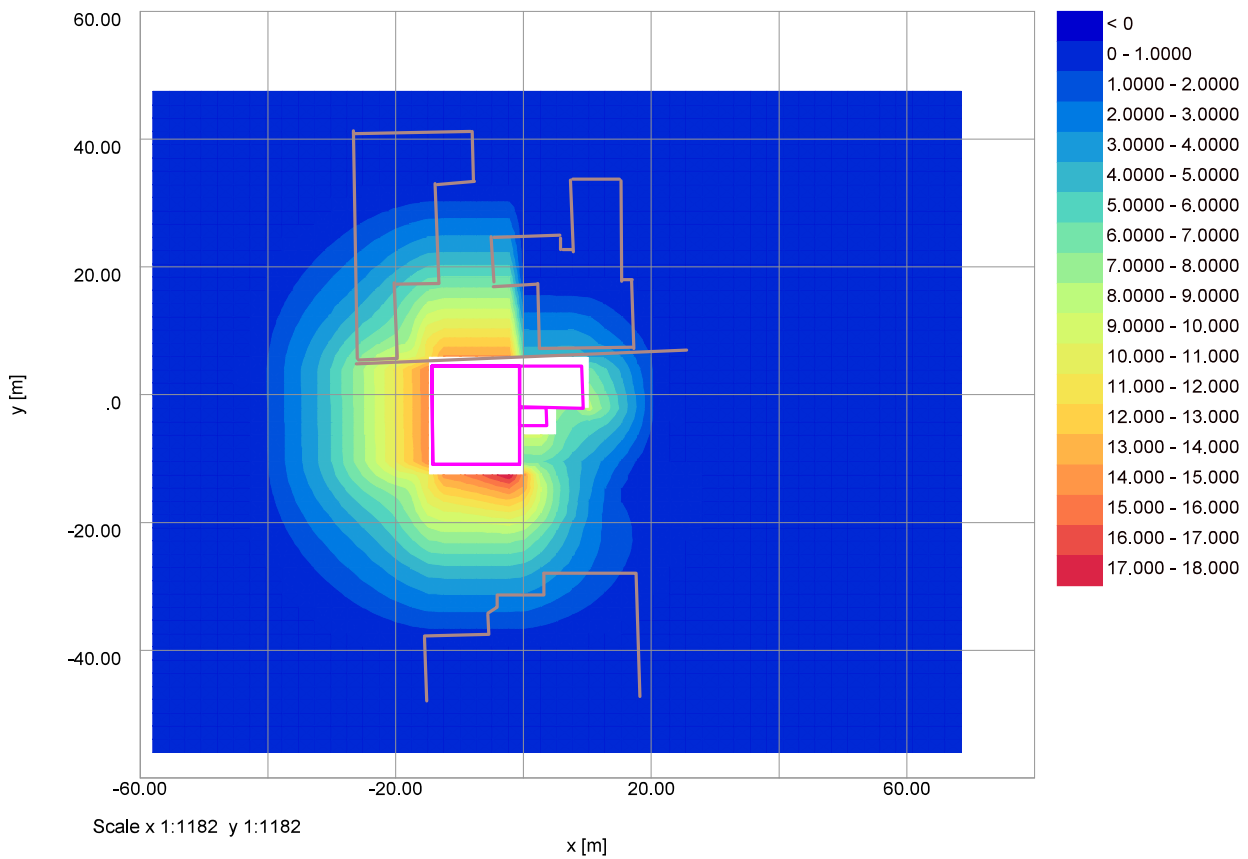
Building Damage Assessment Tabular Output





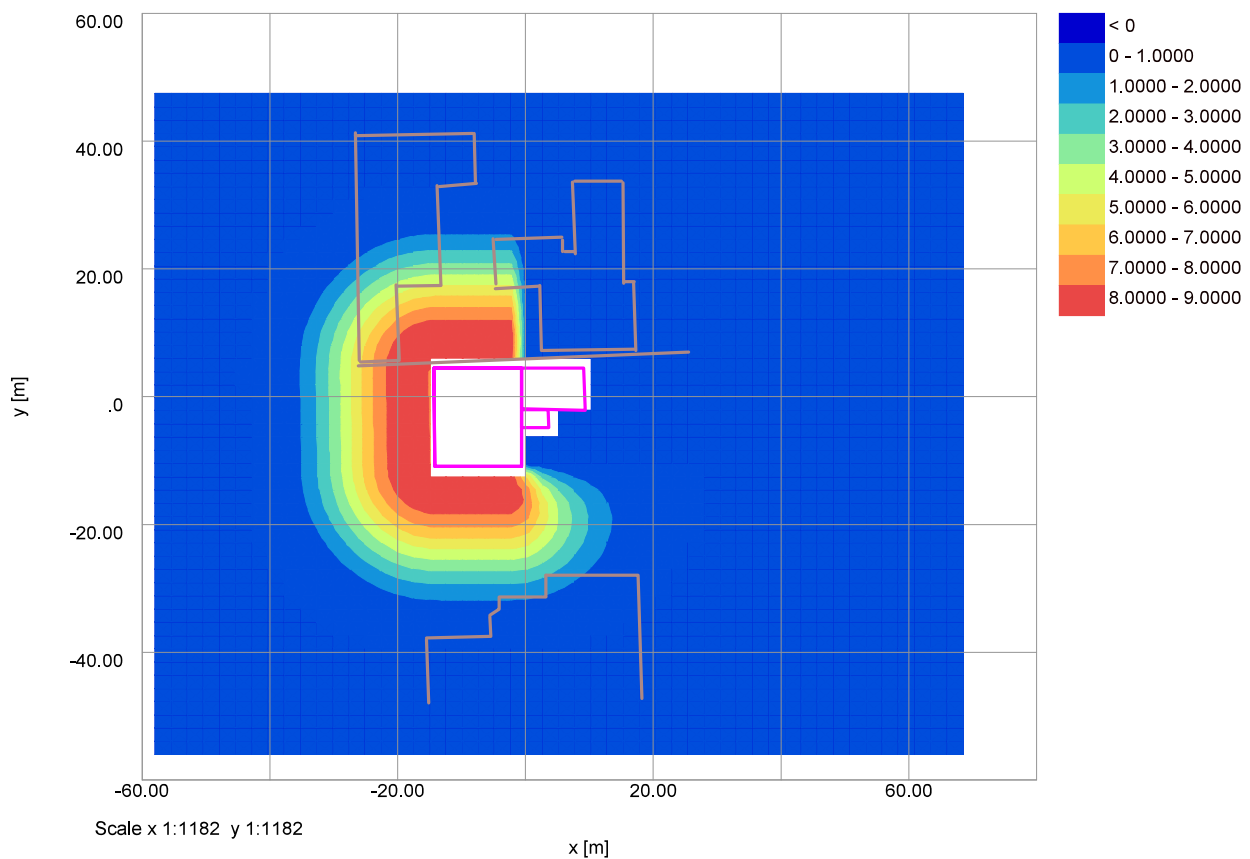


Horizontal Displacement Contours: Grid 1 (level 71.600m) Interval 1mm





Vertical Settlement Contours: Grid 1 (level 71.600m) (Interval 1mm)



### RAW RESULTS

#### Legend

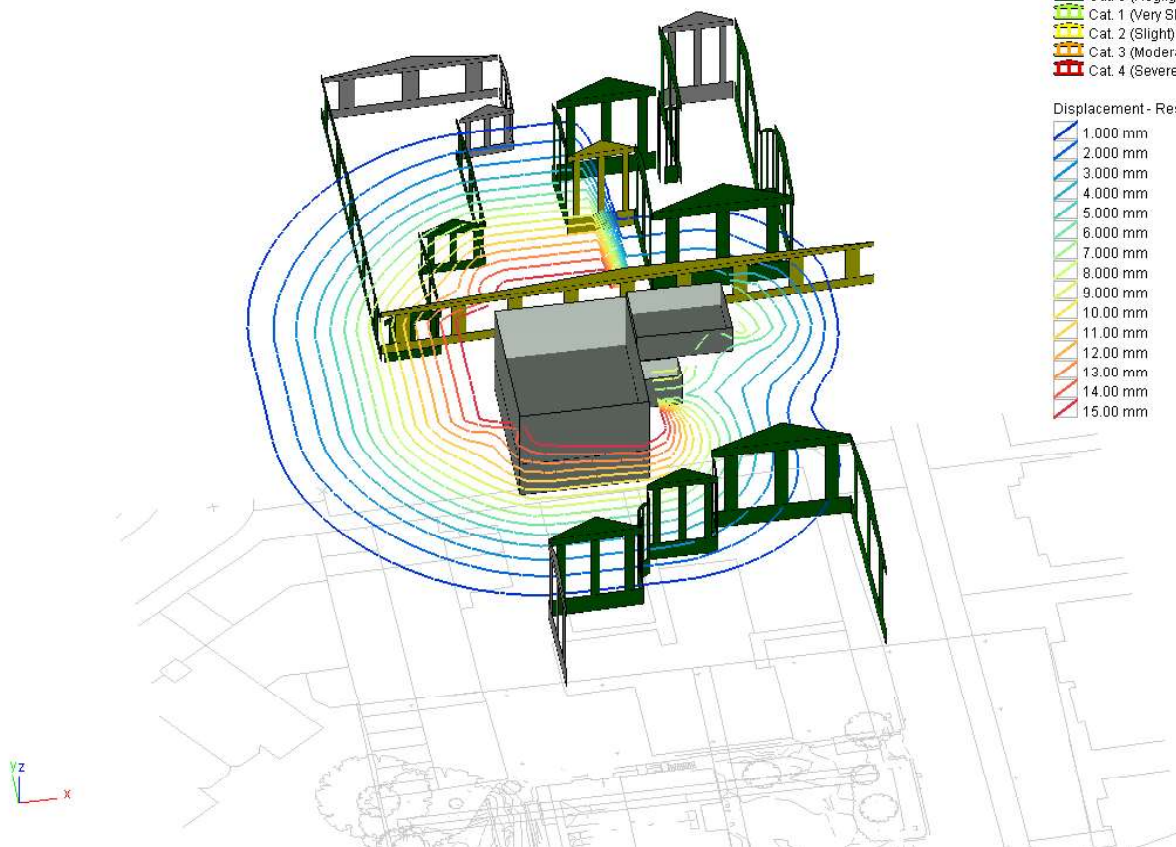
Excavation

#### Building Results

- < Sensitivity
- Cat. 0 (Negligible)
- Cat. 1 (Very Slight)
- Cat. 2 (Slight)
- Cat. 3 (Moderate)
- Cat. 4 (Severe)

#### Displacement - Resultant - Elastic

- 1.000 mm
- 2.000 mm
- 3.000 mm
- 4.000 mm
- 5.000 mm
- 6.000 mm
- 7.000 mm
- 8.000 mm
- 9.000 mm
- 10.00 mm
- 11.00 mm
- 12.00 mm
- 13.00 mm
- 14.00 mm
- 15.00 mm





# GEOTECHNICAL AND ENVIRONMENTAL ASSOCIATES

Job No.	Sheet No.	Rev.
LJ18176		
Drg. Ref.		
Made by	Date	Checked
	23-Aug-2021	
		Date

Netherhall Gardens  
Piled Walls and Excavation  
Final Total

## Specific Building Damage Results - Detail

Stage: Damage Ref.	Stage: Name	Specific Building: Name	Sub-building Name	Vertical Offset from Line for Vertical Movement Calculations [m]	Segment	Start [m]	Length [m]	Curvature	Deflection Ratio [%]	Average Horizontal Strain [%]	Max Tensile Strain [%]	Max Gradient of Horizontal Displacement Curve	Max Gradient of Vertical Displacement Curve	Min Radius of Curvature [m]
0 (Negligible)	Base Model 1	Samara Mansions 1	Sub 1	0.0	1	0.0	2.8076	None	202.88E-6	0.0	202.31E-6	0.0	194.96E-6	122140.0
(Negligible)					2	2.8076	11.413	None	0.0023377	0.0	0.0022396	0.0	194.96E-6	28859.0
(Negligible)					3	14.221	0.27941	None	0.0	0.0	35.763E-9	0.0	24.635E-6	179840.0
(Negligible)	2	Samara mansions 2	Sub 2	0.0	1	0.0	0.13062	None	0.0	0.011027	0.011027	-110.26E-6	18.569E-6	6.0090E+6
(Negligible)					2	0.13062	2.7508	None	67.290E-6	0.012371	0.012376	-147.37E-6	27.764E-6	277070.0
(Negligible)	3	Samara Mansions 3	Sub 3	0.0	1	0.0	3.3000	None	0.0011231	0.029518	0.029603	-305.31E-6	396.84E-6	33884.0
(Negligible)	4	Samara Mansions 4	Sub 4	0.0	1	0.0	6.8601	None	0.0016220	0.0	0.0015968	0.0	-76.339E-6	56109.0
(Negligible)					2	6.8601	0.53994	None	0.0	0.0	35.763E-9	0.0	4.9463E-6	276310.0
(Negligible)	5	Samara Mansions 5	Sub 5	0.0	1	0.0	1.7990	None	798.02E-6	0.037500	0.037533	-374.86E-6	363.38E-6	25501.0
(Negligible)	6	Samara Mansions 6	Sub 6	0.0	1	0.0	0.11865	None	0.0	0.010966	0.010966	-109.65E-6	165.54E-6	145210.0
(Negligible)					2	0.11865	1.5454	None	984.72E-6	0.010966	0.011039	-109.65E-6	165.54E-6	11147.0
(Negligible)	7	Samara Mansions 7	Sub 7	0.0	1	0.0	2.9705	None	380.89E-6	0.037461	0.037487	-374.47E-6	63.793E-6	50761.0
(Negligible)					2	2.9705	0.13054	None	0.0	0.037461	0.037461	-374.47E-6	41.006E-6	1.3645E+6
(Negligible)	8	Samara Mansions 8	Sub 8	0.0	1	0.0	2.7998	None	1.2724E-6	34.404E-6	34.511E-6	-344.04E-9	3.9074E-6	18.694E+6
(Negligible)					2	2.7998	4.3454	None	2.7962E-6	34.404E-6	34.654E-6	-344.04E-9	3.9074E-6	14.429E+6
(Negligible)					3	7.1452	2.7588	None	24.992E-6	-552.40E-6	111.40E-6	11.874E-6	4.7507E-6	713920.0
(Negligible)	9	Samara Mansions 9	Sub 9	0.0	All vertical displacements are less than the limit sensitivity.									
(Negligible)	10	Imperial Towers 1	Sub 10	0.0	1	9.4202	6.2798	None	56.939E-6	0.0	56.255E-6	0.0	-11.807E-6	1.2189E+6
(Negligible)	11	Imperial Towers 3	Sub 11	0.0	1	0.0	9.0130	None	60.036E-6	0.0	58.544E-6	0.0	-14.647E-6	1.6316E+6
(Negligible)					2	9.0130	1.5910	None	3.7243E-6	20.413E-6	20.993E-6	-306.33E-6	-14.647E-6	4.4519E+6
(Negligible)	12	Imperial towers 2	Sub 12	0.0	1	0.0	1.7000	None	10.270E-6	0.0	10.264E-6	0.0	10.209E-6	2.0482E+6
(Negligible)	13	Imperial Towers 4	Sub 13	0.0	1	0.0	7.3141	None	912.77E-6	0.0097625	0.0099085	-175.20E-6	-91.392E-6	89378.0
(Negligible)					2	7.3141	2.4957	None	389.85E-6	-0.0069074	0.0013997	99.640E-6	-91.392E-6	181980.0
(Negligible)					3	9.8097	4.6913	None	0.0012504	-0.012709	0.0026423	180.65E-6	-145.67E-6	30027.0
(Negligible)	14	Imperial Towers 5	Sub 14	0.0	1	0.0	10.101	None	0.0024978	0.0	0.0024216	0.0	236.98E-6	17806.0
(Negligible)	15	Imperial Towers 6	Sub 15	0.0	1	0.0	1.4018	None	29.313E-6	0.0	29.290E-6	0.0	-11.270E-6	500860.0
(Slight)					2	1.4018	1.7526	Hogging	0.11760	0.0083165	0.12100	-414.11E-6	-0.0073464	380.79
(Very Slight)					3	3.1544	3.8516	Sagging	0.060304	0.0038474	0.061612	-414.11E-6	-0.0073464	382.81
(Negligible)	16	Imperial Towers 7	Sub 16	0.0	1	0.0	7.1170	None	0.0033136	0.048044	0.048560	-559.59E-6	633.56E-6	22962.0
(Negligible)	17	Imperial Towers 8	Sub 17	0.0	1	0.0	10.404	None	0.0058219	852.22E-6	0.0059977	-17.044E-6	237.74E-6	22113.0
(Negligible)	18	Imperial Towers 9	Sub 18	0.0	1	0.0	1.6990	None	35.808E-6	0.0	35.799E-6	0.0	-15.946E-6	587440.0
(Negligible)	19	Imperial Towers 10	Sub 19	0.0	1	0.0	1.3990	None	5.8566E-6	0.0	5.8293E-6	0.0	5.6005E-6	2.5734E+6
(Negligible)	20	Imperial Towers 11	Sub 20	0.0	1	11.211	0.0	None	0.0	0.0	35.763E-9	0.0	-11.654E-6	1.1543E+6
(Negligible)	21	Imperial Towers 12	Sub 21	0.0	All vertical displacements are less than the limit sensitivity.									
(Negligible)	22	22-27 Netherhall way 1	Sub 22	0.0	1	14.242	10.752	None	0.0050051	0.014189	0.016282	-205.14E-6	-358.70E-6	28285.0
(Negligible)					2	24.994	10.611	None	0.0040347	-0.016020	0.0038359	325.75E-6	-358.70E-6	21594.0
(Negligible)	23	22-27 Netherhall Way 2	Sub 23	0.0	1	0.0	6.0030	None	0.0043623	0.041895	0.043009	-485.26E-6	-578.77E-6	11013.0
(Negligible)	24	22-27 Netherhall Way 3	Sub 24	0.0	1	0.0	11.510	None	0.0075267	-0.017831	0.0053698	859.97E-6	551.55E-6	12274.0
(Negligible)	25	22-27 Netherhall Way 4	Sub 25	0.0	1	0.0	6.7000	None	0.0032403	-0.023919	0.0051085	327.40E-6	-220.44E-6	24049.0
(Negligible)	26	22-27 Netherhall Way 6	Sub 26	0.0	1	0.0	13.479	Hogging	0.0084970	0.043261	0.045671	-561.80E-6	612.09E-6	12861.0
(Negligible)					2	13.479	0.39151	None	0.0	0.037443	0.037443	-374.29E-6	62.721E-6	126360.0
(Negligible)	27	22-27 Netherhall way 8	Sub 27	0.0	All vertical displacements are less than the limit sensitivity.									
(Negligible)	28	22-27 Netherhall Way 9	Sub 28	0.0	All vertical displacements are less than the limit sensitivity.									
(Negligible)	29	22-27 Netherhall way 10	Sub 29	0.0	All vertical displacements are less than the limit sensitivity.									
(Negligible)	30	Imperial Towers Ret Wall	Sub 30	0.0	1	0.0	15.657	None	0.0015540	0.0062253	0.0084971	-204.97E-6	-148.65E-6	45654.0
(Negligible)					2	15.657	3.2646	None	0.0013630	-0.0090944	0.0019640	160.86E-6	-148.65E-6	44408.0
(Negligible)					3	18.921	7.6224	Hogging	0.049775	-0.0052578	0.043115	-444.73E-6	-0.0069107	765.71
(Slight)					4	26.544	8.7208	Sagging	0.050116	0.0035567	0.076246	-444.73E-6	-0.0069107	727.82
(Negligible)					5	35.265	7.3016	None	0.0088298	-0.15061	0.030348	0.0063243	530.16E-6	6787.1
(Negligible)					6	42.566	9.2757	None	0.0091773	0.036341	0.049874	0.0011675	584.52E-6	9606.7

Tensile horizontal strains are +ve, compressive horizontal strains are -ve.



# GEOTECHNICAL AND ENVIRONMENTAL ASSOCIATES

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	23-Aug-2021	

Netherhall Gardens  
Piled Walls and Excavation  
Final Total

## Specific Building Damage Results - All Combined Segments

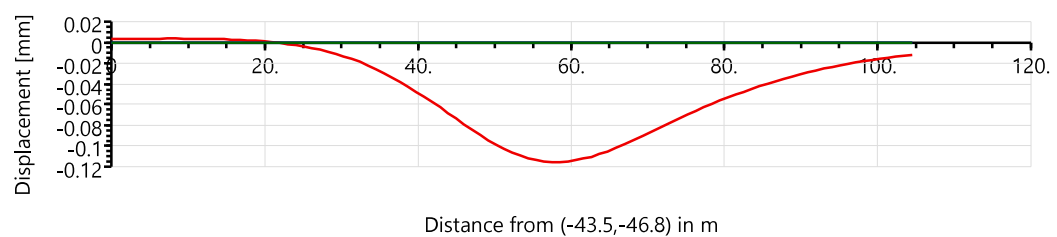
Stage: Ref.	Stage: Name	Specific Building: Ref.	Specific Building: Name	Sub-building Name	Vertical Offset from Line for Vertical Movement Calculations [m]	Combined Segment	Start [m]	Length [m]	Curvature [m]	Deflection Ratio [%]	Average Horizontal Strain [%]	Max Tensile Strain [%]	Damage Category
0	Base Model	1	Samara Mansions 1	Sub 1	0.0	No combined segments for this stage, specific building and offset.							
		2	Samara mansions 2	Sub 2	0.0	No combined segments for this stage, specific building and offset.							
		3	Samara Mansions 3	Sub 3	0.0	No combined segments for this stage, specific building and offset.							
		4	Samara Mansions 4	Sub 4	0.0	No combined segments for this stage, specific building and offset.							
		5	Samara Mansions 5	Sub 5	0.0	No combined segments for this stage, specific building and offset.							
		6	Samara Mansions 6	Sub 6	0.0	No combined segments for this stage, specific building and offset.							
		7	Samara Mansions 7	Sub 7	0.0	No combined segments for this stage, specific building and offset.							
		8	Samara Mansions 8	Sub 8	0.0	No combined segments for this stage, specific building and offset.							
		9	Samara Mansions 9	Sub 9	0.0	No combined segments for this stage, specific building and offset.							
		10	Imperial Towers 1	Sub 10	0.0	No combined segments for this stage, specific building and offset.							
		11	Imperial Towers 3	Sub 11	0.0	No combined segments for this stage, specific building and offset.							
		12	Imperial Towers 2	Sub 12	0.0	No combined segments for this stage, specific building and offset.							
		13	Imperial Towers 4	Sub 13	0.0	No combined segments for this stage, specific building and offset.							
		14	Imperial Towers 5	Sub 14	0.0	No combined segments for this stage, specific building and offset.							
		15	Imperial Towers 6	Sub 15	0.0	1 0.0 7.0060 Sagging 0.035953 0.0041955 0.037184 0 (Negligible)							
		16	Imperial Towers 7	Sub 16	0.0	No combined segments for this stage, specific building and offset.							
		17	Imperial Towers 8	Sub 17	0.0	No combined segments for this stage, specific building and offset.							
		18	Imperial Towers 9	Sub 18	0.0	No combined segments for this stage, specific building and offset.							
		19	Imperial Towers 10	Sub 19	0.0	No combined segments for this stage, specific building and offset.							
		20	Imperial Towers 11	Sub 20	0.0	No combined segments for this stage, specific building and offset.							
		21	Imperial Towers 12	Sub 21	0.0	No combined segments for this stage, specific building and offset.							
		22	22-27 Netherhall way 1	Sub 22	0.0	No combined segments for this stage, specific building and offset.							
		23	22-27 Netherhall Way 2	Sub 23	0.0	No combined segments for this stage, specific building and offset.							
		24	22-27 Netherhall Way 3	Sub 24	0.0	No combined segments for this stage, specific building and offset.							
		25	22-27 Netherhall Way 4	Sub 25	0.0	No combined segments for this stage, specific building and offset.							
		26	22-27 Netherhall Way 6	Sub 26	0.0	No combined segments for this stage, specific building and offset.							
		27	22-27 Netherhall way 8	Sub 27	0.0	No combined segments for this stage, specific building and offset.							
		28	22-27 Netherhall Way 9	Sub 28	0.0	No combined segments for this stage, specific building and offset.							
		29	22-27 Netherhall way 10	Sub 29	0.0	No combined segments for this stage, specific building and offset.							
		30	Imperial Towers Ret Wall	Sub 30	0.0	1 0.0 51.842 None 0.017655 -0.013577 0.0027625 0 (Negligible)							

Tensile horizontal strains are +ve, compressive horizontal strains are -ve.

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### Displacement for Crown

- Vertical Displacement
- Horizontal Displacement x
- Horizontal Displacement y

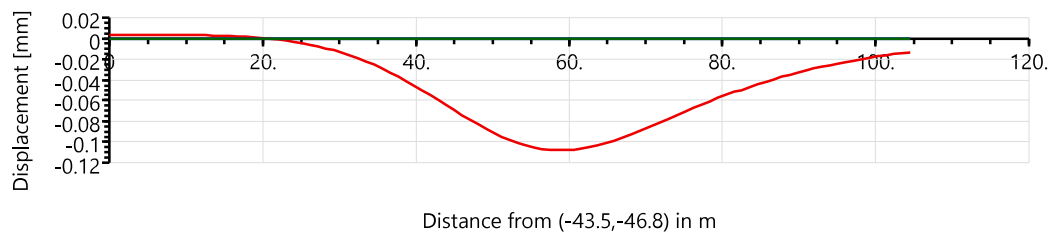




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### Displacement for Invert

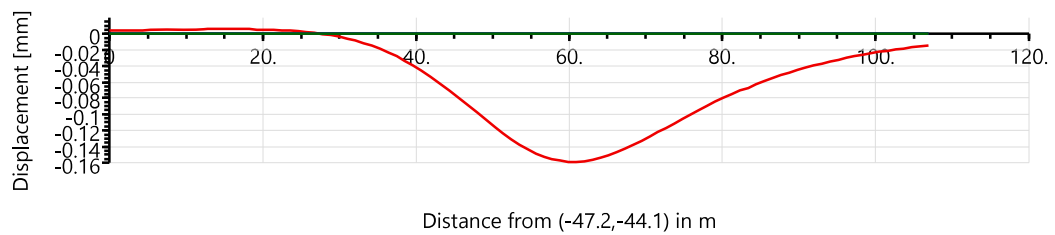
- Vertical Displacement
- Horizontal Displacement x
- Horizontal Displacement y



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### Displacement for Left Axis

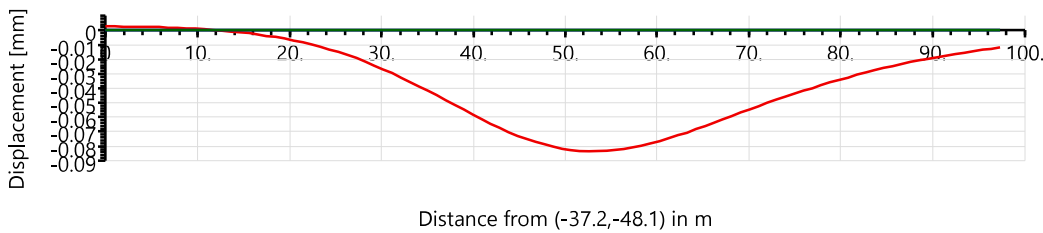
- Vertical Displacement
- Horizontal Displacement x
- Horizontal Displacement y



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### Displacement for Right Axis

- Vertical Displacement
- Horizontal Displacement x
- Horizontal Displacement y





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