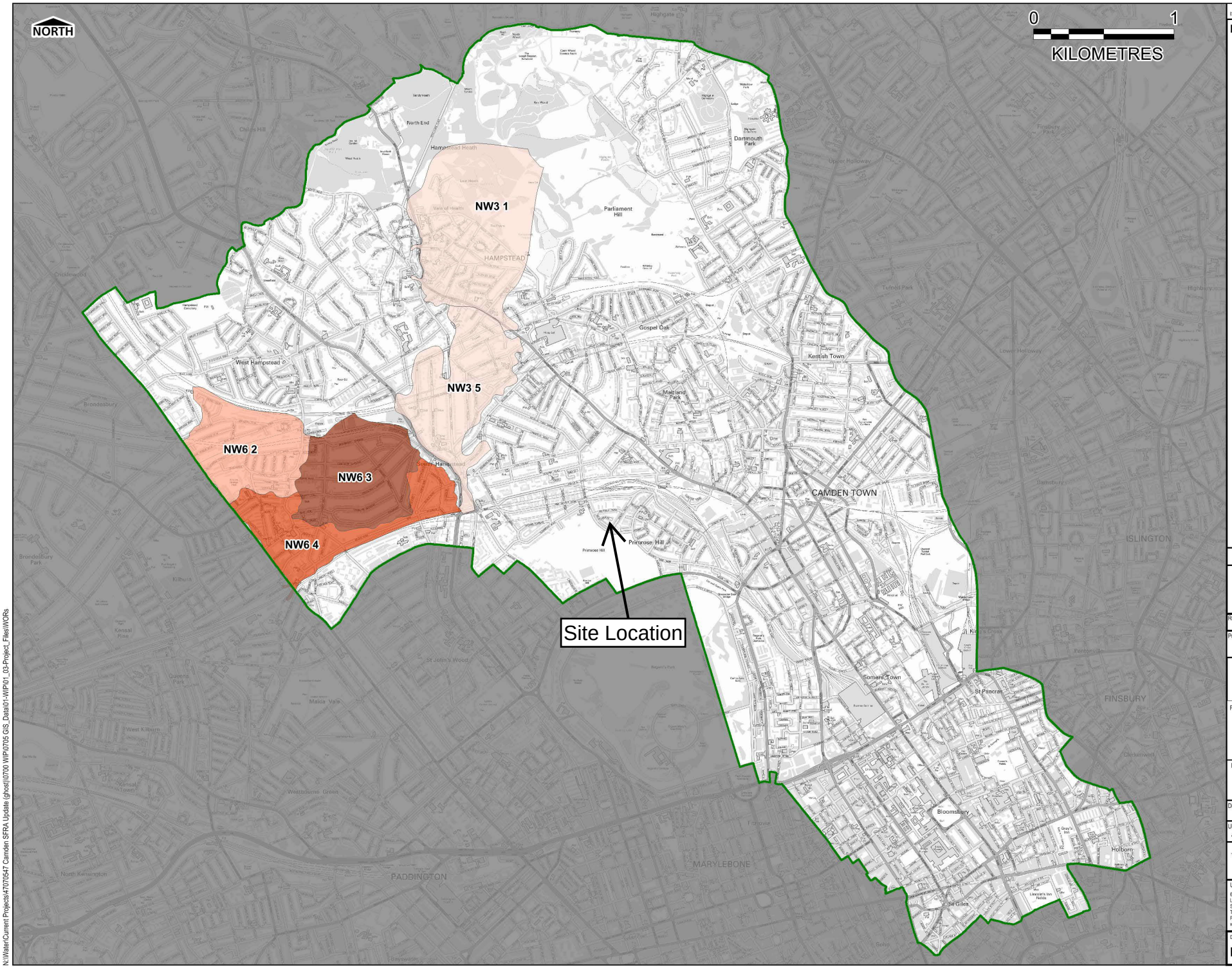

THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

LEGEND

- London Borough Camden Boundary

Exterior Sewer Flooding
No. of Properties affected

- 1
- 2
- 4
- 18

Revision Details	By / Check	Check Date	Suffix

Purpose of Issue: FINAL

Client: Camden

Project Title: LONDON BOROUGH OF CAMDEN STRATEGIC FLOOD RISK ASSESSMENT

Drawing Title: DG5 External Sewer Flooding

Drawn	Checked	Approved	Date
CB	JS	MT	03/07/2014

URS Internal Project No.	Scale at A3
47070547	1:40,000

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URS

Drawing Number	Rev
FIGURE 5b	Rev 1

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Appendix C: Ground Investigation Report

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GROUND INVESTIGATION REPORT

38 MEADOWBANK

LONDON NW3

Report Reference No. C14648

On behalf of:-
Owner at the time of writing
38 Meadowbank
London
NW3 3AY

February 2019

CONTENTS

OWNER AT THE TIME OF WRITING

CAMPBELL REITH

CONSULTING ENGINEERS

GROUND INVESTIGATION REPORT

38 MEADOWBANK

LONDON NW3

Report Reference No. C14648 **February 2019**

INTRODUCTION

The client (owner at the time of writing) intends to construct a single-storey basement beneath No.38 Meadowbank, London NW3. Details of the proposed basement redevelopment were unknown at the time of report preparation.

Ground Engineering Limited was instructed by the client, under the direction of consulting engineers, Campbell Reith, to carry out a ground investigation. The latter was to determine the nature and geotechnical properties of the underlying soils in relation to foundation/basement design and construction. In addition, soil gas monitoring and limited chemical testing was included within the scope of this investigation.

The site was the subject of a Phase 1 desk study by the Engineer, which found that the site and immediate surrounding area was previously covered by late-Nineteenth Century terraced houses that were removed and replaced by the extant Meadowbank estate in the early 1970s.

LOCATION, TOPOGRAPHY, GEOLOGY AND HYDROGEOLOGY

No.38 is a modern terraced house in the Meadowbank residential development, which lies within a triangular site surrounded by Ainger Road to the south-east, Primrose Hill Road to the south-west and Oppidans Road to the north. The site is some 530m south-west of Chalk Farm London Underground railway station, in the London Borough of Camden, London NW3, and is centred at National Grid Reference TQ 27710 84060.

The site is 5m wide and 19m long, and located towards the north-eastern end of a row of eight terraced houses, between Nos.37 and 39, which are adjoining to the south-west and north-east, respectively. The front/north-west of the site abuts a communal courtyard for the terraced row. The siteôs south-eastern rear boundary is formed by a brick retaining wall adjacent a footpath.

At the time of the investigation the site was occupied by a four-storey mid-terrace brick dwelling, No.38, with a private rear garden surfaced with AstroTurf. An immature Cherry tree was present within the neighbouring rear garden to the south-west.

The site is benched at about 51mOD on the north-eastern side of Primrose Hill, and has approximately 2.0m and 1.5m high brick retaining walls at its north-western end and on its south-eastern side with the adjacent lower Meadowbank roadway and footpath, respectively. The adjoining No.39, to the north-east, was largely underlain by a row of resident's garages, with ground floor level at about 48.5mOD. The surrounding topography falls toward the north-east toward the culverted River Fleet, which flows south-eastwards some 900m to the north-east.

The 1935, 1:10,560 scale geological map for the locality, London sheet V NW, based on the 1919 O.S. map, shows the site to be directly underlain by the solid geology of the London Clay.

The 2006 geological map at 1:50,000 scale, sheet 256, also shows the site to be directly underlain by the solid geology of the London Clay, within an area of Head Propensity (ôhillwashô).

The London Clay is designated as an Unproductive (Non-aquifer) by the Environment Agency. Groundwater could be expected to be ópercheddô within any made ground or Head Deposits upon the practically impermeable London Clay.

Based on the site topography, the direction of surface and near surface groundwater flow would be toward the north-east, toward the River Fleet.

SITE WORK

The site work was undertaken on 12th and 13th December 2018. The exploratory hole positions and scope of the investigation was devised by the Engineer and initially comprised two window sample boreholes (WS 1 & WS 2) and two hand excavated foundation inspection pits (TP 1 and TP 2). A third window sample borehole (WS 3) was added after WS 2 was abandoned when it could no longer be advanced in very dense ground. The hole locations are shown on the exploratory hole location plan at the rear of this report.

The investigation was undertaken following the protocols detailed in British Standards (BS) ôCode of Practice for Site Investigationsõ (BS5930:2015) and ôMethods of test for soils for engineering purposesõ (BS1377:1990).

Prior to undertaking the intrusive works, service plans were sourced and consulted, and a service scan of the exploratory hole positions was made using a CAT (Cable Avoidance Tool) to check for the absence of buried services that may otherwise have been damaged by the investigation.

The site work was undertaken under the supervision of a Geo-environmental Engineer. The elevations of the ground/floor level at the exploratory hole positions have been interpolated using spot heights on a topographic survey plan provided by the Engineer.

The exploratory hole records give the descriptions and depths of the various strata encountered, results of the in-situ tests, details of all samples taken, and the groundwater conditions observed during excavation/boring, on completion and subsequently in a standpipe.

Window Sample Boreholes

The window sample boreholes (WS 1 to WS 3) were undertaken using a portable dynamic sampling rig on 12th and 13th December 2018. Where present, AstroTurf and paving slabs were lifted and placed to the side, and the underlying concrete broken out using an electric

breaker. Prior to boring, a starter pit was excavated to 1.20m depth, in order to ensure the absence of buried services at each hole position.

Borehole WS 1 was completed at the intended depth of 8.45m below ground level, within the London Clay. After encountering very dense ground in WS 2, the hole was abandoned at 1.93m depth, and relocated 1.20m south-west at the position of WS 3, which was similarly abandoned in very dense ground at 1.80m depth.

Small disturbed (D) samples of soil were recovered at regular intervals within the starter pits and throughout boreholes. Bulk (B) disturbed samples of soil was also recovered from the borehole starter pits. A sample of suspected asbestos containing material was double-bagged (ASB) from borehole WS 1.

The window sampling equipment consisted of 1.00m long drive-in samplers of specially constructed and strengthened 87mm to 57mm diameter steel sample tubes with a plastic core-liner, initially working within 100mm internal diameter steel casing. The samplers were driven into the ground from the base of the hole by an automatic trip hammer weighing 63.50kg falling freely through 750mm. Upon extraction a continuous profile of the soil was obtained in the plastic liners (U) inserted in the samplers. The liners were subsequently split, logged and sub-sampled by a Geo-environmental Engineer.

Standard penetration tests (SPT) were undertaken at regular intervals in the window sample boreholes. The test was made by driving a 50mm diameter solid cone (C) or split spoon sampler (S) attachment into the soil at the base of the borehole by means of an automatic trip hammer weighing 63.50kg falling freely through 750mm. The penetration resistance was determined as the number of blows required to drive the tool the final 300mm of a total penetration of 450mm into the soil ahead of the borehole. The SPT 'N'-values have been tabulated to the rear of the borehole records and the values for WS 1 have been plotted against elevation in Figure 1, and on the longitudinal section (Figure 3).

On completion, a 50mm diameter gas and groundwater monitoring standpipe was installed to 5.00m depth in the WS 1 borehole, with gravel response zone to within 1.00m of

ground level. Above and below the response zone, the borehole was backfilled with bentonite. A gas tap was installed in the top of the standpipe. A protective stopcock cover was concreted into the ground flush with the surface over the installation. Boreholes WS 2 and WS 3 were backfilled with bentonite, and the paving slabs reinstated.

Trial Pits

Two trial pits (TP 1 to TP 2) were undertaken on 12th and 13th December 2018. After removing the floorboards in TP 1, electrically powered portable diamond drilling equipment was used to core the concrete floor slab. At position TP 2 in the rear garden, the AstroTurf and paving slabs were removed prior to excavation. Trial pit TP 2 was then excavated using hand tools and hand auger equipment, and completed using a Mackintosh probe. The two cored holes at position TP 1 found that the concrete floor slab was suspended, and so further cored holes were not considered advisable. The limited openings created by the cored holes were extended using hand auger tools to 0.65m depth where a concrete obstruction was met. Further investigation was undertaken at this position using an electrically powered hand-held masonry drill. The strata exposed were logged by the supervising Geo-environmental Engineer.

Disturbed samples of soil were taken at regular intervals throughout these pits and placed in polycarbonate pots (D samples) and large plastic bags (B samples).

Sketches of the foundations exposed in each pit are presented with the respective trial pit records, together with trial pit photographs.

Following completion, the trial pits were backfilled with the arisings, compacted in layers, and the surface hardstanding reinstated. Photographs of the reinstatement are presented to the rear of the pit records.

Internal Wall Inspection

At the request of the Engineer, three small openings were made in the plastered internal walls of No.38 so that the type of wall construction could be determined. The openings

were inspected by the Engineer on 13th December 2018, and subsequently reinstated to the satisfaction of the client on the following day.

Monitoring

Three return visits were made in December 2018 and January 2019, in order to monitor methane, carbon dioxide and oxygen gas levels in the WS 1 standpipe. Ambient pressures and flow rates were recorded together with the depth to groundwater. The latter has been added to the borehole record, whilst the gas/groundwater results are presented to the rear of the exploratory hole records.

A sample of water (W) was recovered from the standpipe during the first monitoring visit and placed in a plastic bottle, pending testing in the laboratory.

LABORATORY TESTING

The samples were inspected in the laboratory and assessments of the soil characteristics have been taken into account during preparation of the exploratory hole records. The soil sample descriptions are in accordance with BS5930:2015.

The geotechnical tests were conducted to BS1377:1990 & 2016 and other industry standards, and the results are presented at the rear of this report.

Geotechnical Testing

The moisture content and index properties of selected soil samples were determined as a guide to soil classification and behaviour. The liquid limit was determined by the cone penetrometer method.

Immediate undrained triaxial compression tests were made on selected undisturbed sub-samples of clay soils recovered from the liners at a single pressure approximately equivalent to the overburden pressure at that sampleôs depth, or the multi-stage technique. The moisture content and bulk density of the specimens were also determined. The triaxial test results are plotted against elevation in Figure 2.

An indication of the settlement characteristics of selected samples were obtained from the consolidation apparatus or oedometer. The tests was performed on a sample approximately 19mm thick, contained in steel rings. Each sample was saturated and the swelling pressure balanced prior to applying a constant load with drainage allowed at both ends. When primary compression was complete, the load was increased and this repeated for three increments of load. The sample was then unloaded in two equal stages. The rate and total amount of consolidation were continually monitored using a computer controlled E.L.E. Datasystem 7 Unit. The results were plotted and analysed by the computer for each increment of load to obtain the coefficients of compressibility (m_v), and of consolidation (c_v), which govern the amount and rate of settlement respectively.

Selected samples of soil and water were analysed to determine the concentration of soluble sulphates. The pH values were determined using an electrometric method. Selected samples of soil were also tested for total sulphur and acid soluble sulphate. The testing was undertaken using the methods prescribed in BRE Digest SD1 (2005).

In light of the presence of a fragment of suspected asbestos containing material at 0.80m depth in borehole WS 1, a sample (ASB 1) was despatched to a specialist laboratory for identification by a qualified chemist using optical microscopy. The result is presented at the rear of this report.

GROUND CONDITIONS

The ground conditions encountered by the exploratory holes comprised a cover of made ground, and then the expected weathered solid geology of the London Clay Formation. Standpipe water levels were recorded at the interface between the made ground and the London Clay at about 3.50m depth.

A north-west to south-east soil profile of the ground conditions encountered is presented as Figure 3 at the rear of this report.

Made Ground

The external exploratory holes penetrated 40mm or 50mm thick concrete paving slabs that were laid upon lean mix concrete bedding that was proved to 0.10m to 0.20m below ground level. In WS 1 this covered a 0.10m thick layer of concrete rubble that was found to 0.30m depth.

The surface layer at the internal pit position, TP 1, comprised a 50mm thick layer of concrete screed that mantled a 0.17m thick reinforced, suspended concrete floor slab, which was underlain by 0.08m of lean mix concrete. This covered thin layers of coarse grained fill and clay fill, which at 0.65m below floor level was underlain by a layer of concrete 'blinding'. The use of a 10mm masonry drill found this 'blinding' to be 0.15m thick, adjacent the footing, below which a 'soft' clay was penetrated to 1.00m depth.

These surface layers were underlain by a brown, light brown, grey or orange brown, clayey/silty sand and gravel or sandy gravel with a variable and often significant proportion of concrete and brick cobbles. The gravel content of this coarse grained fill was predominantly of brick, concrete and flint, and occasional coal, ash, slate, metal and mortar. In borehole WS 1, this coarse grained fill included a fragment of suspected asbestos containing material at 0.80m depth that was subsequently identified as amosite board.

At the rear of the site, the coarse grained fill was proved to 1.20m depth in WS 1 and TP 2, whilst at the front of the site the sandy gravel fill was found to 1.70m (WS 2) and 0.90m (WS 3) depth, below which it was weakly cemented to a very dense silty sand and gravel. The latter could not be penetrated using the sampler and these holes were abandoned, following standard penetration tests, at 1.93m and 1.80m below ground level, respectively.

Trial pit TP 2 and borehole WS 1 penetrated the coarse grained fill at 1.20m depth and then entered a soft, brown, grey and dark grey mottled, slightly sandy, slightly gravelly, silty clay with occasional brick cobbles. This clay fill had a similar gravel fraction to the overlying coarse grained fill, but also included fragments of asphalt, clinker and chalk. Below 2.30m depth, the clay fill became gravelly in TP 2, and this excavation was abandoned within it at 2.50m below rear garden ground level. The nearby WS 1 proved the base of the made ground at 3.50m depth, 47.34mOD.

London Clay

The London Clay was initially weathered, between 3.50m to 4.00m depth, to a firm, brown, orange brown and grey mottled, silty clay. Below 4.00m (46.84mOD) the weathered London Clay was a firm, becoming stiff, closely fissured, brown and orange brown mottled clay with blue grey stained fissure planes and rare selenite crystals, and this was found to at least the base of the 8.45m deep borehole at 42.39mOD.

Groundwater

All of the exploratory holes were recorded as dry during boring/excavation and upon completion. Standpipe water levels in the rear garden borehole WS 1 were recorded at 3.46m or 3.63m below ground level, about 47.30mOD.

Observations

Live roots were not found in any of the exploratory holes of this investigation.

The sides of the 2.50m deep trial pit TP 2 were unstable during excavation.

A 130mm diameter drain, 0.50m from and parallel to the boundary with No.39, was uncovered at 0.25m depth within trial pit TP 2.

Existing Foundations

The exploratory works at the internal position, TP 1, found the concrete floor slab to be significantly reinforced and keyed into the adjacent foundation, upon which it was apparently suspended. The depth to the base of the adjacent footing could not be determined due to the constraints resulting from the nature of the existing ground floor slab, although concrete 'blinding' adjacent the footing was proved to 0.80m below floor level using a masonry drill.

The 2.50m deep TP 2 in the rear garden adjacent No.39, was abandoned without exposing its foundation. However, Mackintosh probing from the base of the pit was able to determine that the top of a footing was present at 2.70m below ground level and projected to between 0.18m and 0.25m (approximately 0.20m) from the brickwork. At 0.25m from the wall, no obstruction was found by probing to at least 3.20m depth.

COMMENTS ON THE GROUND CONDITIONS IN RELATION TO FOUNDATION DESIGN AND CONSTRUCTION

The investigation found a cover of made ground underlain by the initially weathered solid geology clay of the London Clay. Foundations for the proposed single-storey basement are expected to require an excavation about 3.00m to 3.50m deep, which will penetrate the made ground and may reach the initially firm, weathered solid geology London Clay. The firm, weathered London Clay at about 1.00m below proposed basement level, and 4.00m below ground level, should have adequate bearing properties to support the building loads of the proposed structure or alternatively piled foundations could be adopted.

'Perched' water was encountered within the base of the made ground in the standpipe installation during the weeks after the site work was completed. Mass concrete underpinning/basement walls, sheet piling and contiguous piles may provide an adequate cut-off, and could be supplemented by pumping from screened sumps, otherwise secant piles would be necessary.

Foundation Depths

The single exploratory hole to penetrate the made ground (WS 1), encountered naturally deposited ground at 3.50m below ground level, some 0.50m below a likely basement floor level beneath this small site. Large scale processes of natural sedimentation allow a certain degree of confidence to be placed in the absence of important variation of the engineering properties of natural soils across sites. By contrast, made ground, whose history is not completely known, must, despite any amount of investigation, inevitably present the possibility of conditions existing which could not be accepted when considering the material as a bearing stratum.

The underlying London Clay had modified plasticity indices of 44% to 46%, and so is of high volume change potential. In open naturally deposited ground, well away from trees, a minimum foundation depth of 1.00m below existing ground level would be required.

The depth affected by seasonal changes in moisture content of clay soils may have locally been increased within the range of influence of the Cherry tree within the neighbouring site's garden. Reference to the National House Building Council (NHBC) Standards Chapter 4.2 ñBuilding near treesò (2018) should be made due to the presence of this and any other nearby trees.

However, as foundations for the basement will be based at least 3.50m below ground level, this should be much deeper than any root-induced desiccation effects due to these trees, and so will not need to be referenced further in relation to deepened foundations.

Even so, foundations in clay soils within the range of influence of retained and removed trees will have to be separated from the soil by a suitable void former. This is particularly of note where trees are removed or die. The required gap dimensions for footings in high volume change potential clay soils are detailed in the previously cited NHBC document.

Bearing Capacity

The construction of a 3.00m deep basement, within an excavation perhaps 3.50m or 4.00m deep, will remove the made ground and extend a little way into the underlying London Clay. The results of the in-situ penetration tests (Figure 1) and laboratory triaxial compression strength tests (Figure 2) indicate that a maximum safe bearing capacity of 135kN/m^2 could be applied on 1.00m wide strip foundations cast below the proposed basement level on the firm weathered London Clay at 4.00m below existing ground level. This value, which is based on an average cohesive strength at this depth of 55kPa, incorporates a factor of safety of 3.0 against general shear failure and should be sufficient to support the likely foundation pressures for the proposed structure and any underpinning to these depths.

Basement

Foundations for the basement walls, taken some 3.50m to 4.00m below ground level, would be within firm London Clay and could be designed using the previously detailed bearing capacity of 135kN/m^2 for 1.00m wide strip foundations.

Alternatively a basement raft foundation could be considered for this structure. A net safe bearing capacity of 110kN/m^2, which incorporates a factor of safety of 3.0, could be used for the design of a 5.00m wide raft foundation on the London Clay below 3.50m depth.

It is estimated that theoretical base heave at the centre of an 18.00m long and 5.00m wide, 3.50m to 4.00m deep unconfined basement excavation would be in the order of 15mm following the removal of 70kN/m^2 to 80kN/m^2 of overburden pressure. Any heave within the basement would begin to take place soon after excavation but would be confined by the basement floor loading once it had been constructed.

A likely basement raft loading is unknown but if it were the 70kN/m^2 to 80kN/m^2 of removed overburden pressure no net heave/settlement would be expected. Raft loadings greater than 70kN/m^2 to 80kN/m^2 would result in net settlement, whilst conversely loads lower than 70kN/m^2 to 80kN/m^2 could result in negligible net heave. Net differential heave/settlement will need to be taken into account in the design of the basement floor. The advice of basement design specialists should be sought in this regard.

Excavations/Groundwater

The excavation of the basement to 3.50m/4.00m below ground level will require the construction of close support to its sides, the control of groundwater, and the need to avoid undermining adjacent structures.

The use of mass concrete underpinned basement walls, constructed in panels around the perimeter of the basement could provide support, a limited cut-off to ópercheđ water and reduce the scale of any dewatering required within the basement excavation. An alternative would be to use sheet, contiguous or secant piled walls around the perimeter of the basement.

Piling to a sufficient depth to mobilise adequate passive pressure below the basement level should be feasible on this site.

The excavation of a 3.50m/4.00m deep basement could then be undertaken within the mass concrete or piled walls, although it should be noted that mass concrete, contiguous and sheet pile lined excavations may not be water tight.

In order to construct the basement beneath this site it will be necessary to provide permanent support to the adjacent structures, which are likely to be based on deepened strip foundations on this hillside site. This support can either be provided by underpinning these structures to the same depth as the proposed basement prior to basement construction or by constructing piled walls to the excavation that are adequately propped during construction by temporary support and permanently by the basement and ground floors, to prevent movement at the top of the retaining walls.

Such lateral movement would otherwise be accompanied by settlement of the ground behind the basement walls. CIRIA report C760 'Guidance on Embedded Retaining Wall Design' (2017) indicates very small scale horizontal and vertical movements resulting from the construction of a secant piled wall embedded in sand/gravel and stiff clay, as does the use of high support stiffness (high propped walls and top down construction) to the basement excavation. Provided that such a very stiff bracing system is used to prevent deflection of the proposed basement walls, and that the neighbouring structures are of robust construction, the anticipated level of structural damage, if any, is unlikely to exceed Category 1 'very slight' as described in Table 6.4 of the aforementioned CIRIA document, which is the acceptable limit in accordance with Camden Planning Guidance.

Care should also be taken to ensure that the proposed retaining walls of the basement are not surcharged with plant and equipment or the stockpiling of materials and excavated soils outside the basement excavation.

The basement excavation should be inspected on completion to ensure that the condition of the soil complies with that assumed in design. Should pockets of inferior material be

present, they should be removed and replaced with well graded hardcore or lean mix concrete. The excavated surface should be protected from deterioration and a blinding layer of concrete used where foundations are not completed without delay.

Water was not observed during boring/excavation, but was recorded 'perched' within the base of the made ground at about 3.50m depth in the borehole standpipe during the monitoring period.

Potential flotation due to the recorded 'perched' water within the base of the made ground is considered unlikely on this site.

As 'perched' water was encountered above the floor of the proposed basement, it will be considered necessary to waterproof the basement in order to prevent the ingress of such water into the completed structure. In addition, downward percolating surface water will need to be prevented from entering the basement, and could be dealt with by the basement's drainage system.

Safety precautions should not be neglected especially where personnel are to enter excavations when close side support will be required in order to maintain excavation stability. All excavations should be undertaken in accordance with CIRIA Report 97 ó*Trenching Practice*ô.

Visual evidence of suspected asbestos containing material was recorded during the site work in the coarse grained fill at 0.80m depth in borehole WS 1. This was subsequently identified in the laboratory as amosite board. Such made ground should not be crushed and it is recommended that the groundworks contractor visually screen made ground for suspected asbestos and handpick such materials for separate off-site disposal as special waste. Care should be taken to protect ground workers from inhalation of dust.

Piled Foundations

In the event that piled foundations are preferred due to practical or economic considerations related to the construction of the basement and underpinning foundations on this small site, the ground conditions are considered suitable for bored or CFA, but not driven piles as

the vibrations during installation of driven piles could damage the existing and adjacent structures. The advice of specialist piling contractors should be sought as to their preferred method of pile installation in these conditions on this small and restricted access site.

Preliminary working loads for a single bored pile may be estimated for design and cost purposes using pile bearing coefficients, which are based on the following assumptions.

1) The ultimate load on a pile would be the sum of the side friction/adhesion acting on the pile shaft together with the end bearing load.

2) The pile bearing properties within the depth of the proposed basement have been ignored.

3) In the London Clay the shaft adhesion and end bearing would be a function of the SPT 'N' values (Figure 1) and apparent cohesion values determined by triaxial compression strength tests (Figure 2).

4) A factor of safety of at least 2.0 would be used to assess pile working loads. If test loading of selected piles were not practical the factor of safety would be increased to at least 2.5.

Item	**Ultimate Pile Bearing Value kN/m^2**
Shaft adhesion/friction in ground to 4m below ground level	Ignored
Average shaft adhesion in London Clay, 4m to 5m	30
Average shaft adhesion in London Clay below 5m	50
End bearing in London Clay at 7m	900

Using these coefficients it is estimated that a single, 300mm diameter bored pile installed to 7m would have an anticipated working load of 75kN, with a factor of safety of 2.5. Different pile lengths, or diameters, from those detailed above would give different available working loads, which could be tailored to suit the working loads required. A piling specialist should undertake final design of piles.

The design of piled foundations on this site may need to take into account potential tensile stresses in the piles during basement construction, resulting from heave, where the net change in load is to be reduced, although this is likely to be negligible for the proposed structure.

Retaining Walls

The walls of the proposed basement will act as retaining walls and will need to be designed accordingly. For a permanent retaining wall analysis effective stress parameters would be appropriate, however, in the absence of effective stress testing on samples from this site, published parameters, previous experience and in-situ test results could be used as a conservative approach.

The design of retaining walls around the basement area may be based on the following stress parameters:

Soil Type	**Bulk Density (Mg/m^3) γ_B**	**Average Apparent Cohesive Strength (kPa) c_u**	**Effective Shear Strength (kPa) c'**	**Angle of Shearing Resistance (degrees) ϕ'**
Made Ground (clay fill)	1.80	25	0	28
London Clay, to 5m depth	1.95	55	0-2	23
London Clay, below 5m depth	1.95	100	0-2	23

Buried Concrete

Sulphate analysis of the soil and water samples tested gave results in Design Sulphate Classes DS-1, DS-2 and DS-3 of the BRE Special Digest 1, Table C2 (2005) presented in Appendix 1. The pH results were between 8.1 and 9.4, and so alkaline.

The London Clay is listed in this publication as being a stratum that may contain sulphides, such as pyrite, hence oxidation due to disturbance during the excavation of foundations

and basements may increase the total potential sulphate content. Visual evidence of pyrite was not recorded within the London Clay beneath this site.

The results of the total sulphate (AS) and total sulphur (TS) tests on six soil samples indicated amounts of oxidisable sulphates (OS) of up to 0.88%. This highest OS value exceeds 0.30%, which is considered to reflect the presence of pyrite within the soil. Using the highest derived total potential sulphate (TPS) value of 2.88%, indicates DS-5 conditions. However, in line with the document, a limitation can be made where the TPS classification is DS-5 and two classes above the class determined using soluble sulphate results. Hence on this site a Design Sulphate Class of DS-4 would be applicable.

It should be noted that the use of piled foundations would minimise disturbance of the ground and consequently reduce the potential for the oxidation of any pyritic clay. In the event that large excavations into the London Clay, such as the basement and deepened footings/underpinning, are left exposed to the elements for a prolonged period, especially during winter months, there would be a potential for oxidation of any pyrite within the clay and, in the long term, possible thaumasite formation.

Using the limitation on the highest total potential sulphate result (2.88%), and the pH results, an Aggressive Chemical Environment for Concrete (ACEC) Class of AC-4 would be considered appropriate for buried concrete beneath this site as detailed in the above cited BRE document.

Slope Stability

The hillside within which the plot is located falls from 55.6mOD on Primrose Hill Road, to the south, to 48.5mOD immediately to the north of the plot, in a distance of about 90m. This represents an average slope angle of about 4.5 degrees and hence this slope is not marked on Figure 16 of the London Borough of Camden 'Guidance for subterranean development' (2010), which indicates slopes of greater than 7 degrees. On this site, bounded by existing dwellings and retaining walls, it is considered unlikely that the proposed small scale residential basement

development will induce slope instability. There was no visual evidence of historical slope instability in the buildings and structures adjacent the site.

Other Issues

The basement development beneath this site would only be considered likely to affect the drainage system of the site itself. However, drainage and sewerage records for the surrounding buildings will need to be referenced, if available, or perhaps surveyed to confirm that the site does not share a communal drainage system that runs beneath the site.

The flow of surface water within the surrounding area, from south-west to north-east, should not be significantly changed by the proposed basement on this site.

As previously described, 'perched' water was recorded within the base of the made ground on the underlying practically impervious London Clay at about 3.50m below ground level. The proposed basement depth is likely to coincide with this 'perched' water level. Displacement of 'perched' water may therefore take place by its exclusion from beneath the area (18m by 5m) of the proposed basement after it has been constructed, but this is likely to be nominal. Consequently although there may be a barely discernible rise in the level at which this 'perched' water currently stands (circa 47.3mOD) adjacent to the site, it should not impact the adjacent lower level resident's garages, or the lower ground floor of No.39, which stand at about 48.6mOD.

The orientation of the site/proposed basement, north-west to south-east, would be perpendicular to the likely direction of near surface groundwater flow on this north-eastward sloping ground. As the proposed 4.00m deep basement extension does not appear to extend below the groundwater level (>8.45m) beneath this elevated site the existing drainage path should not be impacted.

SOIL GAS MONITORING RESULTS

Three return visits to monitor gas levels at this site were made on 20th December 2018 and on 4th and 17th January 2019, to record the concentrations of landfill type gases (methane, carbon dioxide, oxygen) in the standpipe installed within WS 1. The results are presented to the rear of the exploratory hole records. The recorded concentrations of methane were all <0.1%. The recorded carbon dioxide levels were 0.2% and 0.3%. Oxygen concentrations were comparable to atmospheric conditions. The in-situ measurement confirmed gas emission rates with a recorded flow rate of <0.1l/hr.

Assuming a positive flow rate of 0.1l/hr, the results give a Gas Screening Value (GSV) of 0.0003l/hr. This GSV falls within Characteristic Situation 1 as defined by BS8485:2015 'Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings', and so no special precautions are required to protect the proposed development from the ingress of soil gases.

GROUND ENGINEERING LIMITED

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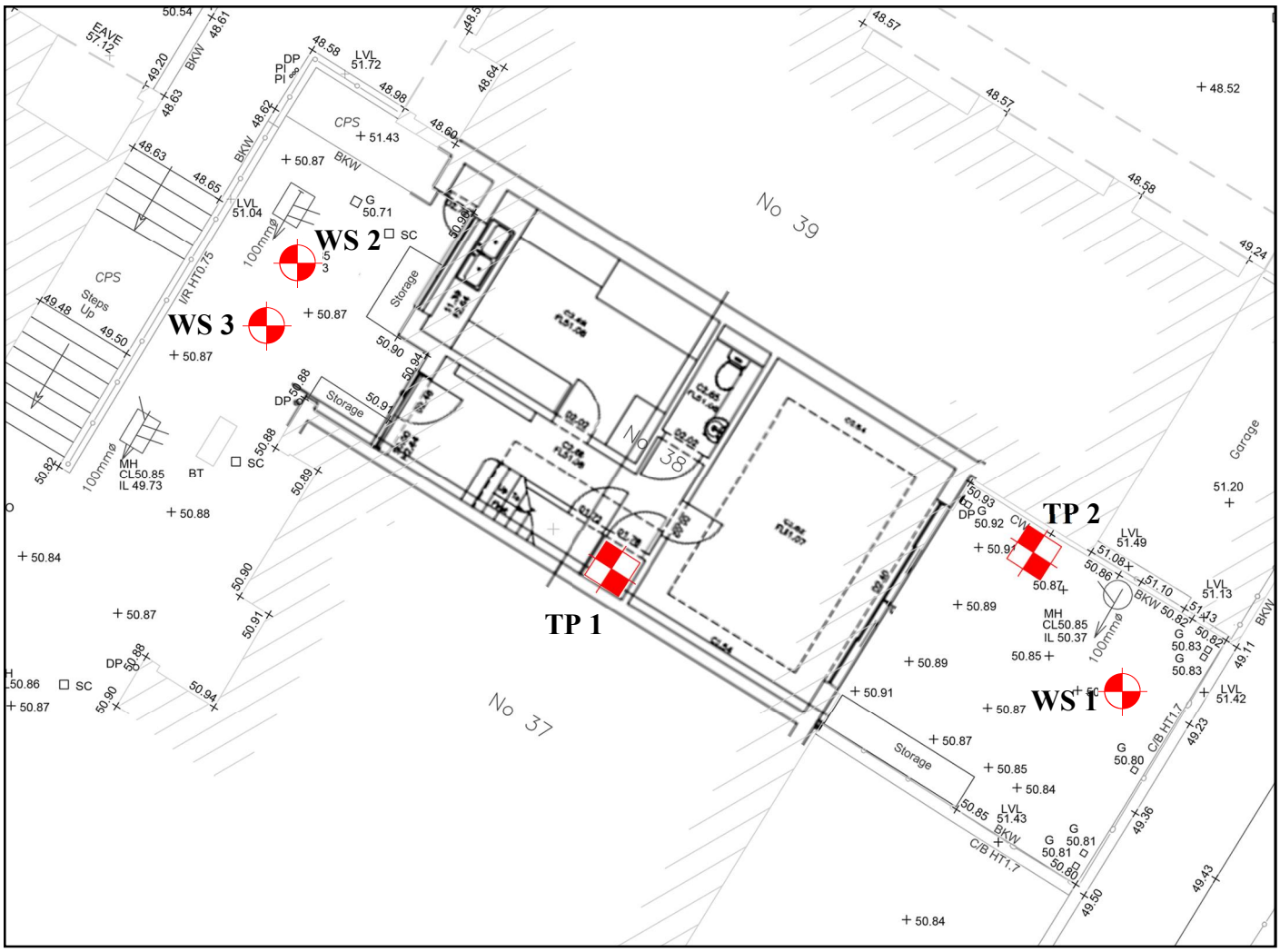
Exploratory Hole Location Plan

Based on a plans provided by the client.



Key

Foundation Inspection Pit

Window Sample Borehole

Not to Scale

Project : 38 Meadowbank, London NW3 **Client : Owner at the time of writing**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C14648**

GROUND ENGINEERING LIMITED

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www.groundengineering.co.uk

Site: 38 MEADOWBANK, LONDON NW3

WINDOW SAMPLE
WS1

Date: 12/12/18

Hole Size: 87mm dia to 2.00m
67mm dia to 6.00m
50mm dia to 8.45m

Ground Level: 50.84m. O.D.

Samples and in-situ Tests			(Date) Water	Inst.	Description of Strata	Legend	Depth m	O.D. Level m
Depth m	Type	Result						
					MADE GROUND - CONCRETE paving slab.		0.04	50.80
					MADE GROUND - Lean mix CONCRETE.		0.20	50.64
					MADE GROUND - Grey silty GRAVEL AND COBBLES of concrete.		0.30	50.54
0.40	D1				MADE GROUND - Brown, clayey SAND AND GRAVEL with some cobbles of concrete and brick. Gravel of brick, flint, coal, concrete, ash, metal and a single fragment of amosite asbestos board at 0.80m depth.			
0.50-0.80	B1							
0.80	D2							
0.80	ASB1							
1.20	D3						1.20	49.64
1.20-2.00	U1				MADE GROUND - Soft, brown, slightly sandy, slightly gravelly, silty CLAY with occasional cobbles of brick. Gravel of brick, flint, chalk, clinker, asphalt and ash.			
1.35-1.65	S	N3						
2.00	D4							
2.00-3.00	U2							
2.15-2.45	S	N4	2.00					
3.00	D5							
3.00-4.00	U3							
3.15-3.45	S	N4	2.00					
3.46	W1		▼s				3.50	47.34
			▼s		Firm, brown, orange brown and grey mottled, silty CLAY. (WEATHERED LONDON CLAY)			
4.00	D6						4.00	46.84
4.00-5.00	U4				Firm, becoming stiff, closely fissured, brown and orange brown mottled CLAY with blue grey stained fissure planes and rare selenite crystals.			
4.15-4.45	S	N9	2.00					
5.00-6.00	U5			BENEATH INSTALLATION				
				BENEATH INSTALLATION				
6.00	D7			BENEATH INSTALLATION				
6.00-7.00	U6							
6.15-6.45	S	N16	2.00	BENEATH INSTALLATION	(WEATHERED LONDON CLAY)			
7.00-8.00	U7			BENEATH INSTALLATION				
				BENEATH INSTALLATION				
				BENEATH INSTALLATION				
8.00	D8							
8.15-8.45	S	N20	2.00	BENEATH INSTALLATION			8.45	42.39
					Hole completed at 8.45m depth			

REMARKS
1. Starter pit excavated from 0.00m to 1.20m depth
2. No live roots observed
3. Borehole cased to 2.00m depth
4. Gas monitoring standpipe installed to 5.00m depth
5. ASB = Sample of suspected asbestos containing material

Project No 14648

Scale 1:50

Page 1/1

KEY
D - Disturbed Sample
B - Bulk Sample
U - Undisturbed Sample
W - Water Sample
▼ Water Strike
▼c Depth to Water on completion
J - Jar Sample
M - Mackintosh Probe
V - Vane Shear Test Cohesion ( ) kPa
P( ) - Hand Penetrometer Cohesion ( ) kPa
▼s Standpipe Level

Groundwater Strikes

No	Depth m Struck	Rose to	Rate	Cased	Sealed

Groundwater Observations

Date	Depth m Hole	Casing	Water
12/12/18	8.45	2.00	dry
20/12/18	5.00	1.00	3.46
04/01/19	5.00	1.00	3.63
17/01/19	5.00	1.00	3.46

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Site: **38 MEADOWBANK, LONDON NW3**

WINDOW SAMPLE WS2

Date: 13/12/18

Hole Size: 87mm dia to 1.70m
50mm dia to 1.93m

Ground Level: 50.87m. O.D.

Samples and in-situ Tests			(Date) Water	Description of Strata	Legend	Depth m	O.D. Level m
Depth m	Type	Result					
				MADE GROUND - CONCRETE paving slab.		0.04	50.83
				MADE GROUND - Lean mix CONCRETE.		0.10	50.77
0.40	D1			MADE GROUND - CONCRETE.		0.20	50.67
0.50-0.80	B1			MADE GROUND - Dense, brown, silty, sandy GRAVEL AND COBBLES of brick, concrete and flint.			
1.20	D2						
1.20-1.70	U1						
1.35-1.65	S	N40					
						1.70	49.17
1.85-1.93	S	100*		MADE GROUND - Very dense, weakly cemented, light brown, silty SAND AND GRAVEL. Gravel of flint and concrete.		1.93	48.94
				Hole abandoned at 1.93m depth			

REMARKS
1. Starter pit excavated from 0.00m to 1.20m depth
2. Unable to advance sampler below 1.70m depth, hole abandoned after SPT at 1.93m depth and relocated to position WS3

Project No 14648

Scale 1:50

Page 1/1

KEY
D - Disturbed Sample
B - Bulk Sample
U - Undisturbed Sample
W - Water Sample
▽ Water Strike
▼c Depth to Water on completion
J - Jar Sample
M - Mackintosh Probe
V - Vane Shear Test Cohesion ( ) kPa
P( ) - Hand Penetrometer Cohesion ( ) kPa
▼s Standpipe Level

Groundwater Strikes						Groundwater Observations			
		Depth m					Depth m		
No	Struck	Rose to	Rate	Cased	Sealed	Date	Hole	Casing	Water
						13/12/18	1.93		dry

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Site: 38 MEADOWBANK, LONDON NW3

WINDOW SAMPLE
WS3

Date: 13/12/18

Hole Size: 87mm dia to 1.20m
50mm dia to 1.80m

Ground Level: 50.87m. O.D.

Samples and in-situ Tests			(Date) Water	Description of Strata	Legend	Depth m	O.D. Level m
Depth m	Type	Result					
				MADE GROUND - CONCRETE paving slab.		0.04	50.83
				MADE GROUND - Lean mix CONCRETE.		0.10	50.77
0.50	D1			MADE GROUND - CONCRETE.		0.20	50.67
				MADE GROUND - Light brown and brown, silty, sandy GRAVEL AND COBBLES of brick, concrete, flint and slate.		0.90	49.97
1.10	D2			MADE GROUND - Very dense, weakly cemented, light brown, silty SAND AND GRAVEL. Gravel of flint and concrete.		1.20	49.67
1.35-1.65	C	N78		Penetration tests indicated very dense ground.			
1.65-1.80	C	90*		Hole abandoned at 1.80m depth		1.80	49.07

REMARKS
1. Starter pit excavated from 0.00m to 1.20m depth
2. Unable to advance sampler below 1.20m depth, hole abandoned after SPT driven on to 1.80m depth

Project No 14648

Scale 1:50

Page 1/1

KEY
D - Disturbed Sample
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▽ Water Strike
▽c Depth to Water on completion
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V - Vane Shear Test Cohesion ( ) kPa
P( ) - Hand Penetrometer Cohesion ( ) kPa
▽s Standpipe Level

Groundwater Strikes						Groundwater Observations			
	Depth m						Depth m		
No	Struck	Rose to	Rate	Cased	Sealed	Date	Hole	Casing	Water
						13/12/18	1.20		dry

Borehole Number	Depth (m)	Casing Depth (m)	Depth to Water (m)	Type of Test *	Seating Drive Blows/ Penetration (mm)	Test Drive: 300mm Blows for each successive 75 mm Penetration				N Value	Extra-polated Value
WS1	1.20 - 1.65			S	3/150	1	1	0	1	3	
	2.00 - 2.45	2.00		S	1/150	1	1	1	1	4	
	3.00 - 3.45	2.00		S	4/150	1	1	1	1	4	
	4.00 - 4.45	2.00		S	3/150	2	2	2	3	9	
	6.00 - 6.45	2.00		S	6/150	3	4	4	5	16	
	8.00 - 8.45	2.00		S	7/150	5	4	5	6	20	
WS2	1.20 - 1.65			S	8/150	4	9	13	14	40	
	1.70 - 1.93			S	35/150	50	50/5				
WS3	1.20 - 1.65			C	46/150	25	20	16	17	78	
	1.65 - 1.80			C	90/150						

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* C denotes test using a solid cone
S denotes test using a split barrel sampler

Results of Standard/Cone Penetration Tests

14648

Table No

38 MEADOWBANK, LONDON NW3

GROUND ENGINEERING LIMITED

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Site: **38 MEADOWBANK, LONDON NW3**

TRIAL PIT TP1

Date: 12/12/18 to 13/12/18

Pit Size: 0.20m L x 0.20m W x 0.20m D.
Hole Size: 70mm dia to 0.65m
10mm dia to 1.00m

Ground Level: 51.08m. O.D.

Samples and in-situ Tests			(Date) Water	Description of Strata	Legend	Depth m	O.D. Level m
Depth m	Type	Result					
				MADE GROUND - Grey and dark grey matrix supported CONCRETE. Aggregate of flint. Voids <10% <3mm.		0.05	51.03
				MADE GROUND - Light grey matrix supported CONCRETE. Aggregate of flint. Re-bar at 0.06m 10mm diameter, 0.09m 20mm diameter. Voids <30mm <1%.		0.22	50.86
0.30-0.50	B1			MADE GROUND - Light grey CONCRETE. Lean mix.		0.30	50.78
0.35	D1			MADE GROUND - Brown and grey, silty, sandy GRAVEL. Gravel of flint, brick and concrete.		0.50	50.58
0.60	D2			MADE GROUND - Soft, brown, slightly sandy, slightly gravelly CLAY. Gravel of brick, concrete, slate and flint.		0.65	50.43
				MADE GROUND - CONCRETE 'blinding'.		0.80	50.28
				Drill penetrated 'soft' CLAY.		1.00	50.08
				Pit abandoned at 1.00m depth			

KEY

- D - Disturbed Sample
- B - Bulk Sample
- U - Undisturbed Sample
- R - Root Sample
- W - Water Sample
- ES - Environmental Sample
- ▽ Water Strike
- ▼ Water Rise
- ▼c Level on completion
- MP - Mackintosh Probe
- P( ) - Hand Penetrometer Cohesion ( ) kPa
- V - Vane Shear Test Cohesion ( ) kPa

REMARKS

1. Pit dry
2. Pit sides stable
3. Pit abandoned on concrete at 0.65m depth
4. 10mm diameter masonry drill used to penetrate concrete 'blinding'

Project No 14648

Scale 1:25

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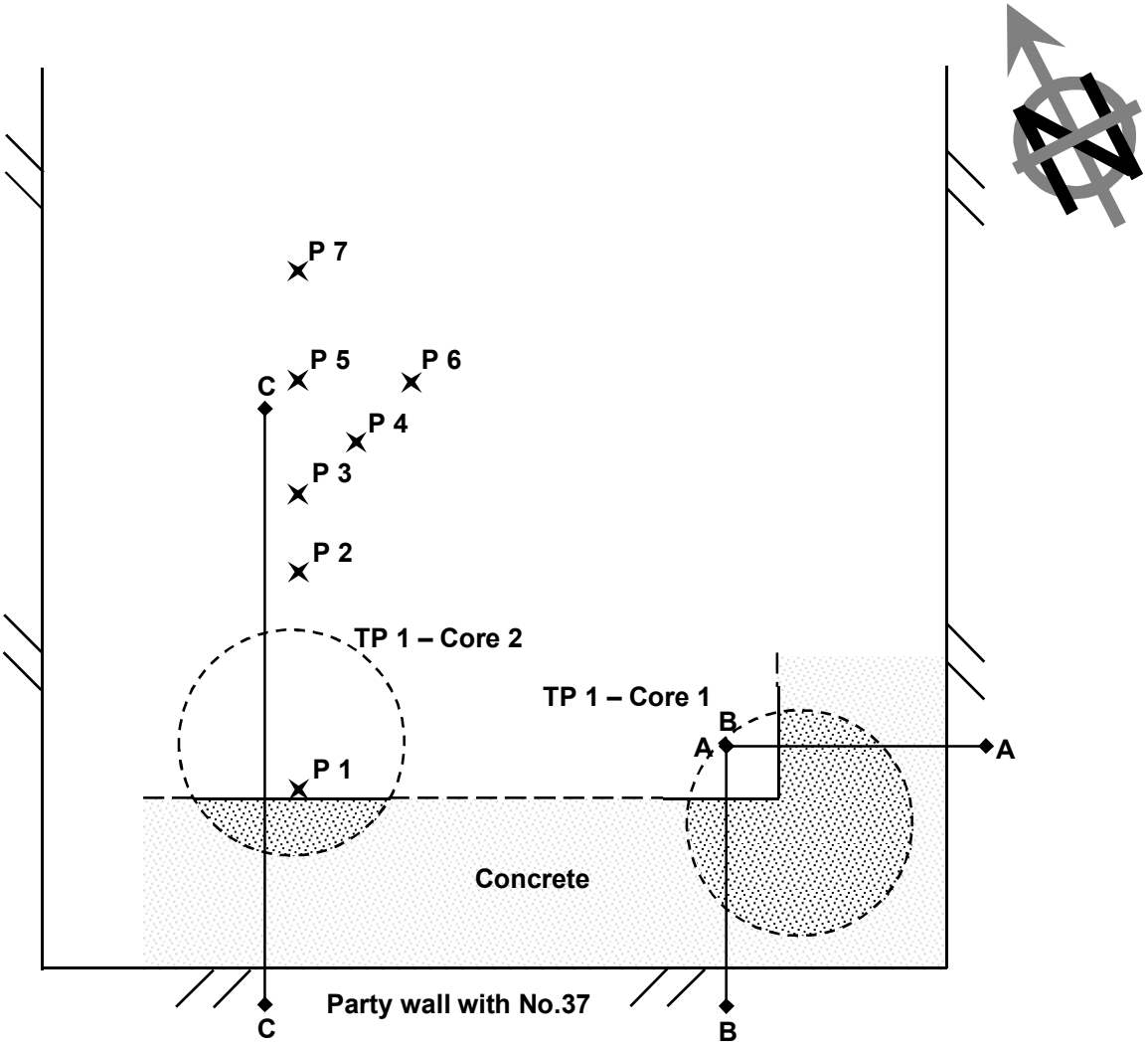
Trial Pit TP 1
Plan

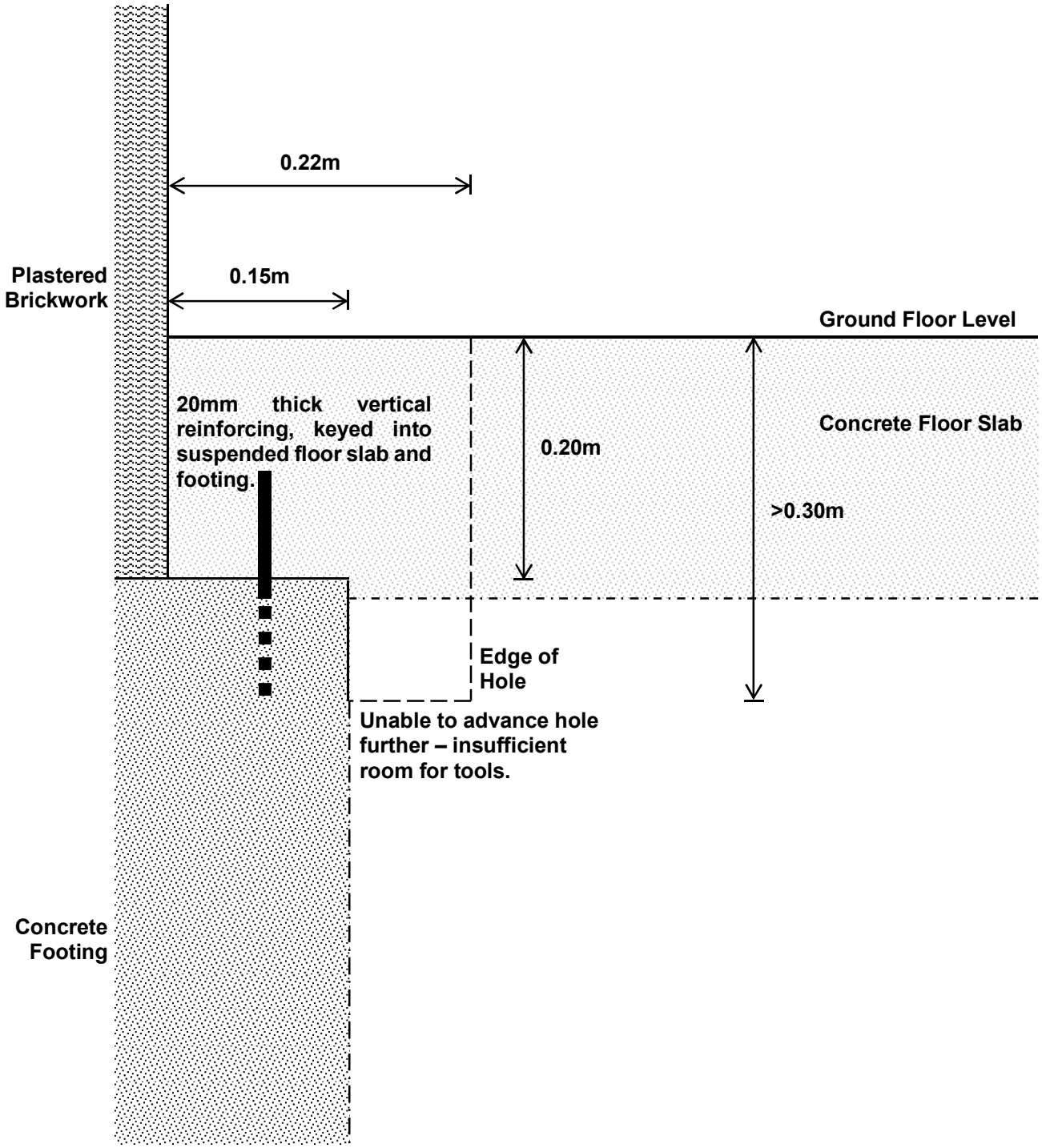


- P 1 Location probed using 15mm masonry diameter drill bit. Concrete overspill met at 0.65m and penetrated at 0.80m depth.
- P 2 Location probed using 15mm masonry diameter drill bit. No obstruction encountered beneath floor slab, up to 1.00m depth.
- P 3 Location probed using 15mm masonry diameter drill bit. Obstruction encountered beneath floor slab, at 0.70m depth.
- P 4 Location probed using 15mm masonry diameter drill bit. No obstruction encountered beneath floor slab, up to 1.00m depth.
- P 5 Location probed using 15mm masonry diameter drill bit. Probe abandoned at 0.16m depth after encountering reinforcing within floor slab.
- P 6 Location probed using 15mm masonry diameter drill bit. Probe abandoned at 0.16m depth after encountering reinforcing within floor slab.
- P 7 Location probed using 15mm masonry diameter drill bit. Probe abandoned at 0.16m depth after encountering reinforcing within floor slab.

Not to Scale

Project : 38 Meadowbank, London NW3 **Client : Owner at the time of writing**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C14648**

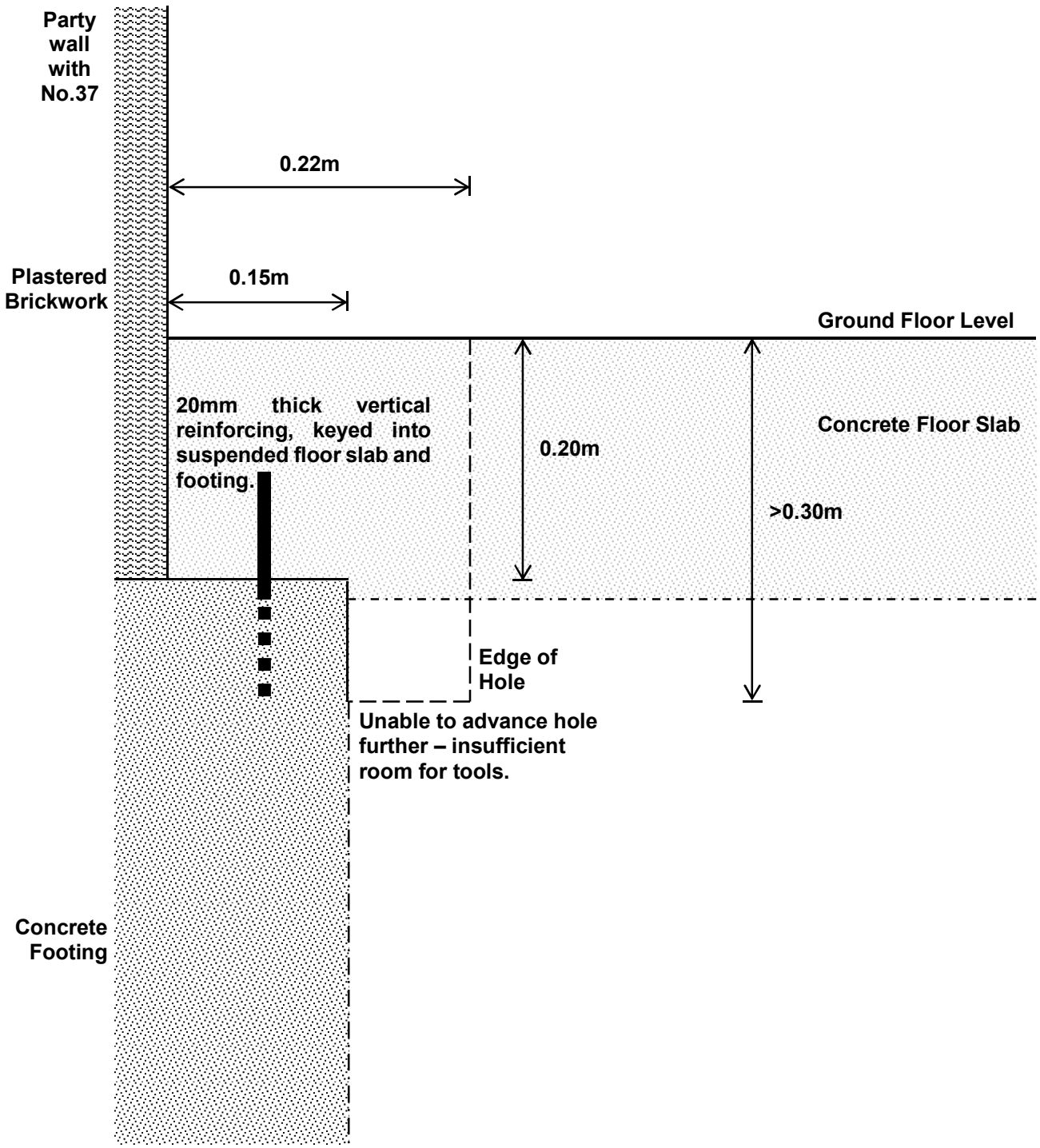
Trial Pit TP 1 – Core 1
Cross Section A-A



Not to Scale

Project : 38 Meadowbank, London NW3 **Client : Owner at the time of writing**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C14648**

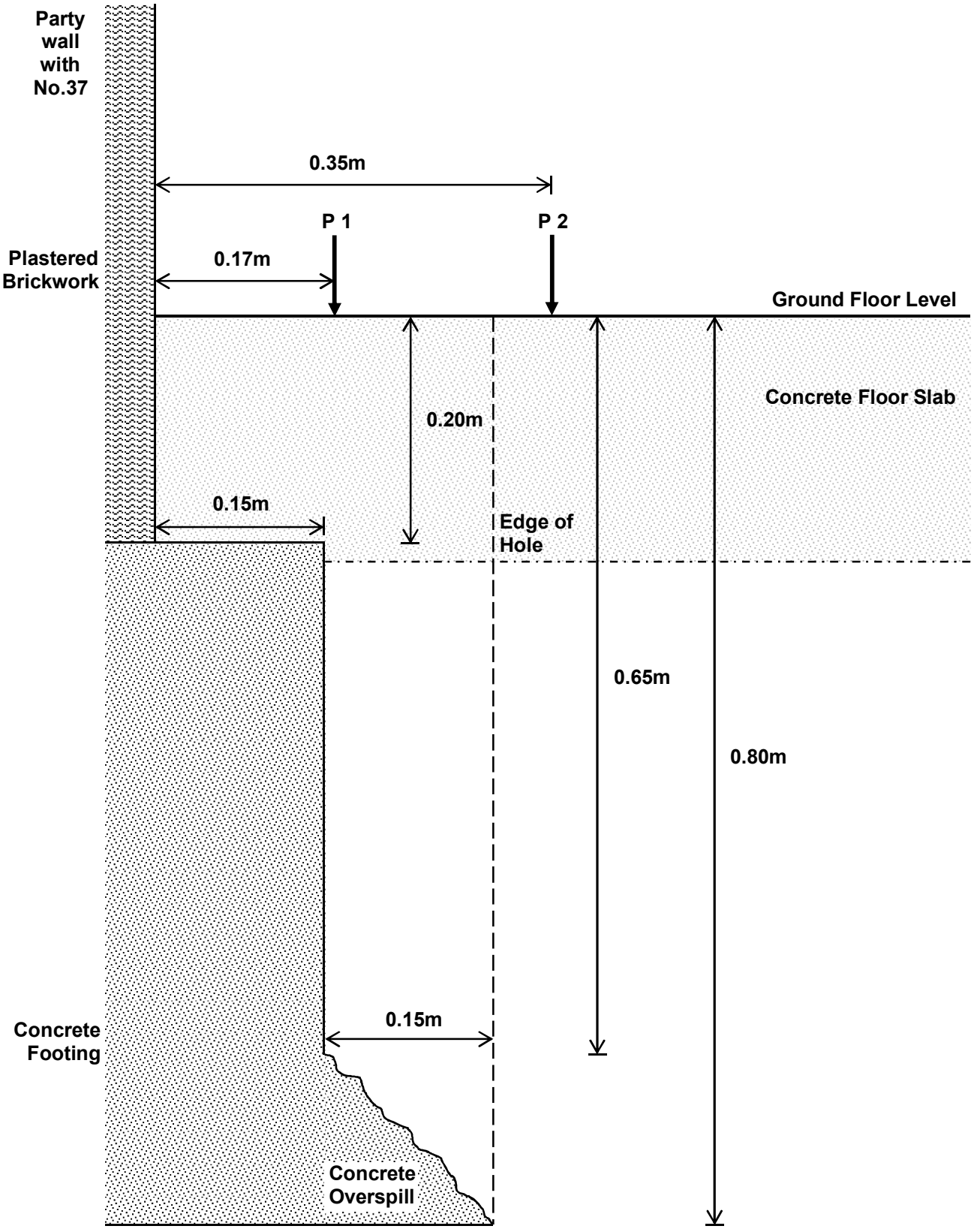
Trial Pit TP 1 – Core 1
Cross Section B-B



Not to Scale

Project : 38 Meadowbank, London NW3 **Client : Owner at the time of writing**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C14648**

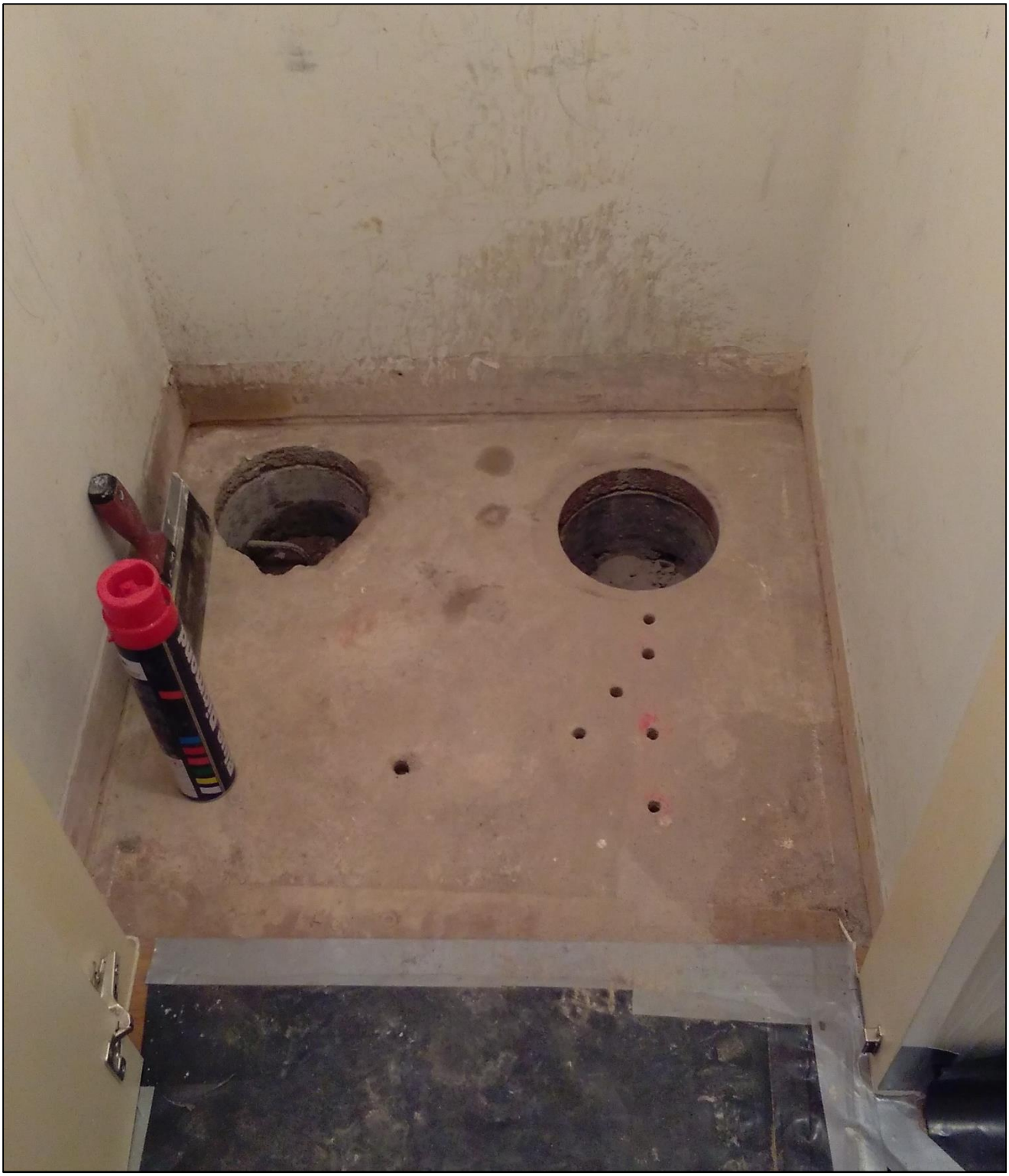
Trial Pit TP 1 – Core 2
Cross Section C-C



Not to Scale

Project : 38 Meadowbank, London NW3 **Client : Owner at the time of writing**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C14648**

Trial Pit TP 1
Photograph



Project : 38 Meadowbank, London NW3 **Client : Owner at the time of writing**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C14648**

Trial Pit TP 1 – Core 1
Photograph

Project : 38 Meadowbank, London NW3 **Client : Owner at the time of writing**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C14648**

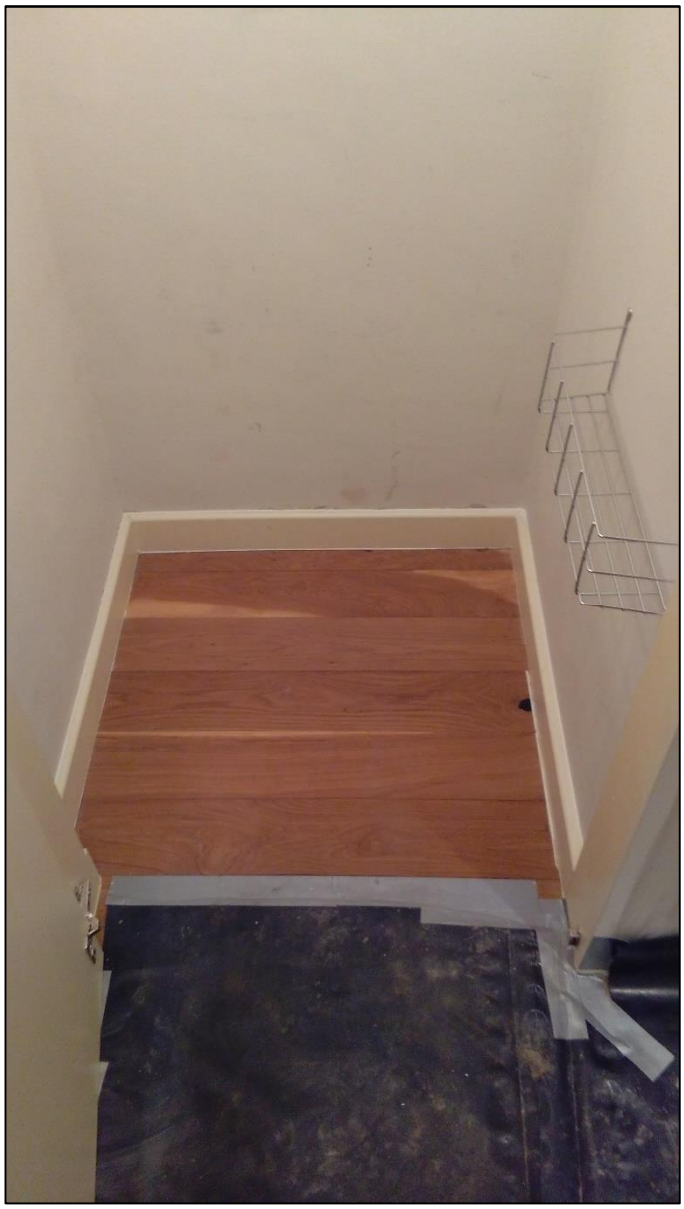
Trial Pit TP 1 – Core 1
Photograph

Project : 38 Meadowbank, London NW3 **Client : Owner at the time of writing**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C14648**

Trial Pit TP 1 – Core 2
Photograph

Project : 38 Meadowbank, London NW3 **Client : Owner at the time of writing**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C14648**

Trial Pit TP 1
Reinstatement Photographs



Project : 38 Meadowbank, London NW3 **Client : Owner at the time of writing**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C14648**

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Site: 38 MEADOWBANK, LONDON NW3

TRIAL PIT
TP2

Date: 12/12/18 to 13/12/18

Pit Size: 1.10m L x 0.60m W x 2.50m D.

Ground Level: 50.90m. O.D.

Samples and in-situ Tests			(Date) Water	Description of Strata	Legend	Depth m	O.D. Level m
Depth m	Type	Result					
				MADE GROUND - CONCRETE paving slab.		0.05	50.85
				MADE GROUND - Lean mix CONCRETE.		0.15	50.75
0.30-0.60	B1			MADE GROUND - Brown and orange brown, slightly clayey SAND AND GRAVEL with some cobbles of brick and concrete. Gravel of brick, flint, concrete, ash and mortar.			
0.30	D1						
0.60	D2						
0.70-1.00	B2						
0.80	D3						
1.10	D4						
						1.20	49.70
1.30-1.70	B3			MADE GROUND - Soft, brown, grey and dark grey mottled, slightly sandy, slightly gravelly, silty CLAY with occasional cobbles of brick. Gravel of brick, flint, concrete, mortar, ash and slate.			
1.40	D5						
1.70	D6						
1.80-2.10	B4						
2.00	D7						
				...Becoming gravelly below 2.30m depth.			
2.30-2.50	B5						
2.30	D8						
2.50	D9					2.50	48.40
				Pit abandoned at 2.50m depth			

KEY

- D - Disturbed Sample
- B - Bulk Sample
- U - Undisturbed Sample
- R - Root Sample
- W - Water Sample
- ES - Environmental Sample
- ▽ Water Strike
- ▼ Water Rise
- ▼c Level on completion
- MP - Mackintosh Probe
- P( ) - Hand Penetrometer Cohesion ( ) kPa
- V - Vane Shear Test Cohesion ( ) kPa

REMARKS

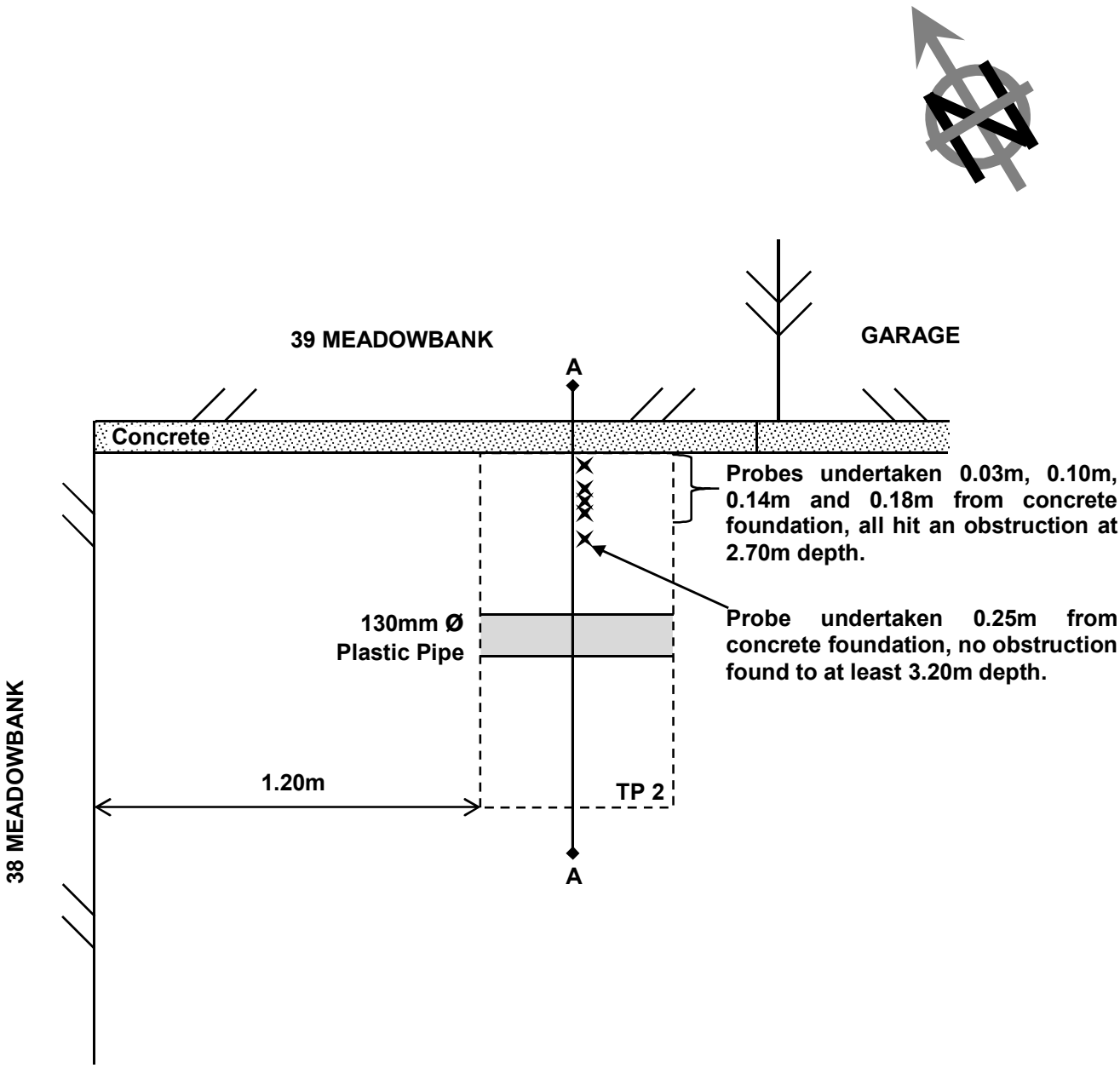
1. No live roots observed
2. Pit dry
3. Pit sides unstable
4. Probing from base of pit indicated adjacent footing at 2.70m depth, with a projection of between 0.18m and 0.25m from No.39

Project No 14648

Scale 1:25

Page 1/1

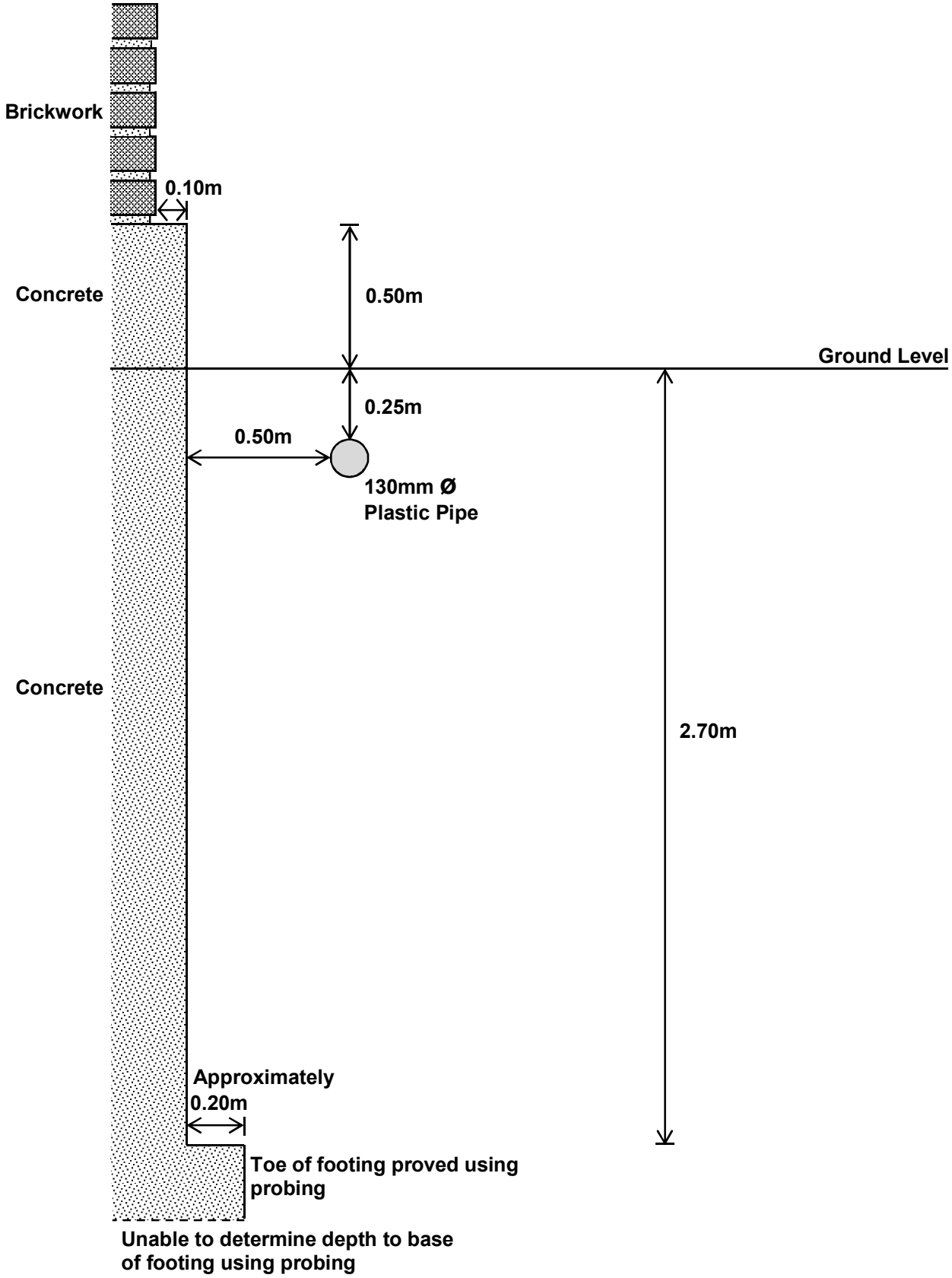
Trial Pit TP 2
Plan



Not to Scale

Project : 38 Meadowbank, London NW3 **Client : Owner at the time of writing**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C14648**

Trial Pit TP 2
Cross Section A-A



Not to Scale

Project : 38 Meadowbank, London NW3 **Client : Owner at the time of writing**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C14626**

Trial Pit TP 2
Photograph

Project : 38 Meadowbank, London NW3 **Client : Owner at the time of writing**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C14648**

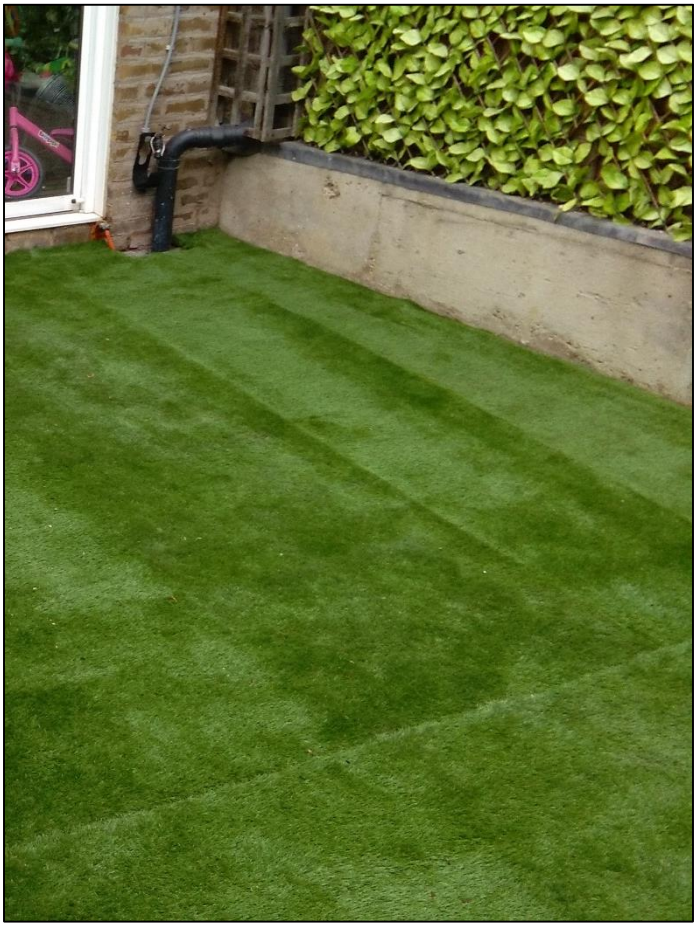
Trial Pit TP 2
Photographs

Project : 38 Meadowbank, London NW3 **Client : Owner at the time of writing**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C14648**

Trial Pit TP 2
Reinstatement Photograph

Project : 38 Meadowbank, London NW3 **Client : Owner at the time of writing**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C14648**

Trial Pit TP 2
Reinstatement Photographs



Project : 38 Meadowbank, London NW3 **Client : Owner at the time of writing**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C14648**

Groundwater/Gas Monitoring Record

Site: 38 Meadowbrook, London NW3

Report Ref: C14648

Date	Borehole No.	Methane (% v/v)		Carbon Dioxide (% v/v)		Oxygen (% v/v)		Flow Rate (l/hr)	Atmosph. Pressure (mb)	Dp (mb)	Depth of Well (mbgl)	Depth to Ground Water (mbgl)	Comments
		Peak	Steady	Peak	Steady	Min.	Max.						
20/12/2018	WS 1	<0.1	<0.1	0.2	0.2	20.6	21.2	<0.1	1001	<1	5.00	3.46	
04/01/2019	WS 1	<0.1	<0.1	0.3	0.3	20.9	20.9	<0.1	1039	<1	5.00	3.63	
17/01/2018	WS 1	<0.1	<0.1	0.3	0.3	20.2	20.2	<0.1	1004	<1	5.00	3.46	

LABORATORY TEST RESULTS

CONTRACT 38 MEADOWBANK, LONDON NW3

Bore-hole	Sample	Depth m	Classification				Density		Triaxial Compression					Sulphates (SO_4)				Remarks
			Liquid Limit %	Plastic Limit %	Plasticity Index %	Moisture Content %	Bulk Mg/m^3	Dry Mg/m^3	Type	Principal Stress Difference kPa	Cell Pressure kPa	Shear Strength kPa	Angle of Shear Resistance degrees	Soil Total % Dry Wt.	Soil Aqueous Extract mg/l	Water mg/l	pH	
WS1	D3	1.20				19												
	D4	2.00				33												
	U2	2.60 - 3.00				17	1.79	1.53	QM	37 42 53	50 100 200	22	0					
	D5	3.00	66	22	44	30	1.85	1.44	Q	58	80	29	0					SOIL CLASSIFICATION = CH 20% retained on 425μm sieve
	W1	3.46														362	8.8	
	D6	4.00	70	26	44	29												SOIL CLASSIFICATION = CH/CV 0% retained on 425μm sieve
	U4	4.60 - 5.00				26	2.06	1.63	Q	134	100	67	0					
	U5	5.50 - 6.00				24	1.93	1.55	Q	214	120	107	0					
	D7	6.00	71	26	45	30												SOIL CLASSIFICATION = CV 0% retained on 425μm sieve
	U6	6.60 - 7.00				28	1.89	1.47	Q	210	140	105	0					

U - UNDISTURBED SAMPLE
D - DISTURBED SAMPLE
B - BULK SAMPLE
W - WATER SAMPLE

C.U. - CONSOLIDATED UNDRAINED
C.D. - CONSOLIDATED DRAINED
Q. - IMMEDIATE UNDRAINED
Q.M. - IMMEDIATE UNDRAINED MULTISTAGE

Aqueous Extract 2:1 Water:Soil

14648

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LABORATORY TEST RESULTS

CONTRACT 38 MEADOWBANK, LONDON NW3

Bore-hole	Sample	Depth m	Classification				Density		Triaxial Compression					Sulphates (SO_4)				Remarks
			Liquid Limit %	Plastic Limit %	Plasticity Index %	Moisture Content %	Bulk Mg/m^3	Dry Mg/m^3	Type	Principal Stress Difference kPa	Cell Pressure kPa	Shear Strength kPa	Angle of Shear Resistance degrees	Soil: Total % Dry Wt.	Soil: Aqueous Extract mg/l	Water mg/l	pH	
WS1	U7	7.50 - 8.00				29	1.94	1.50	Q	193	160	96	0					
	D8	8.00	74	28	46	32												SOIL CLASSIFICATION = CV 0% retained on 425μm sieve

U - UNDISTURBED SAMPLE
D - DISTURBED SAMPLE
B - BULK SAMPLE
W - WATER SAMPLE

C.U. - CONSOLIDATED UNDRAINED
C.D. - CONSOLIDATED DRAINED
Q. - IMMEDIATE UNDRAINED
Q.M. - IMMEDIATE UNDRAINED MULTISTAGE

Aqueous Extract 2:1 Water:Soil

14648

GROUND ENGINEERING LIMITED
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LABORATORY TEST RESULTS

CONTRACT 38 MEADOWBANK, LONDON NW3

Trial-pit	Sample	Depth m	Classification				Density		Triaxial Compression					Sulphates (SO_4)				Remarks
			Liquid Limit %	Plastic Limit %	Plasticity Index %	Moisture Content %	Bulk Mg/m^3	Dry Mg/m^3	Type	Principal Stress Difference kPa	Cell Pressure kPa	Shear Strength kPa	Angle of Shear Resistance degrees	Soil: Total % Dry Wt.	Soil: Aqueous Extract mg/l	Water mg/l	pH	
TP2	B1	0.30 - 0.60				16												
	B2	0.70 - 1.00				14												
	D4	1.10				20												
	B3	1.30 - 1.70	39	19	20	21												SOIL CLASSIFICATION = CI 75% retained on 425μm sieve
	B4	1.80 - 2.10				20												
	B5	2.30 - 2.50	37	19	18	19												SOIL CLASSIFICATION = CI 56% retained on 425μm sieve

U - UNDISTURBED SAMPLE
D - DISTURBED SAMPLE
B - BULK SAMPLE
W - WATER SAMPLE

C.U. - CONSOLIDATED UNDRAINED
C.D. - CONSOLIDATED DRAINED
Q. - IMMEDIATE UNDRAINED
Q.M. - IMMEDIATE UNDRAINED MULTISTAGE

Aqueous Extract 2:1 Water:Soil

14648

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Tel: 01733-566566
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GROUND ENGINEERING

Newark Road Peterborough

t:01733 566566

e: admin@groundengineering.co.uk

TEST CERTIFICATE

One-Dimensional Consolidation Properties

(Tested in accordance with BS1377 : Part 5 1990)

Client:	Ground Engineering Ltd	Certificate Number:	PL6526-1-9/731
Client Address:	Newark Road	Client Reference Number:	C14648
	Peterborough	Date Sampled:	Unknown
	Cambridgeshire	Date Received:	17.12.2019
Postcode:	PE1 5UA	Date Tested:	14.01.2019
Contact:	Steve Fleming	Sampling Certificate No:	N/A
Site Name:	38 Meadowbank	Certificate of Sampling:	N/A
Site Address:	London NW3	Sampled By:	Client

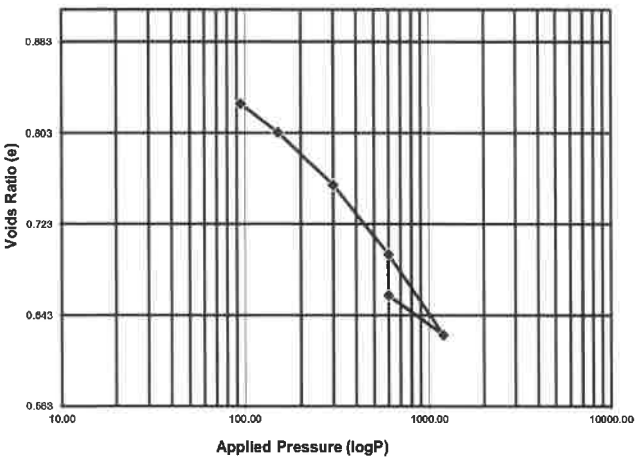
Test Details

Location:	WS1	
Sample Ref:	U5	
Sample Description:	Firm brown orange-brown grey slightly silty CLAY	
Particle Density (Mg/m^3):	2.74	Assumed
Mean Lab Temp. (°C):	22	
Variations from Standard:	None	
Lab Reference:	PL6526-1-9	
Depth:	5.40 m	

Specimen Details

	INITIAL	FINAL
Height (mm):	18.93	17.19
Bulk Density (Mg/m^3):	1.96	2.09
Moisture Content (%):	31	27
Dry Density (Mg/m^3):	1.50	1.65
Voids Ratio:	0.828	0.660
Degree of Saturation (%):	100.0	100.0
Diameter (mm):	50.00	N/A
Swelling Pressure (kPa):	95	N/A
Method of time fitting used:	Log Time	N/A

Voids Ratio against logarithm of Applied Pressure



Applied Pressure (kPa)	Coefficient of Compressibility m_v (m^2/MN)	Coefficient of Consolidation c_v (m^2/year)
95		
150	0.25	0.51
300	0.17	0.34
600	0.12	0.29
1200	0.07	0.28
600	0.04	---

Comments:

Approved Signatory: [x] M.Hartnup - Laboratory Manager
[ ] L.Petch - Team Leader

Signed:

for and on behalf of Ground Engineering Ltd

Date Reported: 28/01/2019

Registered in England Wales
Reg Number 6929574
Reg Office: Ground Engineering Ltd
Newark Rd
Peterborough PE1 5UA

GROUND ENGINEERING

Newark Road Peterborough

t:01733 566566

e: admin@groundengineering.co.uk

TEST CERTIFICATE

One-Dimensional Consolidation Properties

(Tested in accordance with BS1377 : Part 5 1990)

Client:	Ground Engineering Ltd	Certificate Number:	PL6526-1-13/731
Client Address:	Newark Road	Client Reference Number:	C14648
	Peterborough	Date Sampled:	Unknown
	Cambridgeshire	Date Received:	17.12.2019
Postcode:	PE1 5UA	Date Tested:	14.01.2019
Contact:	Steve Fleming	Sampling Certificate No:	N/A
Site Name:	38 Meadowbank	Certificate of Sampling:	N/A
Site Address:	London NW3	Sampled By:	Client

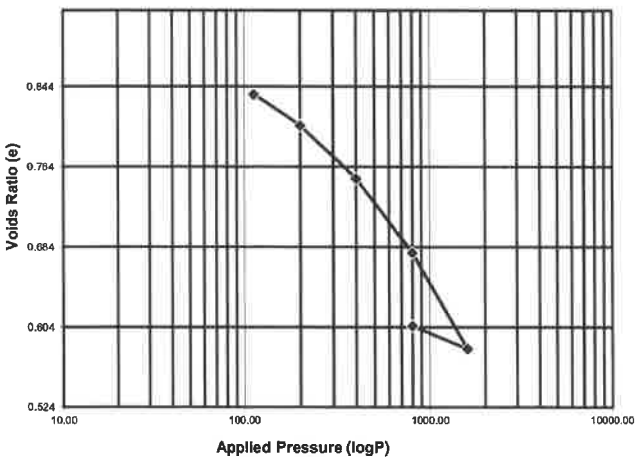
Test Details

Location:	WS1	
Sample Ref:	U7	
Sample Description:	Stiff brown orange-brown grey slightly silty CLAY	
Particle Density (Mg/m^3):	2.74	Assumed
Mean Lab Temp. (^oC):	22	
Variations from Standard:	None	
Lab Reference:	PL6526-1-13	
Depth:	7.00 m	

Specimen Details

	INITIAL	FINAL
Height (mm):	18.95	16.57
Bulk Density (Mg/m^3):	1.94	2.14
Moisture Content (%):	30	26
Dry Density (Mg/m^3):	1.49	1.71
Voids Ratio:	0.836	0.605
Degree of Saturation (%):	98.8	100.0
Diameter (mm):	50.00	N/A
Swelling Pressure (kPa):	113	N/A
Method of time fitting used:	Log Time	N/A

Voids Ratio against logarithm of Applied Pressure



Applied Pressure (kPa)	Coefficient of Compressibility m_v (m^2/MN)	Coefficient of Consolidation c_v (m^2/year)
113		
200	0.19	0.61
400	0.14	0.32
800	0.11	0.20
1600	0.07	0.17
800	0.02	---

Comments:

Approved Signatory: [x] M.Hartnup - Laboratory Manager
[ ] L.Petch - Team Leader

Signed:

for and on behalf of Ground Engineering Ltd

Date Reported: 28/01/2019

Registered in England Wales
Reg Number 6929574
Reg Office: Ground Engineering Ltd
Newark Rd
Peterborough PE1 5UA

UKAS TESTING
2183

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Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	18-39869-1
Initial Date of Issue:	24-Dec-2018
Client	Ground Engineering Limited
Client Address:	Newark Road Peterborough Cambridgeshire PE1 5UA
Contact(s):	Steve Fleming
Project	C14648 - 38 Meadowbank, London NW3

Quotation No.:		**Date Received:**	18-Dec-2018
Order No.:	C14648	**Date Instructed:**	18-Dec-2018
No. of Samples:	6		
Turnaround (Wkdays):	5	**Results Due:**	24-Dec-2018
Date Approved:	24-Dec-2018		

Approved By:

Details: Glynn Harvey, Laboratory Manager

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Results - Soil

Project: C14648 - 38 Meadowbank, London NW3

Client: Ground Engineering Limited					**Chemtest Job No.:**	18-39869	18-39869	18-39869	18-39869	18-39869
Quotation No.:					**Chemtest Sample ID.:**	744244	744245	744246	744247	744248	744249
					Client Sample ID.:	D2	U4	U6	U7	B3	B5
					Sample Location:	WS1	WS1	WS1	WS1	TP2	TP2
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.80	4.00	6.00	8.00	1.30	2.30
					Bottom Depth (m):					1.70	2.70
					Date Sampled:	12-Dec-2018	12-Dec-2018	12-Dec-2018	12-Dec-2018	12-Dec-2018	12-Dec-2018
					Asbestos Lab:	DURHAM					
Determinand	**Accred.**	**SOP**	**Units**	**LOD**							
pH	U	2010		N/A		9.4	8.2	8.5	8.1	9.2	9.4
Moisture	N	2030	%	0.020		16	19	19	20	16	13
Sulphate (Acid Soluble)	U	2430	%	0.010		0.28	0.032	2.0	0.69	0.16	0.17
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010		0.15	0.039	1.9	1.0	0.085	0.12
ACM Type	U	2192		N/A		-					
Asbestos Identification	U	2192	%	0.001		No Asbestos Detected					
Total Sulphur	U	2175	%	0.010		0.13	< 0.010	0.96	0.26	< 0.010	0.061

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Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
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.
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.

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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
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

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.com

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Chemtest
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Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	19-02792-1
Initial Date of Issue:	30-Jan-2019
Client	Ground Engineering Limited
Client Address:	Newark Road Peterborough Cambridgeshire PE1 5UA
Contact(s):	Steve Fleming
Project	C14648 38 Meadowbank, London NW3

Quotation No.:		**Date Received:**	28-Jan-2019
Order No.:	C14648	**Date Instructed:**	28-Jan-2019
No. of Samples:	1		
Turnaround (Wkdays):	3	**Results Due:**	30-Jan-2019
Date Approved:	30-Jan-2019		

Approved By:

Details: Martin Dyer, Laboratory Manager

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Bulk Identification Certificate

Client: Ground Engineering Limited

Site Address:

Date Sampled: 12-Dec-2018
Date Received: 28-Jan-2019

Your Ref.: C14648 38
Project: Meadowbank, London NW3
Job Number: 19-02792
No Samples:
Date Reported: 30-Jan-2019

Sample No.	Sample ID	Sample Ref.	Description	SOP	Accred.	Laboratory	Material	Result
761267	ASBI		WS1	2185	U	COVENTRY	Board	Amosite

The in-house procedure SOP2185 is in accordance with the requirements of Appendix 2 of the Analyst Guide (HSG 248).
The results relate only to items tested as supplied by the client.
Comments and interpretations are beyond the scope of UKAS accreditation.
Samples associated with asbestos in building surveys are retained for six months (HSG 264 refers)

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Test Methods

SOP	Title	Parameters included	Method summary
2185	Asbestos	Asbestos	Polarised light microscopy
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry

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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

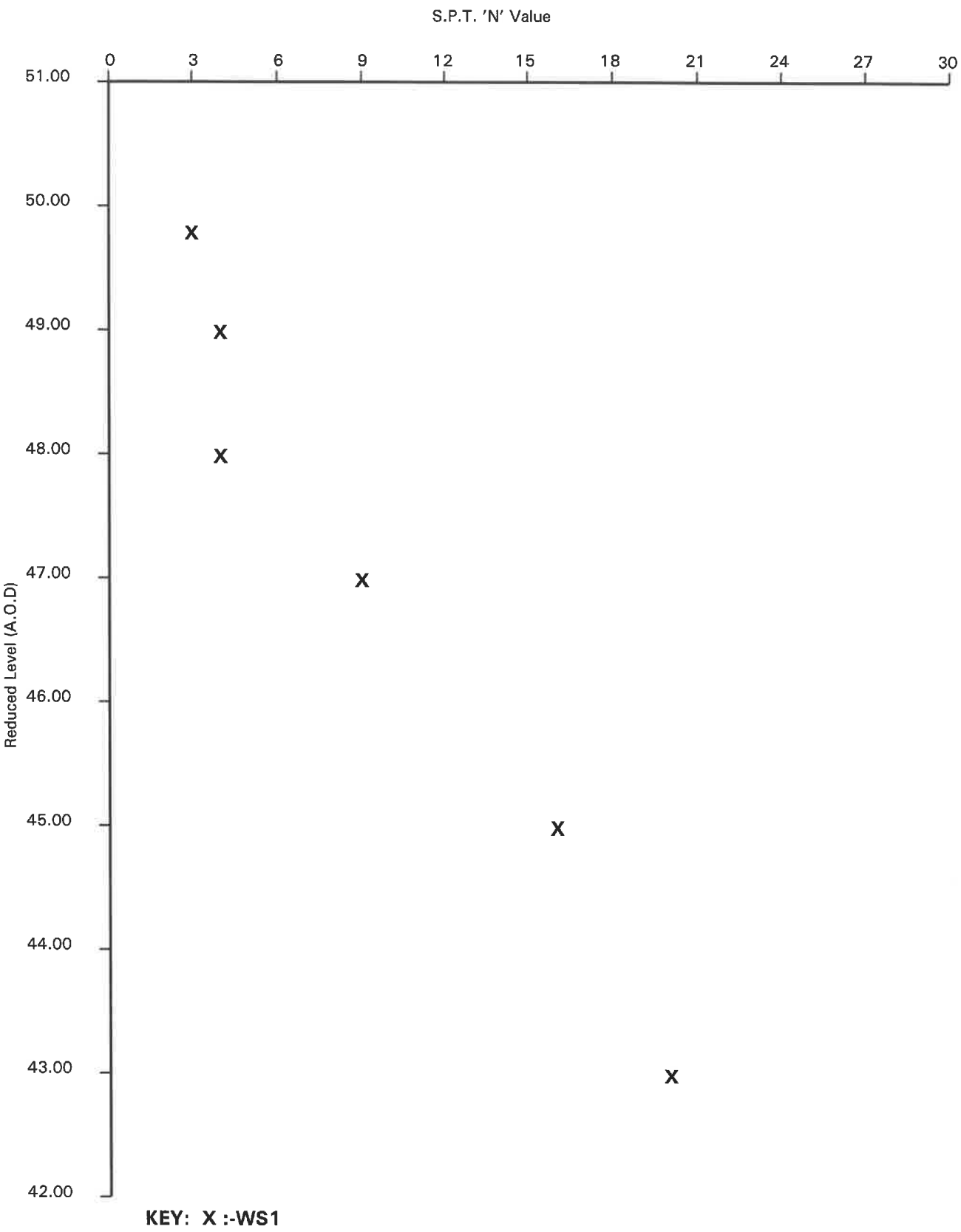
Sample Deviation Codes

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
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

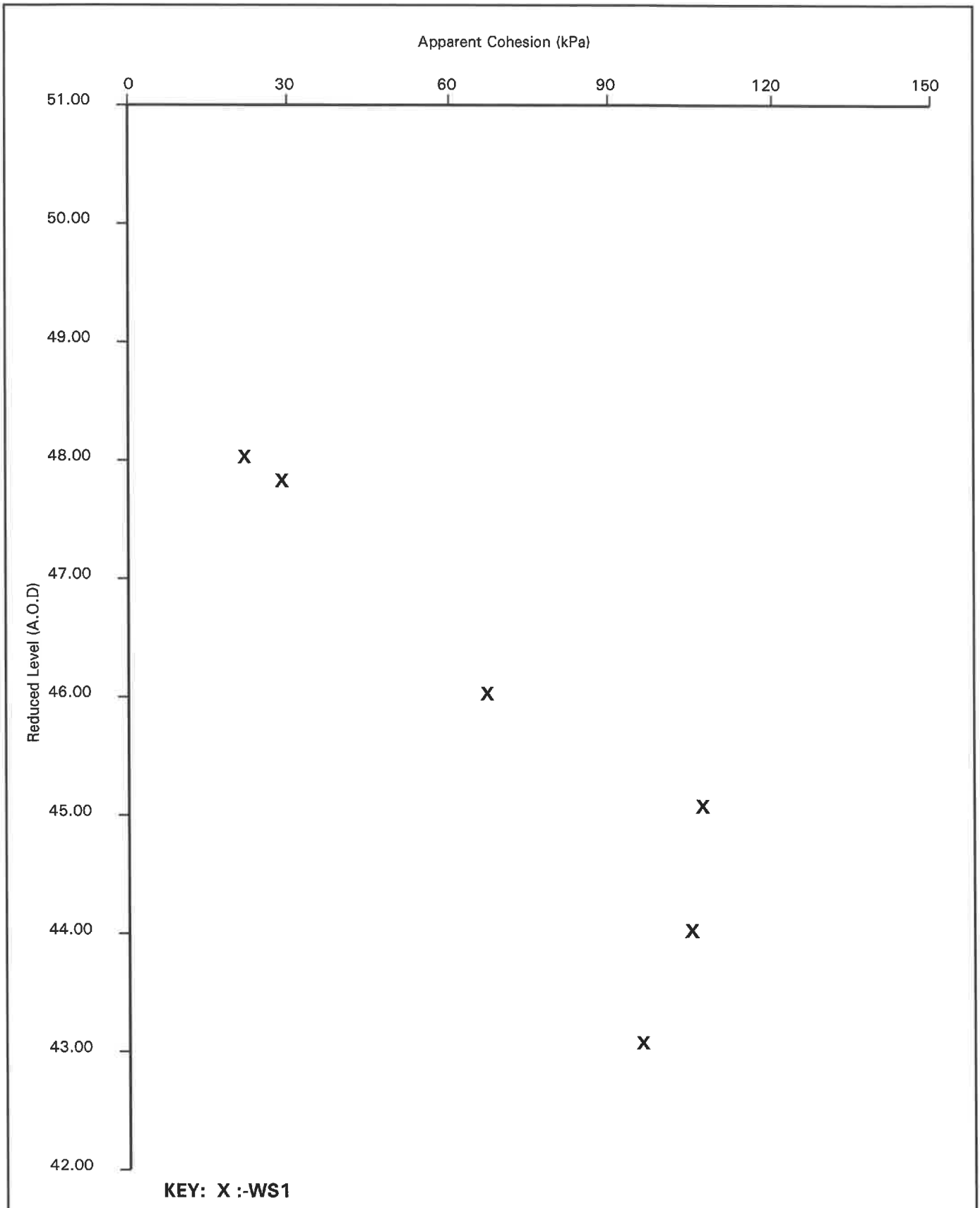
All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com



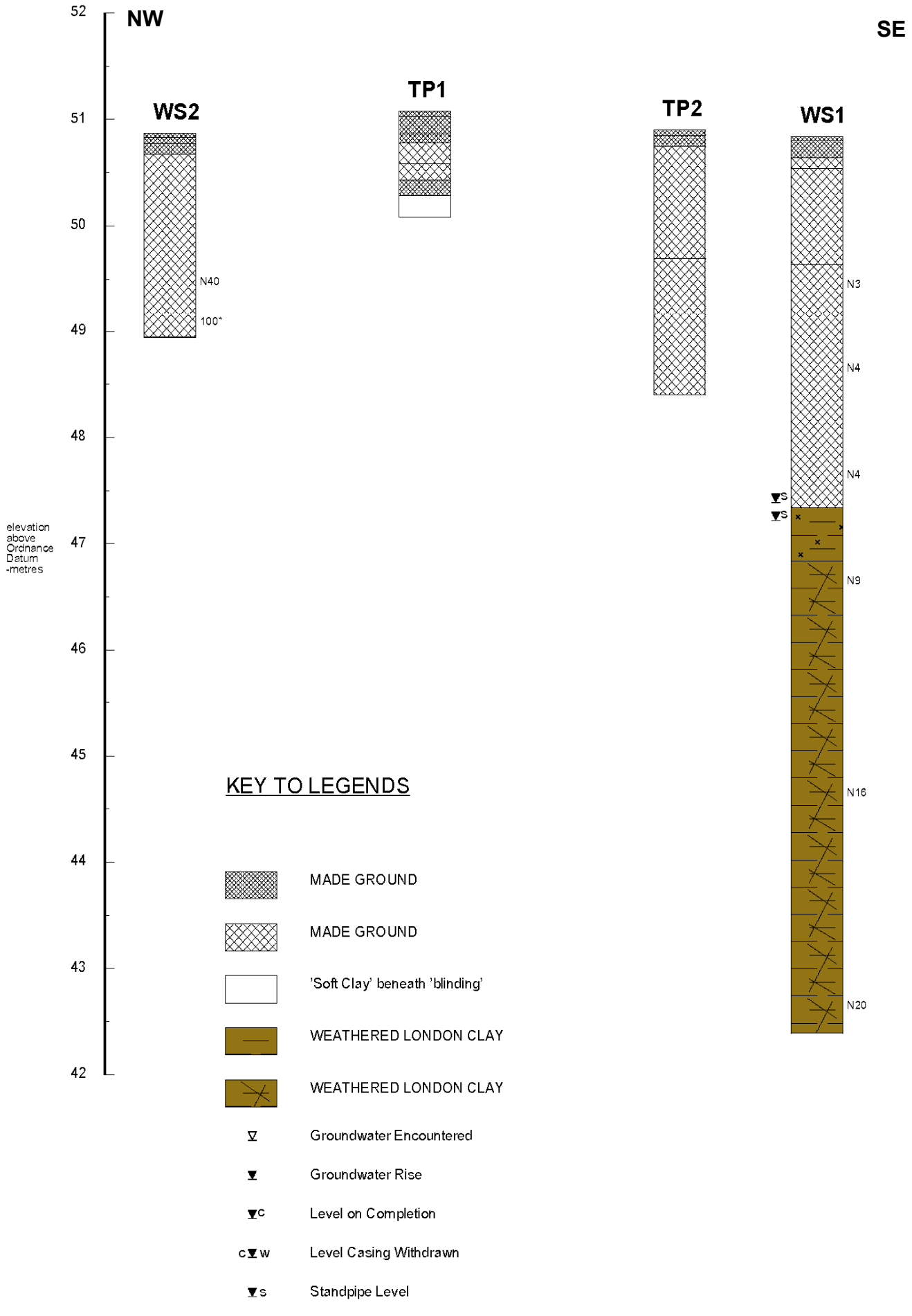
S.P.T. 'N' Value vs Reduced Level (A.O.D).

SITE	38 MEADOWBANK, LONDON NW3		
CLIENT	OWNER AT THE TIME OF WRITING		Contract Number 14648
GROUND ENGINEERING LIMITED	Tel: 01733-566566 www.groundengineering.co.uk	Date 30/01/19	Figure 1



Apparent Cohesion (kPa) vs Reduced Level (A.O.D).

SITE	38 MEADOWBANK, LONDON NW3	
CLIENT	OWNER AT THE TIME OF WRITING	Contract Number 14648
GROUND ENGINEERING LIMITED Tel: 01733-566566 www.groundengineering.co.uk	Date 30/01/19	Figure 2



SITE	38 MEADOWBANK, LONDON NW3		Contract No. 14648
CLIENT	OWNER AT THE TIME OF WRITING	Soil Profile	Vertical Scale 1:50
© GROUND ENGINEERING, NEWARK ROAD, PETERBOROUGH. Tel (01733) 566566		Date 30/01/19	Fig. No 3

APPENDIX 1

CLASSIFICATION OF AGGRESSIVE CHEMICAL ENVIRONMENT FOR BURIED CONCRETE

TABLE C2 – AGGRESSIVE CHEMICAL ENVIRONMENT FOR CONCRETE (ACEC) CLASSIFICATION FOR BROWNFIELD LOCATIONS[a]

Table C2 Aggressive Chemical Environment for Concrete (ACEC) classification for brownfield locations[a]

Sulfate and magnesium						Groundwater		ACEC
Design Sulfate Class for location	2:1 water/soil extract[b]		Groundwater		Total potential sulfate[c]	Static water	Mobile water	Class for location
1	2 (SO_4 mg/l)	3 (Mg mg/l)	4 (SO_4 mg/l)	5 (Mg mg/l)	6 (SO_4 %)	7 (pH)[d]	8 (pH)[d]	9
DS-1	< 500		< 400		< 0.24	≥ 2.5		AC-1s
							> 6.5[d]	AC-1
							5.5–6.5	AC-2z
							4.5–5.5	AC-3z
							2.5–4.5	AC-4z
DS-2	500–1500		400–1400		0.24–0.6	> 5.5		AC-1s
							> 6.5	AC-2
						2.5–5.5		AC-2s
							5.5–6.5	AC-3z
							4.5–5.5	AC-4z
							2.5–5.5	AC-5z
DS-3	1600–3000		1500–3000		0.7–1.2	> 5.5		AC-2s
							> 6.5	AC-3
						2.5–5.5		AC-3s
							5.5–6.5	AC-4
							2.5–5.5	AC-5
DS-4	3100–6000	≤ 1200	3100–6000	≤ 1000	1.3–2.4	> 5.5		AC-3s
							> 6.5	AC-4
						2.5–5.5		AC-4s
							2.5–6.5	AC-5
DS-4m	3100–6000	> 1200[e]	3100–6000	> 1000[e]	1.3–2.4	> 5.5		AC-3s
							> 6.5	AC-4m
						2.5–5.5		AC-4ms
							2.5–6.5	AC-5m
DS-5	> 6000	≤ 1200	> 6000	≤ 1000	> 2.4	> 5.5		AC-4s
						2.5–5.5	≥ 2.5	AC-5
DS-5m	> 6000	> 1200[e]	> 6000	> 1000[e]	> 2.4	> 5.5		AC-4ms
						2.5–5.5	≥ 2.5	AC-5m

Notes

a Brownfield locations are those sites, or parts of sites, that might contain chemical residues produced by or associated with industrial production (Section C5.1.3).

b The limits of Design Sulfate Classes based on 2:1 water/soil extracts have been lowered from previous Digests (Box C7).

c Applies only to locations where concrete will be exposed to sulfate ions (SO_4), which may result from the oxidation of sulfides such as pyrite, following ground disturbance (Appendix A1 and Box C8).

d An additional account is taken of hydrochloric and nitric acids by adjustment to sulfate content (Section C5.1.3).

e The limit on water-soluble magnesium does not apply to brackish groundwater (chloride content between 12 000 mg/l and 17 000 mg/l). This allows 'm' to be omitted from the relevant ACEC classification. Seawater (chloride content about 18 000 mg/l) and stronger brines are not covered by this table.

Explanation of suffix symbols to ACEC Class

- Suffix 's' indicates that the water has been classified as static.
- Concrete placed in ACEC Classes that include the suffix 'z' have primarily to resist acid conditions and may be made with any of the cements in Table D2 on page 42.
- Suffix 'm' relates to the higher levels of magnesium in Design Sulfate Classes 4 and 5.

Appendix D: Ground Movement Assessment

Titles

Job No.: 13065
Job Title: 38 Meadowbank
Sub-title: Excavation
Calculation Heading: Immediate Heave
Initials: NS
Checker: EMB
Date Saved:
Date Checked: 28 Nov 2019
Notes:
File Name: immediate heave due to excavation.pdd
File Path: J:\13000-13249\13065 - 38 Meadowbank, London\CALCS\GMA\Pdisp\250319\NS

History

Date	Time	By	Notes
18-Mar-2019	11:05	fatimad	New
18-Mar-2019	12:00	fatimad	
18-Mar-2019	13:39	fatimad	
18-Mar-2019	15:01	fatimad	
19-Mar-2019	11:22	fatimad	
20-Mar-2019	17:42	fatimad	
21-Mar-2019	10:35	fatimad	
21-Mar-2019	11:04	fatimad	
21-Mar-2019	17:10	fatimad	
25-Mar-2019	14:31	fatimad	
25-Mar-2019	15:15	fatimad	
25-Mar-2019	15:18	fatimad	
25-Mar-2019	17:36	fatimad	
26-Nov-2019	11:27	nicolas	
26-Nov-2019	16:03	nicolas	
26-Nov-2019	17:06	nicolas	
27-Nov-2019	16:36	nicolas	
27-Nov-2019	17:51	nicolas	
28-Nov-2019	11:42	nicolas	Open

Analysis Options

General
Global Poisson's ratio: 0.20
Maximum allowable ratio between values of E: 1.5
Horizontal rigid boundary level: 0.00 [m OD]
Displacements at load centroids: Yes
GSA piled raft data : No

Elastic
Elastic : Yes
Analysis: Mindlin
Calculate horizontal displacements: Yes
Stiffness for horizontal displacement calculations: Weighted average
Using legacy heave correction factor: No
Soil above horizontal load on horizontal plane dampens displacements below load: No
Soil above vertical load on horizontal plane dampens displacements below load: Yes

Consolidation
Consolidation : No

Soil ProfilesSoil Profile 1

Layer ref.	Name	Level at top [mOD]	Number of intermediate displacement levels	Youngs Modulus : Top [kN/m²]	Youngs Modulus : Btm. [kN/m²]	Poissons ratio	Non-linear curve
1	Made Ground	50.900	5	5000.0	5000.0	0.30000	None
2	London Clay 1	47.350	5	22000.	22000.	0.50000	None
3	London Clay 2	45.900	5	28000.	180000.	0.50000	None
4	London Clay 3	5.9000	5	180000.	180000.	0.50000	None

Non-linear Curve Coordinates - Non-linear Curve 1

Point	Strain [%]	Factor

Soil ones

Zone	Name	X min [m]	X max [m]	Y min [m]	Y max [m]	Profile
1	SZ1	-50.000	50.000	-50.000	50.000	Soil Profile 1

Polygonal Load Data

Load ref.	Name	Position : Level [m]	Position : Polygon : Coords. [m]	Position : Polygon tolerance [%]	No. of Rectangles : Rect.	Value : Normal (local z) [kN/m²]
1	excavation	47.10000	(1,0) (12.5,0) (12.5,5) (1,5)	10.000	1	-70.000

Polygonal Loads Rectangles

No.	Centre : x [m]	Centre : y [m]	Angle of local x from global X [Degrees]	Width x [m]	Depth y [m]
Load 1 : excavation					
(Edge 1 optimal)					
1	6.75000	2.50000	0.0	11.500	5.0000

Displacement Lines

Name	X1 [m]	Y1 [m]	Z1 [m]	X2 [m]	Y2 [m]	Z2 [m]	Intervals [No.]	Calculate	Detailed Results
No 37/38 party wall	1.00000	0.00000	50.10000	10.20000	0.00000	50.10000	10	Yes	Yes
No 37 front wall	1.00000	0.00000	50.10000	1.00000	-12.00000	50.10000	10	Yes	Yes
No 37 rear wall	10.20000	0.00000	50.10000	10.20000	-12.00000	50.10000	10	Yes	Yes
N0 38/39 party wall	0.00000	5.00000	48.20000	12.50000	5.00000	48.20000	10	Yes	Yes
No 39 front wall	0.00000	5.00000	48.20000	0.00000	17.00000	48.20000	10	Yes	Yes
No 39 rear wall	12.50000	5.00000	48.20000	12.50000	17.00000	48.20000	10	Yes	Yes
No 36/37 party wall	1.00000	-5.50000	50.10000	15.50000	-5.50000	50.10000	10	Yes	Yes
TW sewer	-7.50000	-7.50000	47.55000	25.50000	-7.50000	47.55000	10	Yes	Yes
Sewer	-7.50000	-7.50000	47.55000	25.50000	-7.50000	47.55000	10	Yes	Yes
retaining wall	-1.50000	5.00000	48.00000	-2.80000	5.00000	48.00000	5	Yes	Yes

Displacement Grids

Name	Extrusion:	X1	Y1	Z1	X2	Y2	Z2	Intervals	Extrusion:	Extrusion: Calculate	Detailed

	Direction							Along Line [No.]	Distance [m]	Intervals Along [No.]		Results
Basement level	Global X	-50.00000	-50.00000	47.10000	-	50.00000	47.10000	10	100.00000	10	Yes	No
No 36 & 37 foundation levels	Global X	-50.00000	-50.00000	50.10000	-	50.00000	50.10000	10	100.00000	10	Yes	Yes
No 39 foundation level	Global X	-50.00000	-50.00000	48.20000	-	50.00000	48.20000	10	100.00000	10	Yes	Yes
Sewer invert level	Global X	-50.00000	-50.00000	47.55000	-	50.00000	47.55000	10	100.00000	10	Yes	Yes

Warnings

(1)The load at (6.750, 2.500, 47.100)m lies wide of all soil zones. Displacements at its centre have been requested. The first soil profile will be used.

Results : Immediate : Load Centres : Polygonal

Ref.	Name	x [m]	y [m]	z [mOD]	δx [mm]	δy [mm]	δz [mm]
1	excavation	6.75000	2.50000	47.10000	0.00000	0.00000	-6.62598

Results : Consolidation : Load Centres : Polygonal

None

Results : Total : Load Centres : Polygonal

None

Results : Immediate : Displacement Data : Lines

Ref.	Name	x [m]	y [m]	z [mOD]	δx [mm]	δy [mm]	δz [mm]
1	No 37/38 party wall	1.00000	0.00000	50.10000	-5.85016	-3.59857	-2.59603
1	No 37/38 party wall	1.92000	0.00000	50.10000	-5.33812	-4.16370	-3.24083
1	No 37/38 party wall	2.84000	0.00000	50.10000	-4.54641	-4.65460	-3.66714
1	No 37/38 party wall	3.76000	0.00000	50.10000	-3.57805	-5.03930	-3.99430
1	No 37/38 party wall	4.68000	0.00000	50.10000	-2.51565	-5.31317	-4.22420
1	No 37/38 party wall	5.60000	0.00000	50.10000	-1.40827	-5.48229	-4.36433
1	No 37/38 party wall	6.52000	0.00000	50.10000	-0.28244	-5.55336	-4.42268
1	No 37/38 party wall	7.44000	0.00000	50.10000	0.84655	-5.52977	-4.40335
1	No 37/38 party wall	8.36000	0.00000	50.10000	1.96554	-5.41035	-4.30493
1	No 37/38 party wall	9.28000	0.00000	50.10000	3.05486	-5.18980	-4.12103
1	No 37/38 party wall	10.20000	0.00000	50.10000	4.07829	-4.86094	-3.84313
2	No 37 front wall	1.00000	0.00000	50.10000	-5.85016	-3.59857	-2.59603
2	No 37 front wall	1.00000	-1.20000	50.10000	-5.03598	-4.44503	-1.88842
2	No 37 front wall	1.00000	-2.40000	50.10000	-4.22981	-4.74292	-1.39090
2	No 37 front wall	1.00000	-3.60000	50.10000	-3.52220	-4.71896	-1.00320
2	No 37 front wall	1.00000	-4.80000	50.10000	-2.93148	-4.53309	-0.71982
2	No 37 front wall	1.00000	-6.00000	50.10000	-2.44880	-4.27631	-0.51826
2	No 37 front wall	1.00000	-7.20000	50.10000	-2.05771	-3.99784	-0.37573
2	No 37 front wall	1.00000	-8.40000	50.10000	-1.74126	-3.72290	-0.27437
2	No 37 front wall	1.00000	-9.60000	50.10000	-1.48452	-3.46343	-0.20142
2	No 37 front wall	1.00000	-10.80000	50.10000	-1.27519	-3.22424	-0.14813
2	No 37 front wall	1.00000	-12.00000	50.10000	-1.10346	-3.00646	-0.10858
3	No 37 rear wall	10.20000	0.00000	50.10000	4.07829	-4.86094	-3.84313
3	No 37 rear wall	10.20000	-1.20000	50.10000	3.53091	-5.84750	-2.66209
3	No 37 rear wall	10.20000	-2.40000	50.10000	2.96613	-6.04234	-1.90241
3	No 37 rear wall	10.20000	-3.60000	50.10000	2.45497	-5.82771	-1.33167
3	No 37 rear wall	10.20000	-4.80000	50.10000	2.02287	-5.44441	-0.92909
3	No 37 rear wall	10.20000	-6.00000	50.10000	1.66994	-5.01291	-0.65234
3	No 37 rear wall	10.20000	-7.20000	50.10000	1.38623	-4.58975	-0.46278
3	No 37 rear wall	10.20000	-8.40000	50.10000	1.15935	-4.19873	-0.33188
3	No 37 rear wall	10.20000	-9.60000	50.10000	0.97773	-3.84747	-0.24016
3	No 37 rear wall	10.20000	-10.80000	50.10000	0.83166	-3.53607	-0.17474
3	No 37 rear wall	10.20000	-12.00000	50.10000	0.71340	-3.26147	-0.12721
4	N0 38/39 party wall	0.00000	5.00000	48.20000	-1.14322	0.53836	-1.92435
4	N0 38/39 party wall	1.25000	5.00000	48.20000	-1.22792	1.04024	-2.99510
4	N0 38/39 party wall	2.50000	5.00000	48.20000	-0.78388	1.42488	-3.76679
4	N0 38/39 party wall	3.75000	5.00000	48.20000	-0.44191	1.55165	-4.23951
4	N0 38/39 party wall	5.00000	5.00000	48.20000	-0.22642	1.58583	-4.52287
4	N0 38/39 party wall	6.25000	5.00000	48.20000	-0.06151	1.59334	-4.65010
4	N0 38/39 party wall	7.50000	5.00000	48.20000	0.09275	1.59272	-4.63619
4	N0 38/39 party wall	8.75000	5.00000	48.20000	0.26362	1.58225	-4.47946
4	N0 38/39 party wall	10.00000	5.00000	48.20000	0.49718	1.53729	-4.16161
4	N0 38/39 party wall	11.25000	5.00000	48.20000	0.87398	1.37537	-3.64400
4	N0 38/39 party wall	12.50000	5.00000	48.20000	1.26803	0.92664	-2.72043
5	No 39 front wall	0.00000	5.00000	48.20000	-1.14322	0.53836	-1.92435
5	No 39 front wall	0.00000	6.20000	48.20000	-0.85563	0.57857	-1.51111
5	No 39 front wall	0.00000	7.40000	48.20000	-0.71313	0.58356	-1.14498
5	No 39 front wall	0.00000	8.60000	48.20000	-0.64947	0.63217	-0.85173
5	No 39 front wall	0.00000	9.80000	48.20000	-0.60902	0.70104	-0.62811
5	No 39 front wall	0.00000	11.00000	48.20000	-0.57127	0.76484	-0.46239
5	No 39 front wall	0.00000	12.20000	48.20000	-0.53153	0.81211	-0.34111
5	No 39 front wall	0.00000	13.40000	48.20000	-0.49040	0.84087	-0.25245
5	No 39 front wall	0.00000	14.60000	48.20000	-0.44955	0.85349	-0.18722
5	No 39 front wall	0.00000	15.80000	48.20000	-0.41041	0.85355	-0.13872
5	No 39 front wall	0.00000	17.00000	48.20000	-0.37386	0.84449	-0.10223
6	No 39 rear wall	12.50000	5.00000	48.20000	1.26803	0.92664	-2.72043
6	No 39 rear wall	12.50000	6.20000	48.20000	0.82556	0.79488	-1.90019
6	No 39 rear wall	12.50000	7.40000	48.20000	0.64656	0.66578	-1.38944
6	No 39 rear wall	12.50000	8.60000	48.20000	0.57826	0.67120	-1.00921
6	No 39 rear wall	12.50000	9.80000	48.20000	0.54004	0.73100	-0.73017
6	No 39 rear wall	12.50000	11.00000	48.20000	0.50612	0.79539	-0.52905
6	No 39 rear wall	12.50000	12.20000	48.20000	0.47052	0.84435	-0.38519
6	No 39 rear wall	12.50000	13.40000	48.20000	0.43352	0.87362	-0.28206
6	No 39 rear wall	12.50000	14.60000	48.20000	0.39670	0.88540	-0.20747
6	No 39 rear wall	12.50000	15.80000	48.20000	0.36140	0.88367	-0.15282
6	No 39 rear wall	12.50000	17.00000	48.20000	0.32849	0.87231	-0.11221
7	No 36/37 party wall	1.00000	-5.50000	50.10000	-2.63779	-4.38807	-0.59385
7	No 36/37 party wall	2.45000	-5.50000	50.10000	-2.16313	-4.92600	-0.70118
7	No 36/37 party wall	3.90000	-5.50000	50.10000	-1.52827	-5.35442	-0.78737
7	No 36/37 party wall	5.35000	-5.50000	50.10000	-0.77878	-5.62602	-0.84203
7	No 36/37 party wall	6.80000	-5.50000	50.10000	0.02813	-5.71474	-0.85985
7	No 36/37 party wall	8.25000	-5.50000	50.10000	0.83299	-5.61298	-0.83940
7	No 36/37 party wall	9.70000	-5.50000	50.10000	1.57635	-5.32949	-0.78234
7	No 36/37 party wall	11.15000	-5.50000	50.10000	2.20141	-4.89176	-0.69431
7	No 36/37 party wall	12.60000	-5.50000	50.10000	2.66393	-4.34849	-0.58602
7	No 36/37 party wall	14.05000	-5.50000	50.10000	2.94703	-3.76286	-0.47188
7	No 36/37 party wall	15.50000	-5.50000	50.10000	3.06727	-3.19467	-0.36531
8	TW sewer	-7.50000	-7.50000	47.55000	-0.08959	-0.06121	-0.08432
8	TW sewer	-4.20000	-7.50000	47.55000	-0.04846	-0.03491	-0.16548
8	TW sewer	-0.90000	-7.50000	47.55000	-0.00340	0.02357	-0.28424
8	TW sewer	2.40000	-7.50000	47.55000	0.01803	0.09831	-0.41209
8	TW sewer	5.70000	-7.50000	47.55000	0.00705	0.14537	-0.48760
8	TW sewer	9.00000	-7.50000	47.55000	-0.01378	0.13414	-0.46979
8	TW sewer	12.30000	-7.50000	47.55000	-0.01436	0.07182	-0.36824
8	TW sewer	15.60000	-7.50000	47.55000	0.01854	-0.00126	-0.23748
8	TW sewer	18.90000	-7.50000	47.55000	0.06502	-0.04793	-0.13147
8	TW sewer	22.20000	-7.50000	47.55000	0.10046	-0.06457	-0.06356
8	TW sewer	25.50000	-7.50000	47.55000	0.11900	-0.06435	-0.02378
9	Sewer	-7.50000	-7.50000	47.55000	-0.08959	-0.06121	-0.08432
9	Sewer	-4.20000	-7.50000	47.55000	-0.04846	-0.03491	-0.16548
9	Sewer	-0.90000	-7.50000	47.55000	-0.00340	0.02357	-0.28424
9	Sewer	2.40000	-7.50000	47.55000	0.01803	0.09831	-0.41209
9	Sewer	5.70000	-7.50000	47.55000	0.00705	0.14537	-0.48760

Ref.	Name	x [m]	y [m]	z [mOD]	δx [mm]	δy [mm]	δz [mm]
9	Sewer	9.00000	-7.50000	47.55000	-0.01378	0.13414	-0.46979
9	Sewer	12.30000	-7.50000	47.55000	-0.01436	0.07182	-0.36824
9	Sewer	15.60000	-7.50000	47.55000	0.01854	-0.00126	-0.23748
9	Sewer	18.90000	-7.50000	47.55000	0.06502	-0.04793	-0.13147
9	Sewer	22.20000	-7.50000	47.55000	0.10046	-0.06457	-0.06356
9	Sewer	25.50000	-7.50000	47.55000	0.11900	-0.06435	-0.02378
10	retaining wall	-1.50000	5.00000	48.00000	-0.49678	0.14812	-1.22678
10	retaining wall	-1.76000	5.00000	48.00000	-0.48933	0.13995	-1.13579
10	retaining wall	-2.02000	5.00000	48.00000	-0.48671	0.13445	-1.05141
10	retaining wall	-2.28000	5.00000	48.00000	-0.48798	0.13089	-0.97320
10	retaining wall	-2.54000	5.00000	48.00000	-0.49233	0.12875	-0.90073
10	retaining wall	-2.80000	5.00000	48.00000	-0.49904	0.12759	-0.83364

Results : Consolidation : Displacement Data : Lines

None

Results : Total : Displacement Data : Lines

None

Results : Immediate : Displacement Data : Grids

Ref.	Name	x [m]	y [m]	z [mOD]	δx [mm]	δy [mm]	δz [mm]
1	Basement level	-50.00000	-50.00000	47.10000	0.00029	0.00027	0.01087
1	Basement level	-40.00000	-50.00000	47.10000	0.00038	0.00043	0.01304
1	Basement level	-30.00000	-50.00000	47.10000	0.00047	0.00068	0.01531
1	Basement level	-20.00000	-50.00000	47.10000	0.00052	0.00103	0.01743
1	Basement level	-10.00000	-50.00000	47.10000	0.00045	0.00142	0.01911
1	Basement level	0.00000	-50.00000	47.10000	0.00022	0.00172	0.02009
1	Basement level	10.00000	-50.00000	47.10000	-0.00011	0.00178	0.02023
1	Basement level	20.00000	-50.00000	47.10000	-0.00038	0.00155	0.01954
1	Basement level	30.00000	-50.00000	47.10000	-0.00051	0.00116	0.01808
1	Basement level	40.00000	-50.00000	47.10000	-0.00050	0.00079	0.01608
1	Basement level	50.00000	-50.00000	47.10000	-0.00041	0.00051	0.01383
1	Basement level	-50.00000	-40.00000	47.10000	0.00045	0.00034	0.01285
1	Basement level	-40.00000	-40.00000	47.10000	0.00065	0.00060	0.01568
1	Basement level	-30.00000	-40.00000	47.10000	0.00091	0.00106	0.01864
1	Basement level	-20.00000	-40.00000	47.10000	0.00113	0.00183	0.02131
1	Basement level	-10.00000	-40.00000	47.10000	0.00111	0.00289	0.02318
1	Basement level	0.00000	-40.00000	47.10000	0.00059	0.00383	0.02409
1	Basement level	10.00000	-40.00000	47.10000	-0.00030	0.00400	0.02421
1	Basement level	20.00000	-40.00000	47.10000	-0.00099	0.00326	0.02361
1	Basement level	30.00000	-40.00000	47.10000	-0.00117	0.00218	0.02207
1	Basement level	40.00000	-40.00000	47.10000	-0.00100	0.00129	0.01964
1	Basement level	50.00000	-40.00000	47.10000	-0.00073	0.00073	0.01672
1	Basement level	-50.00000	-30.00000	47.10000	0.00067	0.00039	0.01483
1	Basement level	-40.00000	-30.00000	47.10000	0.00109	0.00077	0.01832
1	Basement level	-30.00000	-30.00000	47.10000	0.00178	0.00160	0.02181
1	Basement level	-20.00000	-30.00000	47.10000	0.00270	0.00336	0.02428
1	Basement level	-10.00000	-30.00000	47.10000	0.00326	0.00654	0.02463
1	Basement level	0.00000	-30.00000	47.10000	0.00203	0.01019	0.02330
1	Basement level	10.00000	-30.00000	47.10000	-0.00105	0.01095	0.02293
1	Basement level	20.00000	-30.00000	47.10000	-0.00311	0.00790	0.02425
1	Basement level	30.00000	-30.00000	47.10000	-0.00300	0.00431	0.02467
1	Basement level	40.00000	-30.00000	47.10000	-0.00208	0.00208	0.02285
1	Basement level	50.00000	-30.00000	47.10000	-0.00130	0.00099	0.01958
1	Basement level	-50.00000	-20.00000	47.10000	0.00095	0.00038	0.01657
1	Basement level	-40.00000	-20.00000	47.10000	0.00174	0.00085	0.02058
1	Basement level	-30.00000	-20.00000	47.10000	0.00340	0.00213	0.02397
1	Basement level	-20.00000	-20.00000	47.10000	0.00675	0.00587	0.02385
1	Basement level	-10.00000	-20.00000	47.10000	0.01158	0.01641	0.01524
1	Basement level	0.00000	-20.00000	47.10000	0.00984	0.03534	-0.00145
1	Basement level	10.00000	-20.00000	47.10000	-0.00538	0.04036	-0.00570
1	Basement level	20.00000	-20.00000	47.10000	-0.01250	0.02256	0.00973
1	Basement level	30.00000	-20.00000	47.10000	-0.00842	0.00848	0.02207
1	Basement level	40.00000	-20.00000	47.10000	-0.00433	0.00301	0.02455
1	Basement level	50.00000	-20.00000	47.10000	-0.00219	0.00116	0.02193
1	Basement level	-50.00000	-10.00000	47.10000	0.00121	0.00027	0.01783
1	Basement level	-40.00000	-10.00000	47.10000	0.00247	0.00067	0.02208
1	Basement level	-30.00000	-10.00000	47.10000	0.00575	0.00201	0.02454
1	Basement level	-20.00000	-10.00000	47.10000	0.01569	0.00768	0.01747
1	Basement level	-10.00000	-10.00000	47.10000	0.04724	0.03849	-0.02721
1	Basement level	0.00000	-10.00000	47.10000	0.07830	0.17242	-0.17698
1	Basement level	10.00000	-10.00000	47.10000	-0.04849	0.22845	-0.23375
1	Basement level	20.00000	-10.00000	47.10000	-0.06558	0.06921	-0.06515
1	Basement level	30.00000	-10.00000	47.10000	-0.02307	0.01314	-0.00885
1	Basement level	40.00000	-10.00000	47.10000	-0.00802	0.00312	0.02389
1	Basement level	50.00000	-10.00000	47.10000	-0.00327	0.00097	0.02335
1	Basement level	-50.00000	0.00000	47.10000	0.00136	0.00006	0.01840
1	Basement level	-40.00000	0.00000	47.10000	0.00293	0.00016	0.02270
1	Basement level	-30.00000	0.00000	47.10000	0.00752	0.00053	0.02424
1	Basement level	-20.00000	0.00000	47.10000	0.02543	0.00251	0.00978
1	Basement level	-10.00000	0.00000	47.10000	0.13290	0.02233	-0.11054
1	Basement level	0.00000	0.00000	47.10000	0.64909	0.34056	-1.86043
1	Basement level	10.00000	0.00000	47.10000	-0.45546	0.57834	-4.23174
1	Basement level	20.00000	0.00000	47.10000	-0.26283	0.05851	-0.28989
1	Basement level	30.00000	0.00000	47.10000	-0.04280	0.00494	-0.00815
1	Basement level	40.00000	0.00000	47.10000	-0.01109	0.00086	0.02243
1	Basement level	50.00000	0.00000	47.10000	-0.00398	0.00024	0.02386
1	Basement level	-50.00000	10.00000	47.10000	0.00131	-0.00018	0.01821
1	Basement level	-40.00000	10.00000	47.10000	0.00276	-0.00045	0.02250
1	Basement level	-30.00000	10.00000	47.10000	0.00685	-0.00144	0.02440
1	Basement level	-20.00000	10.00000	47.10000	0.02140	-0.00632	0.01295
1	Basement level	-10.00000	10.00000	47.10000	0.08905	-0.04437	-0.06970
1	Basement level	0.00000	10.00000	47.10000	0.25704	-0.37356	-0.60312
1	Basement level	10.00000	10.00000	47.10000	-0.17266	-0.56440	-0.90056
1	Basement level	20.00000	10.00000	47.10000	-0.14958	-0.09786	-0.16447
1	Basement level	30.00000	10.00000	47.10000	-0.03417	-0.01177	-0.00091
1	Basement level	40.00000	10.00000	47.10000	-0.00990	-0.00231	0.02304
1	Basement level	50.00000	10.00000	47.10000	-0.00372	-0.00066	0.02370
1	Basement level	-50.00000	20.00000	47.10000	0.00109	-0.00034	0.01727
1	Basement level	-40.00000	20.00000	47.10000	0.00212	-0.00081	0.02144
1	Basement level	-30.00000	20.00000	47.10000	0.00452	-0.00221	0.02445
1	Basement level	-20.00000	20.00000	47.10000	0.01052	-0.00717	0.02142
1	Basement level	-10.00000	20.00000	47.10000	0.02329	-0.02606	0.00036
1	Basement level	0.00000	20.00000	47.10000	0.02590	-0.07502	-0.04758
1	Basement level	10.00000	20.00000	47.10000	-0.01491	-0.09073	-0.06163
1	Basement level	20.00000	20.00000	47.10000	-0.02789	-0.04000	-0.01421
1	Basement level	30.00000	20.00000	47.10000	-0.01419	-0.01121	0.01698
1	Basement level	40.00000	20.00000	47.10000	-0.00604	-0.00327	0.02450
1	Basement level	50.00000	20.00000	47.10000	-0.00273	-0.00113	0.02277
1	Basement level	-50.00000	30.00000	47.10000	0.00080	-0.00039	0.01574
1	Basement level	-40.00000	30.00000	47.10000	0.00139	-0.00083	0.01953
1	Basement level	-30.00000	30.00000	47.10000	0.00248	-0.00189	0.02307
1	Basement level	-20.00000	30.00000	47.10000	0.00426	-0.00451	0.02469
1	Basement level	-10.00000	30.00000	47.10000	0.00600	-0.01026	0.02221
1	Basement level	0.00000	30.00000	47.10000	0.00425	-0.01823	0.01661
1	Basement level	10.00000	30.00000	47.10000	-0.00225	-0.02008	0.01524
1	Basement level	20.00000	30.00000	47.10000	-0.00602	-0.01308	0.02033
1	Basement level	30.00000	30.00000	47.10000	-0.00498	-0.00609	0.02437
1	Basement level	40.00000	30.00000	47.10000	-0.00302	-0.00256	0.02397
1	Basement level	50.00000	30.00000	47.10000	-0.00170	-0.00110	0.02086
1	Basement level	-50.00000	40.00000	47.10000	0.00055	-0.00037	0.01385
1	Basement level	-40.00000	40.00000	47.10000	0.00085	-0.00069	0.01702
1	Basement level	-30.00000	40.00000	47.10000	0.00127	-0.00131	0.02029
1	Basement level	-20.00000	40.00000	47.10000	0.00173	-0.00248	0.02303
1	Basement level	-10.00000	40.00000	47.10000	0.00186	-0.00428	0.02455

Ref.	Name	x [m]	y [m]	z [mOD]	δx [mm]	δy [mm]	δz [mm]
1	Basement level	0.00000	40.00000	47.10000	0.00106	-0.00608	0.02488
1	Basement level	10.00000	40.00000	47.10000	-0.00054	-0.00643	0.02487
1	Basement level	20.00000	40.00000	47.10000	-0.00171	-0.00498	0.02476
1	Basement level	30.00000	40.00000	47.10000	-0.00185	-0.00305	0.02372
1	Basement level	40.00000	40.00000	47.10000	-0.00144	-0.00165	0.02135
1	Basement level	50.00000	40.00000	47.10000	-0.00098	-0.00086	0.01818
1	Basement level	-50.00000	50.00000	47.10000	0.00036	-0.00030	0.01185
1	Basement level	-40.00000	50.00000	47.10000	0.00050	-0.00051	0.01434
1	Basement level	-30.00000	50.00000	47.10000	0.00065	-0.00085	0.01696
1	Basement level	-20.00000	50.00000	47.10000	0.00076	-0.00137	0.01938
1	Basement level	-10.00000	50.00000	47.10000	0.00069	-0.00200	0.02124
1	Basement level	0.00000	50.00000	47.10000	0.00035	-0.00252	0.02227
1	Basement level	10.00000	50.00000	47.10000	-0.00018	-0.00261	0.02243
1	Basement level	20.00000	50.00000	47.10000	-0.00061	-0.00221	0.02170
1	Basement level	30.00000	50.00000	47.10000	-0.00076	-0.00158	0.02011
1	Basement level	40.00000	50.00000	47.10000	-0.00070	-0.00101	0.01785
1	Basement level	50.00000	50.00000	47.10000	-0.00055	-0.00061	0.01525
2	No 36 & 37 foundation levels	-50.00000	-50.00000	50.10000	-0.40686	-0.37755	0.01091
2	No 36 & 37 foundation levels	-40.00000	-50.00000	50.10000	-0.40756	-0.45941	0.01309
2	No 36 & 37 foundation levels	-30.00000	-50.00000	50.10000	-0.38756	-0.55616	0.01538
2	No 36 & 37 foundation levels	-20.00000	-50.00000	50.10000	-0.33523	-0.66146	0.01752
2	No 36 & 37 foundation levels	-10.00000	-50.00000	50.10000	-0.24078	-0.75933	0.01922
2	No 36 & 37 foundation levels	0.00000	-50.00000	50.10000	-0.10536	-0.82494	0.02022
2	No 36 & 37 foundation levels	10.00000	-50.00000	50.10000	0.05138	-0.83566	0.02037
2	No 36 & 37 foundation levels	20.00000	-50.00000	50.10000	0.19745	-0.78734	0.01966
2	No 36 & 37 foundation levels	30.00000	-50.00000	50.10000	0.30724	-0.69770	0.01818
2	No 36 & 37 foundation levels	40.00000	-50.00000	50.10000	0.37353	-0.59263	0.01616
2	No 36 & 37 foundation levels	50.00000	-50.00000	50.10000	0.40348	-0.49174	0.01389
2	No 36 & 37 foundation levels	-50.00000	-40.00000	50.10000	-0.48683	-0.36593	0.01290
2	No 36 & 37 foundation levels	-40.00000	-40.00000	50.10000	-0.50878	-0.46468	0.01575
2	No 36 & 37 foundation levels	-30.00000	-40.00000	50.10000	-0.50958	-0.59280	0.01875
2	No 36 & 37 foundation levels	-20.00000	-40.00000	50.10000	-0.46750	-0.74829	0.02146
2	No 36 & 37 foundation levels	-10.00000	-40.00000	50.10000	-0.35550	-0.91015	0.02340
2	No 36 & 37 foundation levels	0.00000	-40.00000	50.10000	-0.16183	-1.02929	0.02436
2	No 36 & 37 foundation levels	10.00000	-40.00000	50.10000	0.07944	-1.04966	0.02449
2	No 36 & 37 foundation levels	20.00000	-40.00000	50.10000	0.29644	-0.95991	0.02385
2	No 36 & 37 foundation levels	30.00000	-40.00000	50.10000	0.43751	-0.80615	0.02225
2	No 36 & 37 foundation levels	40.00000	-40.00000	50.10000	0.50111	-0.64464	0.01976
2	No 36 & 37 foundation levels	50.00000	-40.00000	50.10000	0.51237	-0.50604	0.01680
2	No 36 & 37 foundation levels	-50.00000	-30.00000	50.10000	-0.57606	-0.33134	0.01489
2	No 36 & 37 foundation levels	-40.00000	-30.00000	50.10000	-0.63244	-0.44220	0.01843
2	No 36 & 37 foundation levels	-30.00000	-30.00000	50.10000	-0.67721	-0.60357	0.02198
2	No 36 & 37 foundation levels	-20.00000	-30.00000	50.10000	-0.67695	-0.83124	0.02457
2	No 36 & 37 foundation levels	-10.00000	-30.00000	50.10000	-0.56611	-1.11407	0.02511
2	No 36 & 37 foundation levels	0.00000	-30.00000	50.10000	-0.27744	-1.35901	0.02398
2	No 36 & 37 foundation levels	10.00000	-30.00000	50.10000	0.13797	-1.40447	0.02365
2	No 36 & 37 foundation levels	20.00000	-30.00000	50.10000	0.48666	-1.21218	0.02481
2	No 36 & 37 foundation levels	30.00000	-30.00000	50.10000	0.65496	-0.92641	0.02503
2	No 36 & 37 foundation levels	40.00000	-30.00000	50.10000	0.68488	-0.67526	0.02306
2	No 36 & 37 foundation levels	50.00000	-30.00000	50.10000	0.65056	-0.49199	0.01971
2	No 36 & 37 foundation levels	-50.00000	-20.00000	50.10000	-0.66538	-0.26512	0.01665
2	No 36 & 37 foundation levels	-40.00000	-20.00000	50.10000	-0.76929	-0.37282	0.02072
2	No 36 & 37 foundation levels	-30.00000	-20.00000	50.10000	-0.89158	-0.55143	0.02424
2	No 36 & 37 foundation levels	-20.00000	-20.00000	50.10000	-1.00504	-0.85857	0.02444
2	No 36 & 37 foundation levels	-10.00000	-20.00000	50.10000	-0.99084	-1.36362	0.01655
2	No 36 & 37 foundation levels	0.00000	-20.00000	50.10000	-0.56764	-1.95868	0.00095
2	No 36 & 37 foundation levels	10.00000	-20.00000	50.10000	0.29092	-2.08974	-0.00303
2	No 36 & 37 foundation levels	20.00000	-20.00000	50.10000	0.90547	-1.58123	0.01140
2	No 36 & 37 foundation levels	30.00000	-20.00000	50.10000	1.02577	-1.01085	0.02284
2	No 36 & 37 foundation levels	40.00000	-20.00000	50.10000	0.93540	-0.64043	0.02491
2	No 36 & 37 foundation levels	50.00000	-20.00000	50.10000	0.81049	-0.42498	0.02211
2	No 36 & 37 foundation levels	-50.00000	-10.00000	50.10000	-0.73814	-0.16349	0.01792
2	No 36 & 37 foundation levels	-40.00000	-10.00000	50.10000	-0.89198	-0.24041	0.02226
2	No 36 & 37 foundation levels	-30.00000	-10.00000	50.10000	-1.11609	-0.38441	0.02495
2	No 36 & 37 foundation levels	-20.00000	-10.00000	50.10000	-1.45150	-0.69326	0.01860
2	No 36 & 37 foundation levels	-10.00000	-10.00000	50.10000	-1.87872	-1.46488	-0.02318
2	No 36 & 37 foundation levels	0.00000	-10.00000	50.10000	-1.57230	-3.19422	-0.16436
2	No 36 & 37 foundation levels	10.00000	-10.00000	50.10000	0.87692	-3.76392	-0.21829
2	No 36 & 37 foundation levels	20.00000	-10.00000	50.10000	1.96084	-1.95949	-0.05876
2	No 36 & 37 foundation levels	30.00000	-10.00000	50.10000	1.59982	-0.88403	0.01057
2	No 36 & 37 foundation levels	40.00000	-10.00000	50.10000	1.21858	-0.46504	0.02445
2	No 36 & 37 foundation levels	50.00000	-10.00000	50.10000	0.96058	-0.28021	0.02359
2	No 36 & 37 foundation levels	-50.00000	0.00000	50.10000	-0.77443	-0.03431	0.01850
2	No 36 & 37 foundation levels	-40.00000	0.00000	50.10000	-0.95740	-0.05164	0.02291
2	No 36 & 37 foundation levels	-30.00000	0.00000	50.10000	-1.25117	-0.08631	0.02474
2	No 36 & 37 foundation levels	-20.00000	0.00000	50.10000	-1.79407	-0.17217	0.01144
2	No 36 & 37 foundation levels	-10.00000	0.00000	50.10000	-3.06902	-0.48939	-0.10164
2	No 36 & 37 foundation levels	0.00000	0.00000	50.10000	-6.03242	-2.97395	-1.90292
2	No 36 & 37 foundation levels	10.00000	0.00000	50.10000	3.86415	-4.94194	-3.91190
2	No 36 & 37 foundation levels	20.00000	0.00000	50.10000	3.96114	-0.82733	-0.27465
2	No 36 & 37 foundation levels	30.00000	0.00000	50.10000	2.10784	-0.23472	-0.00533
2	No 36 & 37 foundation levels	40.00000	0.00000	50.10000	1.40046	-0.10711	0.02315
2	No 36 & 37 foundation levels	50.00000	0.00000	50.10000	1.04338	-0.06092	0.02414
2	No 36 & 37 foundation levels	-50.00000	10.00000	50.10000	-0.76194	0.10127	0.01831
2	No 36 & 37 foundation levels	-40.00000	10.00000	50.10000	-0.93455	0.15119	0.02270
2	No 36 & 37 foundation levels	-30.00000	10.00000	50.10000	-1.20264	0.24876	0.02486
2	No 36 & 37 foundation levels	-20.00000	10.00000	50.10000	-1.66302	0.47794	0.01439
2	No 36 & 37 foundation levels	-10.00000	10.00000	50.10000	-2.53020	1.19903	-0.06307
2	No 36 & 37 foundation levels	0.00000	10.00000	50.10000	-3.07191	4.05617	-0.58648
2	No 36 & 37 foundation levels	10.00000	10.00000	50.10000	1.86075	5.43526	-0.88902
2	No 36 & 37 foundation levels	20.00000	10.00000	50.10000	2.94541	1.80892	-0.15289
2	No 36 & 37 foundation levels	30.00000	10.00000	50.10000	1.90555	0.63472	0.00145
2	No 36 & 37 foundation levels	40.00000	10.00000	50.10000	1.33405	0.30587	0.02371
2	No 36 & 37 foundation levels	50.00000	10.00000	50.10000	1.01423	0.17760	0.02397
2	No 36 & 37 foundation levels	-50.00000	20.00000	50.10000	-0.70510	0.21858	0.01736
2	No 36 & 37 foundation levels	-40.00000	20.00000	50.10000	-0.83492	0.31489	0.02160
2	No 36 & 37 foundation levels	-30.00000	20.00000	50.10000	-1.00738	0.48520	0.02479
2	No 36 & 37 foundation levels	-20.00000	20.00000	50.10000	-1.21932	0.81267	0.02225
2	No 36 & 37 foundation levels	-10.00000	20.00000	50.10000	-1.35773	1.46552	0.00264
2	No 36 & 37 foundation levels	0.00000	20.00000	50.10000	-0.89983	2.46255	-0.04225
2	No 36 & 37 foundation levels	10.00000	20.00000	50.10000	0.47572	2.71947	-0.05542
2	No 36 & 37 foundation levels	20.00000	20.00000	50.10000	1.30900	1.79888	-0.01100
2	No 36 & 37 foundation levels	30.00000	20.00000	50.10000	1.29029	0.99329	0.01815
2	No 36 & 37 foundation levels	40.00000	20.00000	50.10000	1.07863	0.57535	0.02495
2	No 36 & 37 foundation levels	50.00000	20.00000	50.10000	0.88995	0.36321	0.02298
2	No 36 & 37 foundation levels	-50.00000	30.00000	50.10000	-0.62158	0.30262	0.01582
2	No 36 & 37 foundation levels	-40.00000	30.00000	50.10000	-0.70043	0.41464	0.01965
2	No 36 & 37 foundation levels	-30.00000	30.00000	50.10000	-0.77950	0.58852	0.02329
2	No 36 & 37 foundation levels	-20.00000	30.00000	50.10000	-0.82381	0.85785	0.02511
2	No 36 & 37 foundation levels	-10.00000	30.00000	50.10000	-0.73959	1.23669	0.02299
2	No 36 & 37 foundation levels	0.00000	30.00000	50.10000	-0.38581	1.60957	0.01782
2	No 36 & 37 foundation levels	10.00000	30.00000	50.10000	0.19411	1.68370	0.01655
2	No 36 & 37 foundation levels	20.00000	30.00000	50.10000	0.65185	1.38078	0.02127
2	No 36 & 37 foundation levels	30.00000	30.00000	50.10000	0.81616	0.97953	0.02489
2	No 36 & 37 foundation levels	40.00000	30.00000	50.10000	0.80214	0.67016	0.02425
2	No 36 & 37 foundation levels	50.00000	30.00000	50.10000	0.72906	0.46688	0.02101
2	No 36 & 37 foundation levels	-50.00000	40.00000	50.10000	-0.53069	0.35208	0.01391
2	No 36 & 37 foundation levels	-40.00000	40.00000	50.10000	-0.56805	0.45802	0.01711
2	No 36 & 37 foundation levels	-30.00000	40.00000	50.10000	-0.58717	0.60322	0.02043
2	No 36 & 37 foundation levels	-20.00000	40.00000	50.10000	-0.56007	0.79212	0.02324
2	No 36 & 37 foundation levels	-10.00000	40.00000	50.10000	-0.44382	1.00477	0.02487
2	No 36 & 37 foundation levels	0.00000	40.00000	50.10000	-0.20833	1.17255	0.02529
2	No 36 & 37 foundation levels	10.00000	40.00000	50.10000	0.10281	1.20223	0.02530
2	No 36 & 37 foundation levels	20.00000	40.00000	50.10000	0.37486	1.07364	0.02512
2	No 36 & 37 foundation levels	30.00000	40.00000	50.10000	0.53188	0.86618	0.02397
2	No 36 & 37 foundation levels	40.00000	40.00000	50.10000	0.58491	0.66460	0.02151
2	No 36 & 37 foundation levels	50.00000	40.00000	50.10000	0.57789	0.50391	0.01828
2	No 36 & 37 foundation levels	-50.00000	50.00000	50.10000	-0.44538	0.37405	0.01189
2	No 36 & 37 foundation levels	-40.00000	50.00000	50.10000	-0.45526	0.46450	0.01440
2	No 36 & 37 foundation levels	-30.00000	50.00000	50.10000	-0.44351	0.57621	0.01704
2	No 36 & 37 foundation levels	-20.00000	50.00000	50.10000	-0.39399	0.70401	0.01950
2	No 36 & 37 foundation levels	-10.00000	50.00000	50.10000	-0.29018	0.82897	0.02139
2	No 36 & 37 foundation levels	0.00000	50.00000	50.10000	-0.12915	0.91622	0.02246
2	No 36 & 37 foundation levels	10.00000	50.00000	50.10000	0.06316	0.93076	0.02261

Ref.	Name	x [m]	y [m]	z [mOD]	δx [mm]	δy [mm]	δz [mm]
2	No 36 & 37 foundation levels	20.00000	50.00000	50.10000	0.23968	0.86587	0.02187
2	No 36 & 37 foundation levels	30.00000	50.00000	50.10000	0.36446	0.74957	0.02025
2	No 36 & 37 foundation levels	40.00000	50.00000	50.10000	0.43141	0.61972	0.01794
2	No 36 & 37 foundation levels	50.00000	50.00000	50.10000	0.45434	0.50123	0.01532
3	No 39 foundation level	-50.00000	-50.00000	48.20000	-0.17970	-0.16674	0.01090
3	No 39 foundation level	-40.00000	-50.00000	48.20000	-0.17859	-0.20128	0.01308
3	No 39 foundation level	-30.00000	-50.00000	48.20000	-0.16839	-0.24159	0.01536
3	No 39 foundation level	-20.00000	-50.00000	48.20000	-0.14443	-0.28490	0.01750
3	No 39 foundation level	-10.00000	-50.00000	48.20000	-0.10299	-0.32467	0.01920
3	No 39 foundation level	0.00000	-50.00000	48.20000	-0.04486	-0.35109	0.02019
3	No 39 foundation level	10.00000	-50.00000	48.20000	0.02186	-0.35539	0.02034
3	No 39 foundation level	20.00000	-50.00000	48.20000	0.08429	-0.33597	0.01963
3	No 39 foundation level	30.00000	-50.00000	48.20000	0.13201	-0.29968	0.01816
3	No 39 foundation level	40.00000	-50.00000	48.20000	0.16181	-0.25665	0.01614
3	No 39 foundation level	50.00000	-50.00000	48.20000	0.17628	-0.21481	0.01388
3	No 39 foundation level	-50.00000	-40.00000	48.20000	-0.21346	-0.16043	0.01289
3	No 39 foundation level	-40.00000	-40.00000	48.20000	-0.22071	-0.20153	0.01574
3	No 39 foundation level	-30.00000	-40.00000	48.20000	-0.21835	-0.25393	0.01873
3	No 39 foundation level	-20.00000	-40.00000	48.20000	-0.19767	-0.31625	0.02143
3	No 39 foundation level	-10.00000	-40.00000	48.20000	-0.14845	-0.37983	0.02335
3	No 39 foundation level	0.00000	-40.00000	48.20000	-0.06700	-0.42587	0.02430
3	No 39 foundation level	10.00000	-40.00000	48.20000	0.03285	-0.43367	0.02442
3	No 39 foundation level	20.00000	-40.00000	48.20000	0.12335	-0.39913	0.02379
3	No 39 foundation level	30.00000	-40.00000	48.20000	0.18414	-0.33912	0.02221
3	No 39 foundation level	40.00000	-40.00000	48.20000	0.21373	-0.27485	0.01973
3	No 39 foundation level	50.00000	-40.00000	48.20000	0.22135	-0.21856	0.01679
3	No 39 foundation level	-50.00000	-30.00000	48.20000	-0.25070	-0.14417	0.01488
3	No 39 foundation level	-40.00000	-30.00000	48.20000	-0.27132	-0.18965	0.01841
3	No 39 foundation level	-30.00000	-30.00000	48.20000	-0.28534	-0.25419	0.02194
3	No 39 foundation level	-20.00000	-30.00000	48.20000	-0.27904	-0.34236	0.02450
3	No 39 foundation level	-10.00000	-30.00000	48.20000	-0.22790	-0.44792	0.02499
3	No 39 foundation level	0.00000	-30.00000	48.20000	-0.10967	-0.53625	0.02380
3	No 39 foundation level	10.00000	-30.00000	48.20000	0.05436	-0.55236	0.02346
3	No 39 foundation level	20.00000	-30.00000	48.20000	0.19445	-0.48362	0.02466
3	No 39 foundation level	30.00000	-30.00000	48.20000	0.26774	-0.37834	0.02494
3	No 39 foundation level	40.00000	-30.00000	48.20000	0.28648	-0.28229	0.02301
3	No 39 foundation level	50.00000	-30.00000	48.20000	0.27747	-0.20976	0.01968
3	No 39 foundation level	-50.00000	-20.00000	48.20000	-0.28756	-0.11455	0.01664
3	No 39 foundation level	-40.00000	-20.00000	48.20000	-0.32635	-0.15810	0.02069
3	No 39 foundation level	-30.00000	-20.00000	48.20000	-0.36854	-0.22776	0.02418
3	No 39 foundation level	-20.00000	-20.00000	48.20000	-0.40027	-0.34143	0.02429
3	No 39 foundation level	-10.00000	-20.00000	48.20000	-0.37516	-0.51468	0.01617
3	No 39 foundation level	0.00000	-20.00000	48.20000	-0.20449	-0.70149	0.00021
3	No 39 foundation level	10.00000	-20.00000	48.20000	0.10378	-0.74057	-0.00387
3	No 39 foundation level	20.00000	-20.00000	48.20000	0.33631	-0.58493	0.01091
3	No 39 foundation level	30.00000	-20.00000	48.20000	0.40192	-0.39531	0.02264
3	No 39 foundation level	40.00000	-20.00000	48.20000	0.38222	-0.26144	0.02482
3	No 39 foundation level	50.00000	-20.00000	48.20000	0.34107	-0.17875	0.02207
3	No 39 foundation level	-50.00000	-10.00000	48.20000	-0.31730	-0.07026	0.01790
3	No 39 foundation level	-40.00000	-10.00000	48.20000	-0.37488	-0.10099	0.02222
3	No 39 foundation level	-30.00000	-10.00000	48.20000	-0.45298	-0.15586	0.02485
3	No 39 foundation level	-20.00000	-10.00000	48.20000	-0.55450	-0.26414	0.01828
3	No 39 foundation level	-10.00000	-10.00000	48.20000	-0.63653	-0.49185	-0.02453
3	No 39 foundation level	0.00000	-10.00000	48.20000	-0.43626	-0.85472	-0.16946
3	No 39 foundation level	10.00000	-10.00000	48.20000	0.23187	-0.94742	-0.22480
3	No 39 foundation level	20.00000	-10.00000	48.20000	0.62230	-0.61264	-0.06105
3	No 39 foundation level	30.00000	-10.00000	48.20000	0.59159	-0.32563	0.01006
3	No 39 foundation level	40.00000	-10.00000	48.20000	0.48616	-0.18527	0.02431
3	No 39 foundation level	50.00000	-10.00000	48.20000	0.39954	-0.11647	0.02354
3	No 39 foundation level	-50.00000	0.00000	48.20000	-0.33203	-0.01471	0.01848
3	No 39 foundation level	-40.00000	0.00000	48.20000	-0.40045	-0.02159	0.02286
3	No 39 foundation level	-30.00000	0.00000	48.20000	-0.50255	-0.03462	0.02461
3	No 39 foundation level	-20.00000	0.00000	48.20000	-0.66509	-0.06359	0.01095
3	No 39 foundation level	-10.00000	0.00000	48.20000	-0.90100	-0.14091	-0.10508
3	No 39 foundation level	0.00000	0.00000	48.20000	-1.14322	-0.53836	-1.92435
3	No 39 foundation level	10.00000	0.00000	48.20000	0.49718	-1.53729	-4.16162
3	No 39 foundation level	20.00000	0.00000	48.20000	0.94302	-0.18837	-0.28180
3	No 39 foundation level	30.00000	0.00000	48.20000	0.74269	-0.08221	-0.00623
3	No 39 foundation level	40.00000	0.00000	48.20000	0.55069	-0.04205	0.02296
3	No 39 foundation level	50.00000	0.00000	48.20000	0.43133	-0.02517	0.02407
3	No 39 foundation level	-50.00000	10.00000	48.20000	-0.32697	0.04345	0.01829
3	No 39 foundation level	-40.00000	10.00000	48.20000	-0.39154	0.06331	0.02265
3	No 39 foundation level	-30.00000	10.00000	48.20000	-0.48484	0.10017	0.02475
3	No 39 foundation level	-20.00000	10.00000	48.20000	-0.62356	0.17862	0.01397
3	No 39 foundation level	-10.00000	10.00000	48.20000	-0.79265	0.37020	-0.06548
3	No 39 foundation level	0.00000	10.00000	48.20000	-0.60278	0.71250	-0.59684
3	No 39 foundation level	10.00000	10.00000	48.20000	0.32450	0.79864	-0.90014
3	No 39 foundation level	20.00000	10.00000	48.20000	0.81123	0.48391	-0.15763
3	No 39 foundation level	30.00000	10.00000	48.20000	0.68435	0.22678	0.00071
3	No 39 foundation level	40.00000	10.00000	48.20000	0.52733	0.12071	0.02353
3	No 39 foundation level	50.00000	10.00000	48.20000	0.42018	0.07353	0.02390
3	No 39 foundation level	-50.00000	20.00000	48.20000	-0.30382	0.09416	0.01735
3	No 39 foundation level	-40.00000	20.00000	48.20000	-0.35240	0.13285	0.02157
3	No 39 foundation level	-30.00000	20.00000	48.20000	-0.41242	0.19846	0.02470
3	No 39 foundation level	-20.00000	20.00000	48.20000	-0.47577	0.31646	0.02202
3	No 39 foundation level	-10.00000	20.00000	48.20000	-0.49033	0.52646	0.00193
3	No 39 foundation level	0.00000	20.00000	48.20000	-0.29584	0.79903	-0.04409
3	No 39 foundation level	10.00000	20.00000	48.20000	0.15324	0.86228	-0.05760
3	No 39 foundation level	20.00000	20.00000	48.20000	0.45688	0.62316	-0.01203
3	No 39 foundation level	30.00000	20.00000	48.20000	0.49191	0.37763	0.01782
3	No 39 foundation level	40.00000	20.00000	48.20000	0.43534	0.23194	0.02484
3	No 39 foundation level	50.00000	20.00000	48.20000	0.37217	0.15180	0.02293
3	No 39 foundation level	-50.00000	30.00000	48.20000	-0.26954	0.13120	0.01580
3	No 39 foundation level	-40.00000	30.00000	48.20000	-0.29879	0.17681	0.01962
3	No 39 foundation level	-30.00000	30.00000	48.20000	-0.32537	0.24550	0.02324
3	No 39 foundation level	-20.00000	30.00000	48.20000	-0.33419	0.34762	0.02501
3	No 39 foundation level	-10.00000	30.00000	48.20000	-0.28999	0.48395	0.02278
3	No 39 foundation level	0.00000	30.00000	48.20000	-0.14694	0.61118	0.01748
3	No 39 foundation level	10.00000	30.00000	48.20000	0.07353	0.63576	0.01618
3	No 39 foundation level	20.00000	30.00000	48.20000	0.25262	0.53386	0.02101
3	No 39 foundation level	30.00000	30.00000	48.20000	0.32728	0.39227	0.02476
3	No 39 foundation level	40.00000	30.00000	48.20000	0.33176	0.27697	0.02418
3	No 39 foundation level	50.00000	30.00000	48.20000	0.30886	0.19770	0.02097
3	No 39 foundation level	-50.00000	40.00000	48.20000	-0.23182	0.15377	0.01390
3	No 39 foundation level	-40.00000	40.00000	48.20000	-0.24508	0.19756	0.01709
3	No 39 foundation level	-30.00000	40.00000	48.20000	-0.24958	0.25630	0.02040
3	No 39 foundation level	-20.00000	40.00000	48.20000	-0.23405	0.33082	0.02319
3	No 39 foundation level	-10.00000	40.00000	48.20000	-0.18235	0.41248	0.02479
3	No 39 foundation level	0.00000	40.00000	48.20000	-0.08456	0.47542	0.02519
3	No 39 foundation level	10.00000	40.00000	48.20000	0.04165	0.48643	0.02519
3	No 39 foundation level	20.00000	40.00000	48.20000	0.15324	0.43846	0.02503
3	No 39 foundation level	30.00000	40.00000	48.20000	0.22091	0.35951	0.02391
3	No 39 foundation level	40.00000	40.00000	48.20000	0.24719	0.28074	0.02148
3	No 39 foundation level	50.00000	40.00000	48.20000	0.24810	0.21627	0.01826
3	No 39 foundation level	-50.00000	50.00000	48.20000	-0.19601	0.16459	0.01188
3	No 39 foundation level	-40.00000	50.00000	48.20000	-0.19852	0.20251	0.01439
3	No 39 foundation level	-30.00000	50.00000	48.20000	-0.19143	0.24864	0.01702
3	No 39 foundation level	-20.00000	50.00000	48.20000	-0.16828	0.30058	0.01947
3	No 39 foundation level	-10.00000	50.00000	48.20000	-0.12278	0.35059	0.02136
3	No 39 foundation level	0.00000	50.00000	48.20000	-0.05431	0.38508	0.02242
3	No 39 foundation level	10.00000	50.00000	48.20000	0.02653	0.39080	0.02257
3	No 39 foundation level	20.00000	50.00000	48.20000	0.10114	0.36521	0.02183
3	No 39 foundation level	30.00000	50.00000	48.20000	0.15512	0.31890	0.02022
3	No 39 foundation level	40.00000	50.00000	48.20000	0.18552	0.26642	0.01792
3	No 39 foundation level	50.00000	50.00000	48.20000	0.19743	0.21776	0.01531
4	Sewer invert level	-50.00000	-50.00000	47.55000	-0.04204	-0.03900	0.01088
4	Sewer invert level	-40.00000	-50.00000	47.55000	-0.04169	-0.04699	0.01305
4	Sewer invert level	-30.00000	-50.00000	47.55000	-0.03921	-0.05626	0.01532
4	Sewer invert level	-20.00000	-50.00000	47.55000	-0.03354	-0.06615	0.01745
4	Sewer invert level	-10.00000	-50.00000	47.55000	-0.02385	-0.07516	0.01914
4	Sewer invert level	0.00000	-50.00000	47.55000	-0.01037	-0.08111	0.02012
4	Sewer invert level	10.00000	-50.00000	47.55000	0.00505	-0.08208	0.02027
4	Sewer invert level	20.00000	-50.00000	47.55000	0.01950	-0.07771	0.01957
4	Sewer invert level	30.00000	-50.00000	47.55000	0.03062	-0.06951	0.01811

Ref.	Name	x [m]	y [m]	z [mOD]	δx [mm]	δy [mm]	δz [mm]
4	Sewer invert level	40.00000	-50.00000	47.55000	0.03764	-0.05971	0.01610
4	Sewer invert level	50.00000	-50.00000	47.55000	0.04112	-0.05011	0.01385
4	Sewer invert level	-50.00000	-40.00000	47.55000	-0.04984	-0.03746	0.01286
4	Sewer invert level	-40.00000	-40.00000	47.55000	-0.05137	-0.04691	0.01570
4	Sewer invert level	-30.00000	-40.00000	47.55000	-0.05059	-0.05883	0.01867
4	Sewer invert level	-20.00000	-40.00000	47.55000	-0.04553	-0.07282	0.02135
4	Sewer invert level	-10.00000	-40.00000	47.55000	-0.03396	-0.08686	0.02324
4	Sewer invert level	0.00000	-40.00000	47.55000	-0.01525	-0.09686	0.02416
4	Sewer invert level	10.00000	-40.00000	47.55000	0.00747	-0.09855	0.02429
4	Sewer invert level	20.00000	-40.00000	47.55000	0.02815	-0.09107	0.02367
4	Sewer invert level	30.00000	-40.00000	47.55000	0.04231	-0.07790	0.02212
4	Sewer invert level	40.00000	-40.00000	47.55000	0.04943	-0.06355	0.01967
4	Sewer invert level	50.00000	-40.00000	47.55000	0.05145	-0.05080	0.01674
4	Sewer invert level	-50.00000	-30.00000	47.55000	-0.05841	-0.03359	0.01484
4	Sewer invert level	-40.00000	-30.00000	47.55000	-0.06290	-0.04396	0.01835
4	Sewer invert level	-30.00000	-30.00000	47.55000	-0.06559	-0.05842	0.02185
4	Sewer invert level	-20.00000	-30.00000	47.55000	-0.06330	-0.07762	0.02436
4	Sewer invert level	-10.00000	-30.00000	47.55000	-0.05076	-0.09966	0.02477
4	Sewer invert level	0.00000	-30.00000	47.55000	-0.02402	-0.11723	0.02350
4	Sewer invert level	10.00000	-30.00000	47.55000	0.01187	-0.12035	0.02314
4	Sewer invert level	20.00000	-30.00000	47.55000	0.04302	-0.10686	0.02441
4	Sewer invert level	30.00000	-30.00000	47.55000	0.06037	-0.08525	0.02477
4	Sewer invert level	40.00000	-30.00000	47.55000	0.06559	-0.06461	0.02291
4	Sewer invert level	50.00000	-30.00000	47.55000	0.06416	-0.04850	0.01962
4	Sewer invert level	-50.00000	-20.00000	47.55000	-0.06684	-0.02663	0.01659
4	Sewer invert level	-40.00000	-20.00000	47.55000	-0.07528	-0.03646	0.02062
4	Sewer invert level	-30.00000	-20.00000	47.55000	-0.08375	-0.05173	0.02404
4	Sewer invert level	-20.00000	-20.00000	47.55000	-0.08826	-0.07518	0.02402
4	Sewer invert level	-10.00000	-20.00000	47.55000	-0.07806	-0.10664	0.01564
4	Sewer invert level	0.00000	-20.00000	47.55000	-0.03941	-0.13377	-0.00070
4	Sewer invert level	10.00000	-20.00000	47.55000	0.01965	-0.13850	-0.00487
4	Sewer invert level	20.00000	-20.00000	47.55000	0.06809	-0.11771	0.01024
4	Sewer invert level	30.00000	-20.00000	47.55000	0.08717	-0.08556	0.02229
4	Sewer invert level	40.00000	-20.00000	47.55000	0.08615	-0.05889	0.02465
4	Sewer invert level	50.00000	-20.00000	47.55000	0.07835	-0.04105	0.02198
4	Sewer invert level	-50.00000	-10.00000	47.55000	-0.07361	-0.01630	0.01785
4	Sewer invert level	-40.00000	-10.00000	47.55000	-0.08605	-0.02318	0.02213
4	Sewer invert level	-30.00000	-10.00000	47.55000	-0.10155	-0.03491	0.02465
4	Sewer invert level	-20.00000	-10.00000	47.55000	-0.11665	-0.05538	0.01781
4	Sewer invert level	-10.00000	-10.00000	47.55000	-0.10775	-0.08147	-0.02594
4	Sewer invert level	0.00000	-10.00000	47.55000	-0.03218	-0.04567	-0.17305
4	Sewer invert level	10.00000	-10.00000	47.55000	0.01084	-0.01648	-0.22898
4	Sewer invert level	20.00000	-10.00000	47.55000	0.08783	-0.08225	-0.06313
4	Sewer invert level	30.00000	-10.00000	47.55000	0.11881	-0.06501	0.00938
4	Sewer invert level	40.00000	-10.00000	47.55000	0.10736	-0.04086	0.02405
4	Sewer invert level	50.00000	-10.00000	47.55000	0.09116	-0.02656	0.02342
4	Sewer invert level	-50.00000	0.00000	47.55000	-0.07695	-0.00341	0.01843
4	Sewer invert level	-40.00000	0.00000	47.55000	-0.09167	-0.00494	0.02276
4	Sewer invert level	-30.00000	0.00000	47.55000	-0.11166	-0.00768	0.02439
4	Sewer invert level	-20.00000	0.00000	47.55000	-0.13403	-0.01274	0.01029
4	Sewer invert level	-10.00000	0.00000	47.55000	-0.09260	-0.01308	-0.10775
4	Sewer invert level	0.00000	0.00000	47.55000	0.23037	0.13308	-1.88796
4	Sewer invert level	10.00000	0.00000	47.55000	-0.27949	-0.31376	-4.23682
4	Sewer invert level	20.00000	0.00000	47.55000	-0.01641	0.00879	-0.28535
4	Sewer invert level	30.00000	0.00000	47.55000	0.13678	-0.01496	-0.00726
4	Sewer invert level	40.00000	0.00000	47.55000	0.11984	-0.00913	0.02264
4	Sewer invert level	50.00000	0.00000	47.55000	0.09802	-0.00572	0.02394
4	Sewer invert level	-50.00000	10.00000	47.55000	-0.07580	0.01007	0.01823
4	Sewer invert level	-40.00000	10.00000	47.55000	-0.08972	0.01450	0.02255
4	Sewer invert level	-30.00000	10.00000	47.55000	-0.10808	0.02231	0.02453
4	Sewer invert level	-20.00000	10.00000	47.55000	-0.12783	0.03645	0.01339
4	Sewer invert level	-10.00000	10.00000	47.55000	-0.10683	0.04738	-0.06761
4	Sewer invert level	0.00000	10.00000	47.55000	0.09182	-0.17219	-0.59846
4	Sewer invert level	10.00000	10.00000	47.55000	-0.08096	-0.32535	-0.89769
4	Sewer invert level	20.00000	10.00000	47.55000	0.05607	0.02556	-0.16088
4	Sewer invert level	30.00000	10.00000	47.55000	0.13076	0.04293	-0.00018
4	Sewer invert level	40.00000	10.00000	47.55000	0.11538	0.02637	0.02323
4	Sewer invert level	50.00000	10.00000	47.55000	0.09562	0.01672	0.02378
4	Sewer invert level	-50.00000	20.00000	47.55000	-0.07055	0.02186	0.01730
4	Sewer invert level	-40.00000	20.00000	47.55000	-0.08108	0.03056	0.02148
4	Sewer invert level	-30.00000	20.00000	47.55000	-0.09309	0.04476	0.02454
4	Sewer invert level	-20.00000	20.00000	47.55000	-0.10269	0.06816	0.02166
4	Sewer invert level	-10.00000	20.00000	47.55000	-0.09476	0.10080	0.00106
4	Sewer invert level	0.00000	20.00000	47.55000	-0.04654	0.12112	-0.04589
4	Sewer invert level	10.00000	20.00000	47.55000	0.02276	0.12189	-0.05966
4	Sewer invert level	20.00000	20.00000	47.55000	0.08276	0.11111	-0.01320
4	Sewer invert level	30.00000	20.00000	47.55000	0.10324	0.07897	0.01734
4	Sewer invert level	40.00000	20.00000	47.55000	0.09714	0.05171	0.02463
4	Sewer invert level	50.00000	20.00000	47.55000	0.08519	0.03474	0.02283
4	Sewer invert level	-50.00000	30.00000	47.55000	-0.06273	0.03053	0.01576
4	Sewer invert level	-40.00000	30.00000	47.55000	-0.06910	0.04088	0.01956
4	Sewer invert level	-30.00000	30.00000	47.55000	-0.07440	0.05612	0.02313
4	Sewer invert level	-20.00000	30.00000	47.55000	-0.07490	0.07784	0.02481
4	Sewer invert level	-10.00000	30.00000	47.55000	-0.06296	0.10485	0.02244
4	Sewer invert level	0.00000	30.00000	47.55000	-0.03084	0.12774	0.01698
4	Sewer invert level	10.00000	30.00000	47.55000	0.01532	0.13189	0.01564
4	Sewer invert level	20.00000	30.00000	47.55000	0.05414	0.11411	0.02061
4	Sewer invert level	30.00000	30.00000	47.55000	0.07264	0.08696	0.02452
4	Sewer invert level	40.00000	30.00000	47.55000	0.07542	0.06294	0.02405
4	Sewer invert level	50.00000	30.00000	47.55000	0.07120	0.04556	0.02089
4	Sewer invert level	-50.00000	40.00000	47.55000	-0.05407	0.03587	0.01386
4	Sewer invert level	-40.00000	40.00000	47.55000	-0.05694	0.04589	0.01704
4	Sewer invert level	-30.00000	40.00000	47.55000	-0.05762	0.05917	0.02033
4	Sewer invert level	-20.00000	40.00000	47.55000	-0.05356	0.07568	0.02308
4	Sewer invert level	-10.00000	40.00000	47.55000	-0.04128	0.09331	0.02464
4	Sewer invert level	0.00000	40.00000	47.55000	-0.01897	0.10654	0.02499
4	Sewer invert level	10.00000	40.00000	47.55000	0.00933	0.10883	0.02499
4	Sewer invert level	20.00000	40.00000	47.55000	0.03456	0.09881	0.02486
4	Sewer invert level	30.00000	40.00000	47.55000	0.05037	0.08193	0.02379
4	Sewer invert level	40.00000	40.00000	47.55000	0.05691	0.06462	0.02139
4	Sewer invert level	50.00000	40.00000	47.55000	0.05753	0.05014	0.01821
4	Sewer invert level	-50.00000	50.00000	47.55000	-0.04581	0.03847	0.01186
4	Sewer invert level	-40.00000	50.00000	47.55000	-0.04628	0.04721	0.01435
4	Sewer invert level	-30.00000	50.00000	47.55000	-0.04448	0.05777	0.01698
4	Sewer invert level	-20.00000	50.00000	47.55000	-0.03894	0.06954	0.01941
4	Sewer invert level	-10.00000	50.00000	47.55000	-0.02829	0.08075	0.02128
4	Sewer invert level	0.00000	50.00000	47.55000	-0.01247	0.08841	0.02232
4	Sewer invert level	10.00000	50.00000	47.55000	0.00609	0.08968	0.02248
4	Sewer invert level	20.00000	50.00000	47.55000	0.02327	0.08401	0.02174
4	Sewer invert level	30.00000	50.00000	47.55000	0.03584	0.07366	0.02015
4	Sewer invert level	40.00000	50.00000	47.55000	0.04305	0.06181	0.01787
4	Sewer invert level	50.00000	50.00000	47.55000	0.04598	0.05071	0.01527

Results : Consolidation : Displacement Data : Grids

None

Results : Total : Displacement Data : Grids

None

Titles

Job No.: 13065
Job Title: 38 Meadowbank
Sub-title:
Calculation Heading: Immediate settlement
Initials: NS
Checker:
Date Saved:
Date Checked:
Notes:
File Name: immediate ground movements.pdd
File Path: J:\13000-13249\13065 - 38 Meadowbank, London\CALCS\GMA\Pdisp\250319\NS

History

Date	Time	By	Notes
18-Mar-2019	11:05	fatimad	New
18-Mar-2019	12:00	fatimad	
18-Mar-2019	13:39	fatimad	
18-Mar-2019	15:01	fatimad	
19-Mar-2019	11:22	fatimad	
20-Mar-2019	17:42	fatimad	
21-Mar-2019	10:35	fatimad	
21-Mar-2019	11:04	fatimad	
21-Mar-2019	17:10	fatimad	
25-Mar-2019	14:31	fatimad	
25-Mar-2019	15:15	fatimad	
25-Mar-2019	15:18	fatimad	
25-Mar-2019	17:36	fatimad	
26-Nov-2019	11:27	nicolas	
26-Nov-2019	16:03	nicolas	
26-Nov-2019	17:06	nicolas	
28-Nov-2019	11:35	nicolas	

Analysis Options

General
Global Poisson's ratio: 0.20
Maximum allowable ratio between values of E: 1.5
Horizontal rigid boundary level: 0.00 [m OD]
Displacements at load centroids: Yes
GSA piled raft data : No

Elastic
Elastic : Yes
Analysis: Mindlin
Calculate horizontal displacements: Yes
Stiffness for horizontal displacement calculations: Weighted average
Using legacy heave correction factor: No
Soil above horizontal load on horizontal plane dampens displacements below load: No
Soil above vertical load on horizontal plane dampens displacements below load: Yes

Consolidation
Consolidation : No

Soil ProfilesSoil Profile 1

Layer ref.	Name	Level at top [mOD]	Number of intermediate displacement levels	Youngs Modulus : Top [kN/m²]	Youngs Modulus : Btm. [kN/m²]	Poissons ratio	Non-linear curve
1	Made Ground	50.900	5	5000.0	5000.0	0.30000	None
2	London Clay 1	47.350	5	22000.	22000.	0.50000	None
3	London Clay 2	45.900	5	28000.	180000.	0.50000	None
4	London Clay 3	5.9000	5	180000.	180000.	0.50000	None

Non-linear Curve Coordinates - Non-linear Curve 1

Point	Strain [%]	Factor

Soil ones

Zone	Name	X min [m]	X max [m]	Y min [m]	Y max [m]	Profile
1	SZ1	-50.000	50.000	-50.000	50.000	Soil Profile 1

Polygonal Load Data

Load ref.	Name	Position : Level [m]	Position : Polygon : Coords. [m]	Position : Polygon tolerance : Rect. [%]	No. of Rectangles	Value : Normal (local z) [kN/m²]
1	37/38 party wall	47.10000	(1,0) (12.5,0) (12.5,1.4) (1,1.4)	10.000	1	95.000
2	38/38 party wall	47.10000	(1,3.6) (12.5,3.6) (12.5,5) (1,5)	10.000	1	50.000
3	Rear 38	47.10000	(11.1,1.4) (12.5,1.4) (12.5,3.6) (11.1,3.6)	10.000	1	5.0000
4	Front 38	47.10000	(1,1.4) (2.4,1.4) (2.4,3.6) (1,3.6)	10.000	1	15.000

Polygonal Loads Rectangles

No.	Centre : x [m]	Centre : y [m]	Angle of local x from global X [Degrees]	Width x [m]	Depth y [m]
Load 1 : 37/38 party wall					
(Edge 1 optimal)					
1	6.75000	0.70000	0.0	11.500	1.4000
Load 2 : 38/38 party wall					
(Edge 1 optimal)					
1	6.75000	4.30000	0.0	11.500	1.4000
Load 3 : Rear 38					
(Edge 1 optimal)					
1	11.80000	2.50000	0.0	1.4000	2.2000
Load 4 : Front 38					
(Edge 1 optimal)					
1	1.70000	2.50000	0.0	1.4000	2.2000

Displacement Lines

Name	X1 [m]	Y1 [m]	Z1 [m]	X2 [m]	Y2 [m]	Z2 [m]	Intervals [No.]	Calculate	Detailed Results
No 37/38 party wall	1.00000	0.00000	50.10000	10.20000	0.00000	50.10000	10	Yes	Yes
No 37 front wall	1.00000	0.00000	50.10000	1.00000	-6.00000	50.10000	10	Yes	Yes

Name	X1 [m]	Y1 [m]	Z1 [m]	X2 [m]	Y2 [m]	Z2 [m]	Intervals [No.]	Calculate	Detailed Results
No 37 rear wall	10.20000	0.00000	50.10000	10.20000	-6.00000	50.10000	10	Yes	Yes
N0 38/39 party wall	0.00000	5.00000	48.20000	12.50000	5.00000	48.20000	10	Yes	Yes
No 39 front wall	0.00000	5.00000	48.20000	0.00000	11.30000	48.20000	10	Yes	Yes
No 39 rear wall	12.50000	5.00000	48.20000	12.50000	11.30000	48.20000	10	Yes	Yes
No 36/37 party wall	1.00000	-6.00000	50.10000	10.20000	-6.00000	50.10000	10	Yes	Yes
TW sewer	-7.50000	-7.50000	47.55000	25.50000	-7.50000	47.55000	10	Yes	Yes
retaining wall	-1.50000	5.00000	48.00000	-2.80000	5.00000	48.00000	5	Yes	Yes
retaining wall	-2.80000	5.00000	48.00000	-2.80000	2.20000	48.00000	5	Yes	Yes

Displacement Grids

Name	Extrusion: Direction	X1 [m]	Y1 [m]	Z1 [m]	X2 [m]	Y2 [m]	Z2 [m]	Intervals Along Line [No.]	Extrusion: Distance [m]	Extrusion: Intervals Along [No.]	Calculate	Detailed Results
Basement level	Global X	-50.00000	-50.00000	47.10000	-	50.00000	47.10000	10	100.00000	10	Yes	No
No 36 & 37 foundation levels	Global X	-50.00000	-50.00000	50.10000	-	50.00000	50.10000	10	100.00000	10	Yes	Yes
No 39 foundation level	Global X	-50.00000	-50.00000	48.20000	-	50.00000	48.20000	10	100.00000	10	Yes	Yes
Sewer invert level	Global X	-50.00000	-50.00000	47.55000	-	50.00000	47.55000	10	100.00000	10	Yes	Yes

Warnings

(1)The load at (6.750, 0.700, 47.100)m lies wide of all soil zones. Displacements at its centre have been requested. The first soil profile will be used.

Results : Immediate : Load Centres : Polygonal

Ref.	Name	x [m]	y [m]	z [mOD]	δx [mm]	δy [mm]	δz [mm]
1	37/38 party wall	6.75000	0.70000	47.10000	0.00788	-0.18544	4.60868
2	38/38 party wall	6.75000	4.30000	47.10000	0.00788	0.34735	3.22588
3	Rear 38	11.80000	2.50000	47.10000	0.40308	0.07743	2.03640
4	Front 38	1.70000	2.50000	47.10000	-0.39964	0.07743	2.29253

Results : Consolidation : Load Centres : Polygonal

None

Results : Total : Load Centres : Polygonal

None

Results : Immediate : Displacement Data : Lines

Ref.	Name	x [m]	y [m]	z [mOD]	δx [mm]	δy [mm]	δz [mm]
1	No 37/38 party wall	1.00000	0.00000	50.10000	3.64206	1.67730	1.81361
1	No 37/38 party wall	1.92000	0.00000	50.10000	3.28675	1.92891	2.31512
1	No 37/38 party wall	2.84000	0.00000	50.10000	2.75168	2.13463	2.59528
1	No 37/38 party wall	3.76000	0.00000	50.10000	2.12462	2.28579	2.80284
1	No 37/38 party wall	4.68000	0.00000	50.10000	1.46186	2.38785	2.94254
1	No 37/38 party wall	5.60000	0.00000	50.10000	0.78785	2.44751	3.02360
1	No 37/38 party wall	6.52000	0.00000	50.10000	0.11158	2.46880	3.05401
1	No 37/38 party wall	7.44000	0.00000	50.10000	-0.56379	2.45315	3.03734
1	No 37/38 party wall	8.36000	0.00000	50.10000	-1.23556	2.39973	2.97218
1	No 37/38 party wall	9.28000	0.00000	50.10000	-1.89689	2.30567	2.85268
1	No 37/38 party wall	10.20000	0.00000	50.10000	-2.53023	2.16644	2.67062
2	No 37 front wall	1.00000	0.00000	50.10000	3.64206	1.67730	1.81361
2	No 37 front wall	1.00000	-0.60000	50.10000	3.44427	2.11657	1.50850
2	No 37 front wall	1.00000	-1.20000	50.10000	3.21243	2.43853	1.33219
2	No 37 front wall	1.00000	-1.80000	50.10000	2.96756	2.65112	1.16217
2	No 37 front wall	1.00000	-2.40000	50.10000	2.72462	2.77552	0.99994
2	No 37 front wall	1.00000	-3.00000	50.10000	2.49240	2.83370	0.85214
2	No 37 front wall	1.00000	-3.60000	50.10000	2.27536	2.84375	0.72202
2	No 37 front wall	1.00000	-4.20000	50.10000	2.07536	2.81954	0.60995
2	No 37 front wall	1.00000	-4.80000	50.10000	1.89277	2.77150	0.51476
2	No 37 front wall	1.00000	-5.40000	50.10000	1.72711	2.70743	0.43458
2	No 37 front wall	1.00000	-6.00000	50.10000	1.57742	2.63310	0.36735
3	No 37 rear wall	10.20000	0.00000	50.10000	-2.53023	2.16644	2.67062
3	No 37 rear wall	10.20000	-0.60000	50.10000	-2.40776	2.75820	2.13311
3	No 37 rear wall	10.20000	-1.20000	50.10000	-2.26053	3.16736	1.86226
3	No 37 rear wall	10.20000	-1.80000	50.10000	-2.09934	3.40992	1.60699
3	No 37 rear wall	10.20000	-2.40000	50.10000	-1.93369	3.52437	1.36560
3	No 37 rear wall	10.20000	-3.00000	50.10000	-1.77069	3.54846	1.14825
3	No 37 rear wall	10.20000	-3.60000	50.10000	-1.61505	3.51146	0.95955
3	No 37 rear wall	10.20000	-4.20000	50.10000	-1.46952	3.43441	0.79950
3	No 37 rear wall	10.20000	-4.80000	50.10000	-1.33546	3.33220	0.66570
3	No 37 rear wall	10.20000	-5.40000	50.10000	-1.21324	3.21531	0.55477
3	No 37 rear wall	10.20000	-6.00000	50.10000	-1.10263	3.09108	0.46320
4	N0 38/39 party wall	0.00000	5.00000	48.20000	0.65468	-0.31901	1.06935
4	N0 38/39 party wall	1.25000	5.00000	48.20000	0.69729	-0.57155	1.67394
4	N0 38/39 party wall	2.50000	5.00000	48.20000	0.41585	-0.73423	2.07926
4	N0 38/39 party wall	3.75000	5.00000	48.20000	0.22906	-0.75979	2.30508
4	N0 38/39 party wall	5.00000	5.00000	48.20000	0.11905	-0.76087	2.43478
4	N0 38/39 party wall	6.25000	5.00000	48.20000	0.02947	-0.76025	2.48938
4	N0 38/39 party wall	7.50000	5.00000	48.20000	-0.05808	-0.75945	2.47629
4	N0 38/39 party wall	8.75000	5.00000	48.20000	-0.15306	-0.75652	2.39425
4	N0 38/39 party wall	10.00000	5.00000	48.20000	-0.27730	-0.74391	2.23371
4	N0 38/39 party wall	11.25000	5.00000	48.20000	-0.48495	-0.68807	1.97174
4	N0 38/39 party wall	12.50000	5.00000	48.20000	-0.72357	-0.48596	1.46924
5	No 39 front wall	0.00000	5.00000	48.20000	0.65468	-0.31901	1.06935
5	No 39 front wall	0.00000	5.63000	48.20000	0.56618	-0.35749	0.94458
5	No 39 front wall	0.00000	6.26000	48.20000	0.49237	-0.36702	0.82270
5	No 39 front wall	0.00000	6.89000	48.20000	0.44158	-0.36955	0.71055
5	No 39 front wall	0.00000	7.52000	48.20000	0.40837	-0.37594	0.61009
5	No 39 front wall	0.00000	8.15000	48.20000	0.38597	-0.38810	0.52160
5	No 39 front wall	0.00000	8.78000	48.20000	0.36950	-0.40450	0.44462
5	No 39 front wall	0.00000	9.41000	48.20000	0.35592	-0.42287	0.37832
5	No 39 front wall	0.00000	10.04000	48.20000	0.34353	-0.44124	0.32165
5	No 39 front wall	0.00000	10.67000	48.20000	0.33144	-0.45822	0.27344
5	No 39 front wall	0.00000	11.30000	48.20000	0.31927	-0.47294	0.23257
6	No 39 rear wall	12.50000	5.00000	48.20000	-0.72357	-0.48596	1.46924
6	No 39 rear wall	12.50000	5.63000	48.20000	-0.58232	-0.52161	1.18276
6	No 39 rear wall	12.50000	6.26000	48.20000	-0.47729	-0.47791	0.99775
6	No 39 rear wall	12.50000	6.89000	48.20000	-0.41325	-0.43799	0.84566
6	No 39 rear wall	12.50000	7.52000	48.20000	-0.37493	-0.41870	0.71632
6	No 39 rear wall	12.50000	8.15000	48.20000	-0.35085	-0.41663	0.60575
6	No 39 rear wall	12.50000	8.78000	48.20000	-0.33419	-0.42567	0.51149
6	No 39 rear wall	12.50000	9.41000	48.20000	-0.32112	-0.44058	0.43157
6	No 39 rear wall	12.50000	10.04000	48.20000	-0.30955	-0.45759	0.36412
6	No 39 rear wall	12.50000	10.67000	48.20000	-0.29844	-0.47423	0.30741
6	No 39 rear wall	12.50000	11.30000	48.20000	-0.28733	-0.48903	0.25982
7	No 36/37 party wall	1.00000	-6.00000	50.10000	1.57742	2.63310	0.36735
7	No 36/37 party wall	1.92000	-6.00000	50.10000	1.40523	2.84310	0.41060
7	No 36/37 party wall	2.84000	-6.00000	50.10000	1.19121	3.03067	0.44973
7	No 36/37 party wall	3.76000	-6.00000	50.10000	0.94109	3.18697	0.48238
7	No 36/37 party wall	4.68000	-6.00000	50.10000	0.66271	3.30527	0.50713
7	No 36/37 party wall	5.60000	-6.00000	50.10000	0.36487	3.38113	0.52302
7	No 36/37 party wall	6.52000	-6.00000	50.10000	0.05662	3.41211	0.52957
7	No 36/37 party wall	7.44000	-6.00000	50.10000	-0.25313	3.39733	0.52662
7	No 36/37 party wall	8.36000	-6.00000	50.10000	-0.55549	3.33731	0.51426
7	No 36/37 party wall	9.28000	-6.00000	50.10000	-0.84159	3.23399	0.49287

Ref.	Name	x [m]	y [m]	z [mOD]	δx [mm]	δy [mm]	δz [mm]
7	No 36/37 party wall	10.20000	-6.00000	50.10000	-1.10263	3.09108	0.46320
8	TW sewer	-7.50000	-7.50000	47.55000	0.05090	0.03262	0.05649
8	TW sewer	-4.20000	-7.50000	47.55000	0.02261	0.01296	0.11256
8	TW sewer	-0.90000	-7.50000	47.55000	-0.00781	-0.02997	0.19763
8	TW sewer	2.40000	-7.50000	47.55000	-0.01931	-0.08430	0.29090
8	TW sewer	5.70000	-7.50000	47.55000	-0.00634	-0.11761	0.34529
8	TW sewer	9.00000	-7.50000	47.55000	0.01338	-0.10878	0.33112
8	TW sewer	12.30000	-7.50000	47.55000	0.01784	-0.06335	0.25600
8	TW sewer	15.60000	-7.50000	47.55000	-0.00328	-0.01036	0.16109
8	TW sewer	18.90000	-7.50000	47.55000	-0.03500	0.02322	0.08691
8	TW sewer	22.20000	-7.50000	47.55000	-0.05891	0.03546	0.04139
8	TW sewer	25.50000	-7.50000	47.55000	-0.07113	0.03617	0.01565
9	retaining wall	-1.50000	5.00000	48.00000	0.29178	-0.10038	0.69036
9	retaining wall	-1.76000	5.00000	48.00000	0.28801	-0.09704	0.64070
9	retaining wall	-2.02000	5.00000	48.00000	0.28694	-0.09488	0.59450
9	retaining wall	-2.28000	5.00000	48.00000	0.28804	-0.09356	0.55152
9	retaining wall	-2.54000	5.00000	48.00000	0.29081	-0.09283	0.51156
9	retaining wall	-2.80000	5.00000	48.00000	0.29486	-0.09251	0.47444
10	retaining wall	-2.80000	5.00000	48.00000	0.29486	-0.09251	0.47444
10	retaining wall	-2.80000	4.44000	48.00000	0.29512	-0.07461	0.50423
10	retaining wall	-2.80000	3.88000	48.00000	0.29520	-0.05723	0.53015
10	retaining wall	-2.80000	3.32000	48.00000	0.29536	-0.04047	0.55116
10	retaining wall	-2.80000	2.76000	48.00000	0.29587	-0.02421	0.56630
10	retaining wall	-2.80000	2.20000	48.00000	0.29679	-0.00804	0.57478

Results : Consolidation : Displacement Data : Lines

None

Results : Total : Displacement Data : Lines

None

Results : Immediate : Displacement Data : Grids

Ref.	Name	x [m]	y [m]	z [mOD]	δx [mm]	δy [mm]	δz [mm]
1	Basement level	-50.00000	-50.00000	47.10000	-0.00018	-0.00016	-0.00654
1	Basement level	-40.00000	-50.00000	47.10000	-0.00023	-0.00026	-0.00785
1	Basement level	-30.00000	-50.00000	47.10000	-0.00029	-0.00042	-0.00923
1	Basement level	-20.00000	-50.00000	47.10000	-0.00032	-0.00063	-0.01051
1	Basement level	-10.00000	-50.00000	47.10000	-0.00028	-0.00088	-0.01152
1	Basement level	0.00000	-50.00000	47.10000	-0.00014	-0.00107	-0.01210
1	Basement level	10.00000	-50.00000	47.10000	0.00007	-0.00110	-0.01219
1	Basement level	20.00000	-50.00000	47.10000	0.00024	-0.00096	-0.01177
1	Basement level	30.00000	-50.00000	47.10000	0.00032	-0.00072	-0.01089
1	Basement level	40.00000	-50.00000	47.10000	0.00031	-0.00048	-0.00968
1	Basement level	50.00000	-50.00000	47.10000	0.00025	-0.00031	-0.00832
1	Basement level	-50.00000	-40.00000	47.10000	-0.00027	-0.00020	-0.00772
1	Basement level	-40.00000	-40.00000	47.10000	-0.00040	-0.00036	-0.00943
1	Basement level	-30.00000	-40.00000	47.10000	-0.00056	-0.00065	-0.01122
1	Basement level	-20.00000	-40.00000	47.10000	-0.00071	-0.00113	-0.01281
1	Basement level	-10.00000	-40.00000	47.10000	-0.00070	-0.00180	-0.01391
1	Basement level	0.00000	-40.00000	47.10000	-0.00037	-0.00240	-0.01442
1	Basement level	10.00000	-40.00000	47.10000	0.00019	-0.00251	-0.01449
1	Basement level	20.00000	-40.00000	47.10000	0.00063	-0.00203	-0.01415
1	Basement level	30.00000	-40.00000	47.10000	0.00073	-0.00134	-0.01325
1	Basement level	40.00000	-40.00000	47.10000	0.00062	-0.00079	-0.01179
1	Basement level	50.00000	-40.00000	47.10000	0.00045	-0.00044	-0.01004
1	Basement level	-50.00000	-30.00000	47.10000	-0.00041	-0.00023	-0.00890
1	Basement level	-40.00000	-30.00000	47.10000	-0.00067	-0.00047	-0.01100
1	Basement level	-30.00000	-30.00000	47.10000	-0.00110	-0.00098	-0.01308
1	Basement level	-20.00000	-30.00000	47.10000	-0.00170	-0.00208	-0.01450
1	Basement level	-10.00000	-30.00000	47.10000	-0.00208	-0.00412	-0.01456
1	Basement level	0.00000	-30.00000	47.10000	-0.00131	-0.00648	-0.01357
1	Basement level	10.00000	-30.00000	47.10000	0.00069	-0.00697	-0.01332
1	Basement level	20.00000	-30.00000	47.10000	0.00200	-0.00497	-0.01427
1	Basement level	30.00000	-30.00000	47.10000	0.00189	-0.00266	-0.01469
1	Basement level	40.00000	-30.00000	47.10000	0.00129	-0.00126	-0.01367
1	Basement level	50.00000	-30.00000	47.10000	0.00080	-0.00059	-0.01173
1	Basement level	-50.00000	-20.00000	47.10000	-0.00058	-0.00023	-0.00993
1	Basement level	-40.00000	-20.00000	47.10000	-0.00107	-0.00051	-0.01233
1	Basement level	-30.00000	-20.00000	47.10000	-0.00210	-0.00129	-0.01431
1	Basement level	-20.00000	-20.00000	47.10000	-0.00425	-0.00362	-0.01405
1	Basement level	-10.00000	-20.00000	47.10000	-0.00750	-0.01039	-0.00824
1	Basement level	0.00000	-20.00000	47.10000	-0.00649	-0.02299	0.00305
1	Basement level	10.00000	-20.00000	47.10000	0.00365	-0.02628	0.00586
1	Basement level	20.00000	-20.00000	47.10000	0.00816	-0.01430	-0.00465
1	Basement level	30.00000	-20.00000	47.10000	0.00531	-0.00520	-0.01288
1	Basement level	40.00000	-20.00000	47.10000	0.00267	-0.00181	-0.01461
1	Basement level	50.00000	-20.00000	47.10000	0.00133	-0.00069	-0.01310
1	Basement level	-50.00000	-10.00000	47.10000	-0.00073	-0.00016	-0.01066
1	Basement level	-40.00000	-10.00000	47.10000	-0.00150	-0.00039	-0.01319
1	Basement level	-30.00000	-10.00000	47.10000	-0.00353	-0.00118	-0.01459
1	Basement level	-20.00000	-10.00000	47.10000	-0.00981	-0.00459	-0.01000
1	Basement level	-10.00000	-10.00000	47.10000	-0.03075	-0.02400	0.01919
1	Basement level	0.00000	-10.00000	47.10000	-0.05358	-0.11460	0.12332
1	Basement level	10.00000	-10.00000	47.10000	0.03402	-0.15240	0.16298
1	Basement level	20.00000	-10.00000	47.10000	0.04317	-0.04331	0.04381
1	Basement level	30.00000	-10.00000	47.10000	0.01439	-0.00779	-0.00469
1	Basement level	40.00000	-10.00000	47.10000	0.00488	-0.00181	-0.01416
1	Basement level	50.00000	-10.00000	47.10000	0.00197	-0.00055	-0.01391
1	Basement level	-50.00000	0.00000	47.10000	-0.00082	-0.00003	-0.01097
1	Basement level	-40.00000	0.00000	47.10000	-0.00176	-0.00008	-0.01353
1	Basement level	-30.00000	0.00000	47.10000	-0.00453	-0.00025	-0.01441
1	Basement level	-20.00000	0.00000	47.10000	-0.01542	-0.00119	-0.00555
1	Basement level	-10.00000	0.00000	47.10000	-0.08180	-0.01059	0.06871
1	Basement level	0.00000	0.00000	47.10000	-0.40351	-0.15701	1.25846
1	Basement level	10.00000	0.00000	47.10000	0.28156	-0.25221	3.34969
1	Basement level	20.00000	0.00000	47.10000	0.15931	-0.02642	0.17579
1	Basement level	30.00000	0.00000	47.10000	0.02555	-0.00226	0.00488
1	Basement level	40.00000	0.00000	47.10000	0.00659	-0.00040	-0.01335
1	Basement level	50.00000	0.00000	47.10000	0.00236	-0.00011	-0.01419
1	Basement level	-50.00000	10.00000	47.10000	-0.00078	0.00011	-0.01083
1	Basement level	-40.00000	10.00000	47.10000	-0.00164	0.00029	-0.01338
1	Basement level	-30.00000	10.00000	47.10000	-0.00405	0.00091	-0.01452
1	Basement level	-20.00000	10.00000	47.10000	-0.01251	0.00395	-0.00784
1	Basement level	-10.00000	10.00000	47.10000	-0.05065	0.02682	0.03949
1	Basement level	0.00000	10.00000	47.10000	-0.13722	0.20929	0.32933
1	Basement level	10.00000	10.00000	47.10000	0.09242	0.30518	0.47854
1	Basement level	20.00000	10.00000	47.10000	0.08198	0.05613	0.08974
1	Basement level	30.00000	10.00000	47.10000	0.01949	0.00714	-0.00021
1	Basement level	40.00000	10.00000	47.10000	0.00575	0.00144	-0.01378
1	Basement level	50.00000	10.00000	47.10000	0.00218	0.00041	-0.01408
1	Basement level	-50.00000	20.00000	47.10000	-0.00064	0.00021	-0.01026
1	Basement level	-40.00000	20.00000	47.10000	-0.00124	0.00049	-0.01273
1	Basement level	-30.00000	20.00000	47.10000	-0.00263	0.00133	-0.01453
1	Basement level	-20.00000	20.00000	47.10000	-0.00604	0.00424	-0.01289
1	Basement level	-10.00000	20.00000	47.10000	-0.01303	0.01498	-0.00116
1	Basement level	0.00000	20.00000	47.10000	-0.01401	0.04180	0.02492
1	Basement level	10.00000	20.00000	47.10000	0.00823	0.04990	0.03217
1	Basement level	20.00000	20.00000	47.10000	0.01535	0.02238	0.00649
1	Basement level	30.00000	20.00000	47.10000	0.00799	0.00646	-0.01053
1	Basement level	40.00000	20.00000	47.10000	0.00346	0.00193	-0.01459
1	Basement level	50.00000	20.00000	47.10000	0.00158	0.00067	-0.01349
1	Basement level	-50.00000	30.00000	47.10000	-0.00047	0.00024	-0.00933
1	Basement level	-40.00000	30.00000	47.10000	-0.00081	0.00049	-0.01156
1	Basement level	-30.00000	30.00000	47.10000	-0.00143	0.00111	-0.01367
1	Basement level	-20.00000	30.00000	47.10000	-0.00243	0.00262	-0.01469

Ref.	Name	x [m]	y [m]	z [mOD]	δx [mm]	δy [mm]	δz [mm]
1	Basement level	-10.00000	30.00000	47.10000	-0.00337	0.00587	-0.01341
1	Basement level	0.00000	30.00000	47.10000	-0.00233	0.01027	-0.01041
1	Basement level	10.00000	30.00000	47.10000	0.00127	0.01124	-0.00971
1	Basement level	20.00000	30.00000	47.10000	0.00336	0.00738	-0.01245
1	Basement level	30.00000	30.00000	47.10000	0.00281	0.00349	-0.01455
1	Basement level	40.00000	30.00000	47.10000	0.00173	0.00148	-0.01419
1	Basement level	50.00000	30.00000	47.10000	0.00098	0.00065	-0.01232
1	Basement level	-50.00000	40.00000	47.10000	-0.00032	0.00022	-0.00819
1	Basement level	-40.00000	40.00000	47.10000	-0.00049	0.00040	-0.01006
1	Basement level	-30.00000	40.00000	47.10000	-0.00073	0.00077	-0.01199
1	Basement level	-20.00000	40.00000	47.10000	-0.00099	0.00144	-0.01361
1	Basement level	-10.00000	40.00000	47.10000	-0.00105	0.00246	-0.01454
1	Basement level	0.00000	40.00000	47.10000	-0.00059	0.00346	-0.01478
1	Basement level	10.00000	40.00000	47.10000	0.00031	0.00364	-0.01479
1	Basement level	20.00000	40.00000	47.10000	0.00097	0.00283	-0.01468
1	Basement level	30.00000	40.00000	47.10000	0.00105	0.00175	-0.01401
1	Basement level	40.00000	40.00000	47.10000	0.00082	0.00095	-0.01259
1	Basement level	50.00000	40.00000	47.10000	0.00056	0.00050	-0.01072
1	Basement level	-50.00000	50.00000	47.10000	-0.00021	0.00018	-0.00700
1	Basement level	-40.00000	50.00000	47.10000	-0.00029	0.00030	-0.00846
1	Basement level	-30.00000	50.00000	47.10000	-0.00038	0.00050	-0.01000
1	Basement level	-20.00000	50.00000	47.10000	-0.00043	0.00079	-0.01142
1	Basement level	-10.00000	50.00000	47.10000	-0.00039	0.00115	-0.01251
1	Basement level	0.00000	50.00000	47.10000	-0.00020	0.00144	-0.01312
1	Basement level	10.00000	50.00000	47.10000	0.00010	0.00149	-0.01321
1	Basement level	20.00000	50.00000	47.10000	0.00035	0.00127	-0.01277
1	Basement level	30.00000	50.00000	47.10000	0.00044	0.00091	-0.01183
1	Basement level	40.00000	50.00000	47.10000	0.00040	0.00059	-0.01050
1	Basement level	50.00000	50.00000	47.10000	0.00032	0.00036	-0.00898
2	No 36 & 37 foundation levels	-50.00000	-50.00000	50.10000	0.24466	0.22491	-0.00657
2	No 36 & 37 foundation levels	-40.00000	-50.00000	50.10000	0.24556	0.27426	-0.00789
2	No 36 & 37 foundation levels	-30.00000	-50.00000	50.10000	0.23400	0.33284	-0.00928
2	No 36 & 37 foundation levels	-20.00000	-50.00000	50.10000	0.20281	0.39689	-0.01058
2	No 36 & 37 foundation levels	-10.00000	-50.00000	50.10000	0.14579	0.45665	-0.01160
2	No 36 & 37 foundation levels	0.00000	-50.00000	50.10000	0.06352	0.49676	-0.01220
2	No 36 & 37 foundation levels	10.00000	-50.00000	50.10000	-0.03188	0.50312	-0.01229
2	No 36 & 37 foundation levels	20.00000	-50.00000	50.10000	-0.12052	0.47322	-0.01186
2	No 36 & 37 foundation levels	30.00000	-50.00000	50.10000	-0.18665	0.41821	-0.01096
2	No 36 & 37 foundation levels	40.00000	-50.00000	50.10000	-0.22606	0.35417	-0.00973
2	No 36 & 37 foundation levels	50.00000	-50.00000	50.10000	-0.24340	0.29307	-0.00836
2	No 36 & 37 foundation levels	-50.00000	-40.00000	50.10000	0.29272	0.21742	-0.00776
2	No 36 & 37 foundation levels	-40.00000	-40.00000	50.10000	0.30665	0.27681	-0.00949
2	No 36 & 37 foundation levels	-30.00000	-40.00000	50.10000	0.30806	0.35431	-0.01130
2	No 36 & 37 foundation levels	-20.00000	-40.00000	50.10000	0.28355	0.44899	-0.01293
2	No 36 & 37 foundation levels	-10.00000	-40.00000	50.10000	0.21615	0.54823	-0.01407
2	No 36 & 37 foundation levels	0.00000	-40.00000	50.10000	0.09808	0.62155	-0.01462
2	No 36 & 37 foundation levels	10.00000	-40.00000	50.10000	-0.04954	0.63372	-0.01469
2	No 36 & 37 foundation levels	20.00000	-40.00000	50.10000	-0.18168	0.57782	-0.01432
2	No 36 & 37 foundation levels	30.00000	-40.00000	50.10000	-0.26640	0.48311	-0.01338
2	No 36 & 37 foundation levels	40.00000	-40.00000	50.10000	-0.30354	0.38462	-0.01188
2	No 36 & 37 foundation levels	50.00000	-40.00000	50.10000	-0.30908	0.30082	-0.01010
2	No 36 & 37 foundation levels	-50.00000	-30.00000	50.10000	0.34612	0.19593	-0.00895
2	No 36 & 37 foundation levels	-40.00000	-30.00000	50.10000	0.38106	0.26226	-0.01108
2	No 36 & 37 foundation levels	-30.00000	-30.00000	50.10000	0.40965	0.35950	-0.01321
2	No 36 & 37 foundation levels	-20.00000	-30.00000	50.10000	0.41163	0.49800	-0.01472
2	No 36 & 37 foundation levels	-10.00000	-30.00000	50.10000	0.34612	0.67206	-0.01493
2	No 36 & 37 foundation levels	0.00000	-30.00000	50.10000	0.16958	0.82422	-0.01408
2	No 36 & 37 foundation levels	10.00000	-30.00000	50.10000	-0.08676	0.85174	-0.01386
2	No 36 & 37 foundation levels	20.00000	-30.00000	50.10000	-0.29993	0.73082	-0.01469
2	No 36 & 37 foundation levels	30.00000	-30.00000	50.10000	-0.39972	0.55416	-0.01495
2	No 36 & 37 foundation levels	40.00000	-30.00000	50.10000	-0.41489	0.40127	-0.01382
2	No 36 & 37 foundation levels	50.00000	-30.00000	50.10000	-0.39208	0.29101	-0.01182
2	No 36 & 37 foundation levels	-50.00000	-20.00000	50.10000	0.39916	0.15534	-0.00999
2	No 36 & 37 foundation levels	-40.00000	-20.00000	50.10000	0.46279	0.21909	-0.01243
2	No 36 & 37 foundation levels	-30.00000	-20.00000	50.10000	0.53880	0.32560	-0.01451
2	No 36 & 37 foundation levels	-20.00000	-20.00000	50.10000	0.61191	0.51103	-0.01448
2	No 36 & 37 foundation levels	-10.00000	-20.00000	50.10000	0.60998	0.82194	-0.00922
2	No 36 & 37 foundation levels	0.00000	-20.00000	50.10000	0.35194	1.19636	0.00119
2	No 36 & 37 foundation levels	10.00000	-20.00000	50.10000	-0.18563	1.27732	0.00380
2	No 36 & 37 foundation levels	20.00000	-20.00000	50.10000	-0.56219	0.95312	-0.00592
2	No 36 & 37 foundation levels	30.00000	-20.00000	50.10000	-0.62649	0.60036	-0.01345
2	No 36 & 37 foundation levels	40.00000	-20.00000	50.10000	-0.56558	0.37688	-0.01487
2	No 36 & 37 foundation levels	50.00000	-20.00000	50.10000	-0.48730	0.24883	-0.01323
2	No 36 & 37 foundation levels	-50.00000	-10.00000	50.10000	0.44170	0.09365	-0.01073
2	No 36 & 37 foundation levels	-40.00000	-10.00000	50.10000	0.53486	0.13802	-0.01332
2	No 36 & 37 foundation levels	-30.00000	-10.00000	50.10000	0.67179	0.22155	-0.01489
2	No 36 & 37 foundation levels	-20.00000	-10.00000	50.10000	0.88053	0.40280	-0.01083
2	No 36 & 37 foundation levels	-10.00000	-10.00000	50.10000	1.16074	0.86804	0.01611
2	No 36 & 37 foundation levels	0.00000	-10.00000	50.10000	0.99959	1.96773	0.11347
2	No 36 & 37 foundation levels	10.00000	-10.00000	50.10000	-0.57446	2.32956	0.15101
2	No 36 & 37 foundation levels	20.00000	-10.00000	50.10000	-1.22373	1.16282	0.03897
2	No 36 & 37 foundation levels	30.00000	-10.00000	50.10000	-0.97165	0.51124	-0.00595
2	No 36 & 37 foundation levels	40.00000	-10.00000	50.10000	-0.73257	0.26656	-0.01457
2	No 36 & 37 foundation levels	50.00000	-10.00000	50.10000	-0.57499	0.16006	-0.01408
2	No 36 & 37 foundation levels	-50.00000	0.00000	50.10000	0.46188	0.01603	-0.01105
2	No 36 & 37 foundation levels	-40.00000	0.00000	50.10000	0.57135	0.02413	-0.01368
2	No 36 & 37 foundation levels	-30.00000	0.00000	50.10000	0.74746	0.04037	-0.01476
2	No 36 & 37 foundation levels	-20.00000	0.00000	50.10000	1.07425	0.08065	-0.00675
2	No 36 & 37 foundation levels	-10.00000	0.00000	50.10000	1.85048	0.22971	0.06224
2	No 36 & 37 foundation levels	0.00000	0.00000	50.10000	3.76376	1.38898	1.27326
2	No 36 & 37 foundation levels	10.00000	0.00000	50.10000	-2.39647	2.20080	2.71590
2	No 36 & 37 foundation levels	20.00000	0.00000	50.10000	-2.37933	0.37757	0.16515
2	No 36 & 37 foundation levels	30.00000	0.00000	50.10000	-1.25600	0.10831	0.00290
2	No 36 & 37 foundation levels	40.00000	0.00000	50.10000	-0.83347	0.04959	-0.01386
2	No 36 & 37 foundation levels	50.00000	0.00000	50.10000	-0.62078	0.02825	-0.01439
2	No 36 & 37 foundation levels	-50.00000	10.00000	50.10000	0.45283	-0.06460	-0.01091
2	No 36 & 37 foundation levels	-40.00000	10.00000	50.10000	0.55479	-0.09634	-0.01352
2	No 36 & 37 foundation levels	-30.00000	10.00000	50.10000	0.71233	-0.15815	-0.01485
2	No 36 & 37 foundation levels	-20.00000	10.00000	50.10000	0.97975	-0.30214	-0.00885
2	No 36 & 37 foundation levels	-10.00000	10.00000	50.10000	1.46681	-0.74411	0.03494
2	No 36 & 37 foundation levels	0.00000	10.00000	50.10000	1.69680	-2.37469	0.31830
2	No 36 & 37 foundation levels	10.00000	10.00000	50.10000	-1.03751	-3.08841	0.47059
2	No 36 & 37 foundation levels	20.00000	10.00000	50.10000	-1.67778	-1.08887	0.08210
2	No 36 & 37 foundation levels	30.00000	10.00000	50.10000	-1.11258	-0.39543	-0.00181
2	No 36 & 37 foundation levels	40.00000	10.00000	50.10000	-0.78592	-0.19273	-0.01424
2	No 36 & 37 foundation levels	50.00000	10.00000	50.10000	-0.59983	-0.11245	-0.01426
2	No 36 & 37 foundation levels	-50.00000	20.00000	50.10000	0.41773	-0.13362	-0.01032
2	No 36 & 37 foundation levels	-40.00000	20.00000	50.10000	0.49349	-0.19206	-0.01284
2	No 36 & 37 foundation levels	-30.00000	20.00000	50.10000	0.59298	-0.29473	-0.01477
2	No 36 & 37 foundation levels	-20.00000	20.00000	50.10000	0.71220	-0.48982	-0.01345
2	No 36 & 37 foundation levels	-10.00000	20.00000	50.10000	0.78152	-0.87037	-0.00270
2	No 36 & 37 foundation levels	0.00000	20.00000	50.10000	0.50568	-1.43295	0.02142
2	No 36 & 37 foundation levels	10.00000	20.00000	50.10000	-0.27382	-1.56986	0.02814
2	No 36 & 37 foundation levels	20.00000	20.00000	50.10000	-0.75012	-1.05297	0.00438
2	No 36 & 37 foundation levels	30.00000	20.00000	50.10000	-0.74910	-0.59169	-0.01132
2	No 36 & 37 foundation levels	40.00000	20.00000	50.10000	-0.63192	-0.34652	-0.01490
2	No 36 & 37 foundation levels	50.00000	20.00000	50.10000	-0.52412	-0.22010	-0.01363
2	No 36 & 37 foundation levels	-50.00000	30.00000	50.10000	0.36739	-0.18255	-0.00938
2	No 36 & 37 foundation levels	-40.00000	30.00000	50.10000	0.41283	-0.24944	-0.01165
2	No 36 & 37 foundation levels	-30.00000	30.00000	50.10000	0.45744	-0.35257	-0.01382
2	No 36 & 37 foundation levels	-20.00000	30.00000	50.10000	0.48022	-0.51062	-0.01497
2	No 36 & 37 foundation levels	-10.00000	30.00000	50.10000	0.42695	-0.72966	-0.01393
2	No 36 & 37 foundation levels	0.00000	30.00000	50.10000	0.21959	-0.94140	-0.01122
2	No 36 & 37 foundation levels	10.00000	30.00000	50.10000	-0.11357	-0.98166	-0.01058
2	No 36 & 37 foundation levels	20.00000	30.00000	50.10000	-0.37710	-0.80885	-0.01307
2	No 36 & 37 foundation levels	30.00000	30.00000	50.10000	-0.47468	-0.57855	-0.01491
2	No 36 & 37 foundation levels	40.00000	30.00000	50.10000	-0.46933	-0.39875	-0.01438
2	No 36 & 37 foundation levels	50.00000	30.00000	50.10000	-0.42851	-0.27927	-0.01242
2	No 36 & 37 foundation levels	-50.00000	40.00000	50.10000	0.31319	-0.21098	-0.00823
2	No 36 & 37 foundation levels	-40.00000	40.00000	50.10000	0.33432	-0.27375	-0.01012
2	No 36 & 37 foundation levels	-30.00000	40.00000	50.10000	0.34426	-0.35925	-0.01208
2	No 36 & 37 foundation levels	-20.00000	40.00000	50.10000	0.32671	-0.46957	-0.01376
2	No 36 & 37 foundation levels	-10.00000	40.00000	50.10000	0.25722	-0.59252	-0.01476
2	No 36 & 37 foundation levels	0.00000	40.00000	50.10000	0.11952	-0.68843	-0.01506

Ref.	Name	x [m]	y [m]	z [mOD]	δx [mm]	δy [mm]	δz [mm]
2	No 36 & 37 foundation levels	10.00000	40.00000	50.10000	-0.06071	-0.70474	-0.01508
2	No 36 & 37 foundation levels	20.00000	40.00000	50.10000	-0.21836	-0.63060	-0.01492
2	No 36 & 37 foundation levels	30.00000	40.00000	50.10000	-0.31036	-0.51088	-0.01418
2	No 36 & 37 foundation levels	40.00000	40.00000	50.10000	-0.34250	-0.39379	-0.01270
2	No 36 & 37 foundation levels	50.00000	40.00000	50.10000	-0.33952	-0.29977	-0.01079
2	No 36 & 37 foundation levels	-50.00000	50.00000	50.10000	0.26264	-0.22330	-0.00703
2	No 36 & 37 foundation levels	-40.00000	50.00000	50.10000	0.26781	-0.27667	-0.00850
2	No 36 & 37 foundation levels	-30.00000	50.00000	50.10000	0.26009	-0.34224	-0.01005
2	No 36 & 37 foundation levels	-20.00000	50.00000	50.10000	0.23017	-0.41680	-0.01150
2	No 36 & 37 foundation levels	-10.00000	50.00000	50.10000	0.16874	-0.48919	-0.01262
2	No 36 & 37 foundation levels	0.00000	50.00000	50.10000	0.07448	-0.53934	-0.01325
2	No 36 & 37 foundation levels	10.00000	50.00000	50.10000	-0.03750	-0.54739	-0.01334
2	No 36 & 37 foundation levels	20.00000	50.00000	50.10000	-0.14029	-0.50970	-0.01289
2	No 36 & 37 foundation levels	30.00000	50.00000	50.10000	-0.21333	-0.44226	-0.01192
2	No 36 & 37 foundation levels	40.00000	50.00000	50.10000	-0.25300	-0.36670	-0.01056
2	No 36 & 37 foundation levels	50.00000	50.00000	50.10000	-0.26705	-0.29744	-0.00902
3	No 39 foundation level	-50.00000	-50.00000	48.20000	0.10801	0.09928	-0.00657
3	No 39 foundation level	-40.00000	-50.00000	48.20000	0.10754	0.12009	-0.00788
3	No 39 foundation level	-30.00000	-50.00000	48.20000	0.10159	0.14447	-0.00927
3	No 39 foundation level	-20.00000	-50.00000	48.20000	0.08729	0.17078	-0.01056
3	No 39 foundation level	-10.00000	-50.00000	48.20000	0.06228	0.19502	-0.01158
3	No 39 foundation level	0.00000	-50.00000	48.20000	0.02701	0.21113	-0.01218
3	No 39 foundation level	10.00000	-50.00000	48.20000	-0.01354	0.21368	-0.01227
3	No 39 foundation level	20.00000	-50.00000	48.20000	-0.05139	0.20169	-0.01184
3	No 39 foundation level	30.00000	-50.00000	48.20000	-0.08012	0.17946	-0.01095
3	No 39 foundation level	40.00000	-50.00000	48.20000	-0.09785	0.15327	-0.00972
3	No 39 foundation level	50.00000	-50.00000	48.20000	-0.10628	0.12795	-0.00835
3	No 39 foundation level	-50.00000	-40.00000	48.20000	0.12829	0.09527	-0.00775
3	No 39 foundation level	-40.00000	-40.00000	48.20000	0.13294	0.11997	-0.00947
3	No 39 foundation level	-30.00000	-40.00000	48.20000	0.13187	0.15162	-0.01128
3	No 39 foundation level	-20.00000	-40.00000	48.20000	0.11973	0.18950	-0.01290
3	No 39 foundation level	-10.00000	-40.00000	48.20000	0.09010	0.22838	-0.01404
3	No 39 foundation level	0.00000	-40.00000	48.20000	0.04053	0.25662	-0.01458
3	No 39 foundation level	10.00000	-40.00000	48.20000	-0.02044	0.26127	-0.01464
3	No 39 foundation level	20.00000	-40.00000	48.20000	-0.07546	0.23982	-0.01428
3	No 39 foundation level	30.00000	-40.00000	48.20000	-0.11198	0.20296	-0.01335
3	No 39 foundation level	40.00000	-40.00000	48.20000	-0.12934	0.16384	-0.01186
3	No 39 foundation level	50.00000	-40.00000	48.20000	-0.13344	0.12985	-0.01008
3	No 39 foundation level	-50.00000	-30.00000	48.20000	0.15056	0.08521	-0.00894
3	No 39 foundation level	-40.00000	-30.00000	48.20000	0.16336	0.11240	-0.01106
3	No 39 foundation level	-30.00000	-30.00000	48.20000	0.17240	0.15122	-0.01318
3	No 39 foundation level	-20.00000	-30.00000	48.20000	0.16935	0.20472	-0.01467
3	No 39 foundation level	-10.00000	-30.00000	48.20000	0.13893	0.26941	-0.01483
3	No 39 foundation level	0.00000	-30.00000	48.20000	0.06677	0.32396	-0.01395
3	No 39 foundation level	10.00000	-30.00000	48.20000	-0.03405	0.33364	-0.01371
3	No 39 foundation level	20.00000	-30.00000	48.20000	-0.11947	0.29068	-0.01458
3	No 39 foundation level	30.00000	-30.00000	48.20000	-0.16308	0.22588	-0.01489
3	No 39 foundation level	40.00000	-30.00000	48.20000	-0.17335	0.16756	-0.01379
3	No 39 foundation level	50.00000	-30.00000	48.20000	-0.16712	0.12399	-0.01180
3	No 39 foundation level	-50.00000	-20.00000	48.20000	0.17243	0.06709	-0.00997
3	No 39 foundation level	-40.00000	-20.00000	48.20000	0.19618	0.09284	-0.01241
3	No 39 foundation level	-30.00000	-20.00000	48.20000	0.22241	0.13431	-0.01447
3	No 39 foundation level	-20.00000	-20.00000	48.20000	0.24306	0.20269	-0.01437
3	No 39 foundation level	-10.00000	-20.00000	48.20000	0.22972	0.30855	-0.00894
3	No 39 foundation level	0.00000	-20.00000	48.20000	0.12564	0.42444	0.00177
3	No 39 foundation level	10.00000	-20.00000	48.20000	-0.06560	0.44812	0.00445
3	No 39 foundation level	20.00000	-20.00000	48.20000	-0.20756	0.35041	-0.00554
3	No 39 foundation level	30.00000	-20.00000	48.20000	-0.24479	0.23413	-0.01329
3	No 39 foundation level	40.00000	-20.00000	48.20000	-0.23082	0.15367	-0.01481
3	No 39 foundation level	50.00000	-20.00000	48.20000	-0.20494	0.10460	-0.01320
3	No 39 foundation level	-50.00000	-10.00000	48.20000	0.18980	0.04023	-0.01071
3	No 39 foundation level	-40.00000	-10.00000	48.20000	0.22465	0.05794	-0.01329
3	No 39 foundation level	-30.00000	-10.00000	48.20000	0.27233	0.08972	-0.01481
3	No 39 foundation level	-20.00000	-10.00000	48.20000	0.33537	0.15303	-0.01059
3	No 39 foundation level	-10.00000	-10.00000	48.20000	0.38921	0.28840	0.01716
3	No 39 foundation level	0.00000	-10.00000	48.20000	0.26840	0.50682	0.11758
3	No 39 foundation level	10.00000	-10.00000	48.20000	-0.14662	0.56049	0.15623
3	No 39 foundation level	20.00000	-10.00000	48.20000	-0.38290	0.35816	0.04073
3	No 39 foundation level	30.00000	-10.00000	48.20000	-0.35817	0.18775	-0.00557
3	No 39 foundation level	40.00000	-10.00000	48.20000	-0.29200	0.10611	-0.01446
3	No 39 foundation level	50.00000	-10.00000	48.20000	-0.23908	0.06651	-0.01404
3	No 39 foundation level	-50.00000	0.00000	48.20000	0.19799	0.00687	-0.01103
3	No 39 foundation level	-40.00000	0.00000	48.20000	0.23891	0.01009	-0.01365
3	No 39 foundation level	-30.00000	0.00000	48.20000	0.30005	0.01619	-0.01467
3	No 39 foundation level	-20.00000	0.00000	48.20000	0.39765	0.02975	-0.00639
3	No 39 foundation level	-10.00000	0.00000	48.20000	0.53929	0.06587	0.06477
3	No 39 foundation level	0.00000	0.00000	48.20000	0.85045	0.30713	1.31207
3	No 39 foundation level	10.00000	0.00000	48.20000	-0.32638	1.02872	3.10177
3	No 39 foundation level	20.00000	0.00000	48.20000	-0.56291	0.08666	0.17019
3	No 39 foundation level	30.00000	0.00000	48.20000	-0.44247	0.03798	0.00353
3	No 39 foundation level	40.00000	0.00000	48.20000	-0.32777	0.01947	-0.01372
3	No 39 foundation level	50.00000	0.00000	48.20000	-0.25665	0.01167	-0.01434
3	No 39 foundation level	-50.00000	10.00000	48.20000	0.19432	-0.02771	-0.01089
3	No 39 foundation level	-40.00000	10.00000	48.20000	0.23245	-0.04034	-0.01349
3	No 39 foundation level	-30.00000	10.00000	48.20000	0.28724	-0.06371	-0.01476
3	No 39 foundation level	-20.00000	10.00000	48.20000	0.36770	-0.11306	-0.00856
3	No 39 foundation level	-10.00000	10.00000	48.20000	0.46200	-0.23153	0.03659
3	No 39 foundation level	0.00000	10.00000	48.20000	0.34430	-0.44011	0.32498
3	No 39 foundation level	10.00000	10.00000	48.20000	-0.19020	-0.49267	0.47759
3	No 39 foundation level	20.00000	10.00000	48.20000	-0.46982	-0.29789	0.08519
3	No 39 foundation level	30.00000	10.00000	48.20000	-0.40096	-0.14186	-0.00131
3	No 39 foundation level	40.00000	10.00000	48.20000	-0.31103	-0.07616	-0.01412
3	No 39 foundation level	50.00000	10.00000	48.20000	-0.24863	-0.04658	-0.01422
3	No 39 foundation level	-50.00000	20.00000	48.20000	0.18003	-0.05757	-0.01031
3	No 39 foundation level	-40.00000	20.00000	48.20000	0.20836	-0.08106	-0.01282
3	No 39 foundation level	-30.00000	20.00000	48.20000	0.24294	-0.12065	-0.01471
3	No 39 foundation level	-20.00000	20.00000	48.20000	0.27835	-0.19110	-0.01330
3	No 39 foundation level	-10.00000	20.00000	48.20000	0.28342	-0.31420	-0.00223
3	No 39 foundation level	0.00000	20.00000	48.20000	0.16773	-0.46988	0.02262
3	No 39 foundation level	10.00000	20.00000	48.20000	-0.08914	-0.50419	0.02954
3	No 39 foundation level	20.00000	20.00000	48.20000	-0.26365	-0.36773	0.00506
3	No 39 foundation level	30.00000	20.00000	48.20000	-0.28651	-0.22576	-0.01109
3	No 39 foundation level	40.00000	20.00000	48.20000	-0.25543	-0.13992	-0.01483
3	No 39 foundation level	50.00000	20.00000	48.20000	-0.21936	-0.09207	-0.01360
3	No 39 foundation level	-50.00000	30.00000	48.20000	0.15935	-0.07916	-0.00937
3	No 39 foundation level	-40.00000	30.00000	48.20000	0.17618	-0.10642	-0.01163
3	No 39 foundation level	-30.00000	30.00000	48.20000	0.19109	-0.14720	-0.01378
3	No 39 foundation level	-20.00000	30.00000	48.20000	0.19509	-0.20724	-0.01490
3	No 39 foundation level	-10.00000	30.00000	48.20000	0.16783	-0.28632	-0.01379
3	No 39 foundation level	0.00000	30.00000	48.20000	0.08395	-0.35895	-0.01099
3	No 39 foundation level	10.00000	30.00000	48.20000	-0.04320	-0.37239	-0.01033
3	No 39 foundation level	20.00000	30.00000	48.20000	-0.14664	-0.31389	-0.01290
3	No 39 foundation level	30.00000	30.00000	48.20000	-0.19077	-0.23224	-0.01482
3	No 39 foundation level	40.00000	30.00000	48.20000	-0.19437	-0.16503	-0.01434
3	No 39 foundation level	50.00000	30.00000	48.20000	-0.18169	-0.11836	-0.01240
3	No 39 foundation level	-50.00000	40.00000	48.20000	0.13686	-0.09218	-0.00822
3	No 39 foundation level	-40.00000	40.00000	48.20000	0.14431	-0.11813	-0.01011
3	No 39 foundation level	-30.00000	40.00000	48.20000	0.14644	-0.15276	-0.01206
3	No 39 foundation level	-20.00000	40.00000	48.20000	0.13668	-0.19635	-0.01372
3	No 39 foundation level	-10.00000	40.00000	48.20000	0.10586	-0.24366	-0.01471
3	No 39 foundation level	0.00000	40.00000	48.20000	0.04862	-0.27974	-0.01499
3	No 39 foundation level	10.00000	40.00000	48.20000	-0.02464	-0.28581	-0.01500
3	No 39 foundation level	20.00000	40.00000	48.20000	-0.08944	-0.25807	-0.01486
3	No 39 foundation level	30.00000	40.00000	48.20000	-0.12910	-0.21238	-0.01414
3	No 39 foundation level	40.00000	40.00000	48.20000	-0.14490	-0.16653	-0.01267
3	No 39 foundation level	50.00000	40.00000	48.20000	-0.14587	-0.12876	-0.01077
3	No 39 foundation level	-50.00000	50.00000	48.20000	0.11562	-0.09829	-0.00702
3	No 39 foundation level	-40.00000	50.00000	48.20000	0.11683	-0.12068	-0.00849
3	No 39 foundation level	-30.00000	50.00000	48.20000	0.11233	-0.14778	-0.01004
3	No 39 foundation level	-20.00000	50.00000	48.20000	0.09839	-0.17812	-0.01148
3	No 39 foundation level	-10.00000	50.00000	48.20000	0.07147	-0.20713	-0.01259
3	No 39 foundation level	0.00000	50.00000	48.20000	0.03136	-0.22699	-0.01322
3	No 39 foundation level	10.00000	50.00000	48.20000	-0.01578	-0.23016	-0.01331
3	No 39 foundation level	20.00000	50.00000	48.20000	-0.05928	-0.21527	-0.01286

Ref.	Name	x [m]	y [m]	z [mOD]	δx [mm]	δy [mm]	δz [mm]
3	No 39 foundation level	30.00000	50.00000	48.20000	-0.09089	-0.18837	-0.01190
3	No 39 foundation level	40.00000	50.00000	48.20000	-0.10889	-0.15779	-0.01055
3	No 39 foundation level	50.00000	50.00000	48.20000	-0.11612	-0.12931	-0.00902
4	Sewer invert level	-50.00000	-50.00000	47.55000	0.02526	0.02322	-0.00655
4	Sewer invert level	-40.00000	-50.00000	47.55000	0.02510	0.02803	-0.00786
4	Sewer invert level	-30.00000	-50.00000	47.55000	0.02365	0.03363	-0.00924
4	Sewer invert level	-20.00000	-50.00000	47.55000	0.02026	0.03964	-0.01053
4	Sewer invert level	-10.00000	-50.00000	47.55000	0.01441	0.04512	-0.01154
4	Sewer invert level	0.00000	-50.00000	47.55000	0.00624	0.04875	-0.01213
4	Sewer invert level	10.00000	-50.00000	47.55000	-0.00313	0.04932	-0.01221
4	Sewer invert level	20.00000	-50.00000	47.55000	-0.01188	0.04663	-0.01179
4	Sewer invert level	30.00000	-50.00000	47.55000	-0.01858	0.04161	-0.01091
4	Sewer invert level	40.00000	-50.00000	47.55000	-0.02276	0.03565	-0.00969
4	Sewer invert level	50.00000	-50.00000	47.55000	-0.02479	0.02984	-0.00833
4	Sewer invert level	-50.00000	-40.00000	47.55000	0.02995	0.02224	-0.00773
4	Sewer invert level	-40.00000	-40.00000	47.55000	0.03094	0.02792	-0.00945
4	Sewer invert level	-30.00000	-40.00000	47.55000	0.03054	0.03511	-0.01124
4	Sewer invert level	-20.00000	-40.00000	47.55000	0.02756	0.04360	-0.01284
4	Sewer invert level	-10.00000	-40.00000	47.55000	0.02059	0.05217	-0.01395
4	Sewer invert level	0.00000	-40.00000	47.55000	0.00921	0.05828	-0.01448
4	Sewer invert level	10.00000	-40.00000	47.55000	-0.00464	0.05928	-0.01454
4	Sewer invert level	20.00000	-40.00000	47.55000	-0.01720	0.05466	-0.01419
4	Sewer invert level	30.00000	-40.00000	47.55000	-0.02571	0.04659	-0.01328
4	Sewer invert level	40.00000	-40.00000	47.55000	-0.02990	0.03787	-0.01181
4	Sewer invert level	50.00000	-40.00000	47.55000	-0.03101	0.03017	-0.01005
4	Sewer invert level	-50.00000	-30.00000	47.55000	0.03507	0.01985	-0.00891
4	Sewer invert level	-40.00000	-30.00000	47.55000	0.03786	0.02604	-0.01102
4	Sewer invert level	-30.00000	-30.00000	47.55000	0.03960	0.03473	-0.01311
4	Sewer invert level	-20.00000	-30.00000	47.55000	0.03836	0.04635	-0.01456
4	Sewer invert level	-10.00000	-30.00000	47.55000	0.03086	0.05978	-0.01467
4	Sewer invert level	0.00000	-30.00000	47.55000	0.01456	0.07053	-0.01372
4	Sewer invert level	10.00000	-30.00000	47.55000	-0.00740	0.07238	-0.01347
4	Sewer invert level	20.00000	-30.00000	47.55000	-0.02636	0.06404	-0.01439
4	Sewer invert level	30.00000	-30.00000	47.55000	-0.03672	0.05082	-0.01477
4	Sewer invert level	40.00000	-30.00000	47.55000	-0.03966	0.03833	-0.01371
4	Sewer invert level	50.00000	-30.00000	47.55000	-0.03863	0.02866	-0.01175
4	Sewer invert level	-50.00000	-20.00000	47.55000	0.04008	0.01559	-0.00994
4	Sewer invert level	-40.00000	-20.00000	47.55000	0.04523	0.02140	-0.01235
4	Sewer invert level	-30.00000	-20.00000	47.55000	0.05050	0.03048	-0.01437
4	Sewer invert level	-20.00000	-20.00000	47.55000	0.05346	0.04452	-0.01418
4	Sewer invert level	-10.00000	-20.00000	47.55000	0.04744	0.06343	-0.00854
4	Sewer invert level	0.00000	-20.00000	47.55000	0.02381	0.07950	0.00247
4	Sewer invert level	10.00000	-20.00000	47.55000	-0.01220	0.08214	0.00522
4	Sewer invert level	20.00000	-20.00000	47.55000	-0.04163	0.06981	-0.00504
4	Sewer invert level	30.00000	-20.00000	47.55000	-0.05293	0.05052	-0.01305
4	Sewer invert level	40.00000	-20.00000	47.55000	-0.05197	0.03458	-0.01468
4	Sewer invert level	50.00000	-20.00000	47.55000	-0.04706	0.02401	-0.01313
4	Sewer invert level	-50.00000	-10.00000	47.55000	0.04402	0.00933	-0.01067
4	Sewer invert level	-40.00000	-10.00000	47.55000	0.05155	0.01329	-0.01322
4	Sewer invert level	-30.00000	-10.00000	47.55000	0.06099	0.02008	-0.01467
4	Sewer invert level	-20.00000	-10.00000	47.55000	0.07027	0.03196	-0.01025
4	Sewer invert level	-10.00000	-10.00000	47.55000	0.06420	0.04647	0.01822
4	Sewer invert level	0.00000	-10.00000	47.55000	0.01485	0.01574	0.12028
4	Sewer invert level	10.00000	-10.00000	47.55000	-0.00377	-0.00610	0.15933
4	Sewer invert level	20.00000	-10.00000	47.55000	-0.05148	0.04549	0.04228
4	Sewer invert level	30.00000	-10.00000	47.55000	-0.07156	0.03729	-0.00508
4	Sewer invert level	40.00000	-10.00000	47.55000	-0.06442	0.02338	-0.01428
4	Sewer invert level	50.00000	-10.00000	47.55000	-0.05453	0.01517	-0.01396
4	Sewer invert level	-50.00000	0.00000	47.55000	0.04588	0.00159	-0.01099
4	Sewer invert level	-40.00000	0.00000	47.55000	0.05468	0.00231	-0.01357
4	Sewer invert level	-30.00000	0.00000	47.55000	0.06663	0.00359	-0.01451
4	Sewer invert level	-20.00000	0.00000	47.55000	0.07994	0.00595	-0.00592
4	Sewer invert level	-10.00000	0.00000	47.55000	0.05336	0.00597	0.06669
4	Sewer invert level	0.00000	0.00000	47.55000	-0.06870	-0.03097	1.28442
4	Sewer invert level	10.00000	0.00000	47.55000	0.16483	0.51909	3.29977
4	Sewer invert level	20.00000	0.00000	47.55000	0.01202	-0.00359	0.17263
4	Sewer invert level	30.00000	0.00000	47.55000	-0.08144	0.00693	0.00426
4	Sewer invert level	40.00000	0.00000	47.55000	-0.07133	0.00423	-0.01350
4	Sewer invert level	50.00000	0.00000	47.55000	-0.05833	0.00265	-0.01425
4	Sewer invert level	-50.00000	10.00000	47.55000	0.04505	-0.00642	-0.01085
4	Sewer invert level	-40.00000	10.00000	47.55000	0.05327	-0.00924	-0.01342
4	Sewer invert level	-30.00000	10.00000	47.55000	0.06404	-0.01419	-0.01461
4	Sewer invert level	-20.00000	10.00000	47.55000	0.07548	-0.02311	-0.00815
4	Sewer invert level	-10.00000	10.00000	47.55000	0.06340	-0.03048	0.03805
4	Sewer invert level	0.00000	10.00000	47.55000	-0.04359	0.08660	0.32618
4	Sewer invert level	10.00000	10.00000	47.55000	0.03936	0.16115	0.47641
4	Sewer invert level	20.00000	10.00000	47.55000	-0.03671	-0.01949	0.08737
4	Sewer invert level	30.00000	10.00000	47.55000	-0.07708	-0.02706	-0.00071
4	Sewer invert level	40.00000	10.00000	47.55000	-0.06813	-0.01666	-0.01391
4	Sewer invert level	50.00000	10.00000	47.55000	-0.05660	-0.01060	-0.01413
4	Sewer invert level	-50.00000	20.00000	47.55000	0.04181	-0.01337	-0.01027
4	Sewer invert level	-40.00000	20.00000	47.55000	0.04795	-0.01865	-0.01276
4	Sewer invert level	-30.00000	20.00000	47.55000	0.05486	-0.02723	-0.01459
4	Sewer invert level	-20.00000	20.00000	47.55000	0.06019	-0.04124	-0.01305
4	Sewer invert level	-10.00000	20.00000	47.55000	0.05516	-0.06067	-0.00164
4	Sewer invert level	0.00000	20.00000	47.55000	0.02699	-0.07331	0.02381
4	Sewer invert level	10.00000	20.00000	47.55000	-0.01364	-0.07411	0.03089
4	Sewer invert level	20.00000	20.00000	47.55000	-0.04842	-0.06666	0.00583
4	Sewer invert level	30.00000	20.00000	47.55000	-0.06037	-0.04743	-0.01077
4	Sewer invert level	40.00000	20.00000	47.55000	-0.05707	-0.03123	-0.01468
4	Sewer invert level	50.00000	20.00000	47.55000	-0.05023	-0.02108	-0.01353
4	Sewer invert level	-50.00000	30.00000	47.55000	0.03709	-0.01842	-0.00934
4	Sewer invert level	-40.00000	30.00000	47.55000	0.04075	-0.02461	-0.01158
4	Sewer invert level	-30.00000	30.00000	47.55000	0.04372	-0.03366	-0.01371
4	Sewer invert level	-20.00000	30.00000	47.55000	0.04378	-0.04647	-0.01477
4	Sewer invert level	-10.00000	30.00000	47.55000	0.03653	-0.06221	-0.01356
4	Sewer invert level	0.00000	30.00000	47.55000	0.01770	-0.07541	-0.01066
4	Sewer invert level	10.00000	30.00000	47.55000	-0.00905	-0.07771	-0.00997
4	Sewer invert level	20.00000	30.00000	47.55000	-0.03155	-0.06737	-0.01263
4	Sewer invert level	30.00000	30.00000	47.55000	-0.04242	-0.05159	-0.01465
4	Sewer invert level	40.00000	30.00000	47.55000	-0.04423	-0.03754	-0.01425
4	Sewer invert level	50.00000	30.00000	47.55000	-0.04190	-0.02729	-0.01235
4	Sewer invert level	-50.00000	40.00000	47.55000	0.03193	-0.02150	-0.00820
4	Sewer invert level	-40.00000	40.00000	47.55000	0.03353	-0.02745	-0.01008
4	Sewer invert level	-30.00000	40.00000	47.55000	0.03382	-0.03528	-0.01201
4	Sewer invert level	-20.00000	40.00000	47.55000	0.03130	-0.04495	-0.01365
4	Sewer invert level	-10.00000	40.00000	47.55000	0.02399	-0.05518	-0.01460
4	Sewer invert level	0.00000	40.00000	47.55000	0.01092	-0.06280	-0.01486
4	Sewer invert level	10.00000	40.00000	47.55000	-0.00553	-0.06406	-0.01487
4	Sewer invert level	20.00000	40.00000	47.55000	-0.02020	-0.05825	-0.01475
4	Sewer invert level	30.00000	40.00000	47.55000	-0.02946	-0.04845	-0.01406
4	Sewer invert level	40.00000	40.00000	47.55000	-0.03338	-0.03836	-0.01262
4	Sewer invert level	50.00000	40.00000	47.55000	-0.03383	-0.02986	-0.01073
4	Sewer invert level	-50.00000	50.00000	47.55000	0.02703	-0.02297	-0.00701
4	Sewer invert level	-40.00000	50.00000	47.55000	0.02724	-0.02814	-0.00847
4	Sewer invert level	-30.00000	50.00000	47.55000	0.02611	-0.03434	-0.01001
4	Sewer invert level	-20.00000	50.00000	47.55000	0.02278	-0.04122	-0.01144
4	Sewer invert level	-10.00000	50.00000	47.55000	0.01648	-0.04774	-0.01254
4	Sewer invert level	0.00000	50.00000	47.55000	0.00721	-0.05215	-0.01315
4	Sewer invert level	10.00000	50.00000	47.55000	-0.00362	-0.05286	-0.01324
4	Sewer invert level	20.00000	50.00000	47.55000	-0.01365	-0.04955	-0.01280
4	Sewer invert level	30.00000	50.00000	47.55000	-0.02101	-0.04353	-0.01186
4	Sewer invert level	40.00000	50.00000	47.55000	-0.02527	-0.03662	-0.01051
4	Sewer invert level	50.00000	50.00000	47.55000	-0.02705	-0.03012	-0.00899

Results : Consolidation : Displacement Data : Grids

None

Results : Total : Displacement Data : Grids

Ref.	Name	x [m]	y [m]	z [mOD]	δx [mm]	δy [mm]	δz [mm]

None

Titles

Job No.: 13065
Job Title: 38 Meadowbank
Sub-title:
Calculation Heading: Immediate settlement
Initials: NS
Checker:
Date Saved:
Date Checked:
Notes:
File Name: total settlement.pdd
File Path: J:\13000-13249\13065 - 38 Meadowbank, London\CALCS\GMA\Pdisp\250319\NS

History

Date	Time	By	Notes
18-Mar-2019	11:05	fatimad	New
18-Mar-2019	12:00	fatimad	
18-Mar-2019	13:39	fatimad	
18-Mar-2019	15:01	fatimad	
19-Mar-2019	11:22	fatimad	
20-Mar-2019	17:42	fatimad	
21-Mar-2019	10:35	fatimad	
21-Mar-2019	11:04	fatimad	
21-Mar-2019	17:10	fatimad	
25-Mar-2019	14:31	fatimad	
25-Mar-2019	15:15	fatimad	
25-Mar-2019	15:18	fatimad	
25-Mar-2019	17:36	fatimad	
26-Nov-2019	11:27	nicolas	
26-Nov-2019	16:03	nicolas	
26-Nov-2019	17:06	nicolas	
28-Nov-2019	11:39	nicolas	
28-Nov-2019	11:57	nicolas	

Analysis Options

General
Global Poisson's ratio: 0.20
Maximum allowable ratio between values of E: 1.5
Horizontal rigid boundary level: 0.00 [m OD]
Displacements at load centroids: Yes
GSA piled raft data : No

Elastic
Elastic : Yes
Analysis: Mindlin
Calculate horizontal displacements: Yes
Stiffness for horizontal displacement calculations: Weighted average
Using legacy heave correction factor: No
Soil above horizontal load on horizontal plane dampens displacements below load: No
Soil above vertical load on horizontal plane dampens displacements below load: Yes

Consolidation
Consolidation : No

Soil ProfilesSoil Profile 1

Layer ref.	Name	Level at top [mOD]	Number of intermediate displacement levels	Youngs Modulus : Top [kN/m²]	Youngs Modulus : Btm. [kN/m²]	Poissons ratio	Non-linear curve
1	Made Ground	50.900	5	5000.0	5000.0	0.30000	None
2	London Clay 1	47.350	5	16500.	16500.	0.20000	None
3	London Clay 2	45.900	5	21000.	135000.	0.20000	None
4	London Clay 3	5.9000	5	180000.	180000.	0.20000	None

Non-linear Curve Coordinates - Non-linear Curve 1

Point	Strain [%]	Factor

Soil ones

Zone	Name	X min [m]	X max [m]	Y min [m]	Y max [m]	Profile
1	SZ1	-50.000	50.000	-50.000	50.000	Soil Profile 1

Polygonal Load Data

Load ref.	Name	Position : Level [m]	Position : Polygon : Coords. [m]	Position : Polygon : Rect. tolerance [%]	No. of Rectangles	Value : Normal (local z) [kN/m²]
1	37/38 party wall	47.10000	(1,0) (12.5,0) (12.5,1.4) (1,1.4)	10.000	1	95.000
2	38/38 party wall	47.10000	(1,3.6) (12.5,3.6) (12.5,5) (1,5)	10.000	1	50.000
3	Rear 38	47.10000	(11.1,1.4) (12.5,1.4) (12.5,3.6) (11.1,3.6)	10.000	1	5.0000
4	Front 38	47.10000	(1,1.4) (2.4,1.4) (2.4,3.6) (1,3.6)	10.000	1	15.000

Polygonal Loads Rectangles

No.	Centre : x [m]	Centre : y [m]	Angle of local x from global X [Degrees]	Width x [m]	Depth y [m]
Load 1 : 37/38 party wall					
(Edge 1 optimal)					
1	6.75000	0.70000	0.0	11.500	1.4000
Load 2 : 38/38 party wall					
(Edge 1 optimal)					
1	6.75000	4.30000	0.0	11.500	1.4000
Load 3 : Rear 38					
(Edge 1 optimal)					
1	11.80000	2.50000	0.0	1.4000	2.2000
Load 4 : Front 38					
(Edge 1 optimal)					
1	1.70000	2.50000	0.0	1.4000	2.2000

Displacement Lines

Name	X1 [m]	Y1 [m]	Z1 [m]	X2 [m]	Y2 [m]	Z2 [m]	Intervals [No.]	Calculate	Detailed Results
No 37/38 party wall	1.00000	0.00000	50.10000	10.20000	0.00000	50.10000	10	Yes	Yes

Name	X1 [m]	Y1 [m]	Z1 [m]	X2 [m]	Y2 [m]	Z2 [m]	Intervals [No.]	Calculate	Detailed Results
No 37 front wall	1.00000	0.00000	50.10000	1.00000	-6.00000	50.10000	10	Yes	Yes
No 37 rear wall	10.20000	0.00000	50.10000	10.20000	-6.00000	50.10000	10	Yes	Yes
N0 38/39 party wall	0.00000	5.00000	48.20000	12.50000	5.00000	48.20000	10	Yes	Yes
No 39 front wall	0.00000	5.00000	48.20000	0.00000	11.30000	48.20000	10	Yes	Yes
No 39 rear wall	12.50000	5.00000	48.20000	12.50000	11.30000	48.20000	10	Yes	Yes
No 36/37 party wall	1.00000	-6.00000	50.10000	10.20000	-6.00000	50.10000	10	Yes	Yes
TW sewer	-7.50000	-7.50000	47.55000	25.50000	-7.50000	47.55000	10	Yes	Yes
retaining wall	-1.50000	5.00000	48.00000	-2.80000	5.00000	48.00000	5	Yes	Yes
retaining wall	-2.80000	5.00000	48.00000	-2.80000	2.20000	48.00000	5	Yes	Yes

Displacement Grids

Name	Extrusion: Direction	X1 [m]	Y1 [m]	Z1 [m]	X2 [m]	Y2 [m]	Z2 [m]	Intervals Along Line [No.]	Extrusion: Distance [m]	Extrusion: Intervals Along [No.]	Calculate	Detailed Results
Basement level	Global X	-50.00000	-50.00000	47.10000	-	50.00000	47.10000	10	100.00000	10	Yes	No
No 36 & 37 foundation levels	Global X	-50.00000	-50.00000	50.10000	-	50.00000	50.10000	10	100.00000	10	Yes	Yes
No 39 foundation level	Global X	-50.00000	-50.00000	48.20000	-	50.00000	48.20000	10	100.00000	10	Yes	Yes
Sewer invert level	Global X	-50.00000	-50.00000	47.55000	-	50.00000	47.55000	10	100.00000	10	Yes	Yes

Warnings

(1)The load at (6.750, 0.700, 47.100)m lies wide of all soil zones. Displacements at its centre have been requested. The first soil profile will be used.

Results : Immediate : Load Centres : Polygonal

Ref.	Name	x [m]	y [m]	z [mOD]	δx [mm]	δy [mm]	δz [mm]
1	37/38 party wall	6.75000	0.70000	47.10000	-0.00158	0.01569	7.60235
2	38/38 party wall	6.75000	4.30000	47.10000	-0.00158	-0.02876	5.43497
3	Rear 38	11.80000	2.50000	47.10000	-0.17207	-0.00486	3.57632
4	Front 38	1.70000	2.50000	47.10000	0.16594	-0.00486	3.97817

Results : Consolidation : Load Centres : Polygonal

None

Results : Total : Load Centres : Polygonal

None

Results : Immediate : Displacement Data : Lines

Ref.	Name	x [m]	y [m]	z [mOD]	δx [mm]	δy [mm]	δz [mm]
1	No 37/38 party wall	1.00000	0.00000	50.10000	4.29438	1.94515	3.19238
1	No 37/38 party wall	1.92000	0.00000	50.10000	3.87101	2.21951	3.93885
1	No 37/38 party wall	2.84000	0.00000	50.10000	3.24888	2.44612	4.38343
1	No 37/38 party wall	3.76000	0.00000	50.10000	2.51737	2.61501	4.70207
1	No 37/38 party wall	4.68000	0.00000	50.10000	1.73736	2.73037	4.91478
1	No 37/38 party wall	5.60000	0.00000	50.10000	0.93841	2.79832	5.03850
1	No 37/38 party wall	6.52000	0.00000	50.10000	0.13361	2.82275	5.08521
1	No 37/38 party wall	7.44000	0.00000	50.10000	-0.67066	2.80509	5.05989
1	No 37/38 party wall	8.36000	0.00000	50.10000	-1.46863	2.74456	4.96054
1	No 37/38 party wall	9.28000	0.00000	50.10000	-2.24982	2.63844	4.77863
1	No 37/38 party wall	10.20000	0.00000	50.10000	-2.99212	2.48263	4.50058
2	No 37 front wall	1.00000	0.00000	50.10000	4.29438	1.94515	3.19238
2	No 37 front wall	1.00000	-0.60000	50.10000	4.07928	2.45815	2.76288
2	No 37 front wall	1.00000	-1.20000	50.10000	3.82614	2.84677	2.47483
2	No 37 front wall	1.00000	-1.80000	50.10000	3.55647	3.11692	2.20617
2	No 37 front wall	1.00000	-2.40000	50.10000	3.28612	3.28862	1.95560
2	No 37 front wall	1.00000	-3.00000	50.10000	3.02500	3.38387	1.72843
2	No 37 front wall	1.00000	-3.60000	50.10000	2.77856	3.42170	1.52692
2	No 37 front wall	1.00000	-4.20000	50.10000	2.54945	3.41732	1.35050
2	No 37 front wall	1.00000	-4.80000	50.10000	2.33861	3.38255	1.19710
2	No 37 front wall	1.00000	-5.40000	50.10000	2.14590	3.32645	1.06407
2	No 37 front wall	1.00000	-6.00000	50.10000	1.97057	3.25587	0.94871
3	No 37 rear wall	10.20000	0.00000	50.10000	-2.99212	2.48263	4.50058
3	No 37 rear wall	10.20000	-0.60000	50.10000	-2.85592	3.16136	3.75571
3	No 37 rear wall	10.20000	-1.20000	50.10000	-2.69206	3.64934	3.30656
3	No 37 rear wall	10.20000	-1.80000	50.10000	-2.51192	3.95931	2.90093
3	No 37 rear wall	10.20000	-2.40000	50.10000	-2.32568	4.12762	2.52991
3	No 37 rear wall	10.20000	-3.00000	50.10000	-2.14119	4.19198	2.19982
3	No 37 rear wall	10.20000	-3.60000	50.10000	-1.96381	4.18305	1.91267
3	No 37 rear wall	10.20000	-4.20000	50.10000	-1.79684	4.12394	1.66619
3	No 37 rear wall	10.20000	-4.80000	50.10000	-1.64200	4.03162	1.45599
3	No 37 rear wall	10.20000	-5.40000	50.10000	-1.49996	3.91840	1.27711
3	No 37 rear wall	10.20000	-6.00000	50.10000	-1.37062	3.79311	1.12475
4	N0 38/39 party wall	0.00000	5.00000	48.20000	1.40273	-0.71447	2.06388
4	N0 38/39 party wall	1.25000	5.00000	48.20000	1.33796	-0.97126	2.96327
4	N0 38/39 party wall	2.50000	5.00000	48.20000	0.97149	-1.14948	3.59973
4	N0 38/39 party wall	3.75000	5.00000	48.20000	0.65103	-1.20668	3.95114
4	N0 38/39 party wall	5.00000	5.00000	48.20000	0.37072	-1.23223	4.15244
4	N0 38/39 party wall	6.25000	5.00000	48.20000	0.09432	-1.24322	4.23799
4	N0 38/39 party wall	7.50000	5.00000	48.20000	-0.18348	-1.24030	4.21798
4	N0 38/39 party wall	8.75000	5.00000	48.20000	-0.46082	-1.22201	4.09059
4	N0 38/39 party wall	10.00000	5.00000	48.20000	-0.74588	-1.18311	3.84195
4	N0 38/39 party wall	11.25000	5.00000	48.20000	-1.07350	-1.09812	3.43231
4	N0 38/39 party wall	12.50000	5.00000	48.20000	-1.39319	-0.88585	2.66854
5	No 39 front wall	0.00000	5.00000	48.20000	1.40273	-0.71447	2.06388
5	No 39 front wall	0.00000	5.63000	48.20000	1.30281	-0.81923	1.86866
5	No 39 front wall	0.00000	6.26000	48.20000	1.21215	-0.89163	1.67719
5	No 39 front wall	0.00000	6.89000	48.20000	1.13837	-0.94948	1.50030
5	No 39 front wall	0.00000	7.52000	48.20000	1.07776	-1.00188	1.34030
5	No 39 front wall	0.00000	8.15000	48.20000	1.02547	-1.05086	1.19700
5	No 39 front wall	0.00000	8.78000	48.20000	0.97806	-1.09580	1.06945
5	No 39 front wall	0.00000	9.41000	48.20000	0.93352	-1.13561	0.95645
5	No 39 front wall	0.00000	10.04000	48.20000	0.89080	-1.16947	0.85665
5	No 39 front wall	0.00000	10.67000	48.20000	0.84944	-1.19699	0.76867
5	No 39 front wall	0.00000	11.30000	48.20000	0.80930	-1.21821	0.69115
6	No 39 rear wall	12.50000	5.00000	48.20000	-1.39319	-0.88585	2.66854
6	No 39 rear wall	12.50000	5.63000	48.20000	-1.25113	-0.99231	2.25256
6	No 39 rear wall	12.50000	6.26000	48.20000	-1.13611	-1.02415	1.95955
6	No 39 rear wall	12.50000	6.89000	48.20000	-1.05279	-1.04925	1.71959
6	No 39 rear wall	12.50000	7.52000	48.20000	-0.98943	-1.08171	1.51540
6	No 39 rear wall	12.50000	8.15000	48.20000	-0.93729	-1.11930	1.33888
6	No 39 rear wall	12.50000	8.78000	48.20000	-0.89134	-1.15781	1.18543
6	No 39 rear wall	12.50000	9.41000	48.20000	-0.84888	-1.19384	1.05184
6	No 39 rear wall	12.50000	10.04000	48.20000	-0.80856	-1.22522	0.93550
6	No 39 rear wall	12.50000	10.67000	48.20000	-0.76975	-1.25083	0.83416
6	No 39 rear wall	12.50000	11.30000	48.20000	-0.73225	-1.27029	0.74580
7	No 36/37 party wall	1.00000	-6.00000	50.10000	1.97057	3.25587	0.94871
7	No 36/37 party wall	1.92000	-6.00000	50.10000	1.75081	3.50245	1.02883
7	No 36/37 party wall	2.84000	-6.00000	50.10000	1.48125	3.72245	1.10048
7	No 36/37 party wall	3.76000	-6.00000	50.10000	1.16863	3.90571	1.16023
7	No 36/37 party wall	4.68000	-6.00000	50.10000	0.82221	4.04444	1.20551
7	No 36/37 party wall	5.60000	-6.00000	50.10000	0.45244	4.13343	1.23460
7	No 36/37 party wall	6.52000	-6.00000	50.10000	0.07011	4.16976	1.24659
7	No 36/37 party wall	7.44000	-6.00000	50.10000	-0.31401	4.15241	1.24113
7	No 36/37 party wall	8.36000	-6.00000	50.10000	-0.68926	4.08196	1.21841

Ref.	Name	x [m]	y [m]	z [mOD]	δx [mm]	δy [mm]	δz [mm]
7	No 36/37 party wall	9.28000	-6.00000	50.10000	-1.04495	3.96074	1.17915
7	No 36/37 party wall	10.20000	-6.00000	50.10000	-1.37062	3.79311	1.12475
8	TW sewer	-7.50000	-7.50000	47.55000	0.66320	0.45917	0.29078
8	TW sewer	-4.20000	-7.50000	47.55000	0.61348	0.55739	0.43222
8	TW sewer	-0.90000	-7.50000	47.55000	0.49827	0.65236	0.62116
8	TW sewer	2.40000	-7.50000	47.55000	0.31312	0.72524	0.81266
8	TW sewer	5.70000	-7.50000	47.55000	0.07574	0.76128	0.92128
8	TW sewer	9.00000	-7.50000	47.55000	-0.17559	0.75177	0.89292
8	TW sewer	12.30000	-7.50000	47.55000	-0.39540	0.69926	0.74170
8	TW sewer	15.60000	-7.50000	47.55000	-0.55320	0.61540	0.54202
8	TW sewer	18.90000	-7.50000	47.55000	-0.64036	0.51696	0.36972
8	TW sewer	22.20000	-7.50000	47.55000	-0.66913	0.42220	0.24811
8	TW sewer	25.50000	-7.50000	47.55000	-0.66140	0.34185	0.16786
9	retaining wall	-1.50000	5.00000	48.00000	1.15072	-0.46215	1.45889
9	retaining wall	-1.76000	5.00000	48.00000	1.15602	-0.44984	1.37889
9	retaining wall	-2.02000	5.00000	48.00000	1.16230	-0.43860	1.30397
9	retaining wall	-2.28000	5.00000	48.00000	1.16918	-0.42817	1.23373
9	retaining wall	-2.54000	5.00000	48.00000	1.17633	-0.41839	1.16784
9	retaining wall	-2.80000	5.00000	48.00000	1.18351	-0.40910	1.10600
10	retaining wall	-2.80000	5.00000	48.00000	1.18351	-0.40910	1.10600
10	retaining wall	-2.80000	4.44000	48.00000	1.20159	-0.33922	1.15479
10	retaining wall	-2.80000	3.88000	48.00000	1.21654	-0.26650	1.19682
10	retaining wall	-2.80000	3.32000	48.00000	1.22820	-0.19158	1.23056
10	retaining wall	-2.80000	2.76000	48.00000	1.23651	-0.11501	1.25467
10	retaining wall	-2.80000	2.20000	48.00000	1.24132	-0.03719	1.26799

Results : Consolidation : Displacement Data : Lines

None

Results : Total : Displacement Data : Lines

None

Results : Immediate : Displacement Data : Grids

Ref.	Name	x [m]	y [m]	z [mOD]	δx [mm]	δy [mm]	δz [mm]
1	Basement level	-50.00000	-50.00000	47.10000	0.14354	0.13192	-0.00073
1	Basement level	-40.00000	-50.00000	47.10000	0.14154	0.15803	-0.00021
1	Basement level	-30.00000	-50.00000	47.10000	0.13234	0.18816	0.00070
1	Basement level	-20.00000	-50.00000	47.10000	0.11256	0.22016	0.00202
1	Basement level	-10.00000	-50.00000	47.10000	0.07963	0.24922	0.00350
1	Basement level	0.00000	-50.00000	47.10000	0.03434	0.26834	0.00463
1	Basement level	10.00000	-50.00000	47.10000	-0.01721	0.27134	0.00481
1	Basement level	20.00000	-50.00000	47.10000	-0.06554	0.25715	0.00396
1	Basement level	30.00000	-50.00000	47.10000	-0.10299	0.23061	0.00252
1	Basement level	40.00000	-50.00000	47.10000	-0.12703	0.19892	0.00110
1	Basement level	50.00000	-50.00000	47.10000	-0.13941	0.16780	0.00005
1	Basement level	-50.00000	-40.00000	47.10000	0.16900	0.12548	-0.00027
1	Basement level	-40.00000	-40.00000	47.10000	0.17288	0.15598	0.00089
1	Basement level	-30.00000	-40.00000	47.10000	0.16899	0.19423	0.00306
1	Basement level	-20.00000	-40.00000	47.10000	0.15104	0.23894	0.00649
1	Basement level	-10.00000	-40.00000	47.10000	0.11202	0.28377	0.01079
1	Basement level	0.00000	-40.00000	47.10000	0.04990	0.31573	0.01432
1	Basement level	10.00000	-40.00000	47.10000	-0.02513	0.32094	0.01494
1	Basement level	20.00000	-40.00000	47.10000	-0.09344	0.29677	0.01218
1	Basement level	30.00000	-40.00000	47.10000	-0.14053	0.25457	0.00790
1	Basement level	40.00000	-40.00000	47.10000	-0.16488	0.20877	0.00407
1	Basement level	50.00000	-40.00000	47.10000	-0.17271	0.16801	0.00149
1	Basement level	-50.00000	-30.00000	47.10000	0.19658	0.11123	0.00047
1	Basement level	-40.00000	-30.00000	47.10000	0.20969	0.14423	0.00276
1	Basement level	-30.00000	-30.00000	47.10000	0.21667	0.18995	0.00747
1	Basement level	-20.00000	-30.00000	47.10000	0.20758	0.25072	0.01605
1	Basement level	-10.00000	-30.00000	47.10000	0.16592	0.32133	0.02877
1	Basement level	0.00000	-30.00000	47.10000	0.07821	0.37882	0.04097
1	Basement level	10.00000	-30.00000	47.10000	-0.03977	0.38885	0.04325
1	Basement level	20.00000	-30.00000	47.10000	-0.14158	0.34395	0.03339
1	Basement level	30.00000	-30.00000	47.10000	-0.19812	0.27413	0.01997
1	Basement level	40.00000	-30.00000	47.10000	-0.21611	0.20877	0.00986
1	Basement level	50.00000	-30.00000	47.10000	-0.21309	0.15804	0.00401
1	Basement level	-50.00000	-20.00000	47.10000	0.22331	0.08686	0.00141
1	Basement level	-40.00000	-20.00000	47.10000	0.24860	0.11759	0.00535
1	Basement level	-30.00000	-20.00000	47.10000	0.27364	0.16511	0.01449
1	Basement level	-20.00000	-20.00000	47.10000	0.28731	0.23925	0.03457
1	Basement level	-10.00000	-20.00000	47.10000	0.25834	0.34602	0.07339
1	Basement level	0.00000	-20.00000	47.10000	0.13515	0.45446	0.12330
1	Basement level	10.00000	-20.00000	47.10000	-0.07001	0.47573	0.13431
1	Basement level	20.00000	-20.00000	47.10000	-0.22948	0.38606	0.09067
1	Basement level	30.00000	-20.00000	47.10000	-0.28475	0.27186	0.04531
1	Basement level	40.00000	-20.00000	47.10000	-0.28053	0.18659	0.01965
1	Basement level	50.00000	-20.00000	47.10000	-0.25739	0.13130	0.00764
1	Basement level	-50.00000	-10.00000	47.10000	0.24431	0.05177	0.00230
1	Basement level	-40.00000	-10.00000	47.10000	0.28174	0.07263	0.00803
1	Basement level	-30.00000	-10.00000	47.10000	0.32868	0.10817	0.02288
1	Basement level	-20.00000	-10.00000	47.10000	0.38118	0.17352	0.06295
1	Basement level	-10.00000	-10.00000	47.10000	0.40182	0.29591	0.17818
1	Basement level	0.00000	-10.00000	47.10000	0.24605	0.45670	0.45812
1	Basement level	10.00000	-10.00000	47.10000	-0.13106	0.49009	0.55034
1	Basement level	20.00000	-10.00000	47.10000	-0.37937	0.35173	0.25334
1	Basement level	30.00000	-10.00000	47.10000	-0.39595	0.20690	0.08909
1	Basement level	40.00000	-10.00000	47.10000	-0.34641	0.12572	0.03218
1	Basement level	50.00000	-10.00000	47.10000	-0.29649	0.08243	0.01156
1	Basement level	-50.00000	0.00000	47.10000	0.25414	0.00881	0.00276
1	Basement level	-40.00000	0.00000	47.10000	0.29813	0.01258	0.00951
1	Basement level	-30.00000	0.00000	47.10000	0.35853	0.01932	0.02803
1	Basement level	-20.00000	0.00000	47.10000	0.44122	0.03292	0.08476
1	Basement level	-10.00000	0.00000	47.10000	0.51756	0.06264	0.31700
1	Basement level	0.00000	0.00000	47.10000	0.24616	0.06189	2.35398
1	Basement level	10.00000	0.00000	47.10000	-0.11364	0.03340	5.66546
1	Basement level	20.00000	0.00000	47.10000	-0.49790	0.07554	6.55703
1	Basement level	30.00000	0.00000	47.10000	-0.47279	0.04044	0.12733
1	Basement level	40.00000	0.00000	47.10000	-0.38378	0.02277	0.04031
1	Basement level	50.00000	0.00000	47.10000	-0.31632	0.01438	0.01377
1	Basement level	-50.00000	10.00000	47.10000	0.24974	-0.03561	0.00255
1	Basement level	-40.00000	10.00000	47.10000	0.29072	-0.05043	0.00883
1	Basement level	-30.00000	10.00000	47.10000	0.34479	-0.07638	0.02561
1	Basement level	-20.00000	10.00000	47.10000	0.41265	-0.12656	0.07403
1	Basement level	-10.00000	10.00000	47.10000	0.46029	-0.22891	0.23928
1	Basement level	0.00000	10.00000	47.10000	0.28352	-0.34815	0.86243
1	Basement level	10.00000	10.00000	47.10000	-0.14959	-0.35807	1.13490
1	Basement level	20.00000	10.00000	47.10000	-0.44227	-0.27709	0.37093
1	Basement level	30.00000	10.00000	47.10000	-0.43555	-0.15353	0.10787
1	Basement level	40.00000	10.00000	47.10000	-0.36639	-0.08958	0.03643
1	Basement level	50.00000	10.00000	47.10000	-0.30730	-0.05753	0.01274
1	Basement level	-50.00000	20.00000	47.10000	0.23252	-0.07434	0.00178
1	Basement level	-40.00000	20.00000	47.10000	0.26284	-0.10221	0.00646
1	Basement level	-30.00000	20.00000	47.10000	0.29647	-0.14711	0.01779
1	Basement level	-20.00000	20.00000	47.10000	0.32392	-0.22200	0.04484
1	Basement level	-10.00000	20.00000	47.10000	0.30906	-0.34136	0.10508
1	Basement level	0.00000	20.00000	47.10000	0.17150	-0.47699	0.19910
1	Basement level	10.00000	20.00000	47.10000	-0.09001	-0.50508	0.22228
1	Basement level	20.00000	20.00000	47.10000	-0.28072	-0.38968	0.13526
1	Basement level	30.00000	20.00000	47.10000	-0.32679	-0.25692	0.06037
1	Basement level	40.00000	20.00000	47.10000	-0.30735	-0.16817	0.02446
1	Basement level	50.00000	20.00000	47.10000	-0.27400	-0.11493	0.00923
1	Basement level	-50.00000	30.00000	47.10000	0.20737	-0.10299	0.00082
1	Basement level	-40.00000	30.00000	47.10000	0.22499	-0.13585	0.00371
1	Basement level	-30.00000	30.00000	47.10000	0.23819	-0.18337	0.00991

Ref.	Name	x [m]	y [m]	z [mOD]	δx [mm]	δy [mm]	δz [mm]
1	Basement level	-20.00000	30.00000	47.10000	0.23595	-0.25039	0.02203
1	Basement level	-10.00000	30.00000	47.10000	0.19632	-0.33436	0.04169
1	Basement level	0.00000	30.00000	47.10000	0.09565	-0.40796	0.06236
1	Basement level	10.00000	30.00000	47.10000	-0.04900	-0.42127	0.06640
1	Basement level	20.00000	30.00000	47.10000	-0.16975	-0.36266	0.04928
1	Basement level	30.00000	30.00000	47.10000	-0.22816	-0.27742	0.02785
1	Basement level	40.00000	30.00000	47.10000	-0.23998	-0.20361	0.01319
1	Basement level	50.00000	30.00000	47.10000	-0.23028	-0.14995	0.00531
1	Basement level	-50.00000	40.00000	47.10000	0.17965	-0.12098	-0.00001
1	Basement level	-40.00000	40.00000	47.10000	0.18673	-0.15282	0.00153
1	Basement level	-30.00000	40.00000	47.10000	0.18630	-0.19426	0.00449
1	Basement level	-20.00000	40.00000	47.10000	0.17065	-0.24499	0.00943
1	Basement level	-10.00000	40.00000	47.10000	0.12979	-0.29850	0.01599
1	Basement level	0.00000	40.00000	47.10000	0.05887	-0.33836	0.02166
1	Basement level	10.00000	40.00000	47.10000	-0.02978	-0.34499	0.02266
1	Basement level	20.00000	40.00000	47.10000	-0.10910	-0.31451	0.01819
1	Basement level	30.00000	40.00000	47.10000	-0.16016	-0.26330	0.01153
1	Basement level	40.00000	40.00000	47.10000	-0.18320	-0.21045	0.00592
1	Basement level	50.00000	40.00000	47.10000	-0.18773	-0.16565	0.00233
1	Basement level	-50.00000	50.00000	47.10000	0.15313	-0.13016	-0.00058
1	Basement level	-40.00000	50.00000	47.10000	0.15308	-0.15808	0.00014
1	Basement level	-30.00000	50.00000	47.10000	0.14545	-0.19130	0.00144
1	Basement level	-20.00000	50.00000	47.10000	0.12588	-0.22780	0.00336
1	Basement level	-10.00000	50.00000	47.10000	0.09049	-0.26210	0.00562
1	Basement level	0.00000	50.00000	47.10000	0.03943	-0.28527	0.00736
1	Basement level	10.00000	50.00000	47.10000	-0.01982	-0.28895	0.00766
1	Basement level	20.00000	50.00000	47.10000	-0.07483	-0.27163	0.00631
1	Basement level	30.00000	50.00000	47.10000	-0.11584	-0.23998	0.00411
1	Basement level	40.00000	50.00000	47.10000	-0.14042	-0.20341	0.00202
1	Basement level	50.00000	50.00000	47.10000	-0.15155	-0.16872	0.00051
2	No 36 & 37 foundation levels	-50.00000	-50.00000	50.10000	0.36040	0.33128	-0.00077
2	No 36 & 37 foundation levels	-40.00000	-50.00000	50.10000	0.36029	0.40236	-0.00028
2	No 36 & 37 foundation levels	-30.00000	-50.00000	50.10000	0.34190	0.48626	0.00061
2	No 36 & 37 foundation levels	-20.00000	-50.00000	50.10000	0.29511	0.57745	0.00190
2	No 36 & 37 foundation levels	-10.00000	-50.00000	50.10000	0.21142	0.66211	0.00336
2	No 36 & 37 foundation levels	0.00000	-50.00000	50.10000	0.09191	0.71870	0.00446
2	No 36 & 37 foundation levels	10.00000	-50.00000	50.10000	-0.04611	0.72766	0.00464
2	No 36 & 37 foundation levels	20.00000	-50.00000	50.10000	-0.17461	0.68550	0.00380
2	No 36 & 37 foundation levels	30.00000	-50.00000	50.10000	-0.27126	0.60770	0.00239
2	No 36 & 37 foundation levels	40.00000	-50.00000	50.10000	-0.32982	0.51669	0.00100
2	No 36 & 37 foundation levels	50.00000	-50.00000	50.10000	-0.35662	0.42936	-0.00002
2	No 36 & 37 foundation levels	-50.00000	-40.00000	50.10000	0.42964	0.31909	-0.00033
2	No 36 & 37 foundation levels	-40.00000	-40.00000	50.10000	0.44773	0.40412	0.00080
2	No 36 & 37 foundation levels	-30.00000	-40.00000	50.10000	0.44714	0.51420	0.00292
2	No 36 & 37 foundation levels	-20.00000	-40.00000	50.10000	0.40904	0.64758	0.00629
2	No 36 & 37 foundation levels	-10.00000	-40.00000	50.10000	0.31007	0.78625	0.01052
2	No 36 & 37 foundation levels	0.00000	-40.00000	50.10000	0.14019	0.88807	0.01400
2	No 36 & 37 foundation levels	10.00000	-40.00000	50.10000	-0.07077	0.90493	0.01460
2	No 36 & 37 foundation levels	20.00000	-40.00000	50.10000	-0.26023	0.82740	0.01189
2	No 36 & 37 foundation levels	30.00000	-40.00000	50.10000	-0.38354	0.69538	0.00767
2	No 36 & 37 foundation levels	40.00000	-40.00000	50.10000	-0.43967	0.55702	0.00392
2	No 36 & 37 foundation levels	50.00000	-40.00000	50.10000	-0.45041	0.43832	0.00139
2	No 36 & 37 foundation levels	-50.00000	-30.00000	50.10000	0.50618	0.28651	0.00038
2	No 36 & 37 foundation levels	-40.00000	-30.00000	50.10000	0.55347	0.38088	0.00263
2	No 36 & 37 foundation levels	-30.00000	-30.00000	50.10000	0.59009	0.51774	0.00725
2	No 36 & 37 foundation levels	-20.00000	-30.00000	50.10000	0.58730	0.71030	0.01569
2	No 36 & 37 foundation levels	-10.00000	-30.00000	50.10000	0.48909	0.94920	0.02820
2	No 36 & 37 foundation levels	0.00000	-30.00000	50.10000	0.23794	1.15578	0.04017
2	No 36 & 37 foundation levels	10.00000	-30.00000	50.10000	-0.12160	1.19294	0.04242
2	No 36 & 37 foundation levels	20.00000	-30.00000	50.10000	-0.42262	1.02919	0.03274
2	No 36 & 37 foundation levels	30.00000	-30.00000	50.10000	-0.56840	0.78771	0.01955
2	No 36 & 37 foundation levels	40.00000	-30.00000	50.10000	-0.59578	0.57608	0.00961
2	No 36 & 37 foundation levels	50.00000	-30.00000	50.10000	-0.56799	0.42150	0.00385
2	No 36 & 37 foundation levels	-50.00000	-20.00000	50.10000	0.58183	0.22640	0.00130
2	No 36 & 37 foundation levels	-40.00000	-20.00000	50.10000	0.66878	0.31655	0.00518
2	No 36 & 37 foundation levels	-30.00000	-20.00000	50.10000	0.76981	0.46506	0.01416
2	No 36 & 37 foundation levels	-20.00000	-20.00000	50.10000	0.86137	0.71899	0.03389
2	No 36 & 37 foundation levels	-10.00000	-20.00000	50.10000	0.84354	1.13556	0.07194
2	No 36 & 37 foundation levels	0.00000	-20.00000	50.10000	0.47938	1.62701	0.12070
2	No 36 & 37 foundation levels	10.00000	-20.00000	50.10000	-0.25218	1.73219	0.13143
2	No 36 & 37 foundation levels	20.00000	-20.00000	50.10000	-0.77290	1.30876	0.08885
2	No 36 & 37 foundation levels	30.00000	-20.00000	50.10000	-0.87679	0.83967	0.04443
2	No 36 & 37 foundation levels	40.00000	-20.00000	50.10000	-0.80436	0.53580	0.01923
2	No 36 & 37 foundation levels	50.00000	-20.00000	50.10000	-0.70174	0.35826	0.00743
2	No 36 & 37 foundation levels	-50.00000	-10.00000	50.10000	0.64225	0.13615	0.00218
2	No 36 & 37 foundation levels	-40.00000	-10.00000	50.10000	0.76981	0.19860	0.00781
2	No 36 & 37 foundation levels	-30.00000	-10.00000	50.10000	0.95292	0.31414	0.02240
2	No 36 & 37 foundation levels	-20.00000	-10.00000	50.10000	1.22211	0.55860	0.06171
2	No 36 & 37 foundation levels	-10.00000	-10.00000	50.10000	1.55865	1.16327	0.17406
2	No 36 & 37 foundation levels	0.00000	-10.00000	50.10000	1.29263	2.53117	0.44621
2	No 36 & 37 foundation levels	10.00000	-10.00000	50.10000	-0.73783	2.97204	0.53619
2	No 36 & 37 foundation levels	20.00000	-10.00000	50.10000	-1.62098	1.53594	0.24707
2	No 36 & 37 foundation levels	30.00000	-10.00000	50.10000	-1.33552	0.70194	0.08728
2	No 36 & 37 foundation levels	40.00000	-10.00000	50.10000	-1.03256	0.37554	0.03154
2	No 36 & 37 foundation levels	50.00000	-10.00000	50.10000	-0.82401	0.22932	0.01127
2	No 36 & 37 foundation levels	-50.00000	0.00000	50.10000	0.67085	0.02327	0.00263
2	No 36 & 37 foundation levels	-40.00000	0.00000	50.10000	0.82074	0.03466	0.00926
2	No 36 & 37 foundation levels	-30.00000	0.00000	50.10000	1.05633	0.05703	0.02746
2	No 36 & 37 foundation levels	-20.00000	0.00000	50.10000	1.47837	0.11088	0.08304
2	No 36 & 37 foundation levels	-10.00000	0.00000	50.10000	2.42365	0.30006	0.30890
2	No 36 & 37 foundation levels	0.00000	0.00000	50.10000	4.46867	1.63065	2.38090
2	No 36 & 37 foundation levels	10.00000	0.00000	50.10000	-2.83585	2.52095	4.56997
2	No 36 & 37 foundation levels	20.00000	0.00000	50.10000	-3.03398	0.47979	0.54505
2	No 36 & 37 foundation levels	30.00000	0.00000	50.10000	-1.70604	0.14694	0.12457
2	No 36 & 37 foundation levels	40.00000	0.00000	50.10000	-1.16916	0.06953	0.03953
2	No 36 & 37 foundation levels	50.00000	0.00000	50.10000	-0.88752	0.04037	0.01345
2	No 36 & 37 foundation levels	-50.00000	10.00000	50.10000	0.65803	-0.09386	0.00242
2	No 36 & 37 foundation levels	-40.00000	10.00000	50.10000	0.79764	-0.13848	0.00859
2	No 36 & 37 foundation levels	-30.00000	10.00000	50.10000	1.00839	-0.22379	0.02509
2	No 36 & 37 foundation levels	-20.00000	10.00000	50.10000	1.35373	-0.41710	0.07255
2	No 36 & 37 foundation levels	-10.00000	10.00000	50.10000	1.94584	-0.98481	0.23337
2	No 36 & 37 foundation levels	0.00000	10.00000	50.10000	2.12767	-2.95299	0.85275
2	No 36 & 37 foundation levels	10.00000	10.00000	50.10000	-1.28946	-3.79116	1.13226
2	No 36 & 37 foundation levels	20.00000	10.00000	50.10000	-2.18410	-1.41260	0.36153
2	No 36 & 37 foundation levels	30.00000	10.00000	50.10000	-1.51990	-0.53953	0.10561
2	No 36 & 37 foundation levels	40.00000	10.00000	50.10000	-1.10491	-0.27081	0.03572
2	No 36 & 37 foundation levels	50.00000	10.00000	50.10000	-0.85848	-0.16089	0.01244
2	No 36 & 37 foundation levels	-50.00000	20.00000	50.10000	0.60823	-0.19454	0.00167
2	No 36 & 37 foundation levels	-40.00000	20.00000	50.10000	0.71188	-0.27701	0.00626
2	No 36 & 37 foundation levels	-30.00000	20.00000	50.10000	0.84463	-0.41968	0.01740
2	No 36 & 37 foundation levels	-20.00000	20.00000	50.10000	0.99687	-0.68518	0.04397
2	No 36 & 37 foundation levels	-10.00000	20.00000	50.10000	1.06923	-1.18930	0.10290
2	No 36 & 37 foundation levels	0.00000	20.00000	50.10000	0.67717	-1.91437	0.19442
2	No 36 & 37 foundation levels	10.00000	20.00000	50.10000	-0.36523	-2.08847	0.21695
2	No 36 & 37 foundation levels	20.00000	20.00000	50.10000	-1.01799	-1.42674	0.13233
2	No 36 & 37 foundation levels	30.00000	20.00000	50.10000	-1.04103	-0.82164	0.05919
2	No 36 & 37 foundation levels	40.00000	20.00000	50.10000	-0.89537	-0.49078	0.02396
2	No 36 & 37 foundation levels	50.00000	20.00000	50.10000	-0.75319	-0.31623	0.00898
2	No 36 & 37 foundation levels	-50.00000	30.00000	50.10000	0.53655	-0.26657	0.00073
2	No 36 & 37 foundation levels	-40.00000	30.00000	50.10000	0.59839	-0.36151	0.00356
2	No 36 & 37 foundation levels	-30.00000	30.00000	50.10000	0.65683	-0.50613	0.00965
2	No 36 & 37 foundation levels	-20.00000	30.00000	50.10000	0.68173	-0.72462	0.02157
2	No 36 & 37 foundation levels	-10.00000	30.00000	50.10000	0.59875	-1.02264	0.04088
2	No 36 & 37 foundation levels	0.00000	30.00000	50.10000	0.30509	-1.30678	0.06115
2	No 36 & 37 foundation levels	10.00000	30.00000	50.10000	-0.15753	-1.36046	0.06511
2	No 36 & 37 foundation levels	20.00000	30.00000	50.10000	-0.52687	-1.12931	0.04832
2	No 36 & 37 foundation levels	30.00000	30.00000	50.10000	-0.67108	-0.81757	0.02729
2	No 36 & 37 foundation levels	40.00000	30.00000	50.10000	-0.67146	-0.57032	0.01288
2	No 36 & 37 foundation levels	50.00000	30.00000	50.10000	-0.61930	-0.40354	0.00513
2	No 36 & 37 foundation levels	-50.00000	40.00000	50.10000	0.45903	-0.30920	-0.00009
2	No 36 & 37 foundation levels	-40.00000	40.00000	50.10000	0.48715	-0.39884	0.00142
2	No 36 & 37 foundation levels	-30.00000	40.00000	50.10000	0.49826	-0.51987	0.00433
2	No 36 & 37 foundation levels	-20.00000	40.00000	50.10000	0.46941	-0.67451	0.00919
2	No 36 & 37 foundation levels	-10.00000	40.00000	50.10000	0.36703	-0.84522	0.01564

Ref.	Name	x [m]	y [m]	z [mOD]	δx [mm]	δy [mm]	δz [mm]
2	No 36 & 37 foundation levels	0.00000	40.00000	50.10000	0.16975	-0.97736	0.02121
2	No 36 & 37 foundation levels	10.00000	40.00000	50.10000	-0.08615	-0.99976	0.02219
2	No 36 & 37 foundation levels	20.00000	40.00000	50.10000	-0.31098	-0.89778	0.01780
2	No 36 & 37 foundation levels	30.00000	40.00000	50.10000	-0.44484	-0.73205	0.01125
2	No 36 & 37 foundation levels	40.00000	40.00000	50.10000	-0.49451	-0.56846	0.00573
2	No 36 & 37 foundation levels	50.00000	40.00000	50.10000	-0.49364	-0.43579	0.00221
2	No 36 & 37 foundation levels	-50.00000	50.00000	50.10000	0.38634	-0.32845	-0.00063
2	No 36 & 37 foundation levels	-40.00000	50.00000	50.10000	0.39220	-0.40515	0.00007
2	No 36 & 37 foundation levels	-30.00000	50.00000	50.10000	0.37908	-0.49877	0.00133
2	No 36 & 37 foundation levels	-20.00000	50.00000	50.10000	0.33388	-0.60451	0.00322
2	No 36 & 37 foundation levels	-10.00000	50.00000	50.10000	0.24376	-0.70655	0.00543
2	No 36 & 37 foundation levels	0.00000	50.00000	50.10000	0.10730	-0.77690	0.00715
2	No 36 & 37 foundation levels	10.00000	50.00000	50.10000	-0.05401	-0.78818	0.00744
2	No 36 & 37 foundation levels	20.00000	50.00000	50.10000	-0.20243	-0.73535	0.00612
2	No 36 & 37 foundation levels	30.00000	50.00000	50.10000	-0.30898	-0.64047	0.00396
2	No 36 & 37 foundation levels	40.00000	50.00000	50.10000	-0.36814	-0.53354	0.00190
2	No 36 & 37 foundation levels	50.00000	50.00000	50.10000	-0.39048	-0.43486	0.00042
3	No 39 foundation level	-50.00000	-50.00000	48.20000	0.28393	0.26096	-0.00077
3	No 39 foundation level	-40.00000	-50.00000	48.20000	0.28139	0.31420	-0.00027
3	No 39 foundation level	-30.00000	-50.00000	48.20000	0.26455	0.37617	0.00062
3	No 39 foundation level	-20.00000	-50.00000	48.20000	0.22624	0.44257	0.00192
3	No 39 foundation level	-10.00000	-50.00000	48.20000	0.16080	0.50341	0.00338
3	No 39 foundation level	0.00000	-50.00000	48.20000	0.06956	0.54367	0.00449
3	No 39 foundation level	10.00000	-50.00000	48.20000	-0.03487	0.55002	0.00468
3	No 39 foundation level	20.00000	-50.00000	48.20000	-0.13253	0.52008	0.00383
3	No 39 foundation level	30.00000	-50.00000	48.20000	-0.20735	0.46439	0.00242
3	No 39 foundation level	40.00000	-50.00000	48.20000	-0.25440	0.39843	0.00102
3	No 39 foundation level	50.00000	-50.00000	48.20000	-0.27766	0.33423	-0.00001
3	No 39 foundation level	-50.00000	-40.00000	48.20000	0.33582	0.24937	-0.00032
3	No 39 foundation level	-40.00000	-40.00000	48.20000	0.34590	0.31213	0.00082
3	No 39 foundation level	-30.00000	-40.00000	48.20000	0.34082	0.39181	0.00294
3	No 39 foundation level	-20.00000	-40.00000	48.20000	0.30730	0.48627	0.00633
3	No 39 foundation level	-10.00000	-40.00000	48.20000	0.22981	0.58236	0.01057
3	No 39 foundation level	0.00000	-40.00000	48.20000	0.10295	0.65169	0.01406
3	No 39 foundation level	10.00000	-40.00000	48.20000	-0.05190	0.66307	0.01467
3	No 39 foundation level	20.00000	-40.00000	48.20000	-0.19214	0.61050	0.01195
3	No 39 foundation level	30.00000	-40.00000	48.20000	-0.28675	0.51962	0.00772
3	No 39 foundation level	40.00000	-40.00000	48.20000	-0.33351	0.42237	0.00394
3	No 39 foundation level	50.00000	-40.00000	48.20000	-0.34645	0.33707	0.00140
3	No 39 foundation level	-50.00000	-30.00000	48.20000	0.39248	0.22210	0.00039
3	No 39 foundation level	-40.00000	-30.00000	48.20000	0.42252	0.29067	0.00265
3	No 39 foundation level	-30.00000	-30.00000	48.20000	0.44176	0.38740	0.00729
3	No 39 foundation level	-20.00000	-30.00000	48.20000	0.42943	0.51894	0.01577
3	No 39 foundation level	-10.00000	-30.00000	48.20000	0.34873	0.67593	0.02833
3	No 39 foundation level	0.00000	-30.00000	48.20000	0.16643	0.80701	0.04037
3	No 39 foundation level	10.00000	-30.00000	48.20000	-0.08479	0.83018	0.04263
3	No 39 foundation level	20.00000	-30.00000	48.20000	-0.29904	0.72715	0.03290
3	No 39 foundation level	30.00000	-30.00000	48.20000	-0.41206	0.57049	0.01964
3	No 39 foundation level	40.00000	-30.00000	48.20000	-0.44266	0.42777	0.00966
3	No 39 foundation level	50.00000	-30.00000	48.20000	-0.43096	0.31969	0.00388
3	No 39 foundation level	-50.00000	-20.00000	48.20000	0.44780	0.17420	0.00132
3	No 39 foundation level	-40.00000	-20.00000	48.20000	0.50452	0.23870	0.00521
3	No 39 foundation level	-30.00000	-20.00000	48.20000	0.56485	0.34098	0.01423
3	No 39 foundation level	-20.00000	-20.00000	48.20000	0.60786	0.50664	0.03406
3	No 39 foundation level	-10.00000	-20.00000	48.20000	0.56536	0.75877	0.07236
3	No 39 foundation level	0.00000	-20.00000	48.20000	0.30587	1.03243	0.12155
3	No 39 foundation level	10.00000	-20.00000	48.20000	-0.15946	1.08831	0.13240
3	No 39 foundation level	20.00000	-20.00000	48.20000	-0.50851	0.85774	0.08940
3	No 39 foundation level	30.00000	-20.00000	48.20000	-0.60879	0.58193	0.04466
3	No 39 foundation level	40.00000	-20.00000	48.20000	-0.58331	0.38820	0.01933
3	No 39 foundation level	50.00000	-20.00000	48.20000	-0.52499	0.26789	0.00747
3	No 39 foundation level	-50.00000	-10.00000	48.20000	0.49153	0.10417	0.00220
3	No 39 foundation level	-40.00000	-10.00000	48.20000	0.57514	0.14830	0.00785
3	No 39 foundation level	-30.00000	-10.00000	48.20000	0.68636	0.22604	0.02251
3	No 39 foundation level	-20.00000	-10.00000	48.20000	0.82808	0.37757	0.06206
3	No 39 foundation level	-10.00000	-10.00000	48.20000	0.94324	0.69852	0.17559
3	No 39 foundation level	0.00000	-10.00000	48.20000	0.65804	1.25082	0.45227
3	No 39 foundation level	10.00000	-10.00000	48.20000	-0.36181	1.39923	0.54390
3	No 39 foundation level	20.00000	-10.00000	48.20000	-0.92733	0.86776	0.24967
3	No 39 foundation level	30.00000	-10.00000	48.20000	-0.87781	0.45978	0.08784
3	No 39 foundation level	40.00000	-10.00000	48.20000	-0.73123	0.26560	0.03169
3	No 39 foundation level	50.00000	-10.00000	48.20000	-0.60917	0.16943	0.01133
3	No 39 foundation level	-50.00000	0.00000	48.20000	0.51210	0.01776	0.00265
3	No 39 foundation level	-40.00000	0.00000	48.20000	0.61033	0.02576	0.00931
3	No 39 foundation level	-30.00000	0.00000	48.20000	0.75339	0.04063	0.02760
3	No 39 foundation level	-20.00000	0.00000	48.20000	0.97554	0.07294	0.08356
3	No 39 foundation level	-10.00000	0.00000	48.20000	1.31446	0.16069	0.31262
3	No 39 foundation level	0.00000	0.00000	48.20000	1.60575	0.55351	2.43824
3	No 39 foundation level	10.00000	0.00000	48.20000	0.81505	1.22537	5.14008
3	No 39 foundation level	20.00000	0.00000	48.20000	-1.41856	0.21956	0.55251
3	No 39 foundation level	30.00000	0.00000	48.20000	-1.07719	0.09240	0.12551
3	No 39 foundation level	40.00000	0.00000	48.20000	-0.81705	0.04852	0.03973
3	No 39 foundation level	50.00000	0.00000	48.20000	-0.65228	0.02965	0.01352
3	No 39 foundation level	-50.00000	10.00000	48.20000	0.50289	-0.07171	0.00245
3	No 39 foundation level	-40.00000	10.00000	48.20000	0.59440	-0.10314	0.00864
3	No 39 foundation level	-30.00000	10.00000	48.20000	0.72245	-0.16016	0.02521
3	No 39 foundation level	-20.00000	10.00000	48.20000	0.90469	-0.27798	0.07299
3	No 39 foundation level	-10.00000	10.00000	48.20000	1.11975	-0.56109	0.23580
3	No 39 foundation level	0.00000	10.00000	48.20000	0.89347	-1.16750	0.86262
3	No 39 foundation level	10.00000	10.00000	48.20000	-0.50663	-1.35655	1.14258
3	No 39 foundation level	20.00000	10.00000	48.20000	-1.14936	-0.73039	0.36609
3	No 39 foundation level	30.00000	10.00000	48.20000	-0.97895	-0.34607	0.10634
3	No 39 foundation level	40.00000	10.00000	48.20000	-0.77693	-0.19014	0.03590
3	No 39 foundation level	50.00000	10.00000	48.20000	-0.63263	-0.11848	0.01250
3	No 39 foundation level	-50.00000	20.00000	48.20000	0.46696	-0.14931	0.00169
3	No 39 foundation level	-40.00000	20.00000	48.20000	0.53478	-0.20800	0.00630
3	No 39 foundation level	-30.00000	20.00000	48.20000	0.61495	-0.30530	0.01749
3	No 39 foundation level	-20.00000	20.00000	48.20000	0.69238	-0.47506	0.04420
3	No 39 foundation level	-10.00000	20.00000	48.20000	0.69229	-0.76683	0.10360
3	No 39 foundation level	0.00000	20.00000	48.20000	0.40571	-1.13611	0.19619
3	No 39 foundation level	10.00000	20.00000	48.20000	-0.21540	-1.21830	0.21902
3	No 39 foundation level	20.00000	20.00000	48.20000	-0.64101	-0.89334	0.13333
3	No 39 foundation level	30.00000	20.00000	48.20000	-0.70812	-0.55759	0.05952
3	No 39 foundation level	40.00000	20.00000	48.20000	-0.64302	-0.35298	0.02407
3	No 39 foundation level	50.00000	20.00000	48.20000	-0.56061	-0.23524	0.00903
3	No 39 foundation level	-50.00000	30.00000	48.20000	0.41477	-0.20602	0.00074
3	No 39 foundation level	-40.00000	30.00000	48.20000	0.45464	-0.27457	0.00358
3	No 39 foundation level	-30.00000	30.00000	48.20000	0.48793	-0.37577	0.00971
3	No 39 foundation level	-20.00000	30.00000	48.20000	0.49207	-0.52251	0.02167
3	No 39 foundation level	-10.00000	30.00000	48.20000	0.41815	-0.71297	0.04108
3	No 39 foundation level	0.00000	30.00000	48.20000	0.20738	-0.88601	0.06148
3	No 39 foundation level	10.00000	30.00000	48.20000	-0.10657	-0.91790	0.06548
3	No 39 foundation level	20.00000	30.00000	48.20000	-0.36408	-0.77882	0.04858
3	No 39 foundation level	30.00000	30.00000	48.20000	-0.47913	-0.58302	0.02743
3	No 39 foundation level	40.00000	30.00000	48.20000	-0.49434	-0.41959	0.01294
3	No 39 foundation level	50.00000	30.00000	48.20000	-0.46728	-0.30436	0.00517
3	No 39 foundation level	-50.00000	40.00000	48.20000	0.35766	-0.24087	-0.00007
3	No 39 foundation level	-40.00000	40.00000	48.20000	0.37462	-0.30663	0.00144
3	No 39 foundation level	-30.00000	40.00000	48.20000	0.37725	-0.39346	0.00436
3	No 39 foundation level	-20.00000	40.00000	48.20000	0.34924	-0.50156	0.00924
3	No 39 foundation level	-10.00000	40.00000	48.20000	0.26845	-0.61770	0.01571
3	No 39 foundation level	0.00000	40.00000	48.20000	0.12267	-0.70558	0.02131
3	No 39 foundation level	10.00000	40.00000	48.20000	-0.06213	-0.72032	0.02230
3	No 39 foundation level	20.00000	40.00000	48.20000	-0.22634	-0.65286	0.01788
3	No 39 foundation level	30.00000	40.00000	48.20000	-0.32899	-0.54106	0.01131
3	No 39 foundation level	40.00000	40.00000	48.20000	-0.37227	-0.42775	0.00577
3	No 39 foundation level	50.00000	40.00000	48.20000	-0.37773	-0.33337	0.00223
3	No 39 foundation level	-50.00000	50.00000	48.20000	0.30345	-0.25794	-0.00062
3	No 39 foundation level	-40.00000	50.00000	48.20000	0.30506	-0.31507	0.00008
3	No 39 foundation level	-30.00000	50.00000	48.20000	0.29170	-0.38370	0.00135
3	No 39 foundation level	-20.00000	50.00000	48.20000	0.25411	-0.45993	0.00324
3	No 39 foundation level	-10.00000	50.00000	48.20000	0.18373	-0.53232	0.00547
3	No 39 foundation level	0.00000	50.00000	48.20000	0.08037	-0.58163	0.00719
3	No 39 foundation level	10.00000	50.00000	48.20000	-0.04041	-0.58949	0.00748

Ref.	Name	x [m]	y [m]	z [mOD]	δx [mm]	δy [mm]	δz [mm]
3	No 39 foundation level	20.00000	50.00000	48.20000	-0.15218	-0.55257	0.00615
3	No 39 foundation level	30.00000	50.00000	48.20000	-0.23434	-0.48557	0.00399
3	No 39 foundation level	40.00000	50.00000	48.20000	-0.28223	-0.40891	0.00192
3	No 39 foundation level	50.00000	50.00000	48.20000	-0.30265	-0.33698	0.00044
4	Sewer invert level	-50.00000	-50.00000	47.55000	0.20181	0.18548	-0.00074
4	Sewer invert level	-40.00000	-50.00000	47.55000	0.19939	0.22263	-0.00024
4	Sewer invert level	-30.00000	-50.00000	47.55000	0.18684	0.26565	0.00067
4	Sewer invert level	-20.00000	-50.00000	47.55000	0.15925	0.31149	0.00197
4	Sewer invert level	-10.00000	-50.00000	47.55000	0.11286	0.35328	0.00345
4	Sewer invert level	0.00000	-50.00000	47.55000	0.04873	0.38083	0.00457
4	Sewer invert level	10.00000	-50.00000	47.55000	-0.02442	0.38517	0.00475
4	Sewer invert level	20.00000	-50.00000	47.55000	-0.09295	0.36470	0.00390
4	Sewer invert level	30.00000	-50.00000	47.55000	-0.14580	0.32651	0.00247
4	Sewer invert level	40.00000	-50.00000	47.55000	-0.17946	0.28105	0.00107
4	Sewer invert level	50.00000	-50.00000	47.55000	-0.19653	0.23656	0.00002
4	Sewer invert level	-50.00000	-40.00000	47.55000	0.23803	0.17674	-0.00029
4	Sewer invert level	-40.00000	-40.00000	47.55000	0.24415	0.22030	0.00086
4	Sewer invert level	-30.00000	-40.00000	47.55000	0.23940	0.27519	0.00301
4	Sewer invert level	-20.00000	-40.00000	47.55000	0.21471	0.33971	0.00641
4	Sewer invert level	-10.00000	-40.00000	47.55000	0.15977	0.40478	0.01069
4	Sewer invert level	0.00000	-40.00000	47.55000	0.07133	0.45139	0.01421
4	Sewer invert level	10.00000	-40.00000	47.55000	-0.03594	0.45902	0.01482
4	Sewer invert level	20.00000	-40.00000	47.55000	-0.13340	0.42373	0.01208
4	Sewer invert level	30.00000	-40.00000	47.55000	-0.20000	0.36235	0.00782
4	Sewer invert level	40.00000	-40.00000	47.55000	-0.23385	0.29612	0.00401
4	Sewer invert level	50.00000	-40.00000	47.55000	-0.24416	0.23752	0.00145
4	Sewer invert level	-50.00000	-30.00000	47.55000	0.27739	0.15696	0.00043
4	Sewer invert level	-40.00000	-30.00000	47.55000	0.29696	0.20426	0.00271
4	Sewer invert level	-30.00000	-30.00000	47.55000	0.30827	0.27029	0.00739
4	Sewer invert level	-20.00000	-30.00000	47.55000	0.29704	0.35885	0.01592
4	Sewer invert level	-10.00000	-30.00000	47.55000	0.23893	0.46288	0.02858
4	Sewer invert level	0.00000	-30.00000	47.55000	0.11319	0.54847	0.04071
4	Sewer invert level	10.00000	-30.00000	47.55000	-0.05760	0.56348	0.04298
4	Sewer invert level	20.00000	-30.00000	47.55000	-0.20428	0.49646	0.03318
4	Sewer invert level	30.00000	-30.00000	47.55000	-0.28411	0.39320	0.01983
4	Sewer invert level	40.00000	-30.00000	47.55000	-0.30804	0.29761	0.00977
4	Sewer invert level	50.00000	-30.00000	47.55000	-0.30221	0.22416	0.00395
4	Sewer invert level	-50.00000	-20.00000	47.55000	0.31565	0.12278	0.00137
4	Sewer invert level	-40.00000	-20.00000	47.55000	0.35306	0.16701	0.00529
4	Sewer invert level	-30.00000	-20.00000	47.55000	0.39123	0.23611	0.01437
4	Sewer invert level	-20.00000	-20.00000	47.55000	0.41483	0.34556	0.03435
4	Sewer invert level	-10.00000	-20.00000	47.55000	0.37811	0.50685	0.07295
4	Sewer invert level	0.00000	-20.00000	47.55000	0.20053	0.67535	0.12258
4	Sewer invert level	10.00000	-20.00000	47.55000	-0.10415	0.70899	0.13352
4	Sewer invert level	20.00000	-20.00000	47.55000	-0.33757	0.56852	0.09014
4	Sewer invert level	30.00000	-20.00000	47.55000	-0.41286	0.39436	0.04502
4	Sewer invert level	40.00000	-20.00000	47.55000	-0.40224	0.26760	0.01951
4	Sewer invert level	50.00000	-20.00000	47.55000	-0.36626	0.18686	0.00757
4	Sewer invert level	-50.00000	-10.00000	47.55000	0.34578	0.07327	0.00225
4	Sewer invert level	-40.00000	-10.00000	47.55000	0.40105	0.10339	0.00795
4	Sewer invert level	-30.00000	-10.00000	47.55000	0.47209	0.15541	0.02271
4	Sewer invert level	-20.00000	-10.00000	47.55000	0.55624	0.25338	0.06257
4	Sewer invert level	-10.00000	-10.00000	47.55000	0.60519	0.44671	0.17716
4	Sewer invert level	0.00000	-10.00000	47.55000	0.39150	0.73415	0.45626
4	Sewer invert level	10.00000	-10.00000	47.55000	-0.21143	0.80231	0.54847
4	Sewer invert level	20.00000	-10.00000	47.55000	-0.58105	0.54080	0.25196
4	Sewer invert level	30.00000	-10.00000	47.55000	-0.58256	0.30471	0.08857
4	Sewer invert level	40.00000	-10.00000	47.55000	-0.49970	0.18141	0.03196
4	Sewer invert level	50.00000	-10.00000	47.55000	-0.42312	0.11765	0.01146
4	Sewer invert level	-50.00000	0.00000	47.55000	0.35991	0.01248	0.00271
4	Sewer invert level	-40.00000	0.00000	47.55000	0.42485	0.01793	0.00942
4	Sewer invert level	-30.00000	0.00000	47.55000	0.51625	0.02783	0.02784
4	Sewer invert level	-20.00000	0.00000	47.55000	0.64845	0.04842	0.08426
4	Sewer invert level	-10.00000	0.00000	47.55000	0.80543	0.09789	0.31546
4	Sewer invert level	0.00000	0.00000	47.55000	0.68238	0.21684	2.39746
4	Sewer invert level	10.00000	0.00000	47.55000	-0.31449	0.66933	5.43263
4	Sewer invert level	20.00000	0.00000	47.55000	-0.81391	0.12459	0.55610
4	Sewer invert level	30.00000	0.00000	47.55000	-0.70340	0.06023	0.12658
4	Sewer invert level	40.00000	0.00000	47.55000	-0.55550	0.03297	0.04006
4	Sewer invert level	50.00000	0.00000	47.55000	-0.45207	0.02055	0.01366
4	Sewer invert level	-50.00000	10.00000	47.55000	0.35358	-0.05041	0.00250
4	Sewer invert level	-40.00000	10.00000	47.55000	0.41408	-0.07184	0.00875
4	Sewer invert level	-30.00000	10.00000	47.55000	0.49590	-0.10989	0.02543
4	Sewer invert level	-20.00000	10.00000	47.55000	0.60440	-0.18550	0.07359
4	Sewer invert level	-10.00000	10.00000	47.55000	0.70356	-0.35100	0.23796
4	Sewer invert level	0.00000	10.00000	47.55000	0.48512	-0.61332	0.86440
4	Sewer invert level	10.00000	10.00000	47.55000	-0.26478	-0.66986	1.14084
4	Sewer invert level	20.00000	10.00000	47.55000	-0.69500	-0.43808	0.36931
4	Sewer invert level	30.00000	10.00000	47.55000	-0.64441	-0.22742	0.10724
4	Sewer invert level	40.00000	10.00000	47.55000	-0.52949	-0.12951	0.03620
4	Sewer invert level	50.00000	10.00000	47.55000	-0.43888	-0.08217	0.01264
4	Sewer invert level	-50.00000	20.00000	47.55000	0.32886	-0.10515	0.00174
4	Sewer invert level	-40.00000	20.00000	47.55000	0.37365	-0.14531	0.00638
4	Sewer invert level	-30.00000	20.00000	47.55000	0.42469	-0.21078	0.01766
4	Sewer invert level	-20.00000	20.00000	47.55000	0.46961	-0.32199	0.04456
4	Sewer invert level	-10.00000	20.00000	47.55000	0.45664	-0.50495	0.10447
4	Sewer invert level	0.00000	20.00000	47.55000	0.25914	-0.72278	0.19795
4	Sewer invert level	10.00000	20.00000	47.55000	-0.13666	-0.76937	0.22101
4	Sewer invert level	20.00000	20.00000	47.55000	-0.41803	-0.58124	0.13448
4	Sewer invert level	30.00000	20.00000	47.55000	-0.47638	-0.37476	0.06000
4	Sewer invert level	40.00000	20.00000	47.55000	-0.44178	-0.24180	0.02429
4	Sewer invert level	50.00000	20.00000	47.55000	-0.39037	-0.16377	0.00914
4	Sewer invert level	-50.00000	30.00000	47.55000	0.29282	-0.14544	0.00078
4	Sewer invert level	-40.00000	30.00000	47.55000	0.31898	-0.19262	0.00365
4	Sewer invert level	-30.00000	30.00000	47.55000	0.33952	-0.26141	0.00982
4	Sewer invert level	-20.00000	30.00000	47.55000	0.33872	-0.35954	0.02187
4	Sewer invert level	-10.00000	30.00000	47.55000	0.28421	-0.48428	0.04142
4	Sewer invert level	0.00000	30.00000	47.55000	0.13947	-0.59526	0.06198
4	Sewer invert level	10.00000	30.00000	47.55000	-0.07153	-0.61549	0.06601
4	Sewer invert level	20.00000	30.00000	47.55000	-0.24644	-0.52677	0.04897
4	Sewer invert level	30.00000	30.00000	47.55000	-0.32845	-0.39948	0.02766
4	Sewer invert level	40.00000	30.00000	47.55000	-0.34283	-0.29091	0.01308
4	Sewer invert level	50.00000	30.00000	47.55000	-0.32702	-0.21297	0.00525
4	Sewer invert level	-50.00000	40.00000	47.55000	0.25322	-0.17053	-0.00004
4	Sewer invert level	-40.00000	40.00000	47.55000	0.26399	-0.21606	0.00149
4	Sewer invert level	-30.00000	40.00000	47.55000	0.26434	-0.27566	0.00443
4	Sewer invert level	-20.00000	40.00000	47.55000	0.24315	-0.34912	0.00935
4	Sewer invert level	-10.00000	40.00000	47.55000	0.18571	-0.42719	0.01587
4	Sewer invert level	0.00000	40.00000	47.55000	0.08448	-0.48572	0.02151
4	Sewer invert level	10.00000	40.00000	47.55000	-0.04276	-0.49549	0.02250
4	Sewer invert level	20.00000	40.00000	47.55000	-0.15629	-0.45066	0.01806
4	Sewer invert level	30.00000	40.00000	47.55000	-0.22854	-0.37577	0.01143
4	Sewer invert level	40.00000	40.00000	47.55000	-0.26030	-0.29905	0.00585
4	Sewer invert level	50.00000	40.00000	47.55000	-0.26571	-0.23447	0.00229
4	Sewer invert level	-50.00000	50.00000	47.55000	0.21545	-0.18313	-0.00060
4	Sewer invert level	-40.00000	50.00000	47.55000	0.21585	-0.22291	0.00011
4	Sewer invert level	-30.00000	50.00000	47.55000	0.20560	-0.27043	0.00140
4	Sewer invert level	-20.00000	50.00000	47.55000	0.17840	-0.32286	0.00331
4	Sewer invert level	-10.00000	50.00000	47.55000	0.12853	-0.37234	0.00555
4	Sewer invert level	0.00000	50.00000	47.55000	0.05610	-0.40587	0.00729
4	Sewer invert level	10.00000	50.00000	47.55000	-0.02820	-0.41121	0.00758
4	Sewer invert level	20.00000	50.00000	47.55000	-0.10636	-0.38612	0.00624
4	Sewer invert level	30.00000	50.00000	47.55000	-0.16431	-0.34041	0.00406
4	Sewer invert level	40.00000	50.00000	47.55000	-0.19866	-0.28780	0.00197
4	Sewer invert level	50.00000	50.00000	47.55000	-0.21387	-0.23811	0.00047

Results : Consolidation : Displacement Data : Grids

None

Results : Total : Displacement Data : Grids

Ref.	Name	x [m]	y [m]	z [mOD]	δx [mm]	δy [mm]	δz [mm]

None

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