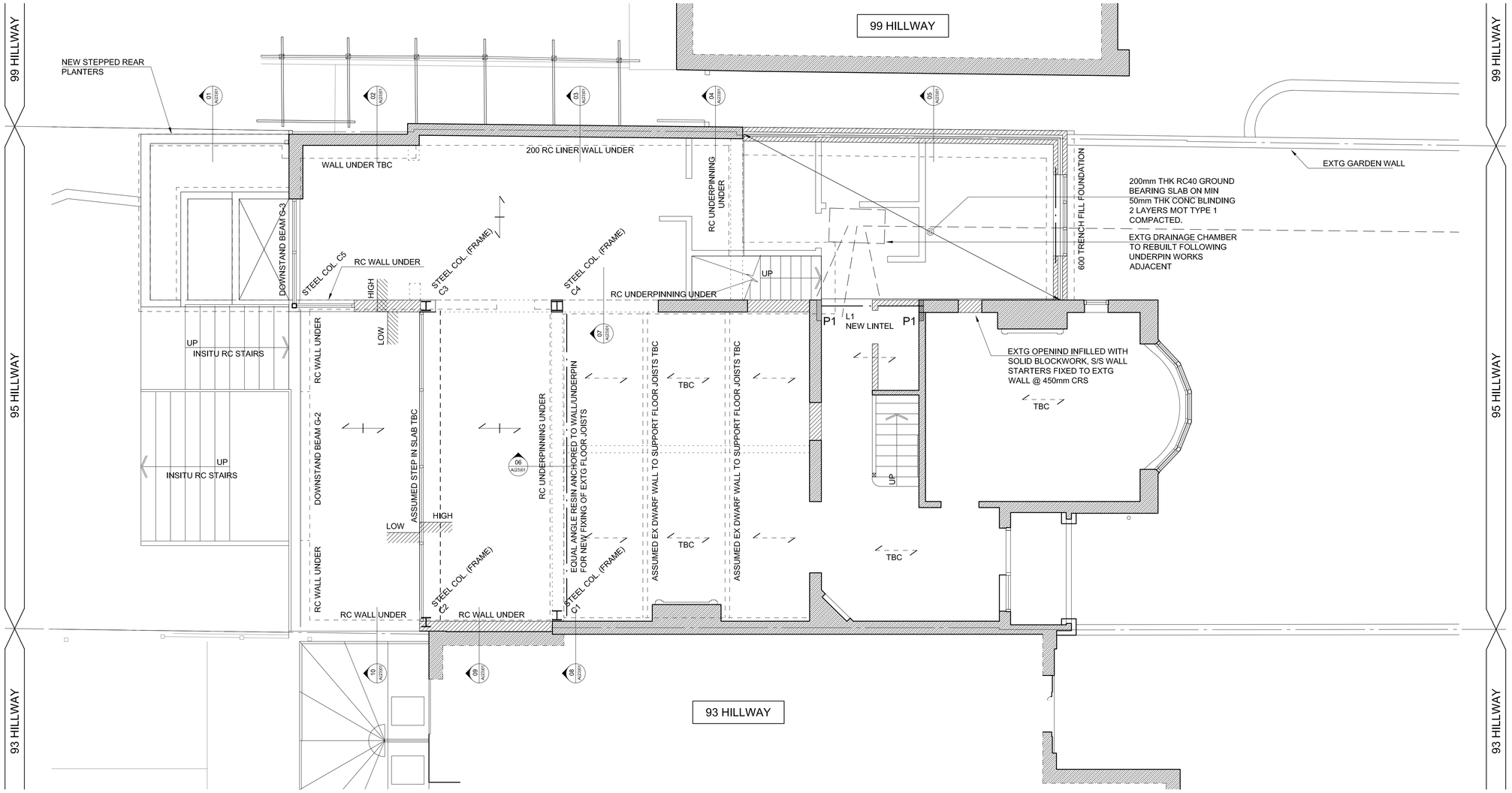

PROPOSED GROUND FLOOR

SCALE 1:50 @ A1, 1:100 @ A3

0m 1.0m 2.0m 3.0m 4.0m 5.0m

COLUMN SCHEDULE

MARK	DESCRIPTION
C1	203x203 UC60 TBC
C2	203x203 UC60 TBC
C3	203x203 UC60 TBC
C4	203x203 UC60 TBC
C5	100x100x10 SHS TBC

PADSTONE SCHEDULE

MARK	DESCRIPTION
P1	450x100x225dp MASS CONCRETE
P2	

BEAM SCHEDULE

MARK	DESCRIPTION
G-1	DOWNSTAND BEAM TBC
G-2	DOWNSTAND BEAM TBC
G-3	DOWNSTAND BEAM TBC

LINTEL SCHEDULE

MARK	DESCRIPTION
L1	203x203 UC 46 TBC
L2	150dp PRE-STRESSED P.C LINTEL/S TO SUIT WIDTH OF WALL

Notes

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THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, SERVICES ENGINEERS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.

KEY

WALL TYPES

- EXISTING WALL.
- EXISTING NON LOAD BEARING PARTITION.
- EXISTING WALL TO BE REMOVED.
- NEW 20N/mm² BRICKWORK IN DESIGNATION (iii) MORTAR.
- NEW 7N/mm² MEDIUM DENSE BLOCKWORK IN DESIGNATION (iii) MORTAR.
- NEW NON LOAD BEARING PARTITION.
- LOAD BEARING WALL UNDER.
- NEW BRICKWORK TO BE FULLY TOOTHED IN AND PACKED UP TO EXISTING BRICKWORK.
- W — STAINLESS STEEL WALL EXTENSION PROFILES.

ALL MASONRY BELOW DPC LEVEL TO BE FROST RESISTANT AND IN DESIGNATION (i) MORTAR.

LEGEND

- EXISTING BEAM UNDER.
- NEW BEAM UNDER.
- DENOTES SPAN OF EXISTING TIMBER JOISTS.
- DENOTES SPAN OF EXISTING TIMBER RAFTERS.
- DENOTES SPAN OF NEW 50x200 C24 TIMBER JOISTS AT 400c/c U.N.O.
- DENOTES SPAN OF NEW 50x150 C24 TIMBER RAFTERS AT 400c/c U.N.O.
- DENOTES SPAN OF NEW CONCRETE SLAB 1...

WORK IN PROGRESS

NOT FOR CONSTRUCTION

Rev.	Date	Amendment	Drawn	Chkd
P1		PRELIMINARY ISSUE		

Drawing Status: PRELIMINARY

Form

Job Title
95 HILLWAY
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N6 6AB

Drawing Title
PROPOSED GROUND FLOOR GA

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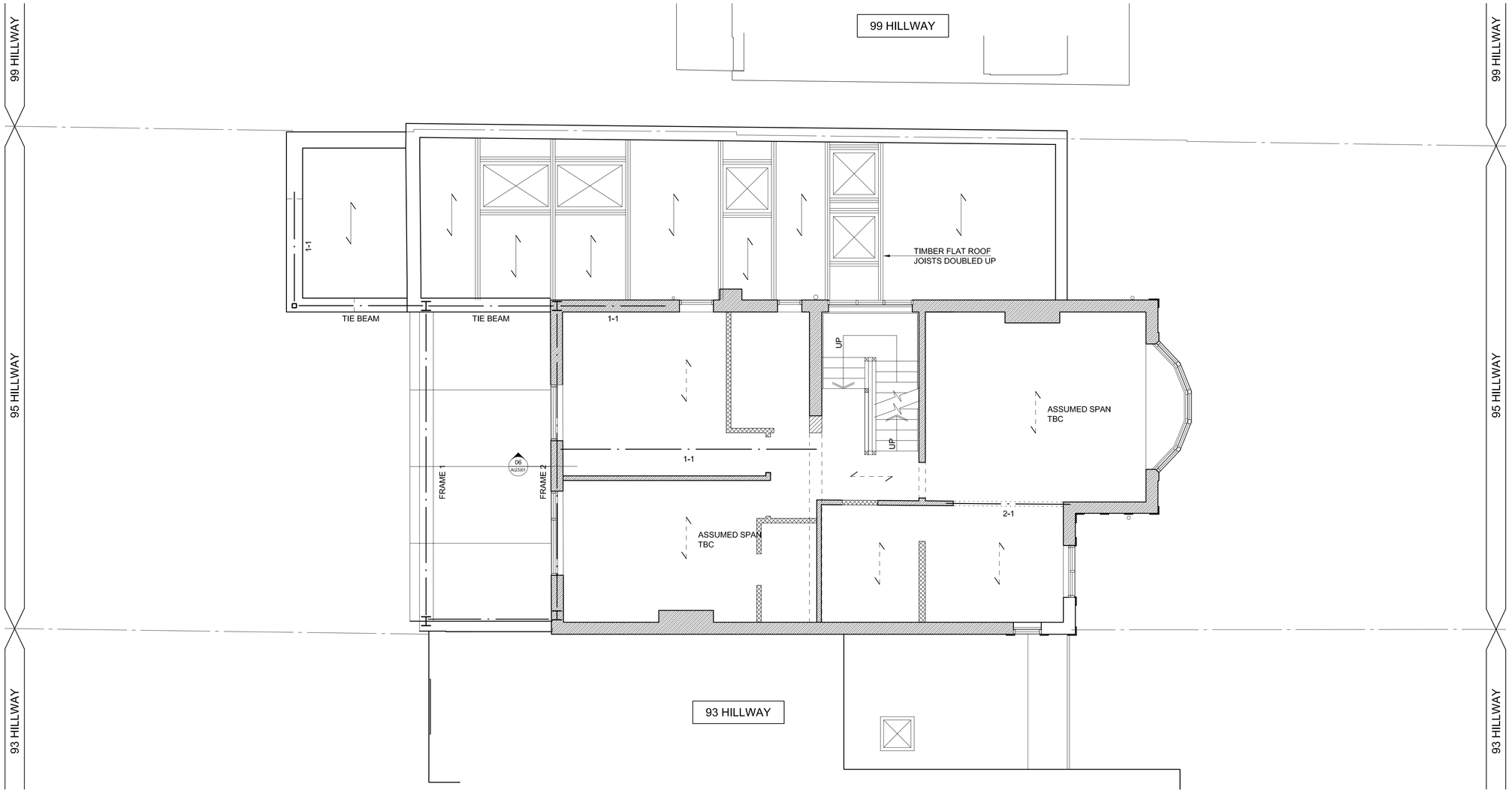
Date	Scale	Drawn	Checked
NOV 14	1:50 (A1)	SPM	RJM

Job No.	Drawing No.	Revision
142242	L(23)02	P1



PROPOSED FIRST FLOOR

SCALE 1:50 @ A1, 1:100 @ A3

0m 1.0m 2.0m 3.0m 4.0m 5.0m

Notes

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KEY

WALL TYPES

- EXISTING WALL.
- EXISTING NON LOAD BEARING PARTITION.
- EXISTING WALL TO BE REMOVED.
- NEW 20N/mm² BRICKWORK IN DESIGNATION (iii) MORTAR.
- NEW 7N/mm² MEDIUM DENSE BLOCKWORK IN DESIGNATION (iii) MORTAR.
- NEW NON LOAD BEARING PARTITION.
- LOAD BEARING WALL UNDER.
- NEW BRICKWORK TO BE FULLY TOOTHED IN AND PACKED UP TO EXISTING BRICKWORK.
- W — STAINLESS STEEL WALL EXTENSION PROFILES.

ALL MASONRY BELOW DPC LEVEL TO BE FROST RESISTANT AND IN DESIGNATION (i) MORTAR.

LEGEND

- EXISTING BEAM UNDER.
- NEW BEAM UNDER.
- DENOTES SPAN OF EXISTING TIMBER JOISTS.
- DENOTES SPAN OF EXISTING TIMBER RAFTERS.
- DENOTES SPAN OF NEW 50x200 C24 TIMBER JOISTS AT 400c/c U.N.O.
- DENOTES SPAN OF NEW 50x150 C24 TIMBER RAFTERS AT 400c/c U.N.O.
- DENOTES SPAN OF NEW CONCRETE SLAB 1...

COLUMN SCHEDULE

MARK	DESCRIPTION
C1	203x203 UC60 TBC
C2	203x203 UC60 TBC
C3	203x203 UC60 TBC
C4	203x203 UC60 TBC
C5	100x100x10 SHS TBC

PADSTONE SCHEDULE

MARK	DESCRIPTION
P1	450x100x225dp MASS CONCRETE
P2	

BEAM SCHEDULE

MARK	DESCRIPTION
1-1	203x203 UC60
1-2	

LINTEL SCHEDULE

MARK	DESCRIPTION
L1	203x203 UC 46 TBC
L2	150dp PRE-STRESSED P.C LINTEL/S TO SUIT WIDTH OF WALL

WORK IN PROGRESS

NOT FOR CONSTRUCTION

Rev.	Date	Amendment	Drawn	Chkd
P1		PRELIMINARY ISSUE		

Drawing Status: PRELIMINARY

Form

Job Title
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N6 6AB

Drawing Title
PROPOSED FIRST FLOOR GA

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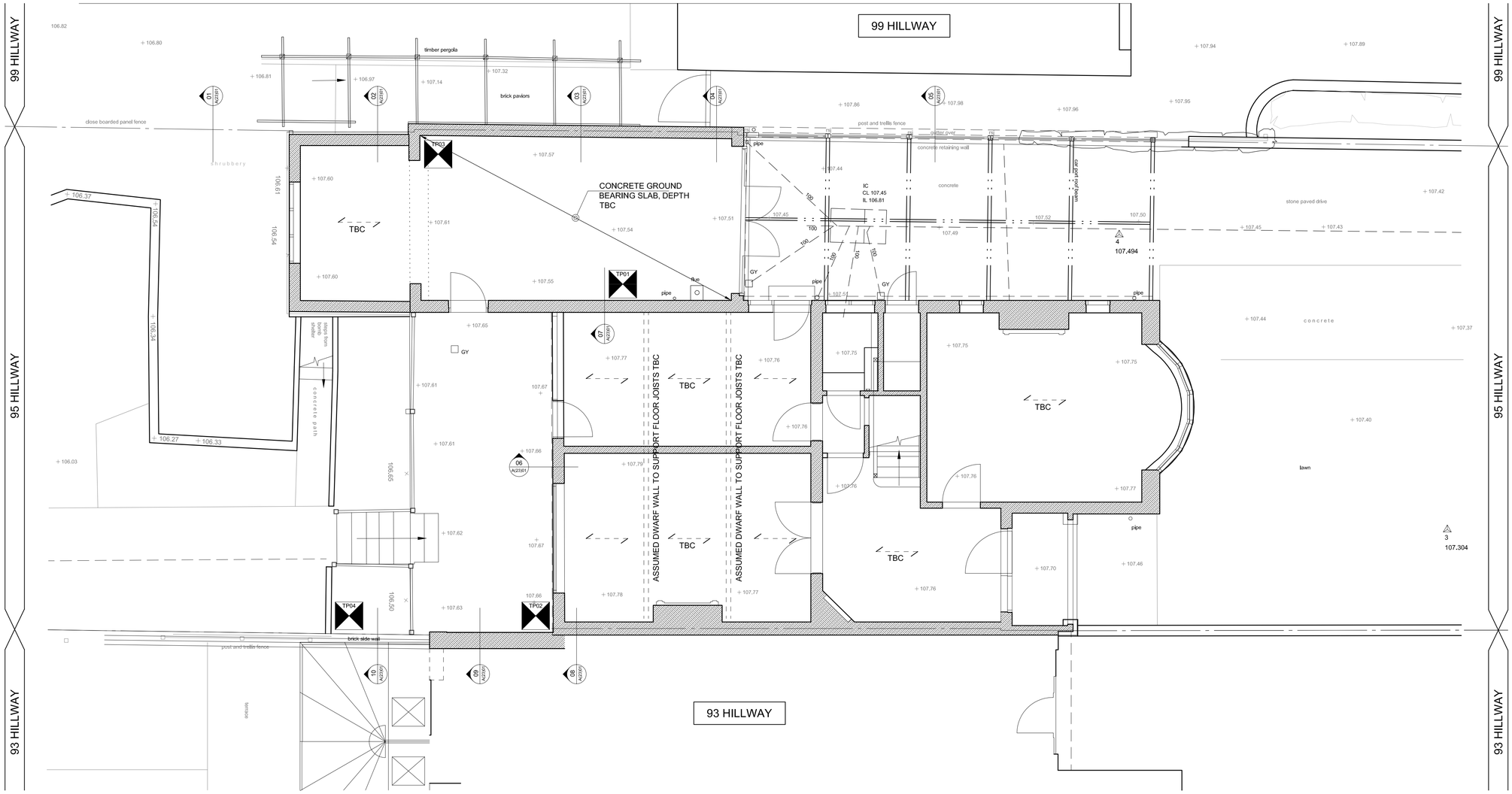
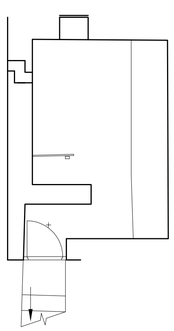
Date	Scale	Drawn	Checked
NOV 14	1:50 (A1)	SPM	RJM

Job No.	Drawing No.	Revision
142242	L(23)03	P1



EXTG GROUND FLOOR

SCALE 1:50 @ A1, 1:100 @ A3



EXTG BOMB SHELTER

SCALE 1:50 @ A1, 1:100 @ A3

0m 1.0m 2.0m 3.0m 4.0m 5.0m

Notes

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KEY

WALL TYPES

- EXISTING WALL.
- EXISTING NON LOAD BEARING PARTITION.
- EXISTING WALL TO BE REMOVED.
- W — STAINLESS STEEL WALL EXTENSION PROFILES.

ALL MASONRY BELOW DPC LEVEL TO BE FROST RESISTANT AND IN DESIGNATION (i) MORTAR.

LEGEND

- EXISTING BEAM UNDER.
- DENOTES SPAN OF EXISTING TIMBER JOISTS.
- DENOTES SPAN OF EXISTING TIMBER RAFTERS.

WORK IN PROGRESS

NOT FOR CONSTRUCTION

Rev.	Date	Amendment	Drawn	Chkd
P1	13.11.14	PRELIMINARY ISSUE	SM	RJM

Drawing Status: PRELIMINARY

Form

Job Title
95 HILLWAY
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N6 6AB

Drawing Title
EXISTING GA - GROUND FLOOR AND BOMB SHELTER

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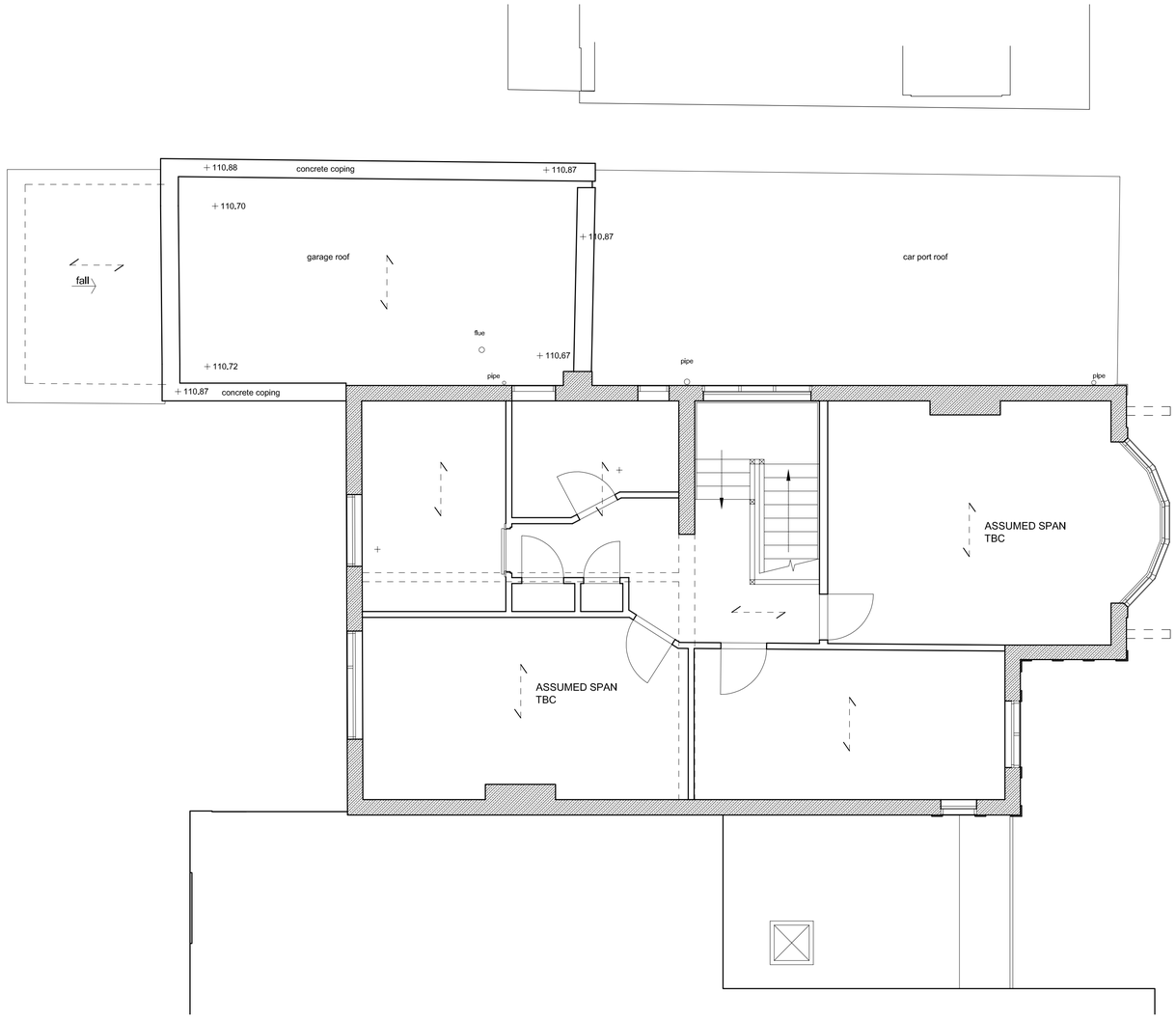
Date	Scale	Drawn	Checked
NOV 14	1:50 (A1)	SPM	RJM

Job No.	Drawing No.	Revision
142242	L(00)01	P1



EXTG FIRST FLOOR

SCALE 1:50 @ A1, 1:100 @ A3

0m 1.0m 2.0m 3.0m 4.0m 5.0m

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KEY

WALL TYPES

EXISTING WALL.

EXISTING NON LOAD BEARING PARTITION.

EXISTING WALL TO BE REMOVED.

W — STAINLESS STEEL WALL EXTENSION PROFILES.

ALL MASONRY BELOW DPC LEVEL TO BE FROST RESISTANT AND IN DESIGNATION (i) MORTAR.

LEGEND

EXISTING BEAM UNDER.

DENOTES SPAN OF EXISTING TIMBER JOISTS.

DENOTES SPAN OF EXISTING TIMBER RAFTERS.

WORK IN PROGRESS

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Rev.	Date	Amendment	Drawn	Chkd
P1	13.11.14	PRELIMINARY ISSUE	SM	RJM

Drawing Status: PRELIMINARY

Form

Job Title
95 HILLWAY
LONDON
N6 6AB

Drawing Title
EXISTING GA
FIRST FLOOR

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NOV 14	1:50 (A1)	SPM	RJM

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142242	L(00)02	P1

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KEY

WALL TYPES

EXISTING WALL.

EXISTING NON LOAD BEARING PARTITION.

EXISTING WALL TO BE REMOVED.

W STAINLESS STEEL WALL EXTENSION PROFILES.

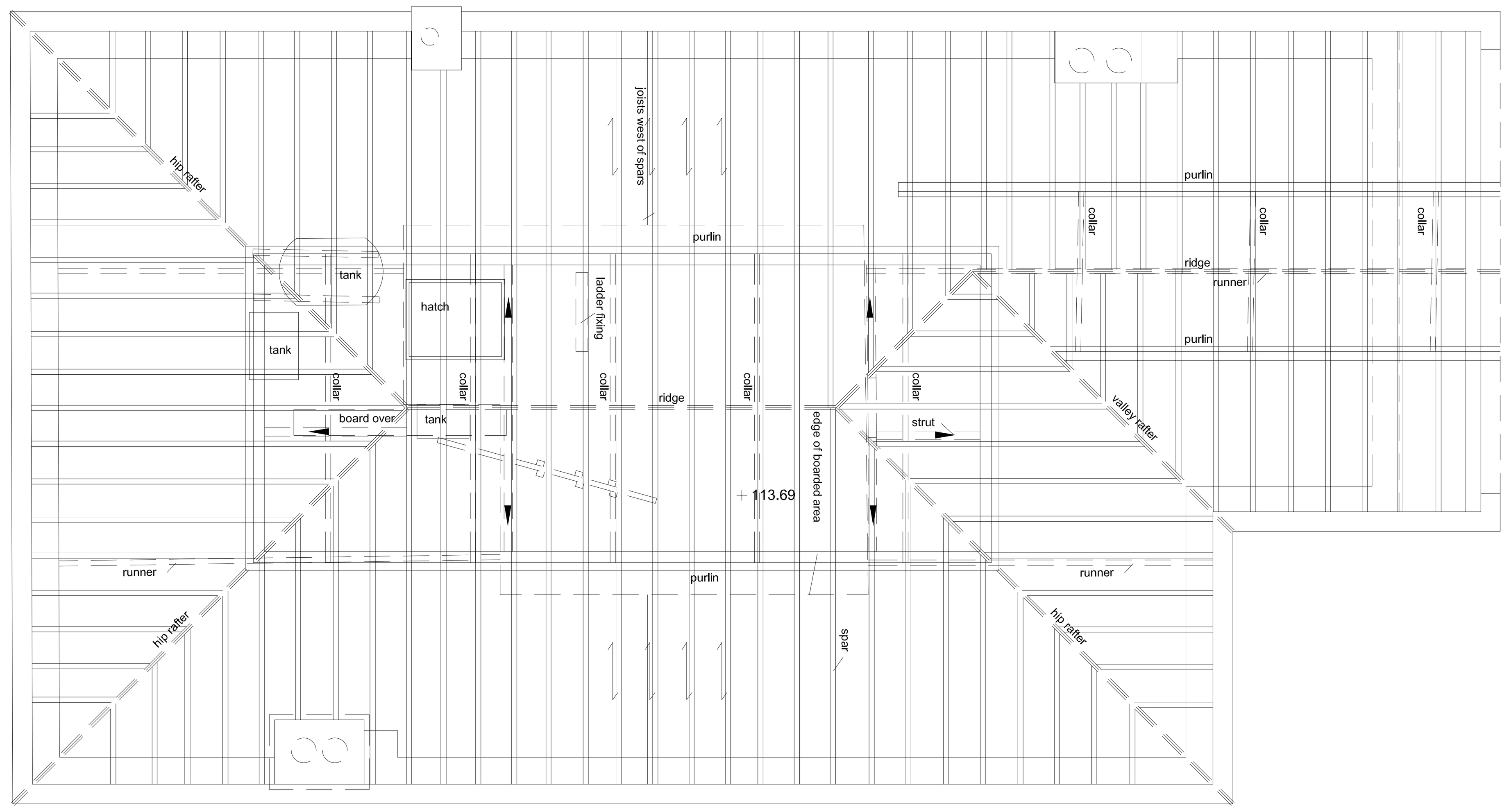
ALL MASONRY BELOW DPC LEVEL TO BE FROST RESISTANT AND IN DESIGNATION (i) MORTAR.

LEGEND

EXISTING BEAM UNDER.

DENOTES SPAN OF EXISTING TIMBER JOISTS.

DENOTES SPAN OF EXISTING TIMBER RAFTERS.



EXTG GROUND FLOOR
SCALE 1:50 @ A1, 1:100 @ A3

0m 1.0m 2.0m 3.0m 4.0m 5.0m

WORK IN PROGRESS

NOT FOR CONSTRUCTION

Rev.	Date	Amendment	Drawn	Chkd
P1	13.11.14	PRELIMINARY ISSUE	SM	RJM

Drawing Status PRELIMINARY

Form

Job Title
95 HILLWAY
LONDON
N6 6AB

Drawing Title
EXISTING GA
SECOND FLOOR

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Date	Scale	Drawn	Checked
NOV 14	1:50 (A1)	SPM	RJM

Job No.	Drawing No.	Revision
142242	L(00)03	P1

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Highgate, London

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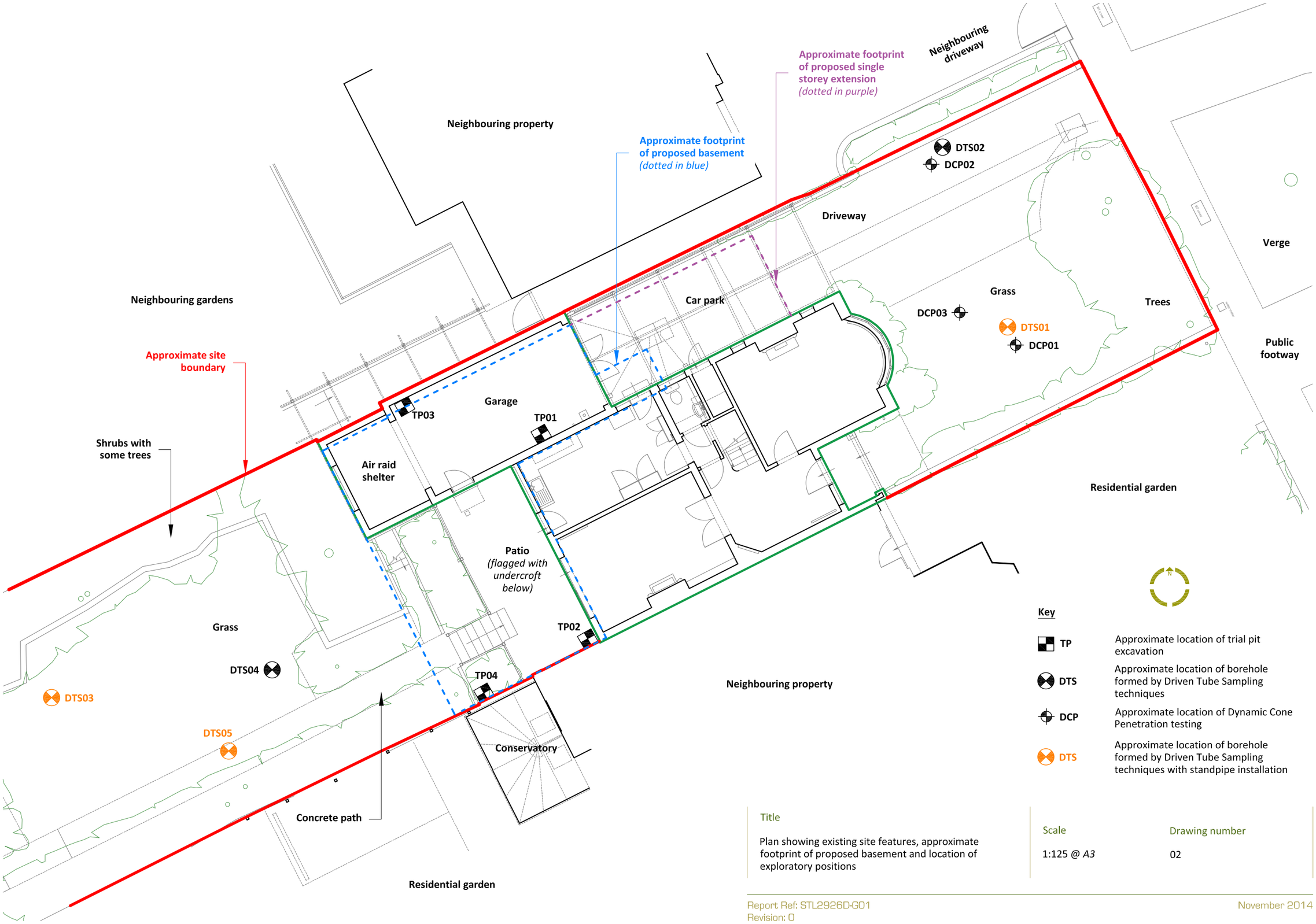

Key

TP	Approximate location of trial pit excavation
DTS	Approximate location of borehole formed by Driven Tube Sampling techniques
DCP	Approximate location of Dynamic Cone Penetration testing
DTS	Approximate location of borehole formed by Driven Tube Sampling techniques with standpipe installation

Title	Scale	Drawing number
Plan showing existing site features, approximate footprint of proposed basement and location of exploratory positions	1:125 @ *A3*	02

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Key to legends

Composite materials, Soils and Lithology

Topsoil	Made Ground	Boulders
Chalk	Clay	Coal
Cobbles	Cobbles & Boulders	Concrete
Gravel	Limestone	Mudstone
Peat	Sand	Sand and Gravel
Sandstone	Silt	Silt / Clay
Siltstone		

Note: Composite soil types are signified by combined symbols.

Key to 'test result' and 'sampling' columns

Test result	
Depth	Records depth that the test was carried out *(ie at 2.1m or between 2.1 and 2.55m)* [1]
Result	PP – Pocket penetrometer result (kN/m^2) HVP – Hand held shear vane result (kN/m^2) *PP result converted to an equivalent undrained shear strength by applying a factor of 50. Where at least 3 results obtained at same depth then an average value may be reported.*
	SPT – Standard penetration test result (uncorrected) *SPT (c) - Standard penetration test result (solid cone)*

Sampling		
From (m) To (m)	Records depth of sampling	
Type	D	Disturbed sample
	B	Bulk disturbed sample
	J	Disturbed sample placed in sealed amber jar
	W	Water sample
	U (32)	Undisturbed sample 100mm diameter sampler with number of blows of driving equipment required to obtain sample

Note [1]: Carried out on undisturbed samples.

Water observations

Described at foot of log and shown in the 'water strike' column.

▼ = water level observed after specified delay in drilling

▽ = water strike

Standpipe details

Gravel filter

Arisings

Bentonite

Slotted pipe

Unslotted pipe

Density

Density recorded in brackets inferred from density testing and soil descriptions from across the site (e.g. [Medium dense]).

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WELL	DESCRIPTION	LEGEND	DEPTH (m)	WATER STRIKE	TEST RESULTS TYPE/ DEPTH (m)	TEST RESULTS RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Grass onto low strength dark brown sandy slightly gravelly CLAY. Gravel consists of brick. MADE GROUND				PP 0.20	38	0.20	0.30	J/B
	Low strength orange brown sandy slightly gravelly CLAY. Gravel consists of ash, brick and rounded flint. MADE GROUND		0.50				0.50	0.60	J/B
					PP 1.00	30			
							1.20	1.30	J/B
					PP 1.40	38			
							1.50	1.60	D
					PP 1.60	25			
	Medium strength orange brown slightly silty sandy CLAY. CLAYGATE MEMBER		1.80 1.90		PP 1.80	25			
	Loose orange brown silty fine SAND. CLAYGATE MEMBER		2.05		PP 2.05	58			
	Medium strength grey slightly silty CLAY with occasional rootlets up to 1mm diameter observed. CLAYGATE MEMBER		2.10				2.10	2.20	D
	Loose orange brown and grey silty fine SAND. CLAYGATE MEMBER								
	High strength orange brown mottled grey slightly silty CLAY. CLAYGATE MEMBER		3.40		PP 3.40	88	3.40	3.60	D
					PP 3.60	92			
					PP 3.70	100			
	Medium dense orange brown and grey clayey slightly silty fine SAND. CLAYGATE MEMBER		3.80						
	Loose orange brown and grey silty fine SAND. CLAYGATE MEMBER		4.00				4.00	4.10	D
	Medium strength orange brown and grey silty slightly sandy CLAY. CLAYGATE MEMBER		4.20 4.30		PP 4.20	75	4.20	4.30	D
	Loose orange brown and grey clayey silty fine SAND. CLAYGATE MEMBER								
	Medium strength orange brown and grey slightly silty sandy CLAY.		4.80		PP 4.80	83	4.80	5.00	D
					PP 4.90	83			
	CONTINUED ON NEXT SHEET								

Notes: Hand excavated to 1.5m depth. For Dynamic Cone Penetration testing, refer to DCP01. 80% recovery between 1m and 2m depth. 95% recovery between 2m and 3m depth. 95% recovery between 3m and 4m depth. 95% recovery between 4m and 5m depth.

Ground level (mAOD)

Co-ordinates
528241, 186950

Title
Driven tube sampler borehole record

Surface breaking
No

Groundwater observations
Minor groundwater seepages from 4.7m depth.

Date of excavation (range if applicable)
27/10/2014

Appendix
D

Location plan on drawing number
02

DTS01

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WELL	DESCRIPTION	LEGEND	DEPTH (m)	WATER STRIKE	TEST RESULTS		SAMPLING		
					TYPE/ DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	CLAYGATE MEMBER								
	BOREHOLE TERMINATED AT 5.00m		5.00						

Notes: Hand excavated to 1.5m depth. For Dynamic Cone Penetration testing, refer to DCP01. 80% recovery between 1m and 2m depth. 95% recovery between 2m and 3m depth. 95% recovery between 3m and 4m depth. 95% recovery between 4m and 5m depth.

Ground level (mAOD)

Co-ordinates
528241, 186950

Title
Driven tube sampler borehole record

Surface breaking
No

Groundwater observations
Minor groundwater seepages from 4.7m depth.

Date of excavation (range if applicable)
27/10/2014

Appendix
D

Location plan on drawing number
02

DTS01

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WELL	DESCRIPTION	LEGEND	DEPTH (m)	WATER STRIKE	TEST RESULTS TYPE/ DEPTH (m)	TEST RESULTS RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	STONE PAVING SLAB.		0.05						
	MADE GROUND								
	Medium strength dark grey gravelly CLAY. Gravel consists of ash, clinker, concrete and brick.						0.20	0.30	D
	MADE GROUND		0.50				0.50	0.60	D
	Loose to medium dense orange brown and grey silty fine SAND.								
	CLAYGATE MEMBER				PP 0.87	54			
							1.20	1.50	D
	Loose orange brown slightly clayey silty SAND.		1.68						
	CLAYGATE MEMBER		1.87						
	Low strength orange brown occasional dark brown silty sandy slightly gravelly CLAY with cobbles of flint. Gravel consists of rounded flint.								
	CLAYGATE MEMBER				PP 2.10	33			
					PP 2.30	25	2.30	2.40	D
					PP 2.40	25			
					PP 2.50	83			
	Loose orange brown and grey silty slightly gravelly fine SAND. Gravel consists of rounded flint.		2.54						
	CLAYGATE MEMBER		2.67		PP 2.70	46	2.70	2.80	D
	Medium strength orange brown silty slightly sandy CLAY.		2.80		PP 2.77	54			
	CLAYGATE MEMBER						2.90	3.00	D
	Loose to medium dense light orange brown silty fine SAND.								
	CLAYGATE MEMBER								
	Loose to medium dense light brown clayey slightly silty fine SAND.		3.26						
	CLAYGATE MEMBER								
	Medium strength orange brown and grey CLAY with <5mm lenses of fine sand.		3.70		PP 3.75	54	3.70	3.90	D
	CLAYGATE MEMBER				PP 3.80	46			
	Medium dense light brown silty fine SAND.		3.92						
	CLAYGATE MEMBER								
	Medium strength light orange brown silty slightly sandy CLAY.		4.20		PP 4.20	54			
	CLAYGATE MEMBER		4.30		PP 4.30	63			
	Medium strength orange brown silty slightly sandy CLAY with <5mm lenses of orange brown and grey fine sand.				PP 4.40	63			
	CLAYGATE MEMBER				PP 4.50	63	4.50	4.60	D
					PP 4.60	46			
					PP 4.70	96			
					PP 4.80	71			
	Medium dense orange brown silty fine SAND.		4.85						
			4.90						
	CONTINUED ON NEXT SHEET								

Notes: For Dynamic Cone Penetration testing, refer to DCP02. 90% recovery between 1m and 2m depth. 90% recovery between 2m and 3m depth.

Ground level (mAOD)

Co-ordinates
528240, 186955

Title
Driven tube sampler borehole record

Surface breaking
No

Groundwater observations
No groundwater encountered.

Date of excavation (range if applicable)
27/10/2014

Appendix
D

Location plan on drawing number
02

DTS02

Job number: STL2926D-

Revision: 0

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WELL	DESCRIPTION	LEGEND	DEPTH (m)	WATER STRIKE	TEST RESULTS		SAMPLING		
					TYPE/ DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	CLAYGATE MEMBER Medium strength orange brown silty sandy CLAY with <5mm lenses of light brown sand. CLAYGATE MEMBER		5.00						
	BOREHOLE TERMINATED AT 5.00m								

Notes: For Dynamic Cone Penetration testing, refer to DCP02. 90% recovery between 1m and 2m depth. 90% recovery between 2m and 3m depth.

Ground level (mAOD)

Co-ordinates
528240, 186955

Title
Driven tube sampler borehole record

Surface breaking
No

Groundwater observations
No groundwater encountered.

Date of excavation (range if applicable)
27/10/2014

Appendix
D

Location plan on drawing number
02

DTS02

Job number: STL2926D-

Revision: 0

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WELL	DESCRIPTION	LEGEND	DEPTH (m)	WATER STRIKE	TEST RESULTS		SAMPLING		
					TYPE/ DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto orange brown CLAY. TOPSOIL								
	[Loose to medium dense] orange brown silty fine SAND. CLAYGATE MEMBER		0.22				0.50	0.90	D
							1.10	1.90	D
	BOREHOLE TERMINATED AT 2.00m		2.00						

Notes:

Ground level (mAOD)

Co-ordinates
528216, 186939

Title
Driven tube sampler borehole record

Surface breaking
No

Groundwater observations
No groundwater encountered.

Date of excavation (range if applicable)
27/10/2014

Appendix
D

Location plan on drawing number
02

DTS03

Job number: STL2926D-

Revision: 0

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WELL	DESCRIPTION	LEGEND	DEPTH (m)	WATER STRIKE	TEST RESULTS		SAMPLING		
					TYPE/ DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto orange brown silty sandy slightly gravelly CLAY. Gravel consists of flint. TOPSOIL								
	[Loose to medium dense] orange brown clayey slightly gravelly fine SAND. Gravel consists of rounded flint. CLAYGATE MEMBER		0.20				0.20	0.30	D
	[Loose to medium dense] orange brown silty slightly gravelly fine SAND. Gravel consists of rounded flint. CLAYGATE MEMBER		1.30				1.30	2.00	D
	BOREHOLE TERMINATED AT 2.00m		2.00						

Notes: 50% recovery between 0m and 1m depth. 80% recovery between 1m and 2m depth.

Ground level (mAOD)

Co-ordinates
528205, 186937

Title
Driven tube sampler borehole record

Surface breaking
No

Groundwater observations
No groundwater encountered.

Date of excavation (range if applicable)
27/10/2014

Appendix
D

Location plan on drawing number
02

DTS04

Job number: STL2926D-

Revision: 0

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WELL	DESCRIPTION	LEGEND	DEPTH (m)	WATER STRIKE	TEST RESULTS		SAMPLING		
					TYPE/ DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Vegetation onto dark brown clayey slightly gravelly fine SAND. Gravel consists of brick. MADE GROUND		0.28						
	[Loose to medium dense] orange brown and grey silty fine SAND. CLAYGATE MEMBER						0.60	0.70	D
	[Loose to medium dense] orange brown very clayey silty fine SAND. CLAYGATE MEMBER		1.36				1.50	1.70	D
	[Loose to medium dense] orange brown and grey fine SAND. CLAYGATE MEMBER		1.70						
	[Loose to medium dense] light brown fine SAND. CLAYGATE MEMBER		2.10				2.10	3.00	D
	BOREHOLE TERMINATED AT 3.00m		3.00						

Notes:

Ground level (mAOD)

Co-ordinates
528215, 186935

Title
Driven tube sampler borehole record

Surface breaking
No

Groundwater observations
No groundwater encountered.

Date of excavation (range if applicable)
27/10/2014

Appendix
D

Location plan on drawing number
02

DTS05

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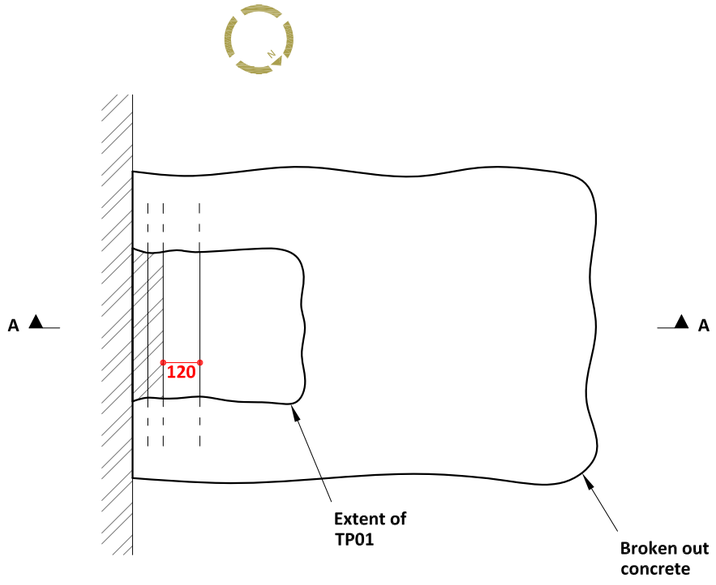
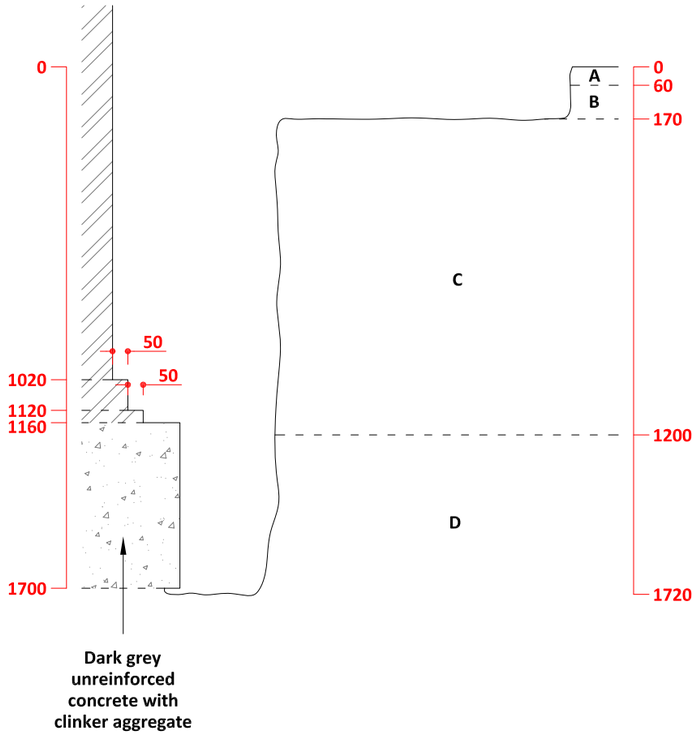
Plan



Section A-A



Photographic record

Key

A. Light grey unreinforced CONCRETE.
(MADE GROUND)

B. Dense dark brown sandy GRAVEL consisting of clinker.
(MADE GROUND)

C. Medium dense orange brown clayey gravelly fine SAND. Gravel consists of ceramic and brick.
(MADE GROUND)

D. Medium dense orange brown slightly gravelly fine SAND. Gravel consists of rounded flint.
(CLAYGATE MEMBER)

Observed features
Assumed features

Denotes brickwork
Denotes concrete

Notes

1. All dimensions shown in millimetres
2. Disturbed samples taken from 0.2-0.3m, 0.3-0.4m and 1.3-1.4m depths
3. Jar samples taken from 0.2-0.3m, 0.3-0.4m and 1.3-1.4m depths
4. Density of soil determined from ease of excavation

Method of excavation		Title	Trial pit number
Hand tools		Trial pit record	TP01
Trial pit dimensions		Date of excavation	Location plan on drawing number
As shown		27.10.2014	02
Groundwater observations		Scale	Appendix
No groundwater encountered		1:20 at A3	C

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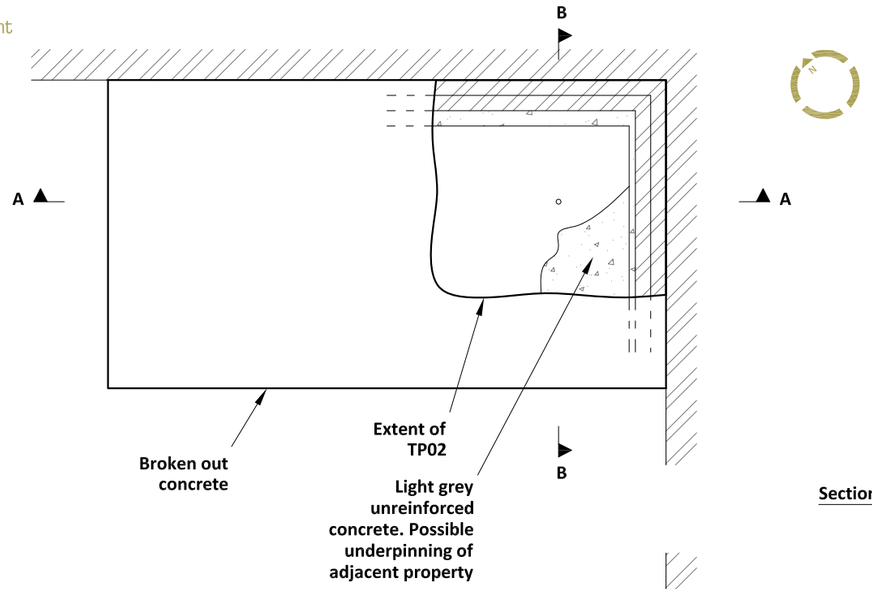
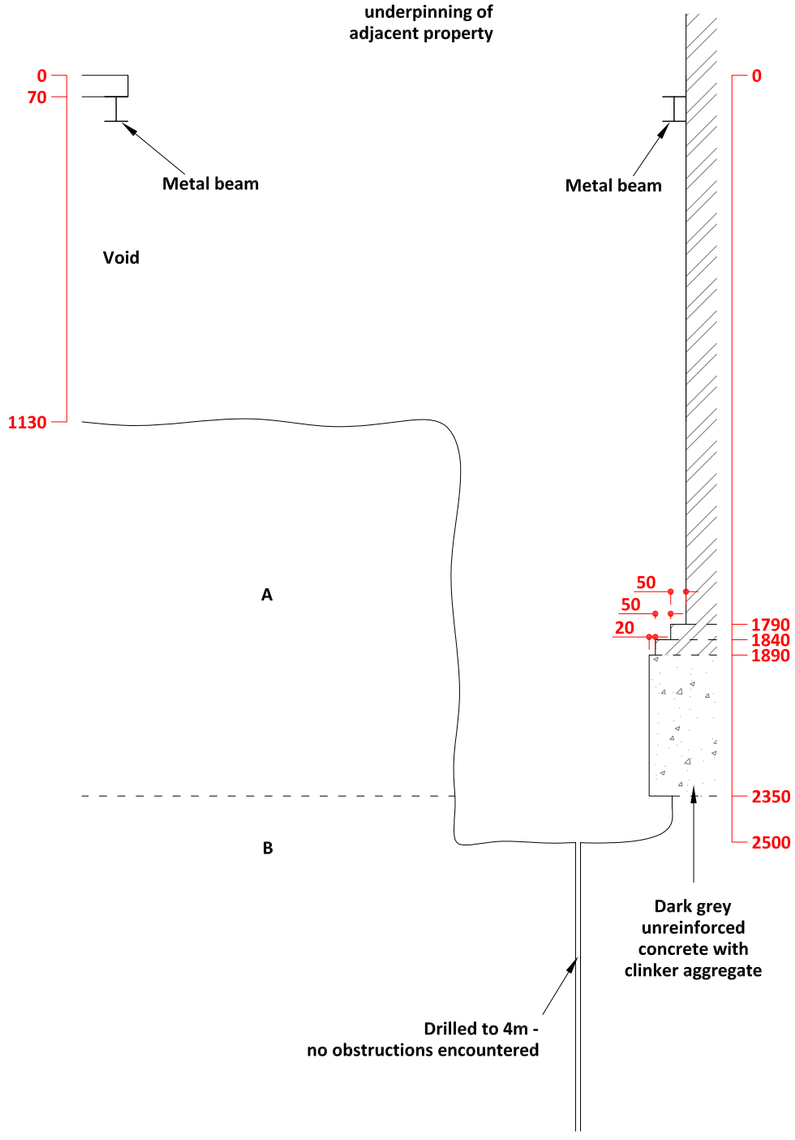
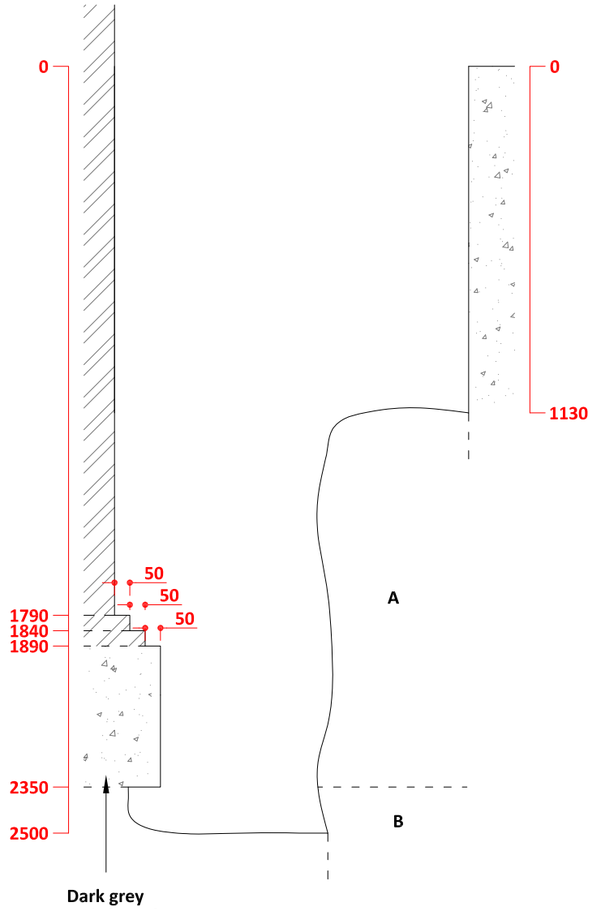
Plan



Section A-A



Section B-B



Photographic record

Key

A. Medium dense dark brown slightly clayey gravelly SAND. Gravel consists of ash, brick and slate.
(MADE GROUND)

B. Medium dense light brown very silty fine SAND.
(CLAYGATE MEMBER)

Observed features
Assumed features

Denotes brickwork
Denotes concrete

Notes

1. All dimensions shown in millimetres
2. Disturbed samples taken from 0.3-0.4m and 2.4-2.5m depths
3. Jar sample taken from 0.3-0.4m depth

Method of excavation
Hand tools
Trial pit dimensions
As shown
Groundwater observations
No groundwater encountered

Title
Trial pit record
Date of excavation
27.10.2014
Scale
1:20 at A3

Trial pit number
TP02
Location plan on drawing number
02
Appendix
C

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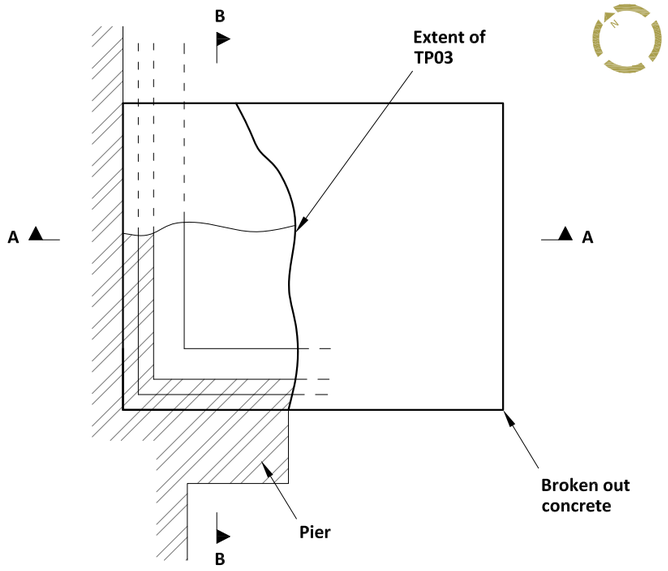
Plan



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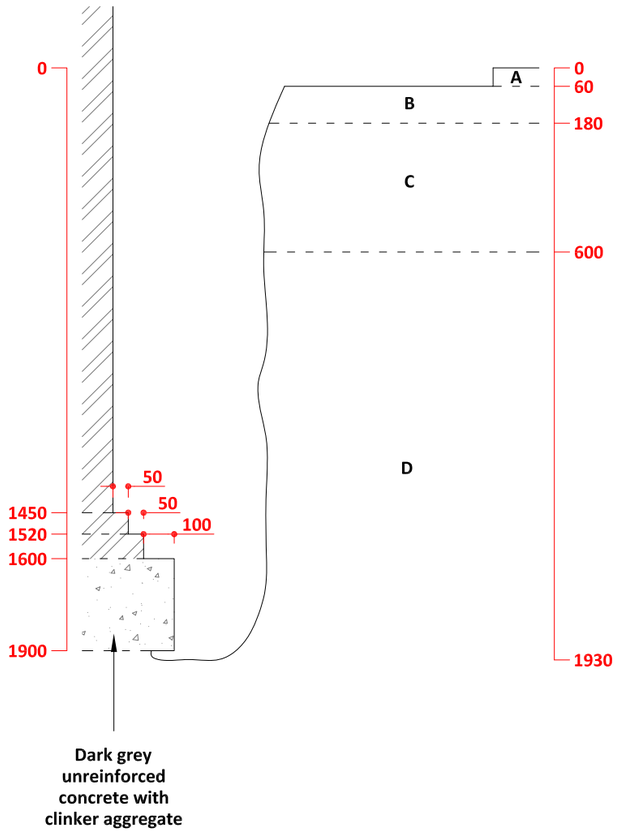
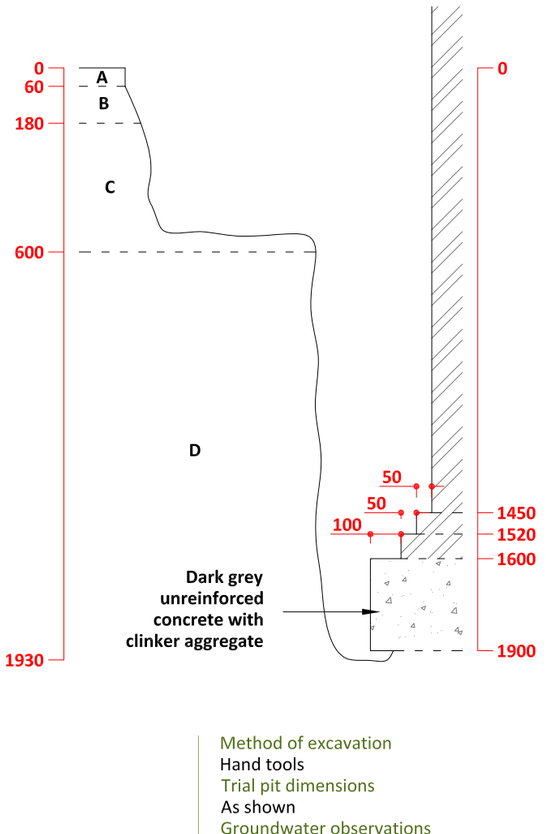


Section B-B



Photographic record

Key

A. Light grey unreinforced CONCRETE.
(MADE GROUND)

B. Medium dense dark brown clayey slightly gravelly SAND. Gravel consists of brick.
(MADE GROUND)

C. Dense dark brown sandy GRAVEL consisting of clinker.
(MADE GROUND)

D. Medium strength orange brown sandy slightly gravelly CLAY. Gravel consists of flint.
(CLAYGATE MEMBER)

Observed features
Assumed features

Denotes brickwork
Denotes concrete

Notes

1. All dimensions shown in millimetres
2. Jar samples taken from 0.2-0.3m, 0.3-0.4m and 0.6-0.7m depths

Method of excavation	Hand tools
Trial pit dimensions	As shown
Groundwater observations	No groundwater encountered

Title	Trial pit record
Trial pit number	TP03
Date of excavation	27.10.2014
Location plan on drawing number	02
Scale	1:20 at A3
Appendix	C

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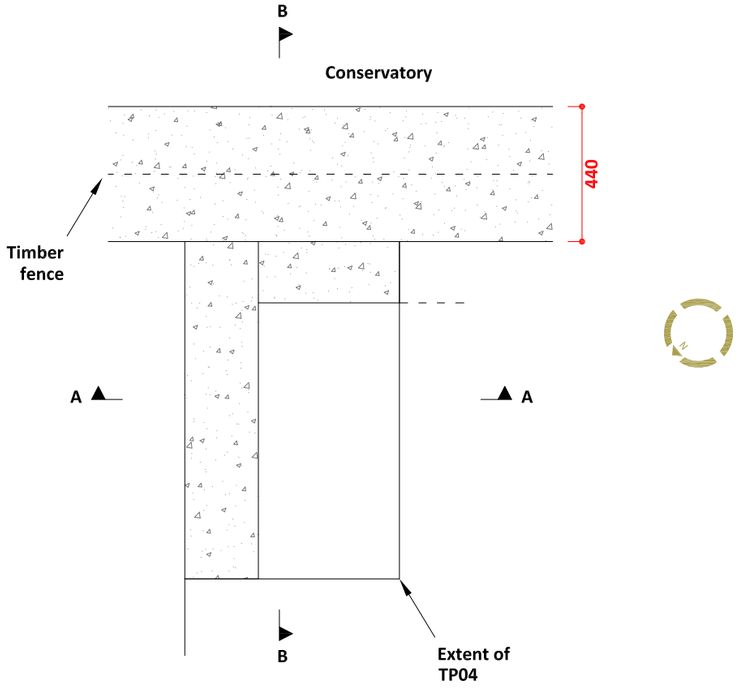
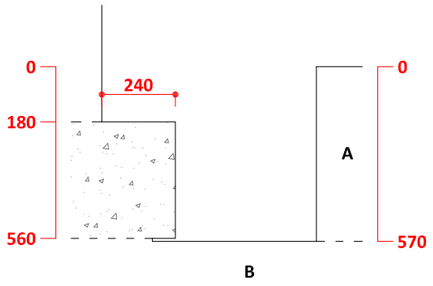
Plan



Section A-A



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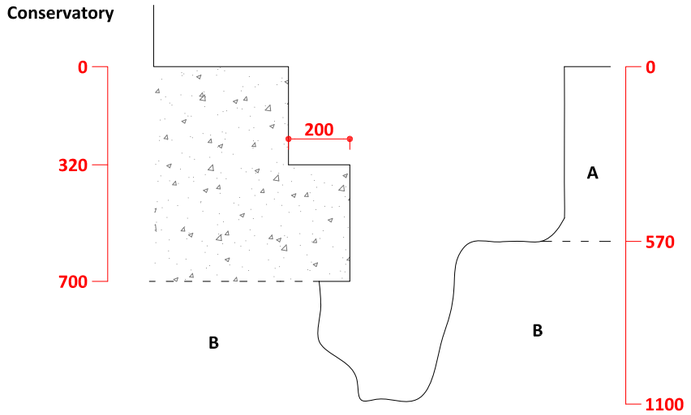

Photographic record

Key

A. Medium strength dark brown slightly sandy gravelly CLAY with frequent roots up to 12mm in diameter. Gravel consists of brick. (MADE GROUND)

B. Loose to medium dense orange brown clayey silty fine SAND with occasional rootlets up to 1mm in diameter. (CLAYGATE MEMBER)

Observed features
Assumed features

Denotes concrete

Notes

1. All dimensions shown in millimetres
2. Bulk and jar samples taken from 0.2-0.3m and 0.8-0.9m depths

Method of excavation	Hand tools
Trial pit dimensions	As shown
Groundwater observations	No groundwater encountered

Title	Trial pit record
Date of excavation	27.10.2014
Scale	1:20 at A3
Trial pit number	TP04
Location plan on drawing number	02
Appendix	C

Statement of experience on basements

Soiltechnics have carried out a large number of investigations for basement constructions throughout the UK and in more recent years outside the UK

The following table provides a limited number examples (for illustration purposes) of investigations carried out for basements which include interpretative reports providing parameters for detailed design such as settlement / heave, ground movements around basements, hydrological effects and in some cases preliminary design of piles.

Location	ground conditions	Basement	Approx size (m)	Date
Northamptonshire	Glacial Till	Single storey archive store for Rolls Royce. Part open excavation for construction of reinforced concrete box subsequently backfilled	10 x 8	Circa 1992
Central London (Kings Road)	Terrace sands and gravels over London Clays	Two storey deep car park with gardens at ground level. Contiguous pile wall with subsequent insitu concrete box	40 x 20	Circa 2000
Central London (Finsbury square)	Terrace sands and gravels over London Clays	Two storey deep basement below multi storey building with adjacent buildings. Contiguous pile wall with subsequent insitu concrete box	30 x 20	Circa 2002
Central London (Union Street)	Terrace sands and gravels over London Clays	Two storey deep basement below multi storey building with adjacent buildings including tube tunnels. Contiguous pile wall with subsequent insitu concrete box	40 x 30	2009
Central London (Blackfriars)	Terrace sands and gravels over London Clays	Two storey deep basement below multi storey building with adjacent buildings including railway viaduct . Contiguous pile wall with subsequent insitu concrete box	40 x 20	2005
Central London (Imperial College)	Terrace sands and gravels over London Clays	Single storey deep basement below multi storey residential block. Sheet pile walls with subsequent insitu concrete box	60 x15	2005
Coventry University	Mercia Mudstones	Single storey deep basement with three storey building over. Part cut and part sheet piled with subsequent insitu concrete box	50 x50	2010
Rabat Grand theatre Bouregrerg Morrocco	Alluvial gravels over sandstone	Single storey deep basement. Open excavations and sheet piles walls with subsequent insitu concrete box. Piled foundation for super structure. Area subject to earthquakes and liquefaction. Outline design of piles, specification for piling and testing.	50 x50	2012
Central London (various locations)	London Clays occasionally overlain with terrace sands and gravels	Various existing terraced semi and detached domestic properties. New single and two storey deep basements under building foot prints and extending into gardens. Construction using traditional underpinning techniques and contiguous / secant piled walls	Various	2000 to date
Central London (Holland Park)	London Clays	Two locally three storey deep basement below new four storey block of flats. Secant piled walls and insitu concrete box	70 x 20	2014

Curriculam Vitae
Nigel Thornton
B.Sc, C.Eng, MICE, MCIHT, FGS.

soiltechnics
environmental and geotechnical consultants

Qualifications

- Awarded degree in Civil Engineering., City University, London in 1980
- Elected Member of the Institution of Civil Engineers in 1983 (Chartered Civil Engineer)
- Member of the Chartered Institution of Highways and Transportation since 1984
- Fellow of the Geological Society since 1986

Employment History

• Northampton Borough Council	1975 - 1980
• Northamptonshire County Council	1980 - 1989
• The John Parkhouse Partnership	1989 - 1989
• Associate Partner	1989 - 1993
• Partner	1993 - 2005
• JPP Consulting (Director)	2005 to date
• Soiltechnics (Director)	1993 to date

Note

- In 2005, the John Parkhouse Partnership was incorporated into JPP Consulting Ltd (current complement 28 staff)
- Founding Director of Soiltechnics Ltd, a company specialising in geotechnical and geo-environmental matters. (Current complement 27 staff)

Relevant Experience

Bridgeworks

General design, contract administration and site supervision of various highway bridges and retaining structures.

Geotechnical and Geo-environmental

As Geotechnical Project Manager for Engineering Services Laboratory at NCC (ESL). (1985 - 1989)

Control of ground investigations for major highway schemes for local authority including implementation of fieldwork, direction of laboratory testing and production of factual and interpretative reports, following and satisfying geotechnical certification procedures for Department of Transport (schemes up to £15m)

Generally, at ESL, Soiltechnics and JPP.

Design and specification of earthworks, including determination of slope stability. Investigation and remediation of unstable slopes.

Control, implementation of fieldwork and production of geotechnical reports for industrial and commercial developments, housing schemes and water authority infrastructure (scheme values up to £80m).

Investigations for outline designs of landfill sites. Investigations for redevelopment of chemically contaminated sites, assessment of the same, design and verification of remediation works. Production of tender and contract documents for ground investigations.

	Investigations into mine workings and assessment of their stability. Specifications for ground improvement works (vibrotreatment) and piling. Investigations and reporting on a wide range of basement constructions for commercial and residential buildings 1 to 4 stories deep. Producing basement impact reports. Lecturing to other professionals on the investigation assessment and remediation of contaminated land, and EPA part IIA Lectures to local ICE branch on geotechnical aspects.
Materials Management	Production of construction material specifications, primarily in concrete, aggregates and bituminous mixtures, but including masonry, timer, steel and protective systems. Control and implementation of investigations into failures of construction materials including scheduling and analysing test data, and production of technical reports providing specifications for appropriate remedial measures.
Building Structures	Structural inspections and surveys on a wide range of commercial, domestic, industrial and military buildings including direction of appropriate investigations and production of details repairs/construction specifications. Design and checking of building structures in timber, steel, concrete and masonry including supervision of works on site. Design works carried out both manually and using computerised systems following current British Standards and other recognised design standards.
Road Pavement Structures	Direction and implementation of condition surveys and investigations of road pavement using falling weight deflectometer, deflectograph bump integrator and coring. Direction of testing regimes for bituminous and cement bound and unbound pavement materials. Production of reports on condition and assessment of load carrying capacity of existing roadways and specification and structural design for new roadways for both highway and industrial use. Design of various road pavement structures (flexible and rigid) using Highways Agency guidelines and British Ports Federation guidelines.
Drainage and Flood Risk Assessments	Design of main (adoptable) and private foul and stormwater infrastructure for housing, commercial and industrial schemes, including detention basins, infiltration systems, pumping stations etc. Production of flood risk assessment reports.
Quality Assurance	Assisting in production of main laboratory procedures to obtain NAMAS accreditation for large spectrum of soils and materials testing. Geotechnical contributions to Quality Assurance Manual for Soiltechnics/JPP and implementation of procedures.
CPD and Health and Safety	Attendance of in house CPD Seminars and production of Health and Safety Plans/files for building works. Author of in house risk assessment and Practice policies.
Litigation	Acting as expert witness on numerous construction related matters.
Publications	Co-author of a book entitles 'Cracking and Building Movement' published by the Royal Institution of Chartered Surveyors, in late 2004.

Chord Environmental Ltd

David Dunkley
Soiltechnics
Cedar Barn
White Lodge
Walgrave
Northants NN6 9PY

Your Ref: 95 Hillway
Our Ref: 1127/LJE031214

For the attention of: David Dunkley

3rd December 2014

95 Hillway, Highgate - BIA Review

Dear David,

Further to our discussions and the instruction to proceed on behalf your client (CJ O'Shea & Co. Ltd.) I have undertaken a review of the Basement Impact Assessment (BIA) prepared by for the proposed basement development at 95 Hillway, Highgate.

I have reviewed the design of the proposed basement development, together with the information presented within the above documents, against the requirements of the Camden BIA guidance set out within DP27 and CPG4.

Chord Environmental specialise in the provision of hydrogeological services with extensive experience in the UK supporting both private and public sector clients. I am a geologist and hydrogeologist and have a BSc. in geology from the University of Bristol, a MSc. in hydrogeology from the University of East Anglia and am also a Chartered Geologist and fellow of the Geological Society. I am Managing Director at Chord Environmental and was previously a Technical Director with Paulex Environmental Consulting and managed Hyder Consulting (UK) Ltd's groundwater team.

I have been a hydrogeologist for 17 years. During that time I have advised on over 70 basement developments. Much of my career has been spent assessing the impact of development on the quality and quantity of groundwater resources. I have worked for both promoters and regulators of schemes and have acted as an expert witness for the Highways Agency and on BIA schemes.

Development proposal

I understand the proposed development comprises a single storey basement to the rear part of the building together with a single storey ground floor extension to the rear and a single storey extension to the front of the existing garage. The basement will extend beneath the proposed building and partially beneath the front and rear gardens.

Excavations to basement floor formation level below the existing house / garage could extend to depths of around 3.2m. As ground levels to the rear of the existing building are about 1.3m below existing ground floor levels, excavations to formation levels of the new basement will extend around 1.9m below existing ground levels to the rear.

Environmental Site Setting

The BIA screening assessment and site investigation interpretation has identified 95 Hillway to be underlain by the Eocene Claygate Member as shown on the British Geological Survey 1:50,000 scale map (Sheet 256 – North London) to a depth of over 5m. The Claygate Member is classified as a Secondary A Aquifer by the Environment Agency, strata with the potential to support water supplies on a local level and support river base flow. The Claygate Member strata beneath the site has been shown to comprise beds of fine sand with some clay horizons. The very low permeability of the London Clay results in very low rates of rainfall infiltration and correspondingly, very high rates of rainfall runoff.

The site lies outside of any designated public groundwater Source Protection Zone as delineated by the Environment Agency. There are no surface water features or culverted tributaries of the former Fleet watercourse within 400m of the site.

Hillway does not lie within an area of flood risk as designated by the Environment Agency and it was not affected by the surface water flooding of the region during 1975 and 2003.

Surface Flow and Flooding Assessment

The BIA screening, scoping and risk assessments have followed the CPG4 guidance criteria and screening questions. The potential surface flow and flooding issue raised by the screening and scoping exercises have been appropriately addressed by Nigel Thornton (C.Eng) of Soiltechnics within the supplement BIA report and no areas of concern relating to the proposed development were identified.

Subterranean (Groundwater) Flow Screening Assessment

The BIA screening, scoping and risk assessments have followed the CPG4 guidance screening questions. I have commented on the answer to each question below.

- **Question 1a: Is the site located directly above an aquifer?**

  The Site is mapped as being underlain by the Claygate Member, designated as a Secondary A Aquifer by the Environment Agency, which has been shown to comprise beds of fine sand beneath the site. I therefore agree that the Site is located above an aquifer.

Question 1b: Will the proposed basement extend beneath the water table surface?

No. Winter monitoring of standpipes within the Claygate Member established groundwater levels to be approximately 4.5m beneath the site. The proposed basement underpinning formation level would be approximately 1.55m above monitored groundwater levels.

- **Question 2: Is the site within 100m of a watercourse, well (used/disused) or potential spring line?**

  No surface water features are present within 400m of the site.

- **Question 3: Is the site within the catchment of the pond chains on Hampstead Heath?**

  Yes - the Site is located c.450m northeast, and up topographic gradient, of the Hampstead Heath ponds and therefore lies within their hydrological catchment area.

- **Question 4: Will the proposed development result in a change in the proportion of hard surfaced / paved area?**

  The proposed basement development does result in a net increase in hard surfaced / paved area. In relation to the assessment of the proposed development on groundwater flow, the purpose of this question is to determine whether rainfall drainage and aquifer recharge will be reduced. The site is currently well drained to the sands of the underlying Claygate Member and the proposed hard surfaced areas will continue to be drained to ground.

- **Question 5: As part of the site drainage, will more surface water (e.g. rainfall and run-off) than at present be discharged to ground (e.g. via soakaways and/or SUDS)?**

  Yes. The Site is currently well drained to ground and it is proposed that a soakaway is installed to further promote surface water drainage to ground.

- **Question 6: Is the lowest point of the proposed excavation (allowing for any drainage and foundation space under the basement floor) close to, or lower than, the mean water level in any local pond (not just the pond chains on Hampstead Heath) or spring line?**

  I agree there are no mapped local groundwater dependent ponds or spring lines present within 400m of the Site and the proposed basement excavation will be c.1.5m above monitored groundwater levels.

Slope Stability Assessment

The BIA screening, scoping and risk assessments have followed the CPG4 guidance criteria and screening questions. The potential slope stability issues raised by the screening and scoping exercises have been appropriately addressed by Nigel Thornton (C.Eng) of Soiltechnics within the supplement BIA report and no areas of concern relating to the proposed development were identified.

Conclusions

The BIA report has appropriately characterised 95 Hillway with respect to its geological and groundwater site setting. The site is underlain by relatively permeable Claygate member sands, however the proposed basement will be approximately 1.5m above monitored groundwater levels beneath the Site and surface water drainage would drain to ground as a result of the development. Therefore the proposed basement would not impact upon the existing groundwater flow regime beneath the site, nor the hydrology of the Hampstead Heath pond chains.

The purpose of the Basement Impact subterranean or groundwater flow assessments is to identify the potential for the proposed development to cause groundwater impacts and subsequently identify areas which require further investigation. No potential adverse impacts have been established by these assessments or within the interpretation of the site investigation information and subsequent impact assessment.

Yours sincerely,

John Evans BSc MSc CGeol.

Director