Palladium Consulting Engineers Ltd

Springfield, Luffenhall, Nr. Stevenage, Herts. SG2 7PX

Email address: coeng@palladium.co.uk

Tel. 08452 990 990 Fax. 0709 284 3117

18 LINKSWAY NORTHWOOD

BASEMENT IMPACT ASSESSMENT

DATE: FEB 21

CLIENT: DUSEK DESIGN ASSOCIATES

JOB NO:202285

1.Background

The proposed development comprises a new dwelling over 4 floors, including a basement with associated swimming pool, ground floor ,first floor and second floor with associated surface and underground car parking with the basement.

The site currently consists an existing property known as "No.18 Linksway Northwood", the site has a cross fall of approximately 0.5m and a fall from the rear boundary to the front garden of 4m, the site comprises various mature trees including oak, cypress, yew and fruit trees. (Planning scheme see appendix c)

2. Ground Model

A desk top study of the site revealed that the site has been occupied by the existing residential property for the entirety of its developed history.
Referring to geological records and site investigation encountered at No.20 Linksway the site geological conditions can be summarised as follows:-

- Shallow top soil / made ground
- Overlying
- Reading Bed formation, comprising Stiff Orange- Brown mottled grey clay 0.4-3.2m
- Overlying
- Upnor formation comprising Dense Dark Brown fine and medium sand and gravel 3.2-13m
- Overlying
- Upper Chalk Deposits 13-20m and not penetrated

During all of the fieldwork no ground water was encountered to a depth of 20m in depth. (see Appendix A for borehole records)

3. Flood Risk Assessment

Referring to Enviroment Agency Database the site lies in floor zone 1, an area with a low probability of flooding. (see appendix B for records)

The floor risk detailed assessment for 1:100+ year storm event, indicates the site is outside any area for flooding.

Learn more about this area's flood risk

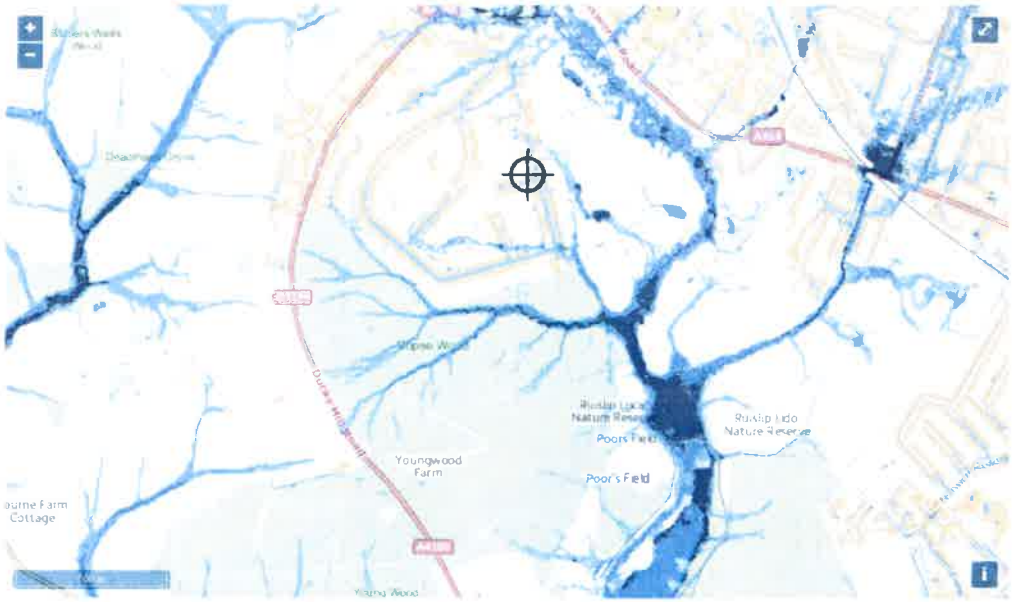
Select the type of flood risk information you're interested in. The map will then update

Flood risk

Low risk: depth

Location

HA62XB



4. Proposed Basement Construction

In view of the depth of the basement construction and the associated depth of basement excavations, precautions will be required in order to safe guard the neighbouring properties as outlined below:-

- No.20 Linksway Northwood is a new build which comprises an basement construction and was approved under planning application ref: 2203/APP/ 2013/1820.
- No.16 Linksway Northwood is of older construction and the presence of a basement is not known, for the purposes of this assessment has not been assumed to be present.

In order to construct the proposed new build basement a bored pile wall will be constructed around the proposed basement foot print to enable the basement excavation and works to progress in a safe environment, protecting the neighbouring properties from any potential settlement.

The proposed method of construction and relationship to the adjoining properties is illustrated in Appendix D of this report.

Due to the fact that no ground water was encountered during the adjacent site investigation works it is considered only localised pumping will be required to deal with ground water collected during times of rainfall.

We would point out that prior to commencement on site, that a series of ground water standpipes should be installed and monitored.

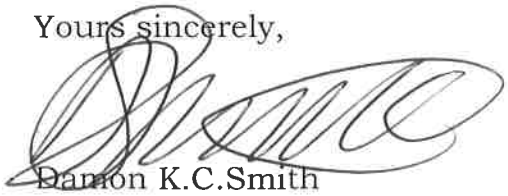
5.Ground Water Flooding and Drainage Risks.

Due to the fact that no ground water was encountered during the adjacent site investigation works , and the desk top study highlighted the site to be contained within a flood zone 1with no flooding risk during a 1:100+ year storm event. It is considered that the risk of the proposed development causing any flooding or drainage issues are negligible.

We would point out that prior to commencement on site, that a series of ground water standpipes should be installed and monitored.

We trust the above is of assistance and should you require anything further please contact the writer.

Yours sincerely,



Damon K.C.Smith

Palladium Consulting Engineers
A.C.Smith. C.Eng. M.I.Struct.E. F.G.S. C.Geol. & D.K.C.Smith. B.Eng. M.Sc. C.Eng. M.I.Struct.E.

APPENDIX A : SI DATA

Site	Borehole Number
20 Links Way, Northwood, Middlesex HA6 2XB	BH1
Client	Job Number
Engineer	Sheet
	2/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
10.50-10.88 10.50	SPT 80/225 D11	10.50	10.00	9,9/21,26,33					
12.00-12.45 12.00	SPT N=53 D12	12.00	11.30	7,10/12,12,14,15		12.20 (1.10) 13.30	Very dense bluish green mottled brown fine to medium SAND with black rounded pebbles		
13.50-13.95 13.50	SPT N=29 D13	13.50	DRY	8,8/7,7,7,8			CHALK: recovered as strong medium to high density white with black specks CHALK with occasional flints and orange-brown staining		
15.00-15.45 15.00	SPT N=41 D14	13.50	DRY	5,5/7,12,12,10					
16.50-16.95 16.50	SPT N=41 D15	13.50	DRY	6,7/10,10,11,10		(6.70)			
18.00-18.30 18.00	SPT 65/150 D16	13.50	DRY	7,29/30,35			Cobble sized flint at 18.2 m		
19.50-19.95 19.50	SPT N=46 D17	13.50	DRY	6,7/10,12,11,13		20.00			

Remarks

Scale (approx)	Logged By
1:50	ML

Figure No.
J13109.BH1

B C	**Site** 20 Links Way, Northwood, Middlesex HA6 2XB		**Borehole Number** **BH1**
	Client		**Job Number**
	Engineer		**Sheet** 1/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
						(0.15) 0.15	Tarmac		
						(0.25) 0.40	Made Ground (crushed roadstone and brick sub-base)		
0.70	D1						Soft becoming firm and stiff brown mottled bluish grey, reddish brown and greenish blue silty CLAY		
1.20-1.65 1.20	SPT(C) N=3 B1	1.20	DRY	1,0/1,0,1,1					
1.80	D2					(2.80)			
2.00-2.45	U1								
2.40	D3								
2.70	D4								
3.00-3.45 3.00	SPT N=55 D5	3.00	DRY	3,5/7,11,17,20		3.20	Very dense orange-brown fine to medium SAND		
4.00-4.45 4.00	SPT N=63 D6	4.00	3.70	5,7/10,13,18,22		(2.90)			
5.00-5.30 5.00	SPT 41/150 D7	5.00	4.80	6,10/13,28					
6.00-6.30 6.00	SPT 58/150 D8	6.00	5.40	6,20/20,38		6.10	Very dense greenish brown fine glauconitic SAND		
7.50-7.65 7.50	SPT 11*/75 49/75 D9	7.50	6.90	11/49					
9.00-9.23 9.00	SPT 10*/75 78/150 D10	9.00	8.20	10/38,40		(6.10)			

Remarks
Excavating services inspection pit from GL to 1.2 m for 30 mins.
Groundwater not encountered.
Water added to aid drilling through the sand from 3.2 m ro 13.3 m.
Groundwater monitoring standpipe installed to 6.00 m.
1 hr spent collecting water.

Scale (approx)	Logged By
1:50	ML

Figure No.
J13109.BH1

E C S	**Site** 20 Links Way, Northwood, Middlesex HA6 2XB	**Number** **BH2**
	Client	**Job Number**
	Engineer	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.30)	Made Ground (brown silty slightly sandy clay with gravel, rootlets, brick and coal fragments)		
0.20	D1				0.30			
0.50	D2					Soft orange-brown mottled grey silty CLAY with decayed roots and pockets of calcareous excretions		
					(1.20)			
1.00-1.45	SPT N=8	DRY	0,1/2,2,2,2					
1.50	D3				1.50	Firm rapidly becoming stiff reddish brown mottled grey and dark orange-brown silty CLAY with abundant calcareous nodules and occasional pyrite		
2.00-2.45	SPT N=19	DRY	2,3/3,4,5,7		(1.00)			
2.50	D4				2.50			
					(0.30)	Hard orange-brown mottled greenish grey slightly cemented silty CLAY with calcareous nodules		
					2.80			
3.00-3.45	SPT N=42	DRY	3,5/6,8,11,17		(0.50)	Very stiff fissured reddish brown mottled greenish grey and yellowish brown silty glauconitic CLAY		
3.30	D5				3.30			
3.50	D6					Very dense dark orange-brown mottled pale orange-brown and reddish brown fine to medium, locally cemented, SAND with occasional pyrite nodules		
4.00-4.31	SPT 25*/145 50/160	DRY	9,16/21,24,5					
					(2.05)			
4.50	D7							
4.90-5.17	SPT 25*/145 50/125	DRY	10,15/30,20					
					5.35	Terminated at 5.35m		

Remarks
Groundwater not encountered.
Groundwater monitoring standpipe installed in borehole to a depth of 5.00 m.
Borehole terminated due to the density of the sand.

Scale (approx)	Logged By
1:50	ML

Figure No.
J13109.BH2

Site	Number
20 Links Way, Northwood, Middlesex HA6 2XB	BH3
Client	**Job Number**
Engineer	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20) 0.20	Topsoil (dark brown clayey silt with abundant roots, organic content and fine gravel)		
0.20	D1					Soft orange-brown mottled grey silty CLAY with rootlets to 0.6 m and abundant calcareous excretions		
0.40	D2				(1.80)			
1.50	D3				2.00	Stiff becoming very stiff dark orange-brown becoming reddish brown mottled greenish grey and yellowish brown silty CLAY with occasional calcareous nodules		
2.50	D4				(1.50)			
3.60	D5				3.50 (0.50)	Hard greenish grey mottled reddish brown and orange-brown cemented glauconitic silty CLAY with calcareous nodules		
					4.00 (0.50)	Very stiff reddish brown mottled orange-brown and grey silty slightly sandy CLAY with occasional back specks		
4.40	D6				4.50	Very dense dark orange-brown fine to medium, locally cemented, SAND with occasional pyrite		
4.60	D7				(0.50)			
					5.00	Terminated at 5.00m		

Remarks
Groundwater not encountered.
Borehole terminated due to the density of the sand.

Scale (approx)	Logged By
1:50	ML

Figure No. J13109.BH3

Site	Number
20 Links Way, Northwood, Middlesex HA6 2XB	BH4
Client	**Job Number**
Engineer	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.30)	Made Ground (brown silty slightly sandy clay with gravel, rootlets, brick and coal fragments)		
0.20	D1				0.30			
0.50	D2					Soft orange-brown mottled grey silty CLAY with decayed roots and pockets of calcareous excretions		
					(1.20)			
1.00-1.45	SPT N=10	DRY	1,1/2,3,2,3					
1.50	D3				1.50	Firm rapidly becoming stiff reddish brown mottled grey and dark orange-brown silty CLAY with abundant calcareous nodules and occasional pyrite		
2.00-2.45	SPT N=16	DRY	2,2/3,3,5,5		(1.20)			
2.50	D4							
2.80	D5				2.70	Hard orange-brown mottled greenish grey slightly cemented silty CLAY with calcareous nodules		
3.00-3.45	SPT N=37	DRY	3,5/7,8,9,13		(0.50)			
					3.20	Very stiff fissured reddish brown mottled greenish grey and yellowish brown silty glauconitic CLAY		
					(0.20)			
3.50	D6				3.40	Very dense dark orange-brown mottled pale orange-brown fine to medium, locally cemented, SAND with occasional pyrite nodules		
4.00-4.34	SPT 50/190	DRY	6,13/17,21,12					
					(1.95)			
4.50	D7							
4.90-5.22	SPT 25*/145 50/170	DRY	10,15/20,22,8		5.35	Terminated at 5.35m		

Remarks
Groundwater not encountered.
Groundwater monitoring standpipe installed in borehole to a depth of 5.0 m.
Borehole terminated due to the density of the sand.

Scale (approx)	Logged By
1:50	ML

Figure No. J13109.BH4

APPENDIX B : FLOOD RISK DESK TOP STUDY

Environment Agency

Flood map for planning

Your reference	Location (easting/northing)	Created
HA62XB	**508467/190752**	**15 Feb 2021 17:13**

Your selected location is in flood zone 1, an area with a low probability of flooding.

This means:

- you don't need to do a flood risk assessment if your development is smaller than 1 hectare and not affected by other sources of flooding
- you may need to do a flood risk assessment if your development is larger than 1 hectare or affected by other sources of flooding or in an area with critical drainage problems

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Environment Agency

Flood map for planning

Your reference
HA62XB

Location (easting/northing)
508467/190752

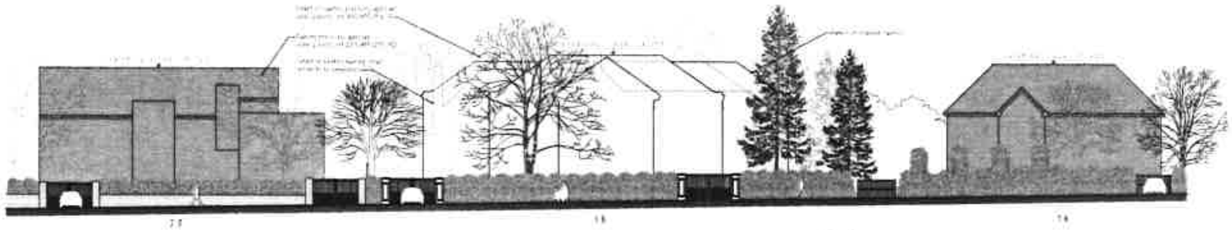
Scale
1:2500

Created
15 Feb 2021 17:13

- Selected point
- Flood zone 3
- Flood zone 3: areas benefitting from flood defences
- Flood zone 2
- Flood zone 1
- Flood defence
- Main river
- Flood storage area

0 20 40 60m

APPENDIX C: PROPOSED PLANNING SCHEME



STREET SCENE FROM LINKSWAY
SCALE 1:200

TREE STAKING DETAIL

TREE STAKING SPECIFICATION

For selected standard trees size height 1.0-3.5m. Support using stakes extending to 1.0-1.2m above ground and 0.6-0.75m below ground level (depending on ground conditions).

Supported by single nail reinforced tie 75mm from top of stake.

Remove stake on renewal at or during the second growing season after planting.

LANDSCAPE SPECIFICATION

Landscaping generally to be carried out in accordance with BS 4428. All new trees to be supplied as selected standards unless otherwise noted.

Overall height 3.0-3.5m and 1.8-2.1m straight stem to BS 3936 Part 1 1992. Trees supplied with baremotts with polythene wrapping or as noted otherwise, and planted in a mix of 3.6 litres peat. Planting beds to be excavated and lined with screened topsoil enriched with peat free compost/fertiliser or similar manure 50mm deep, top dressed with 75mm deep forest bark mulch.

Site to be cleared of all builders rubble and rotavated levelled and tilled before planting commences. Front gardens to be turfed and rear gardens seeded.

All turfing to BS 3936 1990.

Pernicious weeds are to be treated with translocated herbicide during growing season (spot treated).

Tree and shrub planting to BS 3936 Part 1 1992.

Sub-soil areas below planting to be de-compacted before planting commences.

Tree protection to be carried out in accordance with B.S.5837 2012.

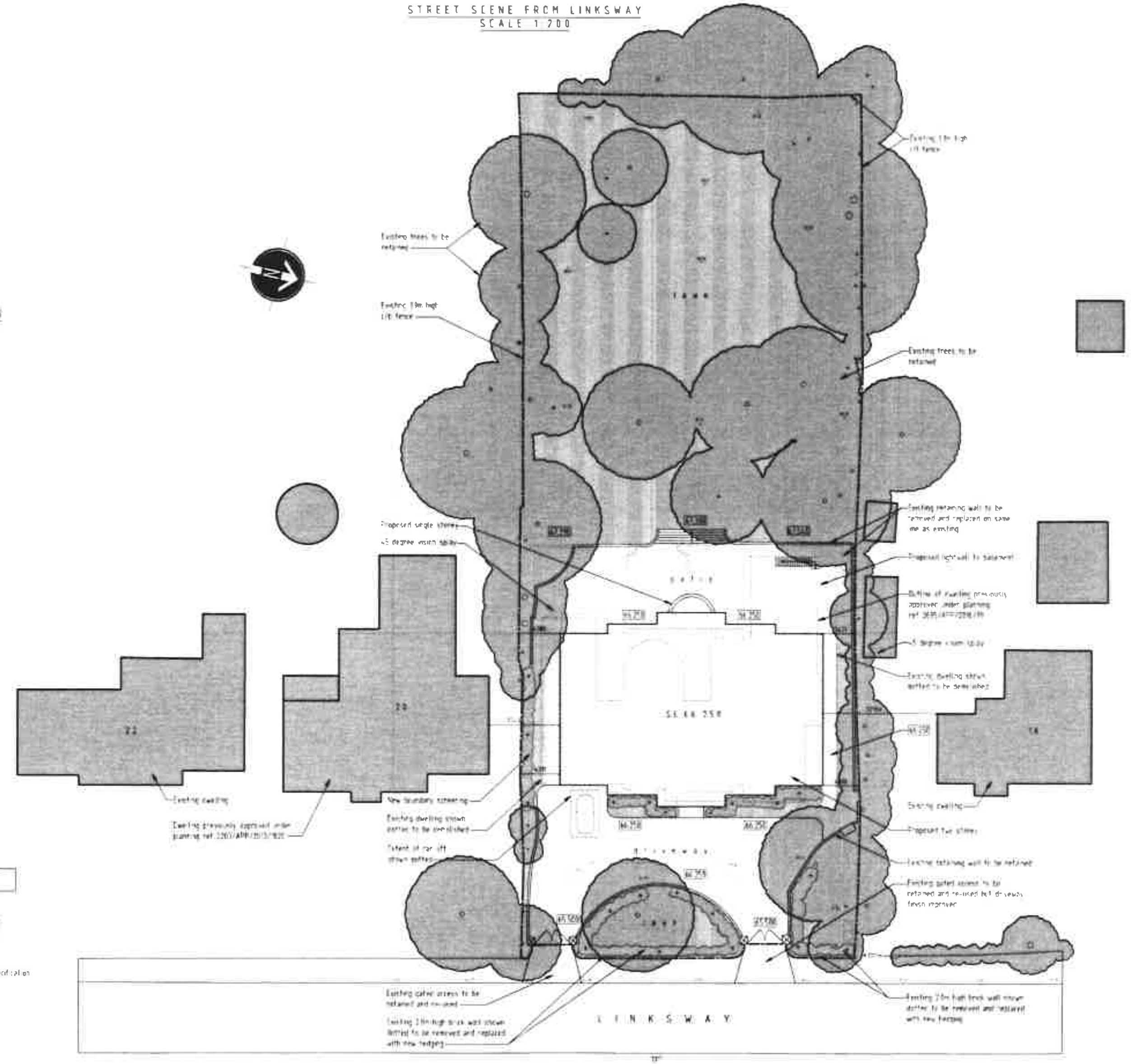
DRIVEWAY SPECIFICATION

Driveway to be finished with permeable resin bound gravel.

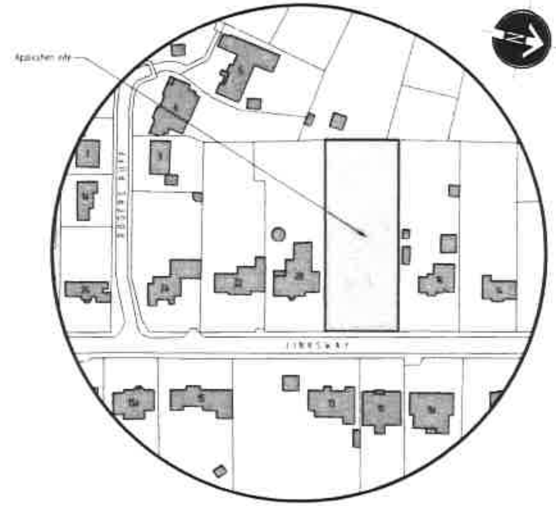
Below the above you need a laying course of a 50mm depth of 6mm clear crushed stone, followed with a sub-base of a 200mm depth of 20mm clear crushed stone with well defined edges (depth depending on soil conditions).

Crossover to be finished in permeable black tarmac. Construction specification in accordance with local authorities requirements.

SCALE BAR (m)
0 5 10 15 20 25



SITE LAYOUT PLAN - SCALE 1:250



LOCATION PLAN - SCALE 1:1250

SCALE BAR (m)
0 25 50 75 100 125

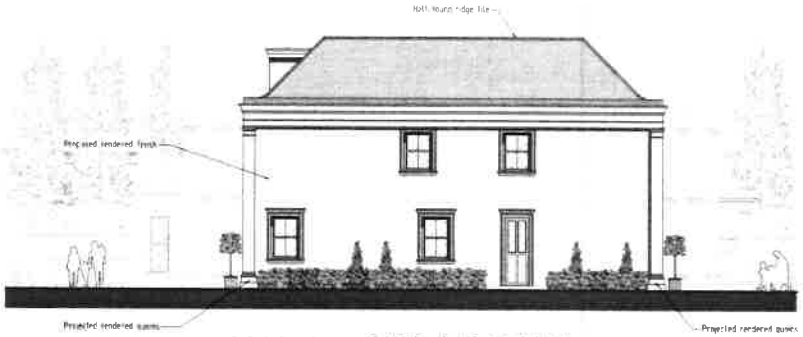
LEGEND

Proposed two storey
Proposed single storey
Existing dwelling and structures to be demolished
Proposed new trees & planting
Existing trees & planting to retain
Seeded lawn
Proposed structural ground floor slab level
Proposed levels
Existing levels
Refuse and recycling storage & collection points
Outline of dwelling previously approved under planning ref. 3695/APP/2018/19
Existing paths to be re-used but resurfaced

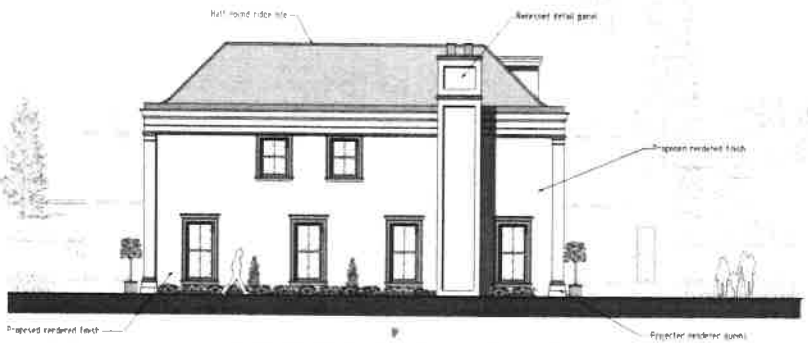
scale	1:250 A1
date	12 / 01 / 2021
drawing no	1366 / F / 1
drawing	PLANNING PROPOSALS SITE LAYOUT PLAN & LOCATION PLAN
project	LAND AT 18 LINKSWAY NORTHWOOD, MIDDLESEX, HA6 2XB
client	DDA

DDA

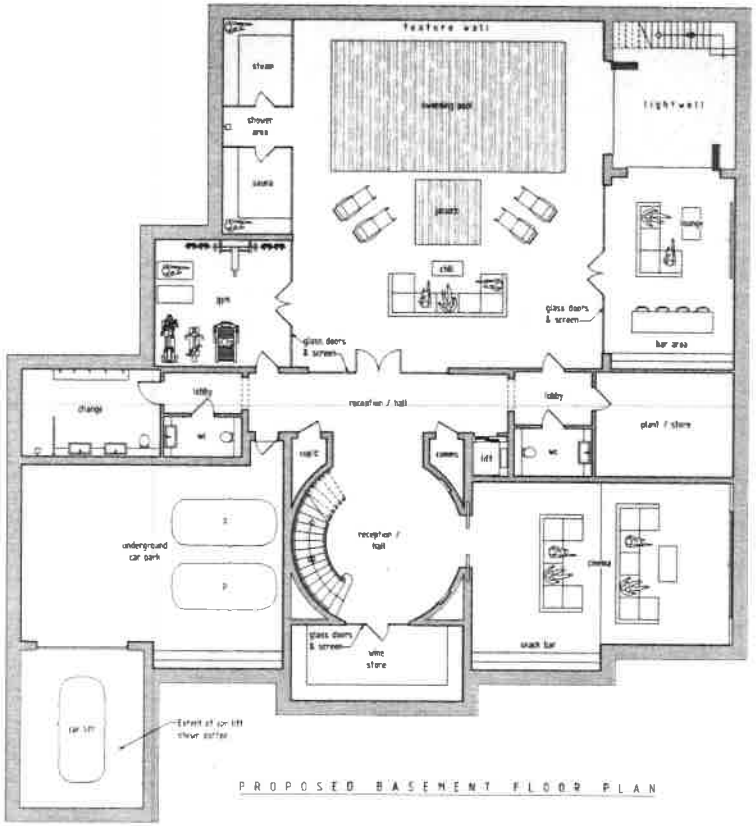
DUSEK DESIGN ASSOCIATES LTD
ARCHITECTURE + PLANNING



PROPOSED SIDE ELEVATION



PROPOSED SIDE ELEVATION



PROPOSED BASEMENT FLOOR PLAN

SCALE BAR (m)

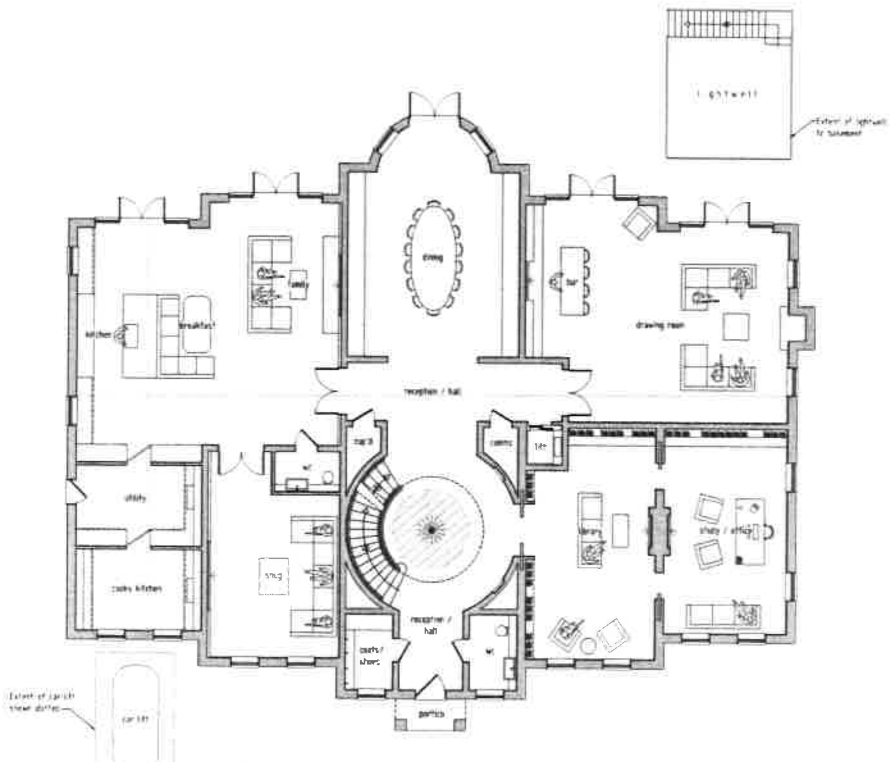
0 2 4 6 8 10

rev	date	description	
scale	1 : 100	A1	date 12 / 01 / 2021
drawing no	1366 / P / 4		issue P1
drawing	PLANNING PROPOSALS BASEMENT FLOOR PLAN & SIDE ELEVATIONS		
project	LAND AT 18 LINKSWAY NORTHWOOD, MIDDLESEX, HA6 2XB		
client	DDA		

DDA
DIJKSE DESIGN ASSOCIATES LTD
ARCHITECTURE + PLANNING
01895 831 187
info@ddauk.co.uk
www.ddauk.co.uk

issue history	Thursday, 4 February, 2021 08:13:57

PROPOSED FRONT ELEVATION



PROPOSED GROUND FLOOR PLAN

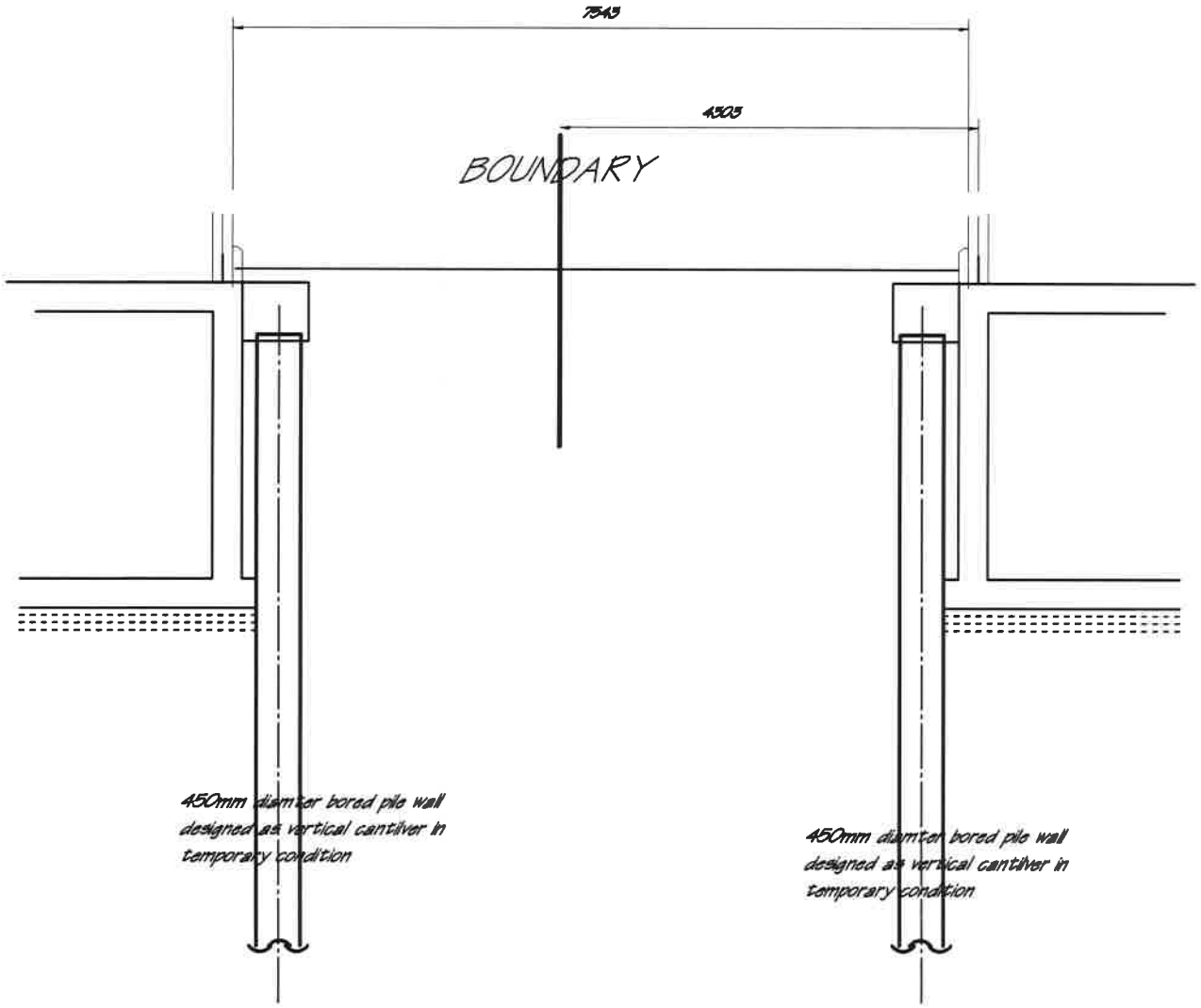
SCALE BAR (m)
0 2 4 6 8 10

scale 1 : 100 @ A1	date 12 / 01 / 2021
drawing no. 1366 / P / 2	drawn RJ
title	PLANNING PROPOSALS GROUND FLOOR PLAN & FRONT ELEVATION
project	LAND AT 18 LINKSWAY, NORTHWOOD, MIDDLESEX, HA6 2XB
client	DDA

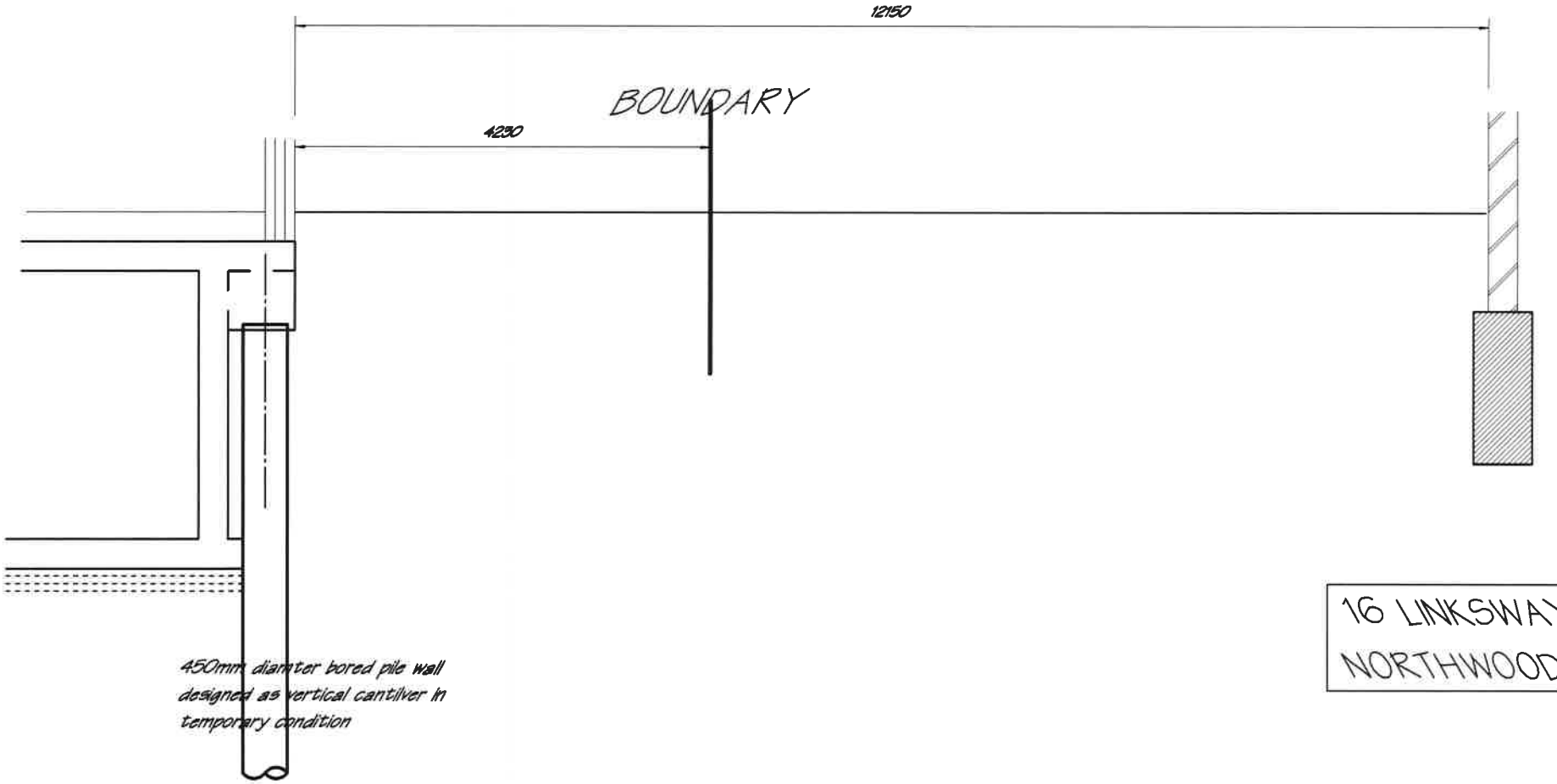
DDA

DUSEK DESIGN ASSOCIATES LTD
ARCHITECTURE - PLANNING
info@dusek.co.uk
www.dusek.co.uk

APPENDIX D : PROPOSED BASEMENT SECTIONS



BOUNDARY SECTION



BOUNDARY SECTION