SF3282 Cliff Hill, Denby Dale

ARBORICULTURAL SURVEY REPORT I BS 5837:2012

Revision A - October 2022

SMEEDEN FOREMAN

Landscape Architecture • Ecology • Arboriculture

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Document Check Sheet

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1.0 Introduction

Smeeden Foreman Ltd has been appointed to undertake an arboricultural survey of trees at Cliff Hill, Denby Dale (see Figure 1).

The survey was undertaken on 25th January 2022 and was based upon topographical survey plan P21-01216 produced by Met Geo Environmental. The trees have been surveyed in accordance with BS5837:2012. The limitations of survey techniques and analysis are included in Appendix A.

1.1 Site Description

The site is located at Cliff Hill, Denby Dale (see Figure 1). The site has a sloped aspect north to south mainly grassland.

1.2 Legal status of trees

Tree T1 is subject to Tree Preservation Order TPO No.17 2021. The site is not situated within a Conservation Area (Digital mapping provided by Kirklees Council, accessed 26.01.2022).

Trees may be subject to legal protection under a range of legislation, which is aimed at wildlife and habitat protection, particularly nesting birds and bats.

Figure 1 – Location Plan

2.0 Aims and Methodology

2.1 Aims

The aims of the survey are to undertake a non-invasive survey of the identified trees and any trees which have the potential to be affected by future works within the vicinity. The Tree Constraints Plan shows the location and category of the surveyed trees.

2.2 Survey Methodology

The survey was carried out to British Standard 5837:2012 using the categories explained below:

2.2.1 The trees were assessed visually from ground level. Where potential problems were identified, further inspection by tree climbing is recommended. No digging or drilling methods were employed during this survey

2.2.2 The tree numbers or group numbers within the schedules refer to the order in which the trees were recorded and shown on the tree survey plan

2.2.3 The approximate height of each tree is measured from ground level to top of canopy using a clinometer;

2.2.4 The diameter of each tree is measured at 1.5m above ground level. Where a tree stem divides below 1.5m each stem is measured at 1.5m above ground level in accordance with Annex C of the British standard. The diameter of trees where the trunk was inaccessible have been estimated and marked as such within the schedules.

2.2.5 The age of each tree is based upon our experience and is divided into young, semi-mature, early-mature, mature, over-mature.

2.2.6 The water demand of each tree (As listed in table 12, appendix 4.2 – A, NHBC standard chapter 4.2) noted on or adjacent to the site is recorded. Shrinkable soils are subject to changes in volume as their moisture content is altered. Soil moisture content varies seasonally and is influenced by a number of factors including the action of tree roots. The resulting shrinkage or swelling of the soil can cause subsidence or heave damage to foundations, the structures they support or services.

Engineers should consider the soil condition and the potential impact of the species of the trees/ hedges on and adjacent to the site when preparing building/structure design.

2.2.7 The physiological condition of the trees is based upon our experience and is an assessment of the health and vigour of the tree.

2.2.8 The structural condition and description is also based on our experience.

2.2.9 Estimated remaining contribution and category/rating of each tree is based on our experience;

2.2.10 The retention category of each tree or group of trees is based upon the information detailed above using the following categories:

- A Trees of high quality and estimated remaining life expectancy of at least 40 years (Light green on plan)
- B Trees of moderate quality and estimated remaining life expectancy of at least 20 years (Mid blue on plan)
- C Trees of low quality and estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm Grey on plan)
- U Trees cannot realistically be retained as living trees in context of current land use for longer than 10 years (Dark red on plan)

2.2.10 The following subcategories have been used in rating tree value:

- 1 Mainly arboricultural value
- 2 Mainly landscape value
- 3 Mainly cultural values, including conservation

2.3 Key to Survey Schedules

Tree no.	Tree number as recorded on the plan: T1, T2 etc and for tree groups: G1, G2 etc. Hedges: H1, H2 etc. Woodland: W1, W2 etc.
Species	Common name / Scientific name
Height	Overall estimated height of the tree in metres (rounded up to the nearest metre for trees over 10m high).
Stem Dia	Stem diameter measured in millimetres at 1.5m above ground (on sloping ground measured on the upslope of the stem) in accordance with Annex C of BS5837:2012.
Branch spread	Measured in metres (rounded up to the nearest half metre) along the four cardinal points: north, east, south and west to derive an accurate representation of the crown.
Ht crown clearance	The existing height, measured in metres, above ground level of: the first significant branch and direction of growth and the canopy.
Age class:	
Young (**Y**)	Recently planted or establishing tree. Typified by vigorous growth and distinct apical dominance (definite, discernible leader).
Semi-mature (**SM**)	Tree that has not reached its ultimate potential height. Phase includes considerable girth thickening and the start of crown spreading.
Early mature (**EM**)	A tree that is reaching its ultimate potential height. The growth rate is slowing down but the tree, will still increase in stem diameter and crown spread.
Mature (**M**)	The tree has attained its largest proportions and has reached its ultimate height. The tree is typified by thicker bark plates and a large spreading crown.
Over-mature (**OM**)	The tree has attained its maximum height and growth rate slows considerably. Characterised by the loss of large limbs, large amounts of deadwood and decay. Limited safe life expectancy.
Water Demand	High, Moderate, Low (As listed in table 12, appendix 4.2 – A, NHBC standard chapter 4.2)
Physiological condition	Good (G), moderate (M), poor (P), dead (D).
Structural condition	Overall form of tree, presence of any decay, any physical defects and observations
Preliminary Management Recommendations	Including any further investigations required, wildlife habitat potential, management or pruning works.
ERC	The estimated remaining contribution measured in years: <10, 10+, 20+, 20-30+, 40+)
Cat	Category U or A to C grading as defined in Table 1 BS 5837: 2012
RPA	Root protection area measured in square metres, calculated according to BS 5837:2012

Other abbreviations used:

N	North
S	South
E	East
W	West
GL	Ground level
Asym.	Asymmetrical (crown shape)
OSB	Outside site boundary
MS	Multi-stemmed
#	Estimate
NWR	No work required
NVD	No visible defects

3.0 Tree Survey Schedules

Tree No. (Tag)	*Species*	*Top Height (crown height) m*	*Branch Spread (m)*				*Stem Dia. (mm)*	*Age Class*	*Water Demand*	*Condition*	*Comments*	*ERC (years)*	*Recommendations*	*Category*
			N	*E*	*S*	*W*								
T1 TPO	Quercus robur (Common Oak)	12(2)	10	11	9	9	800	M	H	Good	Broken branches in crown. Limited access. South lower 4 branches broken due to machinery, approx. 3m from stem.	40+	Remove soil to previous level. Prune broken branches back to natural junctions.	A1
G2	Fraxinus excelsior (Ash),Elder (Sambucus nigra), Ilex aquifolium (Holly), Prunus padus (Bird Cherry), Crataegus monogyna (Hawthorn)	8(0)	3	3	3	3	200	SM	H	Fair	Broken branches in crown. Overgrown hedgerow. Damage to south side branches. Soil heaped up to lower branches.	40+	Clear soil to previous level.	B3
G3	Fraxinus excelsior (Ash),Ilex aquifolium (Holly),Crataegus monogyna (Hawthorn)	7.5(0)	4	4	3	4	200	M	H	Fair	Multiple stems at ground level. Soil heaped up to lower branches.	40+	Clear soil to previous level.	C3
T5	Quercus robur (Common Oak)	6(2)	6	4.5	4.5	5	340	SM	H	Poor	Poor shape & form. Epicormics on stem. Broken branches in crown. Major deadwood in crown. Barb-wire enveloped in stem. Fracture of lower south branch.	20+	Remove remaining wire. Prune fractured branch to natural growth point.	C2
T4	Crataegus monogyna (Hawthorn)	4(0)	3	3	2	2	200	M	H	Fair	Unbalanced crown shape.	40+	NWR	C2

Tree No. (Tag)	*Species*	*Top Height (crown height) m*	*Branch Spread (m)*				*Stem Dia. (mm)*	*Age Class*	*Water Demand*	*Condition*	*Comments*	*ERC (years)*	*Recommendations*	*Category*
			N	*E*	*S*	*W*								
T6	Prunus avium (Wild Cherry)	9(5)	5	4	4	4	300	M	M	Fair	Multiple stems below 1.5m. Included bark present in fork. Tree in garden of adjacent property. Pruning (occluding) wounds from crown lift.	40+	OSB- No further action	C2
G7	Crataegus monogyna (Hawthorn),Ilex aquifolium (Holly)	5(0)	3	3	3	3	200	EM	H	Fair	Multiple stems at ground level.	40+	NWR	C3
T9	Crataegus monogyna (Hawthorn)	4(0)	3	3	3	3	200	EM	H	Fair	Multiple stems at ground level.	40+	NWR	C3
T8	Crataegus monogyna (Hawthorn)	5(0)	3	3	3	3	250	M	H	Fair	Unable to inspect stem due to Ivy. Multiple stems at ground level.	40+	Sever ivy at base and re-inspect when ivy has died off.	C3
T10	Crataegus monogyna (Hawthorn)	4(0)	3	3	3	3	200	EM	H	Fair	Multiple stems at ground level.	40+	NWR	C3
G11	Crataegus monogyna (Hawthorn)	4(0)	3	1.5	3	1.5	150	EM	H	Fair	Multiple stems at ground level.	40+	NWR	C3
G12	Elder (Sambucus nigra),Acer pseudoplatanus (Sycamore),Crataegus monogyna (Hawthorn)	4(0)	3	6	7	2	200	EM	H	Poor	Acer pseudoplatanus self seeded too close to outbuilding and wall.	10+	Removal	U
G13	Crataegus monogyna (Hawthorn),Ilex aquifolium (Holly)	4(0)	2	2	2	2	200	M	H	Fair	Growing within old dry stone wall	40+	NWR	C3

Tree No. (Tag)	*Species*	*Top Height (crown height) m*	*Branch Spread (m)*				*Stem Dia. (mm)*	*Age Class*	*Water Demand*	*Condition*	*Comments*	*ERC (years)*	*Recommendations*	*Category*
			N	*E*	*S*	*W*								
T14	Crataegus monogyna (Hawthorn)	3.5(0)	2	2	2	2	200	M	H	Fair	Growing within old dry stone wall	40+	NWR	C3
G15	Acer pseudoplatanus (Sycamore),Elder (Sambucus nigra)	4(0)	2.5	3.5	3	5	200	SM	M	Poor	Growing within old dry stone wall. Sycamore- poor form.	40+	NWR	C1
G16	Ilex aquifolium (Holly),Crataegus monogyna (Hawthorn)	6(0)	3	3	3	3	150	M	H	Good	Multiple stems at ground level. Not recorded on topographical survey.	40+	NWR	B2
T18	Prunus padus (Bird Cherry)	10(2)	4	4	4	4	250	EM	M	Fair	Ivy on tree. Major bark wounding on stem. Broken branches in crown. Recent damage to stem 1.5m up stem from machinery. Soil piled up. Broken lower branches on north side. Old pruning wounds.	40+	Prune broken branches to natural junctions. Clear soil to previous level.	B3
T19	Fraxinus excelsior (Ash)	11(2)	4	4	4	4	600	EM	M	Poor	Poor shape & form. Major bark wounding on stem. Stem divides below 1.5m.Included bark with compression fork. Recent bark damage on south side. Broken branches to south side. Base of tree obscured by piled up soil.	<10	Fell	U

Tree No. (Tag)	*Species*	*Top Height (crown height) m*	*Branch Spread (m)*				*Stem Dia. (mm)*	*Age Class*	*Water Demand*	*Condition*	*Comments*	*ERC (years)*	*Recommendations*	*Category*
			N	*E*	*S*	*W*								
G17	Ilex aquifolium (Holly),Crataegus monogyna (Hawthorn),Elder (Sambucus nigra)	6(0)	4.5	10	4.5	10	200	M	H	Poor	Multiple stems at ground level. Major deadwood in crown. Major deadwood in Elder.	20+	Remove deadwood.	C3
T20	Ilex aquifolium (Holly)	7(0)	2.5	2.5	2.5	2.5	250	EM	L	Fair	Multiple stems at ground level.	40+	NWR	B3
T21	Elder (Sambucus nigra)	5(2)	2.5	2.5	2.5	2.5	150	M	H	Poor	Leaning North. Major deadwood in crown.	<10	Remove	U
G22	Elder (Sambucus nigra),Ilex aquifolium (Holly),Crataegus monogyna (Hawthorn)	5(0)	1.5	1.5	1.5	1.5	150	SM	H	Fair	Edge of drainage ditch. Build up soil 1m from base of stems.	40+	Clear soil to previous level.	C3
T23	Quercus robur (Common Oak)	14(2)	6	7	6	7	800	M	H	Fair	Stem divides above 1.5m. Debris tipped on north of root plate and flare. Tree originates to the north of the drainage ditch. Bifurcated stem at 1.5m above ground. Poorly occluded old snap-out. Deadwood in crown.	40+	Clean deadwood and remove debris from base of tree.	B3
G24	Crataegus monogyna (Hawthorn),Quercus robur (Common Oak),Ilex aquifolium (Holly),Fraxinus excelsior (Ash)	10(0)	3	3	3	3	250	EM	H	Fair	Soil built up on south side.	40+	Clear soil to previous level.	B3

Tree No. (Tag)	*Species*	*Top Height (crown height) m*	*Branch Spread (m)*				*Stem Dia. (mm)*	*Age Class*	*Water Demand*	*Condition*	*Comments*	*ERC (years)*	*Recommendations*	*Category*
			N	*E*	*S*	*W*								
G25	Acer pseudoplatanus (Sycamore),Crataegus monogyna (Hawthorn),Ilex aquifolium (Holly),Prunus padus (Bird Cherry)	4(0)	2	2	2	2	170	Y	H	Poor	Major bark wounding on stem. Cherry- damage to south side stem. Soil build up to roots.	10+	Clear soil to previous level. Annual re-inspection of cherry to monitor health and condition.	C2
G26	Prunus padus (Bird Cherry),Ilex aquifolium (Holly),Crataegus monogyna (Hawthorn),Quercus robur (Common Oak),Elder (Sambucus nigra)	9(0)	2.5	2.5	2.5	2.5	300	EM	H	Fair	Some soil disturbance.	40+	NWR	B2
G27	Acer pseudoplatanus (Sycamore),Crataegus monogyna (Hawthorn),Ilex aquifolium (Holly),Quercus robur (Common Oak)	6(0)	2.5	2.5	2.5	2.5	150	Y	H	Fair	Area of sparse scrub vegetation and young trees.	40+	NWR	C3
T28	Quercus robur (Common Oak)	5(1)	2.5	2.5	2.5	2.5	200	Y	H	Good	Soil piled up to N/E side	40+	Clear soil to previous level.	B2
G29	Crataegus monogyna (Hawthorn),Ilex aquifolium (Holly)	3(0)	2.5	2.5	2.5	2.5	200	EM	H	Fair	Multiple stems at ground level.	40+	NWR	C3

Tree No. (Tag)	*Species*	*Top Height (crown height) m*	*Branch Spread (m)*				*Stem Dia. (mm)*	*Age Class*	*Water Demand*	*Condition*	*Comments*	*ERC (years)*	*Recommendations*	*Category*
			N	*E*	*S*	*W*								
G30	Elder (Sambucus nigra),Crataegus monogyna (Hawthorn)	3(0)	2.5	2.5	2.5	2.5	100	M	H	Fair	Multiple stems at ground level.	40+	NWR	C3
T31	Crataegus monogyna (Hawthorn)	4(0)	2	2	2	2	150	M	H	Fair	Multiple stems at ground level.	40+	NWR	C3
T32	Crataegus monogyna (Hawthorn)	3(0)	2	2	2	2	150	EM	H	Fair	Multiple stems at ground level.	40+	NWR	C3
T33	Quercus robur (Common Oak)	5(0.75)	2	2	2	2	150	SM	H	Good	NVD.	40+	NWR	C2
T34	Quercus robur (Common Oak)	7(1.5)	1.5	1.5	1.5	1.5	150	SM	H	Fair	Bifurication on stem.	40+	NWR	C2
T35	Sorbus aria (Whitebeam)	6(0.75)	1.5	1.5	1.5	1.5	150	EM	M	Fair	Multiple stems below 1.5m.	40+	NWR	C3

3.1 Assessment of tree T1

3.1.1 Tree T1 (oak- category A) is a mature tree located in the north of the site. The tree is protected by a Tree Preservation Order. The tree is of high amenity value, with an attractive crown shape and is highly visible from the wider surrounding area. Some recent site activity has resulted in earth being moved onto the Root Protection Area (RPA) of T1, and some broken branches in the lower south side of the canopy. Despite the recent ground work, the tree appears to be in good physiological condition with no current sign of any dieback in the canopy. To maintain the health and long term retention of the tree we would recommend that the soil is cleared to the previous existing ground level and compaction damage remediated. The broken branches should be pruned back to natural junctions.

4.0 Above Ground Constraints

4.1 The potential for retaining trees on a development site includes the extent of the influence of the tree at the time of survey. Consideration is also given to the effects of future growth within the context of the proposed development. In addition, the potential nuisance caused by shading to new buildings both after construction and also once trees reach their ultimate size is also considered.

4.2 The extent to which a tree may represent a constraint to development will depend both upon the location of the trunk and size and nature of the canopy and also the extent of the roots below ground. The tree constraints drawing (SF3282 TS01) plots the location and extent of the tree above ground.

5.0 Below Ground Constraints

5.1 The Root Protection Area (RPA) represents a potential constraint to development which may be modified in pattern, although not overall area, by existing site conditions such as structures and surfaces, soil types and drainage, and an appreciation of the nature of particular tree species and root morphology.

5.2 Within the tree root protection area there should be a presumption against excavation, excess vehicular or pedestrian movement, storage of materials, construction, or changes in ground level unless consideration is given to the potential effects on the tree to be retained and the efficacy of any construction techniques designed to reduce adverse effects on the tree.

5.3 The tree constraints drawing (SF3282 TS01) plots the location and extent of the tree below ground through application of the calculation provided in section 4.6 of the BS5837:2012 Trees in relation to design demolition and construction – Recommendations.

6.0 ARBORICULTURAL METHOD STATEMENT

6.1 TREE T1 (OAK)

6.1.1 The scheme has been designed to retain tree T1 which is subject to a TPO.

6.1.2 It was noted that previous site activity has resulted in earth being piled up in the Root Protection Area (RPA) of T1. The new levels of the earthworks are shown in the topographical survey. To maintain the health and long term retention of the tree, it is proposed to clear the excess soil and reinstate the original ground level. Compaction damage in the RPA will be remediated.

6.1.3 The construction of the proposed road is planned to follow the original site levels, therefore it can be constructed without a change in level at the boundary of the RPA.

6.1.4 Please refer to drawing 10-5610-201A for details of finished levels on the proposed road (Appendix D).

6.1.5 Plot 31 has been moved further south to provide construction space and to allow for the tree's future growth.

6.2 TREE PROTECTION FENCING

6.2.1 Tree protection fencing must be installed in the position as shown on the Tree Protection Plan before any other works on site can be undertaken.

6.2.2 Tree Protection Fencing should be set out as per Section 6.2 of BS5837; 2012 and will comprise a scaffold framework, consisting of vertical and horizontal scaffolds with vertical tubes spaced at a maximum of 3m intervals and driven securely into the ground. Weld mesh (Heras or similar) panels will be securely fixed on to this framework with scaffold clamps. Tubes will be firmed into holes in the ground made with post hole boring equipment. Bracing poles will be fixed to the inside of the barrier to ensure maximum rigidity, and should be located to avoid contact with structural roots.

6.2.3 See Figure 1 for details of the protective fencing to be employed in all circumstances, where existing site conditions allow. Fencing is to be erected as shown on the drawing. All fencing must be fixed in position with driven scaffold poles so that they cannot be moved during the construction period.

6.2.4 All-weather notices, A4 size, shall be attached to the tree protection fencing every 10m at 1.5m high with the words: 'Tree Protection Fence–strictly no access'.

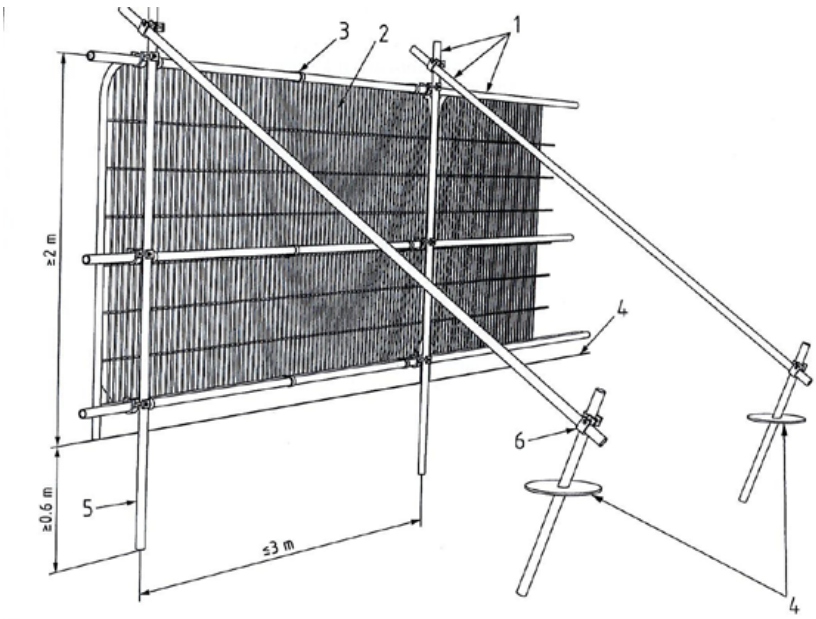
6.3 REMEDIATION OF ROOT PROTECTION AREA OF TREE T1

6.3.1 The soils which have been piled up in the RPA of tree T1 will be removed and the previous ground level reinstated.

6.3.2 Following the removal of excess soil, the remaining ground will be aerated and de-compacted.

6.3.3 Surface compaction will be relieved using an air spade, moving the soil in situ to aerate and de-compact.

6.3.4 Deeper soil compaction to be alleviated using an air lance to inject compressed air, creating fissures and aerating the soil.



Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

Figure 1 - Tree Protection Fencing

Figure 2 Signage fixed to protection fencing

APPENDIX A

Tree survey to BS 5837:2012 -Trees in relation to design demolition and construction limitation notes

This survey to BS 5837:2012 is a visual assessment undertaken from ground level without any physical investigation and should be regarded as a preliminary overview of the trees on site. 'This term [visual] describes a general approach to tree surveying using visual observation and recording, combined with experience and knowledge of tree biology and structure to draw conclusions about tree condition'p8[1]

Observations on structural condition, preliminary management recommendations, (e.g. pruning) and the estimated remaining contribution are based on visual indicators present at the time of inspection (i.e. a single point in time).

It should be noted that numerous potential defects may not be detectable dependent upon timing of inspection, in particular wood decay fungi which may only occasionally produce external fructifications or may not provide external symptoms until an advanced state of invasion is achieved.

Trees are long lived organisms with a significant proportion of growth below ground, (in addition to what is evident above ground) that naturally lose branches and may potentially fail in many ways.

Risk Assessments

Whilst hazards may be identified in this document e.g. a defect 'that may cause harm'. The risk, (i.e. 'the chance high or low) that somebody could be harmed by these and other hazards, together with an indication of how serious the harm could be' is not assessed. [2]

Requirements for ongoing inspections (to monitor observed defects) and risk assessments will be suggested as necessary in the body of the report. The level and frequency of assessment required (in line with HSE advice) will depend on a range of factors for example 'the frequency of public access to the tree' p4 [3]. A balanced and proportionate approach to tree safety management is advocated in the National Tree Safety Group publication 'Common sense risk management of trees'. [4]
The health, (condition) and resulting safety of trees for a risk assessment should be checked on a cyclical basis, alternating between early and late seasons to ensure a full picture of the trees current health is established. Therefore the assessment of risk that trees present on a particular site would be additional to the scope of this BS 5837:2012 tree survey.

Arboricultural Impact Assessments, Tree Protection Plans, Method Statements, Tree Management Plans

These items are additional services identified relating to design demolition and construction in BS5837:2012 which may form part of a strategy to manage risks.

NHBC Guidelines

The technical requirements of the National House Building Council Chapter 4.2 Building near trees are not fully met under the requirements of BS BS5837:2012 in relation to shrinkable soils and 'vegetation surveys' (which include hedgerows and shrubs.). p4 [5]

References/ Further reading

[1] The Arboricultural Association Guidance Note 7 Tree Surveys: A Guide to good Practice.

[2] Health and Safety Executive Guidance http://www.hse.gov.uk/risk/risk-assessment.htm

[3] HSE guidance on Tree Management SIM01/2007/05 Management of the risk from falling trees or branches.

[4] National Tree Safety Group Guidance – Common Sense Risk Management of Trees.

[5] National House Building Council Chapter 4.2 Building near trees (Part 4 Foundations).

APPENDIX B

SF3282 TS01 Tree Survey Plan

Key

Tree retention category A
High quality with an estimated life expectancy of at least 40 years

Tree retention category B
Moderate quality with an estimated life expectancy of at least 20 years

Group retention category B
Moderate quality with an estimated life expectancy of at least 20 years

Tree retention category C
Low quality with an estimated life expectancy of at least 10 years, OR young tree with a stem diameter below 150mm

Group retention category C
Low quality with an estimated life expectancy of at least 10 years, OR young tree with a stem diameter below 150mm

Tree removal category U
Poor condition with an estimated life expectancy of less than 10 years

RPA
minimum Root Protection Area

Trees have been surveyed and categorized as per the recommendations and guidance in BS 5837:2012 Trees in relation to design, demolition and construction.

This drawing is to be read in conjunction with the Arboricultural Survey report.

This drawing is to be reproduced in colour.

FOR INFORMATION

Rev.	Date	Comments	Drawn	Chkd
-	-	-	-	-

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Project
Cliff Hill, Denby Dale

Title
Tree Survey Plan

Project No.	Drawing No.	Rev.
SF 3282	TS01	-

Scale	Date
1:500 @ A1	28.01.22

Drawn by	Checked by
DR/KS	MS

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APPENDIX C

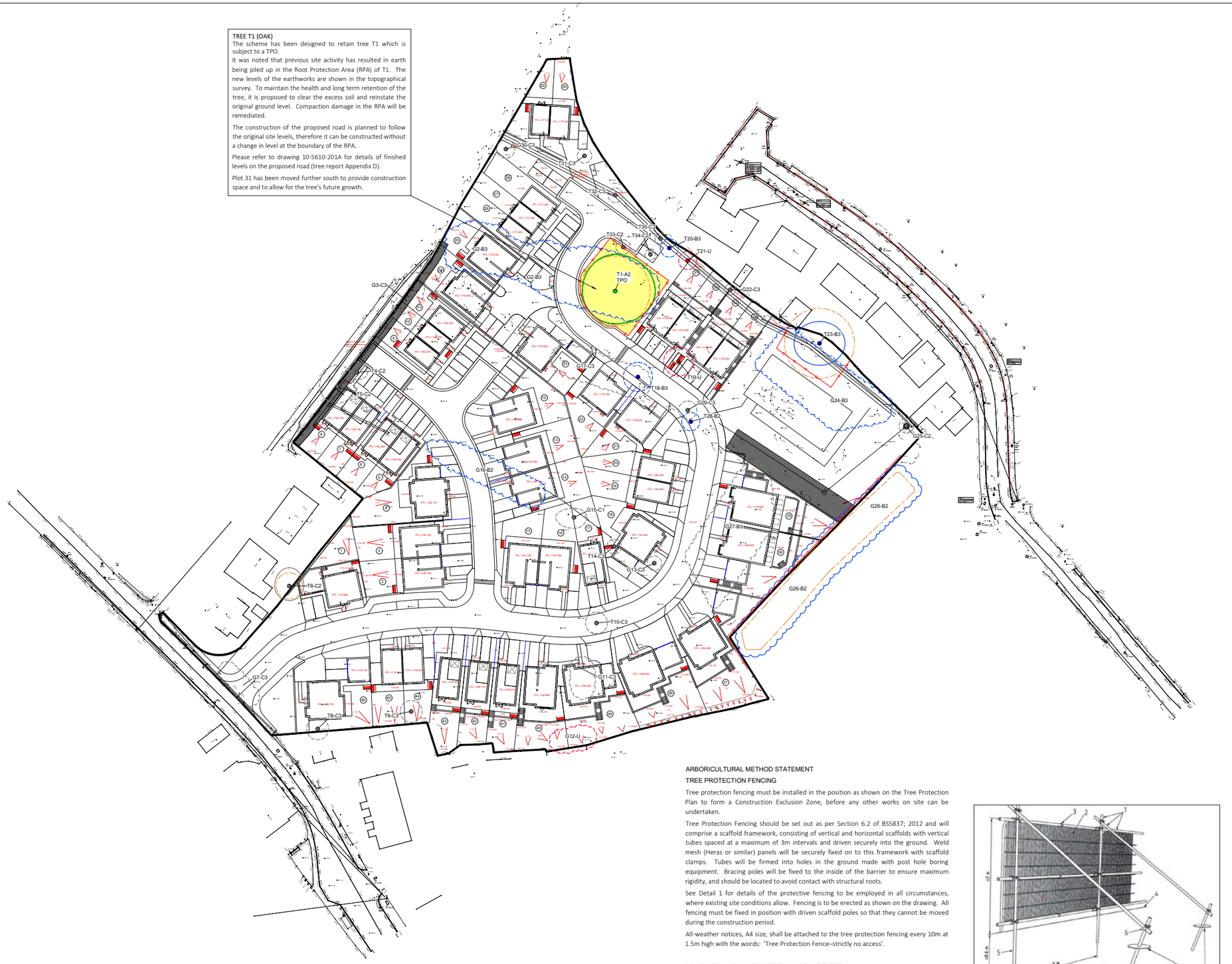
SF3282 TPP01 Tree Protection Plan and Method Statement

TREE T1 (OAK)
The scheme has been designed to retain tree T1 which is subject to a TPO.
It was noted that previous site activity has resulted in earth being piled up in the Root Protection Area (RPA) of T1. The new levels of the earthworks are shown in the topographical survey. To maintain the health and long term retention of the tree, it is proposed to clear the excess soil and reinstate the original ground level. Compaction damage in the RPA will be remediated.

The construction of the proposed road is planned to follow the original site levels, therefore it can be constructed without a change in level at the boundary of the RPA.

Please refer to drawing 10-5610-201A for details of finished levels on the proposed road (tree report Appendix D).

Plot 31 has been moved further south to provide construction space and to allow for the tree's future growth.



ARBORICULTURAL METHOD STATEMENT

TREE PROTECTION FENCING

Tree protection fencing must be installed in the position as shown on the Tree Protection Plan to form a Construction Exclusion Zone, before any other works on site can be undertaken.

Tree Protection Fencing should be set out as per Section 6.2 of BS5837; 2012 and will comprise a scaffold framework, consisting of vertical and horizontal scaffolds with vertical tubes spaced at a maximum of 3m intervals and driven securely into the ground. Weld mesh (Heras or similar) panels will be securely fixed on to this framework with scaffold clamps. Tubes will be firmed into holes in the ground made with post hole boring equipment. Bracing poles will be fixed to the inside of the barrier to ensure maximum rigidity, and should be located to avoid contact with structural roots.

See Detail 1 for details of the protective fencing to be employed in all circumstances, where existing site conditions allow. Fencing is to be erected as shown on the drawing. All fencing must be fixed in position with driven scaffold poles so that they cannot be moved during the construction period.

All-weather notices, A4 size, shall be attached to the tree protection fencing every 10m at 1.5m high with the words: 'Tree Protection Fence–strictly no access'.

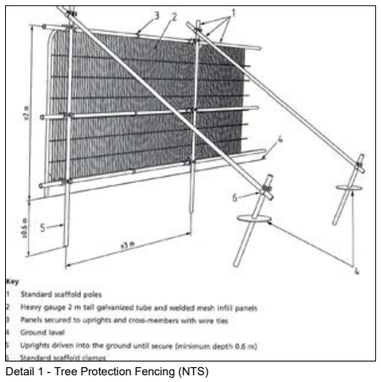
REMEDIATION OF ROOT PROTECTION AREA OF TREE T1

The soils which have been piled up in the RPA of tree T1 will be removed and the previous ground level reinstated.

Following the removal of excess soil, the remaining ground will be aerated and de-compacted.

Surface compaction will be relieved using an air spade, moving the soil in situ to aerate and de-compact.

Deeper soil compaction to be alleviated using an air lance to inject compressed air, creating fissures and aerating the soil.



Detail 1 - Tree Protection Fencing (NTS)

Key

Tree retention category A
High quality with an estimated life expectancy of at least 40 years

Tree retention category B
Moderate quality with an estimated life expectancy of at least 20 years

Group retention category B
Moderate quality with an estimated life expectancy of at least 20 years

Tree retention category C
Low quality with an estimated life expectancy of at least 10 years, OR young tree with a stem diameter below 150mm

Group retention category C
Low quality with an estimated life expectancy of at least 10 years, OR young tree with a stem diameter below 150mm

Tree removal category U
Poor condition with an estimated life expectancy of less than 10 years

RPA
minimum Root Protection Area

Proposed tree removal
To facilitate development

Proposed tree removal
Due to poor condition

Tree protection fencing
see Detail 1 and method statement

Construction Exclusion Zone
see method statement

Trees have been surveyed and categorized as per the recommendations and guidance in BS 5837:2012 Trees in relation to design, demolition and construction.

This drawing is to be read in conjunction with the Arboricultural Survey report.

This drawing is to be reproduced colour.

FOR INFORMATION

Rev.	Date	Comments	Drawn	Chkd
-	-	-	-	-

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Project
Cliff Hill, Denby Dale

Title
Tree Protection Plan and Method Statement

Project No.	Drawing No.	Rev.
SF 3282	TPP01	-

Scale	Date
1:500 @ A1	28.01.22

Drawn by	Checked by
DR	MS

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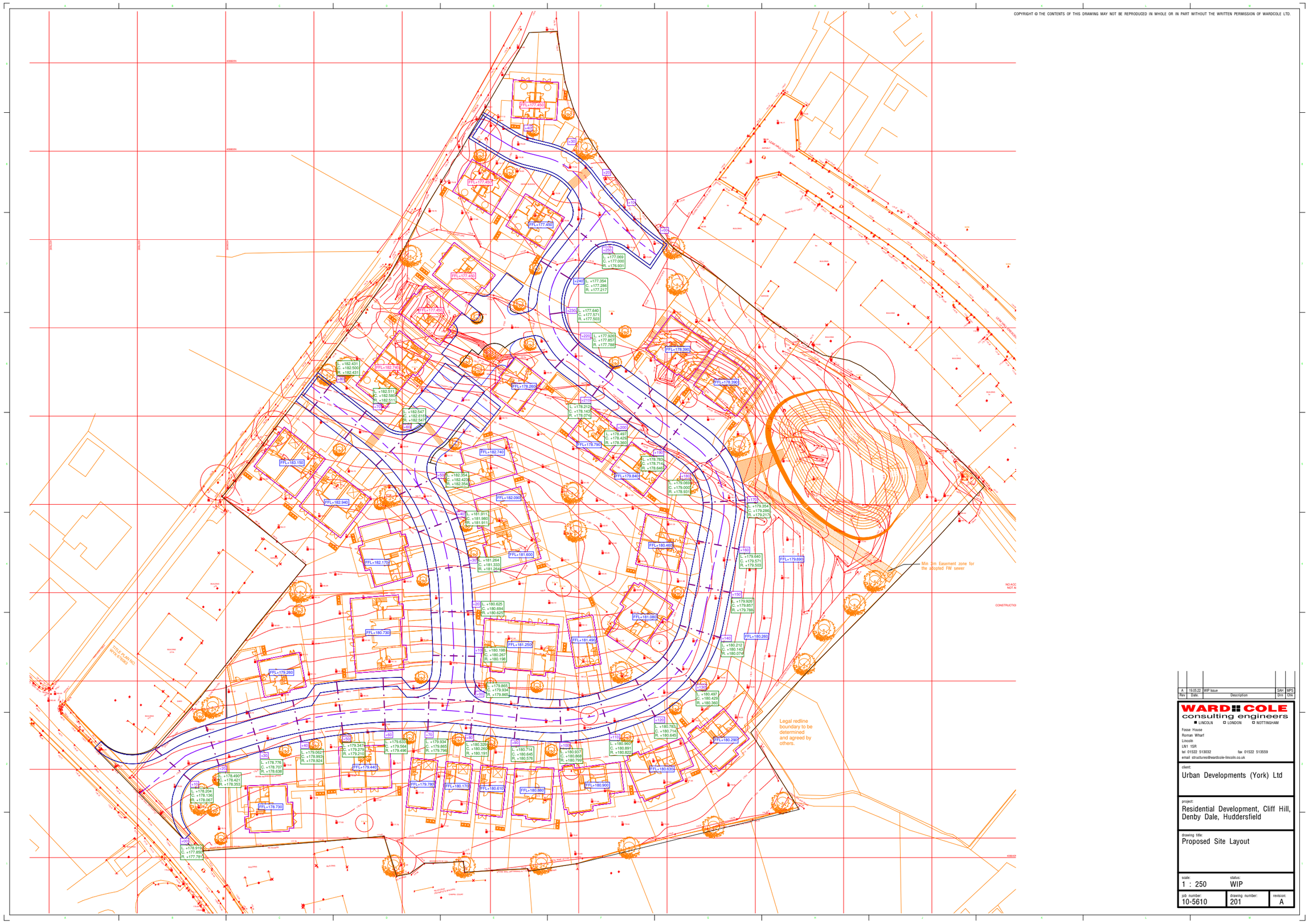
APPENDIX D

Proposed Site Layout 10-5610-201-A produced by Ward Cole Consulting Engineers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Min 3m Easement zone for the adopted FW sewer
Legal redline boundary to be determined and agreed by others.
A 19.05.22 WIP Issue SAH MPS
Rev Date Description Drn Chk
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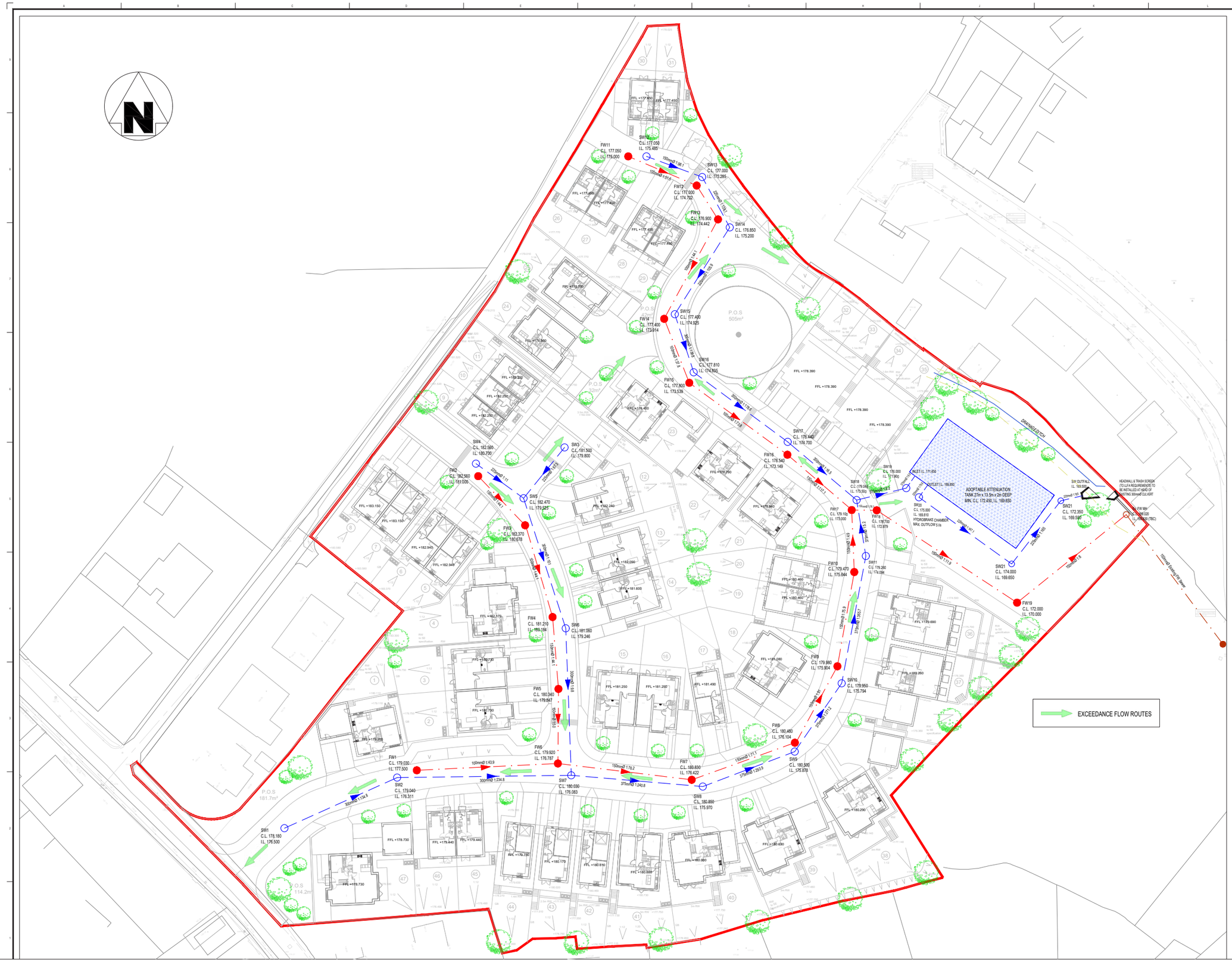
client:
Urban Developments (York) Ltd
project:
Residential Development, Cliff Hill, Denby Dale, Huddersfield
drawing title:
Proposed Site Layout
scale: 1 : 250
status: WIP
job number: 10-5610
drawing number: 201
revision: A

APPENDIX E

Proposed Drainage Layout 10-5610-500-B produced by Ward Cole Consulting Engineers



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KEY

- Section 104 Adoptable Foul Sewer
- Section 104 Surface Water Sewer
- Private Foul Drain
- Private Surface Water Drain
- Existing Foul Sewer
- Sewer Easement
- Site Boundary
- Road Gully & 150mmØ Drain — g
- Rainwater Pipe, Rodding Eye — RWP, RE
- Foul Connection (svp, ss, sink, etc) — FW

NOTES

1. THE PROPOSED ADOPTABLE DRAINAGE IS SUBJECT TO S104 AGREEMENT WITH YORKSHIRE WATER.
2. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERS' AND ARCHITECT'S DRAWINGS.
3. THE ADOPTABLE FOUL & SURFACE WATER SEWERS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE DESIGN AND CONSTRUCTION GUIDANCE (APPENDIX C, SEWERAGE SECTOR GUIDANCE), THE CIVIL ENGINEERING SPECIFICATION FOR THE WATER INDUSTRY (7TH EDITION) AND YORKSHIRE WATER REQUIREMENTS.
4. ALL SEWER CONSTRUCTION MATERIALS SHALL BE BS KITE MARKED.
5. ROOT BARRIER PROTECTION IS TO BE PROVIDED FOR ANY SEWERS LOCATED WITHIN TREE CANOPY AREAS.
6. A PROTECTIVE GEOTEXTILE / PLASTIC MEMBRANE IS TO BE APPLIED TO ALL FOUL SEWERS LAID ABOVE STORMWATER PIPES.
7. ALL ROAD GULLY DRAINS TO BE 150mmØ AND ENCASED IN 150mm CONCRETE SURROUND AT JUNCTION WITH MAIN SEWER.
8. BENDS ON GULLY LATERALS TO BE NO GREATER THAN 22.5°.
9. UNLESS OTHERWISE INDICATED, PRIVATE FOUL DRAINS WILL BE 100mmØ LAID AT 1:80 MINIMUM GRADIENT, PRIVATE SURFACE WATER DRAINS WILL BE 150mmØ LAID AT 1:150 MINIMUM GRADIENT.

rev:	date	description	Drawn	Chkd
B	23.09.22	Site plan updated and drainage adjusted to suit.	DM	WEH
A	13.09.22	Runoff outflows restricted to 5 l/s, attenuation basin replaced with adoptable attenuation tank.	DM	WEH
-	29.04.22	Preliminary issue.	DM	WEH

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client: Urban Developments Ltd

project: Denby Dale, Huddersfield

drawing title: Proposed Drainage Layout

scale: 1:250 (A0) status: Planning