Tree Care Consultancy
ARBORICULTURAL CONSULTANTS

Arboricultural Impact Assessment
Stephen and Ian Bond

Report Reference: AIA-1550-1
1 September 2023

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Prepared For:
Stephen and Ian Bond

1 Introduction

1.1 Instruction and Brief

1.1.1 Tree Care Consultancy was commissioned by Mr Stephen and Ian Bond to prepare an Arboricultural Survey and Impact Assessment to accompany a planning application for a proposed demolition and rebuild of a boundary retaining wall. The report produced includes the following information:

- A tree survey (appendix 3), undertaken in accordance with British Standard 5837:2012 'Trees in relation to design, demolition and construction' - Recommendations
- Tree Constraints Plan (appendix 4) which highlight the potential development limitations trees pose on site
- An Arboricultural Impact Assessment which evaluates any potential impact the proposal may have on surrounding trees.
- Proposed Construction details at Appendix 5 and 6

1.1.2 This report is based on site observations and information provided. Conclusions have been made in light of the surveyor's experience and qualifications.

1.1.3 This report is only concerned with trees in relation to construction. This report makes no attempt to provide a full safety inspection of the trees surveyed. It should not be seen as an alternative for a Tree Hazard Assessment which is specific to minimising the risk and liability associated with trees.

1.1.4 Climatic conditions including storms, drought and temperature-related factors can cause damage and failure in apparently healthy trees. It should be remembered that all trees do pose a risk and whilst every effort has been made to detect any major defects in inspected trees, no guarantee can be given as to their safety. Although the risk should be managed to an acceptable level, no tree can be guaranteed as safe at all times.

1.1.5 This report is based on Visual Tree Assessment (VTA) methodology, as devised by Mattheck (1991). V.T.A is a ground level visual assessment of a tree, which is carried out to identify obvious mechanical defects, signs of ill health, potential mechanical failure and the suitability of a tree to a site. The survey is compiled in accordance with British Standard 5837:2012 'Trees in relation to design, demolition and construction' - Recommendations with Root Protection Areas (RPA's) based upon section 4.6 of the document.

1.2 Site Visit

1.2.1 An arboricultural survey was undertaken by Stephen Waterson on 29 August 2023.

1.2.2 On the day of the survey the weather conditions were dry and still with no visibility constraints.

1.2.3 Measurements were estimated where deemed appropriate. No climbing inspections or decay detection analysis was undertaken.

1.2.1 Details explaining the criteria and methodology used in generating the tree survey schedule is included at Appendix 1 and 2. Trees were graded using table 1 of BS5837. The resulting tree survey data results are included within the tree survey schedule at Appendix 3.

1.2.2 This survey should be read in conjunction with the Tree Constraint Plans (TCP) (appendix 4) which has been prepared by overlaying tree survey data onto a site survey drawing. The author has relied on the accuracy of these drawings in the production of this report.

1.3 Site Description

1.3.1 The host property fronts Wood Street and comprises a detached house set within a generously proportioned garden. On entering the property from its Wood Street access point the plot initially rises sharply from east to west and more gently south to north. As such differing ground levels within the garden are supported by a range of retaining walls. The most notable of which is a substantial dry stone wall that fronts Wood Street.

1.3.2 The neighbourhood is characterised by residential property.

1.3.3 Tree cover within the immediate neighbourhood is moderate in terms of numbers and species mix, being defined by the prevailing land use and topography. The material present appears to be weighted towards trees of a mature age.

1.4 Tree Status

1.4.1 It is understood the sites tree cover does not occupy a Conservation Area but adjoins the neighbouring Skelmanthorpe Conservation Area. 2No. Sycamore trees (T7 and T9 within the report) are subject of Kirklees Council Tree Preservation Order (TPO), No.3, 2022. In the case of trees that are subject of TPO, Conservation Area controls or planning application procedures it is essential the Local Authority's advice is sought and where necessary consent obtained prior to undertaking any tree removal or pruning operations.

1.5 Soil Assessment

1.5.1 No soil testing was undertaken and no soil information was provided for the author. The precise soil type could only be confirmed with further soil investigation/analysis though it is assumed that the potential for the sub soil to consists of a highly shrinkable clay to be low.

2 Tree Quality Assessment

2.1.1 As highlighted in table 1 below, the tree survey included no retention category "A" or "B" items. Of the 11No. trees detailed there are 8No. retention category "C" items and 3No. category "U" items.

Table 1:

Category	Category Description	Tree Numbers
'A'	Trees of high quality, with life expectancy in excess of 40 years	Nil
'B'	Trees of moderate quality, with life expectancy in excess of 20 years	Nil
'C'	Trees of low quality with life expectancy in excess of 10 years or young trees	T1, T2, T4, T5, T6, T9, T10 and T11
'U'	Seriously defective trees that cannot be retained in present context for longer than 10 years	T3, T7 and T8
Total number of trees:		11No. individual trees.

2.1.2 The on-site category U trees, T7 (Sycamore) and T8 (Beech) occupy visually prominent positions adjoining the public highway. Were it not for the position of both trees directly impacting upon the boundary retaining wall, they would have achieved higher categories under the British Standard method of grading. Similarly T9 (Sycamore) a very large tree which stands only 4.2m from the aforementioned retaining wall can be expected to have established roots that will be adversely impacting upon the structure of the wall. As such the locational issues applicable to trees T7, T8 and T9 have reduced their safe, useful life expectancy resulting in the specified grades.

2.1.3 The remaining trees T1, T2, T4, T5, T6, T10 and T11 are considered to be low quality category 'C' items, though they do provide collective greening within the local street scene. T3 is afforded a category U grade. It must be accepted T1, T3, T5 and T6 have the capability of jeopardising the structural integrity of the boundary retaining wall.

2.1.4 The Local Planning Authority may be prepared to accept the removal of trees in a poor condition or those with a minimal, safe, useful life expectancy. This usually includes category 'U' and 'C' trees. The removal of category "A" and "B" grade trees may also on occasions be viewed acceptable where compensatory replacement planting can be provided or where in overall planning terms the loss is found to be justified.

3 Arboricultural Impact Assessment

3.1.1 The following section evaluates the impact of the demolition and rebuilding of the boundary retaining wall in relation to trees that are considered to be within influencing distance of the wall. Tree and design conflicts are highlighted, and possible remedial action recommended. The assessment is based on the surveyor's findings, plans and information provided by Mr Stephen Bond.

3.1.2 The existing wall appears to be of dry stone construction, in places retaining up to 2m of ground. The wall fronts the highway boundary with Wood Street. Several patched repairs associated with past wall failures have been undertaken. More recently an inspection undertaken by OEC Consulting Engineers has found several areas where the face of the wall is uneven: both horizontally and vertically. The Engineers view is that the wall lacks sufficient robustness to retain the earth behind it. In order to guarantee the long term stability of the wall a full rebuild is required that would accord with the latest design codes.

3.1.3 The details of the proposed wall construction are shown in the planning application bundle. However, for ease of reference these are shown at Appendix 5 - Construction Method Plan SB/104 and Appendix 6 - Construction Method Plan (Section) SB/103.

3.1.4 It will be apparent from viewing the Tree Constraints Plan that 4No. low category C trees and 2No. category U trees are to be removed for the purpose carrying out the proposed development. A further Category U tree is recommended for removal on arboricultural management grounds alone. It could equally be argued T7 and T8 constitute a loss on arboricultural management grounds. These issues are discussed in further detail at paragraphs 3.2 and 3.3.

Table 2:

Tree categories A, B, C & U	Trees to be retained and protected	Trees to be removed for development	Trees to be removed for arboricultural management reasons
'A'	Nil	Nil	Nil
'B'	Nil	Nil	Nil
'C'	T2, T4, T10 and T11	T1, T5, T6 and T9	Nil
'U'	Nil	T7 and T8	T3, T7 and T8

3.2 Trees to be removed to accommodate the proposal

3.2.1 In terms of the recommended removal of trees T1, T5, T6, T7 (Sycamore T2 on TPO), T8 and T9 (Sycamore T1 on TPO), these trees are to a greater or lesser extent close enough to the retaining wall to be expected to adversely impact on the stability of the wall either has a consequence of the incremental growth of their root collar, roots that will run along the rear horizontal and vertical face of the wall and roots that will colonise the actual wall joints due to the availability of favourable rooting conditions. As such each of these trees can be expected to be exerting direct pressure upon the structure of wall. Moreover the juxtaposition of T7 and T8 could reasonably be argued to be necessary removal on Arboricultural management grounds.

3.2.2 BS5837 in Annex A Table A1 recommends that trees with a growth potential above 600mm stem diameter at 1.5m height should be planted no closer than 2m to a masonry boundary wall. The location of trees T1, T3, T5, T6, T7 and T8 would appear to conflict with this guidance.

3.2.3 In terms of T1, T3, T5, T6, T7, and T8 the excavation necessary to construct the toe of the retaining structure with its related angle of repose will require the removal of each of these trees (refer to Appendix 5 and 6). In the case of T9 it may be suggested a lesser form of excavation would avoid the need to remove this tree. Unfortunately even the removal of a relatively small of amount of soils from the rear face of the wall will result in the loss of structural roots and smaller fibrous roots creating a significant root shoot imbalance. The likely consequence of root loss or injury occurring would at best give rise to the trees terminal decline or at worst lead to the its catastrophic failure in extremes of weather.

3.3 Trees to be removed for Arboricultural Management Reasons

3.3.1 As detailed Table 2 above the category U Chinese Incense Cedar T3 is considered to be a justifiable Arboricultural Management loss on the grounds of its poor condition.

3.3.2 In terms of Sycamore T7 and Beech T8 these trees are considered to be justifiable Arboricultural Management losses on the grounds of the present and increasing conflict they pose to the neighbouring retaining wall and public highway.

3.4 Below Ground Constraints

3.4.1 The area of roots that need to be protected around a tree to try to ensure it does not suffer damage during the construction process is called the Root Protection Area (RPA).

3.4.2 As recommended in BS5837 we have plotted the RPAs (in magenta) onto the attached Tree Constraints Plans (TCP) taking full account of the surrounding topographical factors, tree condition and the likely root disposition.

3.4.3 In order to limit disturbance to the rooting volume of the retained trees T2, T4, T10 and T11 it will be necessary to protect the trees RPA during the construction phase. It is presumed this is a matter the Local Planning Authority would be agreeable to conditioning as part of a detailed planning permission.

3.5 Above Ground Constraints

3.5.1 There is no requirement to undertake any pruning of retained trees.

3.6 Tree Protection

3.6.1 A protective fence will be erected prior to the commencement of any site works e.g. before demolition and the delivery of materials to site. The fence will have signs attached to it stating that this is a Construction Exclusion Zone (CEZ) and that NO WORKS are permitted within the CEZ. The protective fence may only be removed following completion of all construction works.

3.6.2 The positioning and implementation of protection can be effectively controlled by imposition of a suitably worded planning condition.

3.7 Material Storage

3.7.1 No material storage or plant movement will be required within the CEZ of any retained tree.

3.8 Landscaping

3.8.1 The proposed development provides opportunities for replacement planting with sufficient space available to plant several medium to large growing tree species. It is presumed this is a matter the Local Planning Authority would be agreeable to conditioning as part of a detailed planning permission.

4 Conclusions

4.1.1 The protection of trees and their subsequent health and future potential is dependent upon all persons operating within the site. Communications are vitally important to ensure that all parties understand the reason for tree protection and its continued existence. Providing all necessary tree protection works are undertaken as required by a planning condition on any approval notice, retained trees and development alike will satisfactorily coexist.

4.1.2 It is hoped that this report and recommendations provides all necessary information, however, should there be any queries, or should clarification of any points be required, please contact the report author.

5 Appendices

Appendix 1 - Explanation of Survey Details

Tree Id- Each tree/group has been given a unique number, which coincides with the drawings located in appendix 3.

Species & botanical name- where identifiable the full botanical name has been given. Where a cultivar, variety or species cannot be accurately given the genus name only will be given.

Height (m)- measured approximately to the nearest 1m. If height issues are critical, measurements can be collected accurately using optical instruments.

No of stems- the number of separate stems each individual tree has.

Stem Dia @1.5m (mm)- the diameter of the given tree at 1.5m above soil level, (on sloping ground taken on the up-slope side of the tree base). Where the tree is multi-stemmed measurements will be record for each stem.

Spread- indicates the crown radius from the base of tree in four compass directions, recorded to the nearest metre.

Crown height + direction (m)- recorded as the first significant branch and direction of growth.

Life stage- described as young, semi-mature, early-mature, mature or over-mature.

Physiological condition (P)- an assessment of the tree's health. Considers vitality, die back and the presence of disease. Described as Good = no significant health problems Fair = symptoms of ill health that can be remediated Poor = significant ill health.

Structural condition (S)- an assessment of the trees structural condition. Described as Good = no significant defects Fair = significant defects that can be remediated Poor = significant defects no remedy.

Observations – negative and positive- narrative comments on general condition, significant defects and overall appearance (e.g. the presence of any decay).

Preliminary management recommendations- e.g. requires pruning or further investigation of suspected defects is needed.

Life expectancy- preliminary management recommendations, e.g. requires pruning or further investigation of suspected defects is needed.

Retention Category- Each tree/group is identified with a retention category in accordance with BS5837 (an in-depth explanation is provided on the following page)

RPA radius (m)- minimum area in metres which should be left undisturbed around each retained tree.

Appendix 2 - Cascade Chart for Tree Quality Assessment (Extract from BS5837 table 1)

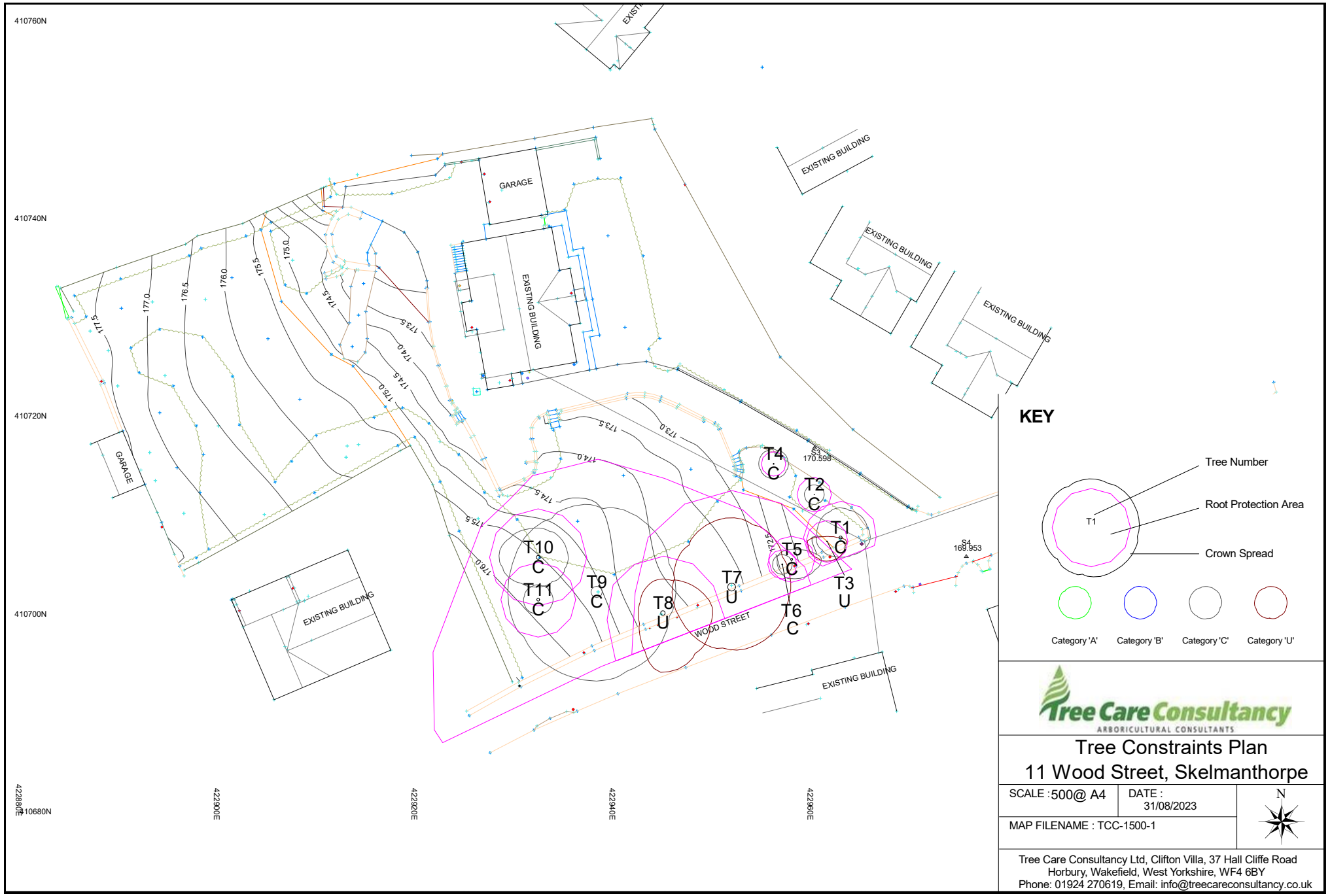
Category and definition	**Criteria (including subcategories where appropriate)**			**Identification on Plan**
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to health and/or safety of other trees nearby, or very low-quality trees suppressing adjacent trees of better quality NOTE: Category U trees can have existing or potential conservation value which it might be desirable to preserve			DARK RED
TREES TO BE CONSIDERED FOR RETENTION				
Category and definition	**Criteria – Subcategories**			**Identification on Plan**
	1 Mainly arboricultural values	**2 Mainly landscape values**	**3 Mainly cultural values, including conservation**	
Category A **Trees of a high quality** with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	LIGHT GREEN
Category B **Those of moderate quality** with and estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	MID BLUE
Category C **Those of low quality** with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm	Unremarkable trees of a very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value; and/or trees offering low or only temporary/transient screening benefits	Trees with no material conservation or other cultural values	GREY

Appendix 3- Tree Schedule

Tree ID	Species, Botanical Name	Height (m)	No of stems	Stem @ 1.5M (mm)	Spread - N,E,S,W				Crown height+ direction (m)	Life stage	Physiological (P) and Structural (S) condition. Observations- negative and positive	Recommendations	Life expectancy	Retention category	RPA Radius (m)
T1	Norway Spruce, *Picea abies*	10	1	300	3	3	2	3	1e	Mature	P= Good, S= Good. Single stemmed tree growing atop lower section of retaining wall. Proximity of roots will colonise and displace wall leading to collapse.	Removal required to accommodate rebuilding of boundary retaining wall. Replace as part of an agreed tree planting scheme at a distance that will not compromise the structural integrity of the replacement wall.	10 to 20 yrs	C2	3.6
T2	Chinese Incense Cedar, *Calocedrus macrolepis*	4	8	50 average	1	1	1	1	0ar	Mature	P= Good, S= Good. Inconsequential understory type tree.	Retain, no work required.	10 to 20 yrs	C2	1.7
T3	Chinese Incense Cedar, *Calocedrus macrolepis*	3.5	6	70 average	0.5	2	2	2	0e	Mature	P= Poor, P= Poor. Understory tree with dog legged stems. Live growth confined to branch tips. Will be out competed for light in coming years. Proximity of roots will colonise and displace the wall leading to collapse.	Remove due to poor condition. Replace as part of an agreed tree planting scheme at a distance that will not compromise the structural integrity of the replacement wall.	<10 yrs	U	2.1
T4	Chinese Incense Cedar, *Calocedrus macrolepis*	5	3	100, 90, 110	1.5	2	2	2	0ar	Mature	P= Good, P= Fair. Leaning main stem with upright growth after stem junction.	Retain, no work required.	10 to 20 yrs	C2	2.1
T5	Common Holly, *Ilex aquifolium*	8	1	190	1	3	2	2	1e	Mature	P= Fair, S= Good. Single stemmed tree growing atop retaining wall. Close to and in contact with wall structure. Proximity of basal flare will exert pressure on upper section of wall leading to collapse. Roots will also colonise and displace wall leading to collapse.	Removal required to accommodate rebuilding of boundary retaining wall. Replace as part of an agreed tree planting scheme at a distance that will not compromise the structural integrity of the replacement wall.	10 to 20 yrs	C2	2.3
T6	Scots Pine, *Pinus sylvestris*	5	1	120	1	1	1	1	2.5e	Mature	P= Fair, P= Fair. Growing atop retaining wall. Proximity of roots will colonise and displace wall leading to collapse.	Removal required to accommodate rebuilding of boundary retaining wall. Replace as part of an agreed tree planting scheme at a distance that will not compromise the structural integrity of the replacement wall.	10 to 20 yrs	C2	1.4

Tree ID	Species, Botanical Name	Height (m)	No of stems	Stem @ 1.5M (mm)	Spread - N,E,S,W				Crown height+ direction (m)	Life stage	Physiological (P) and Structural (S) condition. Observations- negative and positive	Recommendations	Life expectancy	Retention category	RPA Radius (m)
T7 (T2 on TPO)	Sycamore, *Acer pseudoplatanus*	14	1	800	7	6	7	6	2ar	Mature	S= Good, P= Good. Visually prominent specimen that stands atop and 0.5m from a substantial boundary retaining wall. Main stem divides into codominant leaders at 2m. Low level southerly extending crown circa 3.5m height is in conflict with high sided vehicles evidenced by damaged cambium. The tree exhibits good vitality and vigour with no major defects evident save for minor snags and dead wood. The trees basal flare/root collar is pressing against the upper wall level. It is understood the wall has been the subject of previous collapse and repeated repair and is again showing signs of movement. Tree roots from this tree are likely to have colonised the open structure. The incremental growth of the basal flare and vigorous root growth can be expected to rapidly damage the wall and contribute to its collapse.	Removal required to accommodate rebuilding of boundary retaining wall. Replace as part of an agreed tree planting scheme at a distance that will not compromise the structural integrity of the replacement wall.	0-10 yrs	U	9.6
T8	Common Beech, *Fagus sylvatica*	14	1	470	3.5	5	6	3	0.5w	Early-mature	P= Good, S= Fair. Visually prominent specimen that stands atop and 0.8m from a substantial boundary retaining wall. Slightly leaning suppressed item due to dominance of neighbouring Sycamore T9. Ivy present on stem. The tree exhibits good vitality and vigour with no major defects evident. It is understood the wall has been the subject of previous collapse and repeated repair and is again showing signs of movement. Tree roots from this tree are likely to have colonised the open structure. Vigorous root growth can be expected to rapidly damage the wall and contribute to its collapse.	Removal required to accommodate rebuilding of boundary retaining wall. Replace as part of an agreed tree planting scheme at a distance that will not compromise the structural integrity of the replacement wall.	0-10 yrs	U	5.6
T9 (T1 on TPO)	Sycamore, *Acer pseudoplatanus*	15	2	840, 790	9	8	9	9	3e	Mature	P= Good, P= Good. Visually prominent tree of spreading form. The tree is dual stemmed from ground level to 1.5m with a partially fused and tightly formed included union present. Ivy covered stems. The tree exhibits good vitality and vigour with no major defects evident save for minor snags and dead wood. The trees basal flare is 4.2m from frontage retaining wall. It is understood the wall has been the subject of previous collapse and repeated repair and is again showing signs of movement. Though some 4m from the retaining wall roots from this tree will be present immediately to the rear of the wall and will have colonised the structure itself. The vigorous root growth can be expected to rapidly damage the structure of the wall and contribute to its collapse.	Removal required to accommodate rebuilding of boundary retaining wall. Replace as part of an agreed tree planting scheme at a distance that will not compromise the structural integrity of the replacement wall.	10 to 20 yrs	C2	13.8
T10	Common Holly, *Ilex aquifolium*	11	1	400	3	3	3	4	0.5n	Mature	P= Good, S= Good. Well formed single stemmed item with sub stems from 2m. Minor cavity's to base.	Retain, no work required.	10 to 20 yrs	C2	4.8

Tree ID	Species, Botanical Name	Height (m)	No of stems	Stem @ 1.5M (mm)	Spread - N,E,S,W				Crown height+ direction (m)	Life stage	Physiological (P) and Structural (S) condition. Observations- negative and positive	Recommendations	Life expectancy	Retention category	RPA Radius (m)
T11	Common Laburnum, *Laburnum anagyroides*	8	2	250, 180	1.5	2	2	2	2ar	Mature	P= Fair, P= Fair. Multi stemmed item from 2m. Dense Undergrowth inhibited accurate inspection.	Retain, no work required.	10 to 20 yrs	C2	3.7



Tree Care Consultancy
ARBORICULTURAL CONSULTANTS

Tree Constraints Plan
11 Wood Street, Skelmanthorpe

SCALE :500@ A4 | DATE : 31/08/2023

MAP FILENAME : TCC-1500-1

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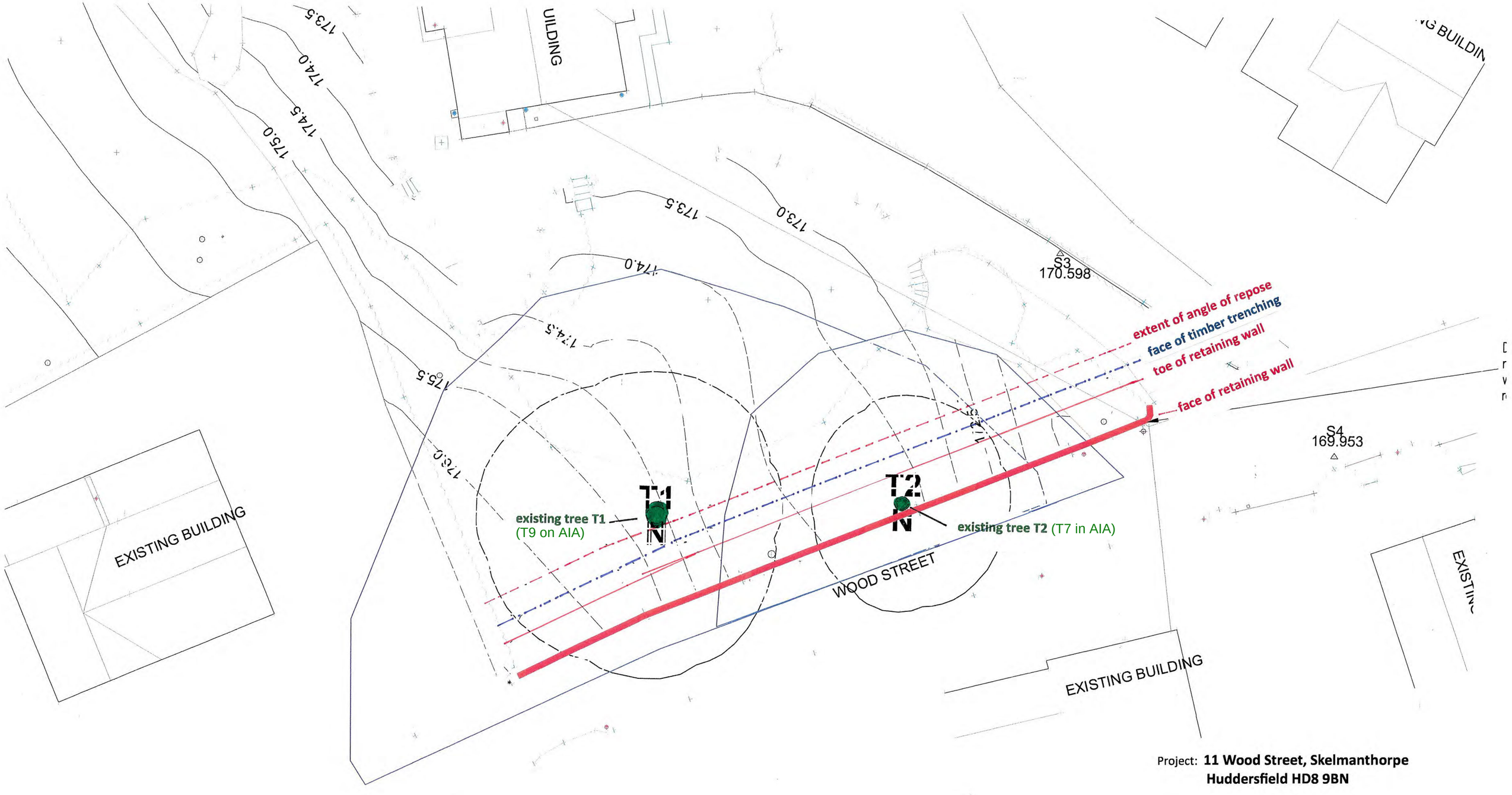
Appendix 6



3 KEY PLAN

Project: **11 Wood Street, Skelmanthorpe Huddersfield HD8 9BN**

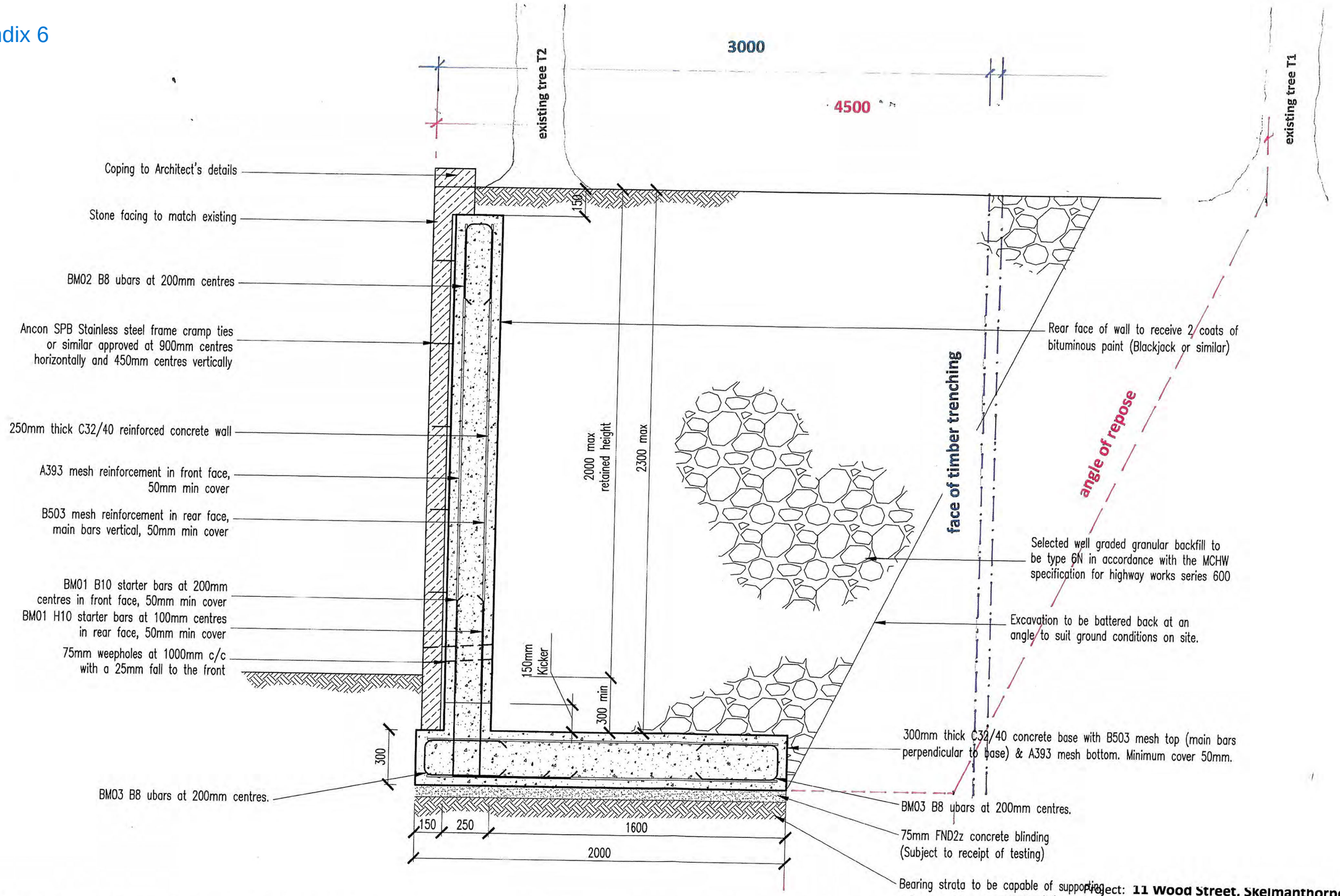
Client: **Mr S Bond**

Title: **Retaining Wall – Construction Method Plan**

Scale: **1:20 (A3)**

Date: **January 2023** Drwg No: **SB/104**

Appendix 6



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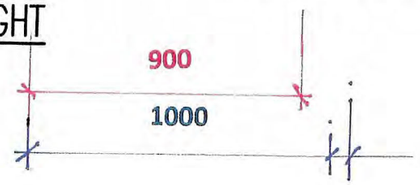
1:20



Project: **11 Wood Street, Skelmanthorpe Huddersfield HD8 9BN**

Client: **Mr S Bond**

Title: **Retaining Wall – Construction Method Section**

Scale: **1:20 (A3)**

Date: **January 2023**

Drwg No: **SB/103**