HPK/2013/0298
06 JUN 2013
BOROUGH COUNCIL

ABORICULTURAL STATEMENT AND SURVEY TO

B.S. 5837 : 20005

AT

BANKWOOD MILL
OFF LONG LANE
CHARLESWORTH

SEPTEMBER 2010

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1. Introduction

1.1 Purpose of the Method Statement

1.1.1 This Method Statement has been prepared to ensure good practice in the protection of trees during the proposed development on the Bankwood Mill site.

1.2 Terms of Reference

1.2.1 We are instructed by Mr S Dobie of 8A Slate Lane, Audenshaw to prepare a Method Statement for the proposed development, based on our arboricultural report dated September 2010. This survey and report conforms to the most recent specifications outlined in BS 5837: 2005: *Trees in Relation to Construction.*

1.2.2 It is proposed to convert an existing building.

1.2.3 The development layout has been provided by our client and is the basis for the Tree Protection Plan at Appendix 5.

1.3 Status of the Method Statement

1.3.1 This Method Statement should be included as part of the specification and schedule of works issued to the building contractor, and can form part of the contract.

1.3.2 This Method Statement should be available on site for inspection by the local authority, contractors and other relevant persons.

2. Tree Works Prior, During and Post Construction

2.1 Tree Works Prior to Construction

2.1.1 Prior to any construction activity, the first operation on site will be the necessary arboricultural works as described in Appendix 1. All tree works should be carried out in accordance with BS 3998: 1989 *Recommedations for tree work.*

2.1 2 The tree works will include:

- The removal of T1, T2, T3, T4, T5, T6, T7 to facilitate the proposed development. T8 to T15 inclusive will be lifted for arboricultural reasons and replanted on site.

- The crown lifting of trees and crown reduction of G1 will be necessary to balance the crown and open up available work space.

2.2 Tree Works During Construction

2.2.1 Damage to trees during the construction phase should be entirely prevented by the erection of protective fencing in order to create a Construction Exclusion Zone (CEZ). All persons on site must be aware of limitations that apply within the CEZ.

2.2.2 If any trees on site are damaged, it should be immediately reported to S Dobie to agree on appropriate remedial action. Contact numbers for all parties can be found in Section 7.

2.3 Tree Works Post Construction

2.3.1 When the construction phase is complete and the protective fencing has been removed some minor remedial works may be required. This may be for aesthetic purposes; to give clearance for new paths or to provide ground clearance for landscaping schemes.

2.3.2 No post construction remedial works should be carried out on trees until prior permission has been granted by the Local Planning Authority.

2.4 Recommendations for Tree Works

2.4.1. All work must be to BS 3998: 1989 – *Recommendations for tree work* and should be carried out by qualified, experienced and ideally Aboricultural Association approved contractors who should be adequately insured.

2.4.2 Any defects seen by a contractor or the client that were not apparent to the consultant must be brought to the attention of S Dobie immediately.

2.4.3 No liability can be accepted by S Dobie in respect of the trees unless the recommendations of this Method Statement are carried out under our supervision.

3. Protective Fencing Prior, During and Post Construction

3.1 Protective Fencing Prior to Construction

3.1.1 The erection of the protective fencing will be the very first job on site following completion of the tree works. The protective fencing should protect the Root Protection Area (RPA) of G1 (as shown on the Tree Protection Plan at Appendix 5). No other work, including soil stripping, excavation, or the bringing onto site of materials or machinery, shall commence until the fencing is installed and inspected. In exceptional circumstances, where construction activity is deemed necessary, a representative from S Dobie's may be informed so that they may be present to oversee such operations.

3.1.2 The protective fencing should be constructed in accordance with BS 5837: 2005 *Trees in Relation to Construction* and should be located as shown on the Tree Protection Plan at Appendix 5. The area enclosed by the fencing is referred to as the Construction Exclusion Zone (CEZ); this area should be considered a restricted area. No pedestrians, vehicles, storage of materials, equipment or machinery should be allowed within the CEZ unless specified within this Method Statement.

3.1.3 The protective fencing will be appropriate to the degree and proximity of likely construction works. British Standard BS 5837: 2005 recommends a vertical and horizontal, scaffold framework, well braced to resist impacts, with vertical tubes at no more than 3m intervals. These should be driven into the ground. The use of rubber or concrete feet is not acceptable as these will move upon impact. Weld mesh panels should be affixed to this framework with scaffold clamps, see Appendix 2 for protective fencing details. A similar, sturdy, wooden construction would be acceptable.

3.1.4 Once the fencing is erected, waterproof signs with the sentence *"Protected tree zone, no storage or operations within this area"* should be placed at 3m intervals to ensure that all personnel are aware of the restrictions that apply to the fenced off area. A prepared sign is available at Appendix 2.

3.1.5 No work shall commence until the Local Planning Authority or S Dobie are satisfied that the protective fencing meets all requirements and gives the go ahead for construction to commence.

3.2 Protective Fencing During Construction

3.2.1 No operations shall take place which require the removal of part of the protective fencing without prior agreement with the Local Planning Authority.

3.2.2 The protective fencing should be inspected for faults or damage by the site manager or other responsible named person on a regular basis and a written record kept. Any faults or defects should be repaired or replaced as soon as is reasonably practicable. Details of the site manager and relevant contact details can be found at Section 7.

3.3 Removal of the Protective Fencing

3.3.1 When the development phase is complete and the main site machinery has been removed, the Local Planning Authority should be invited to inspect the site to give approval for the removal of protective fencing.

3.3.2 When this approval has been given the protective fencing may be dismantled and removed from site.

3.3.3 It should be noted the same restrictions apply to all RPA's as the CEZ (please refer to Section 3.1.2).

4. Construction Phase

4.1 Movement on Site

4.1.1 Restrictions for aboricultural reasons are to be enforced around G1 during the construction phase. Therefore, temporary surfaces have been suggested for routes over which site traffic may pass. Site traffic may include both vehicular and pedestrian.

4.2 Location of the Site Compound

4.2.1 It is vital that the site compound that typically includes the site office, mess facilities, toilets, storage of materials and parking, is located away from trees. Care should also be taken to prevent contamination with chemical spillages, including petrol, diesel and oils. Cement mixers and toxic materials should not be permitted close to trees.

4.3 Excavations and Services

4.3.1 Drainage and utilities are to be directed away from trees. Where this is not possible guidance and methodologies on the installation of underground services whilst minimising damage to tree roots is provided at Appendix 3.

4.4 Exposed Roots

4.4.1 Any tree roots exposed within the RPA should be left as intact as careful digging with hand tools will allow. Roots can become desiccated quickly and should be covered with a dry cloth to prevent freezing overnight or a wet cloth on warm days.

4.4.2 If roots are to be severed then clean, straight cuts must be made, in order to minimise the extent of wounding. If roots with a diameter of greater than 50mm are encountered, then a representative from S Dobie's must first be informed before any further work is undertaken.

4.5 Construction of Hard Surfaces

4.5.1 Hard surfaces, in the form of a car parking area, are proposed within the RPA of G1.

4.5.2 It is recommended that either a *minimum* or *no-dig* method of construction are employed. The finished surface should be porous to allow air and water to reach the tree roots whilst at the same time is able to withstand the load applied. Please refer to Appendix 4 for suggested construction methods.

5. Post Construction Phase

5.1 Completion Meeting

5.1.1 Upon completion of the works specified above, a tree consultant will invite the Local Planning Authority representative to meet with them on site to agree on any remedial works required.

5.1.2 Any necessary remedial works will be confirmed in writing and should be carried out to BS3998: 1989 *Recommendations for tree work.*

5.1.3 Due to the large potential penalties for illegally carrying out work to protected trees, S Dobie recommends that a further check is carried out prior to any works being undertaken post development.

5.2 Post Construction Landscaping

5.2.1 Landscaping works should be carried out in such a way as to avoid ground level changes or deep digging. Tractor mounted rotovation or other mechanised cultivation methods must not be used.

5.2.2 No heavy machinery should be brought into the vicinity of retained trees.

5.2.3 Herbicides should be appropriate for the purpose and should not be used in such a way as to damage any retained trees of vegetation

5.3 Mycorrhizal Fungi Inoculation

5.3.1 As the proposed development will encroach into the RPA of G1, possibly resulting in some root loss, it would be prudent to apply *Mycorrhizal fungi* to the soils around these trees after the construction phase is complete.

5.3.2 *Mycorrhiza* is a fungus that forms a symbiotic relationship with the tree roots. A tree root associated with Mycorrhiza takes up nutrients more effectively than a non associated root.

6. Timescale of Works

6.1.1 The timescale for aboricultural requirements are summarised below:

Timescale	Action	√	Initial
Stage 1	All requirements listed in the planning consent are approved by the Local Authority planning office.		
Stage 2	Undertake the tree works (as detailed at Appendix 1).		
Stage 3	Install protective fencing around the trees (as detailed at Appendix 2 and as shown on the Tree Protection Plan at Appendix 5).		
Stage 4	Have the Local Planning Authority inspected the fencing prior to any on site construction. Once inspected, the protective fencing must not be moved or breached.		
Stage 5	Undertake the construction of the new building and car park.		
Stage 6	Install permanent hard surfaces whilst undertaking suitable measures to avoid root damage and soil compaction (as detailed in Section 4 and at Appendix 4).		
Stage 7	Following the completion of the construction phase and when all site traffic and machinery has left, the protective fencing and ground protection can be removed.		
Stage 8	Post construction remedial tree works to be undertaken including *Mycorrhizal* inoculation.		

7. Relevant Contact Details

Contact Name	Organisation/Details	Contact Number
Mr S Dobie	8A Slate Lane, Audenshaw	07803 205486
Local Tree Officer	Ms M Gillespie	

Appendix 1: Tree Works Schedule

TREE WORKS SCHEDULE

Tree Ref	Species	Age	Ht	Girth	Crown Spread	Observations	Recommendations	Physiological condition	Structural condition	Amenity Value	Life Ex	Retention Category
1	Hawthorn	M	9.5	1M	6.5M uniform	Possible self seeded Fair condition Too close and touching main structure On steep banking	Remove to facilitate development	Good	Fair	Low	20+	C
2	Hawthorn	M	7M	.4	5M	Self seeded as above	Remove to facilitate development	Fair	Fair	Low	Ltd	C
3	Hawthorn	M	9M	.5	3.5M	Self seeded as above	Remove to facilitate development	Good	Fair	Low	Ltd	C
4	Ash	M	14.5	.7	5.5	Self seeded as above	Remove to facilitate development	Good	Fair	Low	20+	C
5	Ash	M		107M	9M	Self seeded as above	Remove to facilitate development	Good	Fair	Low	20+	C
6	Ash	M	1.6	1.4	7M	Self seeded as above	Remove to facilitate development	Good	Fair	Low	20+	C
G1	Acer Sp	M	10M	2M	10M	Fair specimen with low wide spreading crown	Remove lower limbs at 2M to lift crown and crown reduce by 20%.	Good	Good	Mod	20+	C
T8 to 15	Birch	Std	4M	.1	2M	Good young specimens, growing well	Lift and replant on site.	Good	Good	Mod	40+	B

Appendix 2: Protective Fencing

A2.1 The protective fencing will be appropriate to the degree and proximity of likely construction works. British Standard BS 5837: 2005 recommends a vertical and horizontal, scaffold framework, well braced to resist impacts, with vertical tubes at no more than 3m intervals. These should be driven into the ground. The use of rubber or concrete feet is not acceptable as these will move upon impact. Weld mesh panels should be affixed to this framework with scaffold clamps – See figure 1. A similar, sturdy, wooden construction would be acceptable.

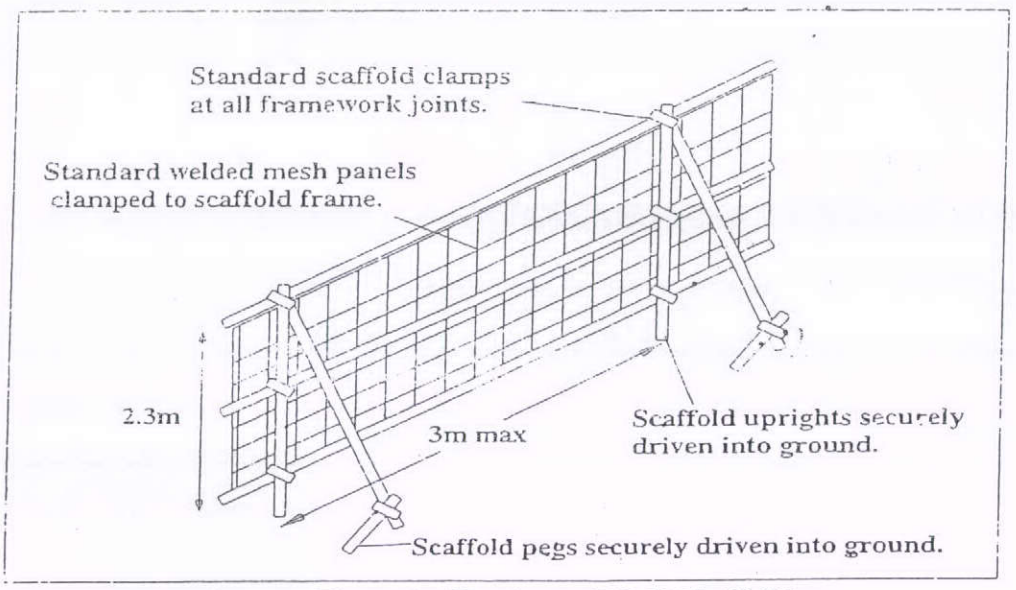


Figure 1: 'Fencing to BS 5837: 2005'.

A2.2 In certain circumstances, site buildings, such as a Portakabin, may be used in place of protective fencing where space is at a premium. S Dobie must be consulted before such action is taken.

TREE PROTECTION ZONE

NO STORAGE OR OPERATIONS WITHIN THIS AREA

KEEP OUT

RESTRICTED ACCESS
NO VEHICLES
NO STORAGE OF MATERIALS

REPORT TREE DAMAGE TO MR DOBIE ON

0161 339 8030

Appendix 3: Utilities and Drainage

A3.1 Over-ground services should ideally be routed away from areas where they are likely to interfere with the crowns of mature trees. Similarly any landscaping should take account of over-ground services and mature tree sizes.

A3.2 NJUG 10: Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees is a principle set of guidelines on working near trees for the utilities sector and should be considered when installing services.

A3.3 New underground services should be grouped together and routed away from Root Protection Areas. Where this is not possible, techniques should be adopted which avoid the severance of many roots. Some examples are listed below:

Radical trenching: This is illustrated in Figure 2. Trenches should be hand-dug and kept as narrow as possible. They should not extend to within 1m from the base of the tree trunk. Exposed roots larger than 25mm in diameter should be retained with their bark intact. A mechanical mole should ideally be used for the section beneath the tree. Our representative should be informed in advance of such operations so that monitoring arrangements can be made.

Mechanical Mole: Pits are excavated beyond the RPA and the mechanical device is sent through the protected area at a depth of no less than 0.6m. Machinery should be selected which can be externally lubricated by water rather than oil etc.

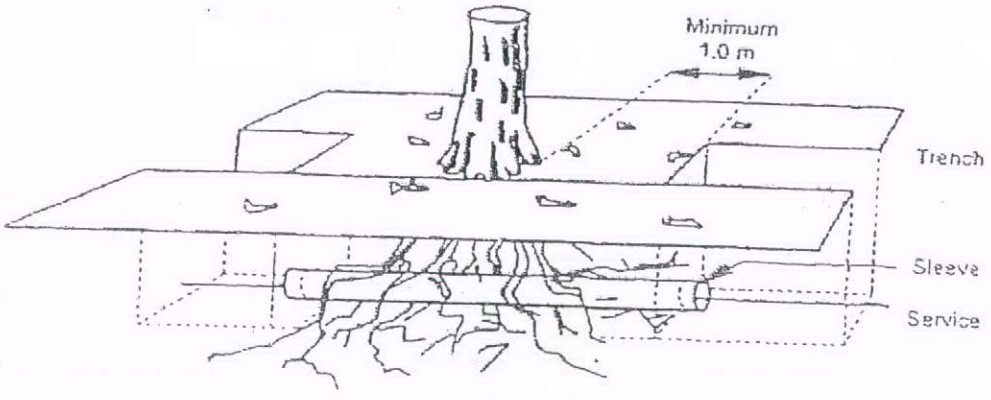


Figure 2: Radial Trenching

Appendix 4: Permanent Hard Surfaces

A4.1 This Appendix outlines the options available for constructing hard surfaces within the RPA of a tree. Two methods are acceptable: the No-Dig Method and the Minimum Dig Method. The design of such as construction needs to be sensitive to the requirements of the tree roots, substantial enough to withstand the expected levels of traffic and practicable in terms of ease of fabrication.

A4.2 We are not qualified to recommend any particular construction method in terms of durability or structural integrity and any proposed construction should be approved by a qualified structural engineer prior to implementation, however, with regards to trees, we make the following comments:-

- Severance of roots and soil compaction should be avoided. However, if it is necessary to sever roots or if they are severed accidentally we must be informed so that we are able to assess and recommend accordingly.

- Air and water must be able to diffuse into the soil beneath the engineered surface. Toxic substances which could leak into the ground must be avoided, as should substances which affect the PH value of the soil, for example limestone.

A4.3 The No Dig Method: This involves construction of a surface with no excavation, soil stripping or site grading (see Figure 3). All construction takes place above ground level. Preparation is as follows:

A4.4 Ground vegetation is killed using a suitable herbicide. Care must be taken to select a herbicide which does not damage the tree roots within the treated area. Once the vegetation has died, the dead organic matter should be removed. This helps prevent the future build up of anaerobic conditions or settlement due to decomposition.

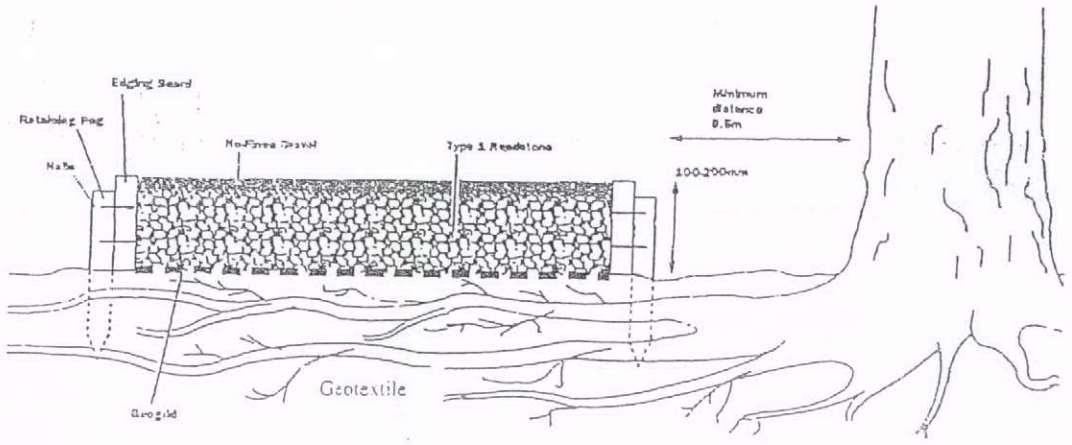


Figure 3. A light duty drive constructed using the *No Dig Method.*

A4.5 The Minimum Dig Method: It is acceptable to excavate a small amount of soil where site conditions allow (See Figure 4). The relative distance from the trees to the surface, and the size and vigour of the trees must be considered.

A4.6 Preparation should be the same as for the No Dig Method. The layers of soil should then be removed carefuliy and in the presence of an aboricultural consultant. No more than 10cm of soil should be removed before the ground is inspected by the consultant. Depending on the presence of the roots it may then be acceptable to remove a further 10cm of soil.

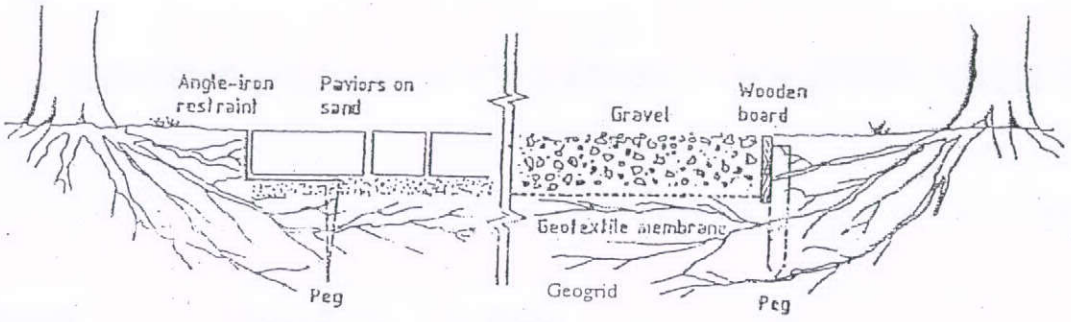
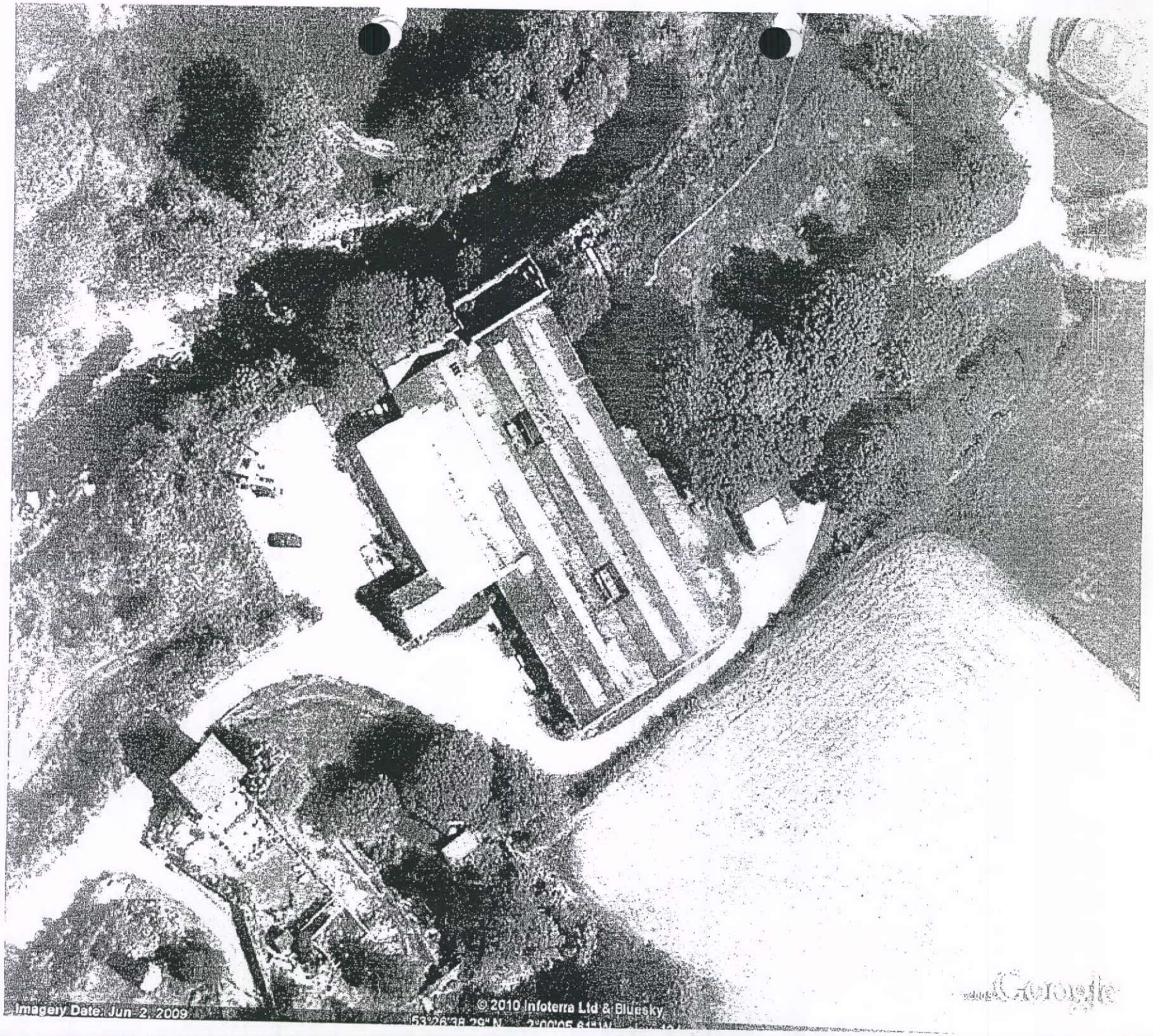


Figure 4. A light duty drive constructed using the *Minimum Dig Method.*

Appendix 5: Tree Protection Plan

River Etherow
T2 (Hawthorn)
1·100 G
5·000 S
11·000 H
96·730
T1 (Hawthorn)
1·000 G
6·500 S
9·500 H
100·020
G1 (Acer)
2·000 G
12·500 S
16·000 H
2 Boles
1·100 G
5·500 S
17·000 H
1·000 G
4·550 S
16·500 H
2·000 G
10·750 S
19·500 H
1·350 G
8·500 S
14·000 H
100·275
100·475
(Ash)
T5
1·700 G
9·000 S
16·500 H
Acer
T3 (Acer)
0·700 G
3·500 S
11·500 H
T4
99·500
96·675
1·400 G
7·000 S
10·000 H
T6
(Sallow)
2 Boles
1·000 G
5·500 S
14·500 H
99·750
T7
0·100 G
0·850 S
3·800 H
T8
(Birch)
0·150 G 0·750 S
2·650 H
Bankwood Mill
T9
0·220 G 1·250 S 4·750 H
T10
0·200 G 1·250 S 6·000 H
T11
0·150 G 1·000 S
3·000 H
100·050
T12
(Birch)
100·400
0·155 G 1·100 S
3·300 H
T14
0·180 G 1·300 S
3·500 H
T15
0·200 G 1·350 S
3·600 H
100·285
Protective Fencing
Path (um)
1 500
BANKWOOD MILL
OFF LONG LANE
CHARLESWORTH
DERBYS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