



Key:	Description			
REFERENCE NUMBER:	Individual reference number			
TYPE:	T - Tree	G – Tree Group	W – Wooded Area	H - Hedge
SPECIES:	Species listed by common name			
HEIGHT:	Overall height (m) – maximum and minimum heights may be recorded for tree groups, wooded areas and hedges where these vary considerably or are deemed to be noteworthy			
DIAMETER:	Stem diameter (mm) calculated in accordance with BS 5837 paragraph 4.6.1. An average stem diameter is provided for tree groups, wooded areas and hedges			
CROWN SPREAD	Spread of crown based upon the maximum lateral dimension (m)			
LCH:	Lowest crown height (m)		* Where an arboricultural feature abuts the edge of the study area then only the portion of the crown within/overhanging the study area will be surveyed and recorded	
FSB:	Height of lowest significant branch (m)			
AGE CLASS:	Young - < 1/3rd estimated life expectancy	Semi-mature – 1/3rd to 2/3rd estimated life expectancy	Mature - > 2/3rd estimated life expectancy	Veteran – a tree which exists significantly beyond its normal life expectancy
PHYSIOLOGICAL CONDITION:	Good	Fair	Poor	Dead
STRUCTURAL CONDITION:	Good	Fair	Poor	
ESTIMATED REMAINING CONTRIBUTION:	>10 years	10+ years	20+ years	40+ years
CATEGORY:	BS 5837 Category - A, B, C, U		BS 5837 Sub-category - 1, 2, 3	
RPA RADIUS	The radius of the circular Root Protection Area associated with the tree as measured from the centre of the stem (m). For arboricultural features where more than one stem diameter is recorded the RPA radius is calculated using the largest dimension.			



TREE NO	TYPE	SPECIES	HEIGHT (m)	STEM DIAMETER (mm)	MAXIMUM CROWN SPREAD	LCH	LBH	AGE CLASS	PHYSIOLOGICAL CONDITION	STRUCTURAL CONDITION	ESTIMATED REMAINING CONTRIBUTION	CATEGORY	SUB-CATEGORY	NOTES	RPA RADIUS (m)	STATUTORY STATUS	ENVIRONMENTAL STATUS
1	T	Norway Maple	10.0	630	4.0	2.0	2.0	Mature	Good	Good	10+	C	2	-	7.6	-	-
2	T	Oak	20.0	1300	10.0	1.0	0.0	Mature	Good	Fair	40+	A	3	-	19.5	TPO/BN/1/20 - T29	Veteran
3	T	Oak	15.0	740	8.0	4.0	3.0	Mature	Good	Good	40+	A	2	-	8.9	TPO/BN/1/20 - T15	-
5	T	Evergreen Oak	14.0	400	4.5	1.0	1.0	Mature	Good	Good	20+	B	2	No access; all data estimated	4.8	-	-
6	T	Norway Maple	8.0	340	3.0	2.0	2.0	Mature	Good	Good	10+	C	2	-	4.1	-	-
7	T	Poplar	18.0	750	6.5	5.0	1.0	Mature	Fair	Fair	20+	B	2	-	9.0	-	-
10	T	Oak	18.0	850	8.0	3.0	3.0	Mature	Good	Good	40+	A	2	No safe access; all data estimated; deadwood present	10.2	-	-



TREE NO	TYPE	SPECIES	HEIGHT (m)	STEM DIAMETER (mm)	MAXIMUM CROWN SPREAD	LCH	LBH	AGE CLASS	PHYSIOLOGICAL CONDITION	STRUCTURAL CONDITION	ESTIMATED REMAINING CONTRIBUTION	CATEGORY	SUB-CATEGORY	NOTES	RPA RADIUS (m)	STATUTORY STATUS	ENVIRONMENTAL STATUS
11	T	Oak	10.0	600	5.0	1.0	2.0	Mature	Good	Good	20+	B	2	Prolific ivy	7.2	TPO/BN/1/20 - T31	-
12	T	Norway Maple	10.0	470	4.0	2.0	2.0	Mature	Good	Good	10+	C	2	-	5.6	-	-
14	T	Cypress	12.0	500	5.0	1.0	1.0	Mature	Fair	Good	10+	C	2	-	6.0	-	-
15	T	Norway Maple	10.0	470	4.0	2.0	2.0	Mature	Good	Good	10+	C	2	-	5.6	-	-
16	T	Norway Maple	8.0	280	3.0	2.0	2.0	Mature	Good	Good	10+	C	2	-	3.4	-	-
17	T	Lawson Cypress	12.0	800	3.0	0.0	3.0	Mature	Fair	Poor	10+	C	2	-	9.6	-	-
18	T	Oak	8.0	310	3.5	3.0	1.0	Semi-Mature	Good	Good	10+	C	2	-	3.7	-	-
19	T	Norway Maple	8.0	320	3.0	2.0	2.0	Mature	Good	Good	10+	C	2	-	3.8	-	-
20	T	Oak	20.0	1300	10.0	1.0	0.0	Mature	Good	Fair	40+	A	3	-	19.5	TPO/BN/1/20 - T27	Veteran



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21	T	Apple	6.0	410	4.0	1.0	1.0	Mature	Poor	Poor	10+	C	1	-	4.9	-	-
23	T	Oak	19.0	1200	12.0	0.0	4.0	Mature	Good	Fair	40+	A	3	-	18.0	TPO/BN/1/20 - T18	Veteran
24	T	Norway Maple	8.0	450	3.0	2.0	2.0	Mature	Good	Good	10+	C	2	-	5.4	-	-
25	T	Oak	20.0	1300	12.0	0.0	4.0	Mature	Good	Fair	40+	A	1	-	15.0	TPO/BN/1/20 - T16	-
26	T	Norway Maple	10.0	470	4.0	2.0	2.0	Mature	Good	Good	10+	C	2	-	5.6	-	-
27	T	Apple	5.0	750	4.0	1.0	1.0	Mature	Dying/Dead	Poor	10+	C	2	-	9.0	-	-
31	T	Lawson Cypress	12.0	800	3.0	0.0	3.0	Mature	Fair	Poor	10+	C	2	-	9.6	-	-
32	T	Hawthorn	6.0	270	2.5	1.5	0.0	Mature	Good	Poor	10+	C	2	-	3.2	-	-
33	T	Norway Maple	8.0	260	3.0	2.0	2.0	Mature	Good	Good	10+	C	2	-	3.1	-	-



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34	T	Norway Maple	8.0	320	3.0	2.0	2.0	Mature	Good	Good	10+	C	2	-	3.8	-	-
38	T	Ash	8.0	110	1.5	3.0	3.0	Young	Good	Good	10+	C	2	-	1.3	-	-
39	T	Oak	16.0	860	8.0	0.0	1.5	Mature	Good	Good	20+	B	2	-	10.3	TPO/BN/1/20 - T8	-
40	T	Oak	10.0	650	5.0	1.0	2.5	Mature	Good	Good	20+	B	2	-	7.8	-	-
41	T	Oak	9.0	320	3.5	2.0	2.5	Mature	Good	Good	10+	C	2	-	3.8	-	-
42	T	Oak	18.0	1900	10.0	1.0	1.0	Mature	Good	Fair	40+	A	3	-	28.5	TPO/BN/1/20 - T17	Veteran
44	T	Oak	7.0	360	4.0	0.0	1.5	Semi-Mature	Good	Good	10+	C	2	-	4.3	-	-
45	T	Evergreen Oak	18.0	1000	9.0	12.0	1.0	Mature	Good	Good	40+	A	2	No access; all data estimated;	12.0	-	-
46	T	Hawthorn	5.0	350	2.0	0.0	0.0	Mature	Good	Poor	10+	C	2	-	4.2	-	-
48	T	Apple	6.0	410	4.0	1.0	1.0	Mature	Poor	Poor	10+	C	1	-	4.9	-	-



TREE NO	TYPE	SPECIES	HEIGHT (m)	STEM DIAMETER (mm)	MAXIMUM CROWN SPREAD	LCH	LBH	AGE CLASS	PHYSIOLOGICAL CONDITION	STRUCTURAL CONDITION	ESTIMATED REMAINING CONTRIBUTION	CATEGORY	SUB-CATEGORY	NOTES	RPA RADIUS (m)	STATUTORY STATUS	ENVIRONMENTAL STATUS
50	T	Evergreen Oak	18.0	800	7.0	5.0	3.0	Mature	Fair	Fair	20+	B	2	Stem damage 10 m above ground.	9.6	-	-
51	T	Apple	6.0	410	4.0	1.0	1.0	Mature	Poor	Poor	10+	C	1	-	4.9	-	-
52	T	Apple	7.0	510	4.0	2.0	1.0	Mature	Poor	Poor	10+	C	3	-	6.1	-	-
54	T	Norway Maple	10.0	600	4.0	2.0	2.0	Mature	Good	Good	10+	C	2	-	7.2	-	-
55	T	Oak	17.0	800	5.0	1.0	3.0	Mature	Good	Fair	20+	B	2	-	9.6	-	-
57	T	Norway Maple	8.0	260	3.0	2.0	2.0	Mature	Good	Good	10+	C	2	-	3.1	-	-
58	T	Norway Maple	8.0	340	3.0	2.0	2.0	Mature	Good	Good	10+	C	2	-	4.1	-	-
59	T	Oak	7.0	200	2.0	3.0	2.5	Semi-Mature	Good	Good	10+	C	2	-	2.4	-	-
60	T	Scots Pine	8.0	290	2.0	5.0	4.0	Mature	Fair	Poor	10+	C	2	-	3.5	-	-



TREE NO	TYPE	SPECIES	HEIGHT (m)	STEM DIAMETER (mm)	MAXIMUM CROWN SPREAD	LCH	LBH	AGE CLASS	PHYSIOLOGICAL CONDITION	STRUCTURAL CONDITION	ESTIMATED REMAINING CONTRIBUTION	CATEGORY	SUB-CATEGORY	NOTES	RPA RADIUS (m)	STATUTORY STATUS	ENVIRONMENTAL STATUS
63	T	Lime	9.0	300	3.5	0.0	0.0	Semi-Mature	Good	Fair	10+	C	2	No safe access; all data estimated;	3.6	-	-
64	T	Hawthorn	6.0	260	3.5	0.0	0.0	Mature	Good	Good	10+	C	1	-	3.1	-	-
65	G	Field Maple	6.0	150	1.0	0.0	0.0	Young	Good	Good	10+	C	2	-	1.8	-	-
66	H	Leyland Cypress	6.0	120	1.0	0.0	0.0	Semi-Mature	Good	Good	10+	C	2	-	1.4	-	-
67	G	Lombardy Poplar; Leyland Cypress	15.0	350	4.5	0.0	0.0	Mature	Good	Fair	10+	C	2	-	4.2	-	-
68	G	Liquidambar	9.0	250	2.5	0.0	0.0	Mature	Good	Fair	10+	C	2	-	3.0	-	-
69	H	Poplar	6.0	120	1.0	0.0	0.0	Young	Good	Good	10+	C	2	Topped	1.4	-	-
71	G	Lombardy Poplar	17.0	850	4.0	4.0	2.0	Mature	Good	Fair	20+	B	2	-	10.2	-	-



TREE NO	TYPE	SPECIES	HEIGHT (m)	STEM DIAMETER (mm)	MAXIMUM CROWN SPREAD	LCH	LBH	AGE CLASS	PHYSIOLOGICAL CONDITION	STRUCTURAL CONDITION	ESTIMATED REMAINING CONTRIBUTION	CATEGORY	SUB-CATEGORY	NOTES	RPA RADIUS (m)	STATUTORY STATUS	ENVIRONMENTAL STATUS
73	G	Field Maple; Hawthorn; Oak	7.0	250	1.5	0.0	0.0	Semi-Mature	Good	Good	10+	C	2	-	3.0	-	-
74	G	Apple; Ash	7.0	250	1.5	0.0	0.0	Semi-Mature	Good	Good	10+	C	2	-	3.0	-	-
75	H	Leyland Cypress	6.0	120	1.0	0.0	0.0	Semi-Mature	Good	Good	10+	C	2	-	1.4	-	-
76	G	Apple; Poplar	10.0	300	3.5	0.0	0.0	Mature	Good	Good	10+	C	2	-	3.6	-	-
77	G	Apple	4.0	150	1.5	1.0	0.0	Mature	Poor	Poor	10+	C	2	-	1.8	-	-
78	H	Sycamore	2.0	75	0.5	0.0	0.0	Semi-Mature	Good	Good	10+	C	2	-	0.9	-	-
81	G	Gleditsia	11.0	400	4.0	0.0	0.0	Mature	Good	Good	10+	C	2	No access; all data estimated	4.8	-	-
82	G	Field Maple; Beech; Hawthorn	8.0	200	3.0	0.0	0.0	Semi-Mature	Good	Good	10+	C	2	-	2.4	-	-



TREE NO	TYPE	SPECIES	HEIGHT (m)	STEM DIAMETER (mm)	MAXIMUM CROWN SPREAD	LCH	LBH	AGE CLASS	PHYSIOLOGICAL CONDITION	STRUCTURAL CONDITION	ESTIMATED REMAINING CONTRIBUTION	CATEGORY	SUB-CATEGORY	NOTES	RPA RADIUS (m)	STATUTORY STATUS	ENVIRONMENTAL STATUS
83	H	Blackthorn; Hawthorn; Elder	3.0	150	1.5	0.0	0.0	Mature	Good	Good	10+	C	2	-	0.2	-	-
84	H	Blackthorn; Hawthorn; Elder	3.0	150	1.5	0.0	0.0	Mature	Good	Good	10+	C	2	-	1.8	-	-
85	G	Hornbeam	12.0	350	6.0	1.0	0.0	Mature	Good	Good	20+	B	2	-	4.2	TPO/BN/1/20 - G37	-
86	G	Leyland Cypress	14.0	300	2.0	0.0	0.0	Mature	Good	Good	10+	C	2	-	3.6	-	-
88	G	Leyland Cypress	16.0	400	5.0	0.0	0.0	Mature	Good	Fair	10+	C	2	No access; all data estimated	4.8	-	-
91	G	Birch; Norway Maple	4.0	200	3.0	0.0	0.0	Semi- Mature	Good	Good	10+	C	2	-	2.4	-	-



TREE NO	TYPE	SPECIES	HEIGHT (m)	STEM DIAMETER (mm)	MAXIMUM CROWN SPREAD	LCH	LBH	AGE CLASS	PHYSIOLOGICAL CONDITION	STRUCTURAL CONDITION	ESTIMATED REMAINING CONTRIBUTION	CATEGORY	SUB-CATEGORY	NOTES	RPA RADIUS (m)	STATUTORY STATUS	ENVIRONMENTAL STATUS
92	G	Elder; Cherry; Apple; Oak; Hawthorn	8.0	350	3.0	0.0	0.0	Mature	Fair	Fair	10+	C	2	-	4.2	-	-
93	G	Field Maple; Holly; Hawthorn	8.0	230	2.5	0.0	0.0	Semi-Mature	Good	Good	10+	C	2	-	2.8	-	-
95	G	Native Mix	7.0	200	1.5	0.0	0.0	Young	Good	Good	10+	C	2	-	2.4	-	-
96	G	Field Maple, Goat Willow, Willow, Ash, Birch, Hazel	10.0	250	4.0	0.0	0.0	Semi-Mature	Good	Fair	10+	C	2	-	3.0	-	-
97	G	Elder; Cherry; Apple; Oak; Hawthorn	8.0	350	3.0	0.0	0.0	Mature	Fair	Fair	10+	C	2	-	4.2	-	-
97	G	Elder; Cherry; Apple; Oak; Hawthorn	8.0	350	3.0	0.0	0.0	Mature	Fair	Fair	10+	C	2	-	4.2	-	-



TREE NO	TYPE	SPECIES	HEIGHT (m)	STEM DIAMETER (mm)	MAXIMUM CROWN SPREAD	LCH	LBH	AGE CLASS	PHYSIOLOGICAL CONDITION	STRUCTURAL CONDITION	ESTIMATED REMAINING CONTRIBUTION	CATEGORY	SUB-CATEGORY	NOTES	RPA RADIUS (m)	STATUTORY STATUS	ENVIRONMENTAL STATUS
98	G	Apple	8.0	350	3.5	0.0	0.0	Mature	Fair	Fair	10+	C	3	-	4.2	-	-
99	G	Apple; Hawthorn; Sycamore; Elder	7.0	300	5.0	0.0	0.0	Mature	Good	Fair	10+	C	3	-	3.6	-	-
100	G	Ash, Field Maple, Oak	5.0	250	3.0	0.0	0.0	Young	Good	Good	10+	C	2	No access; all data estimated	3.0	-	-
104	G	Leyland Cypress	12.0	300	3.0	1.0	0.0	Semi- Mature	Fair	Poor	10+	C	2	-	3.6	-	-
107	G	Apple; Hawthorn; Sycamore; Elder; Ash	8.0	450	5.0	0.0	0.0	Mature	Good	Fair	10+	C	3	-	5.4	-	-

Appendix F

SUPPORTING DOCUMENTATION

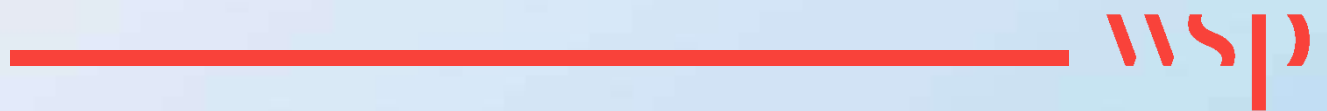


Figure F-1 - TPO/BN/1/20 - Map 1

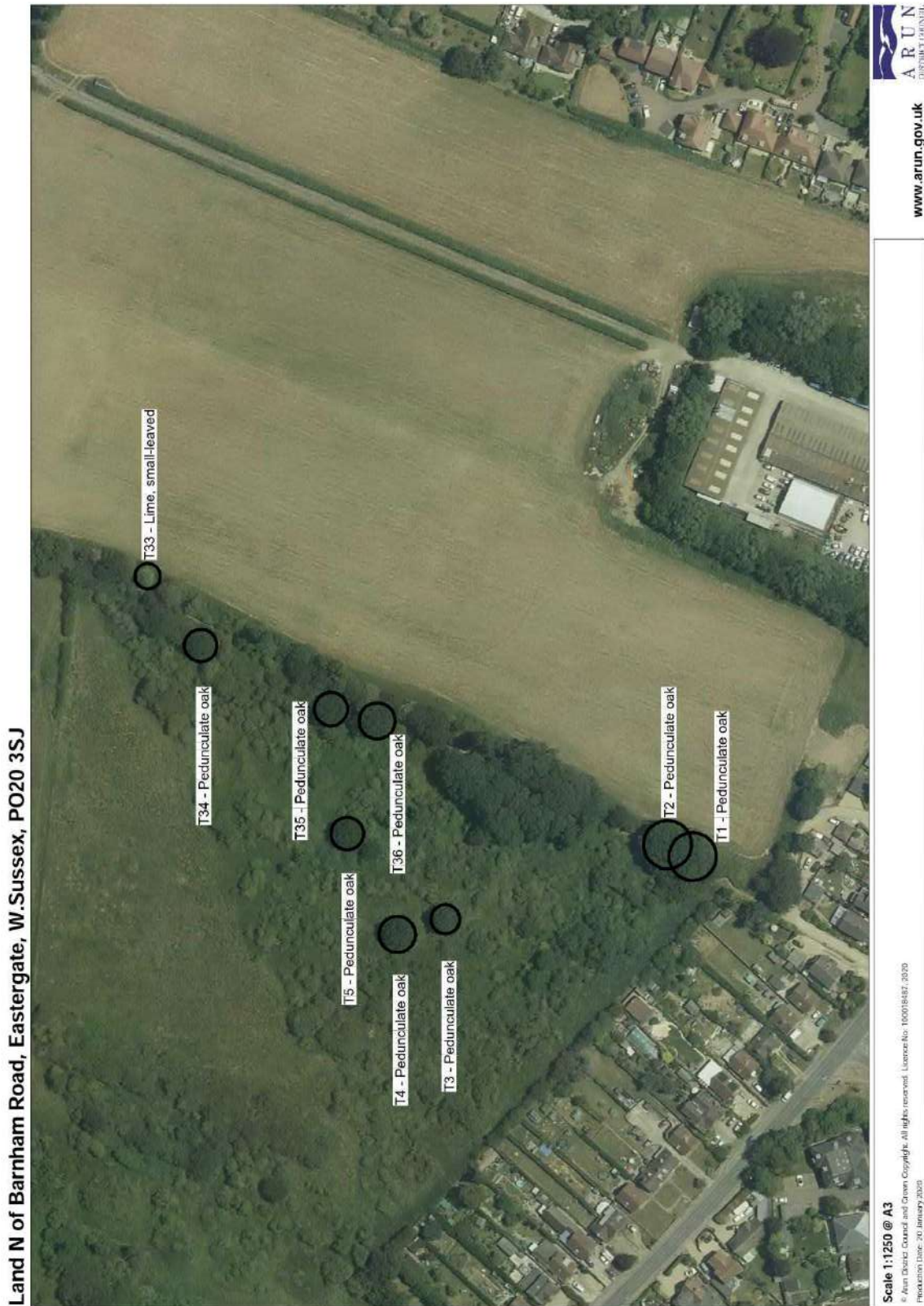
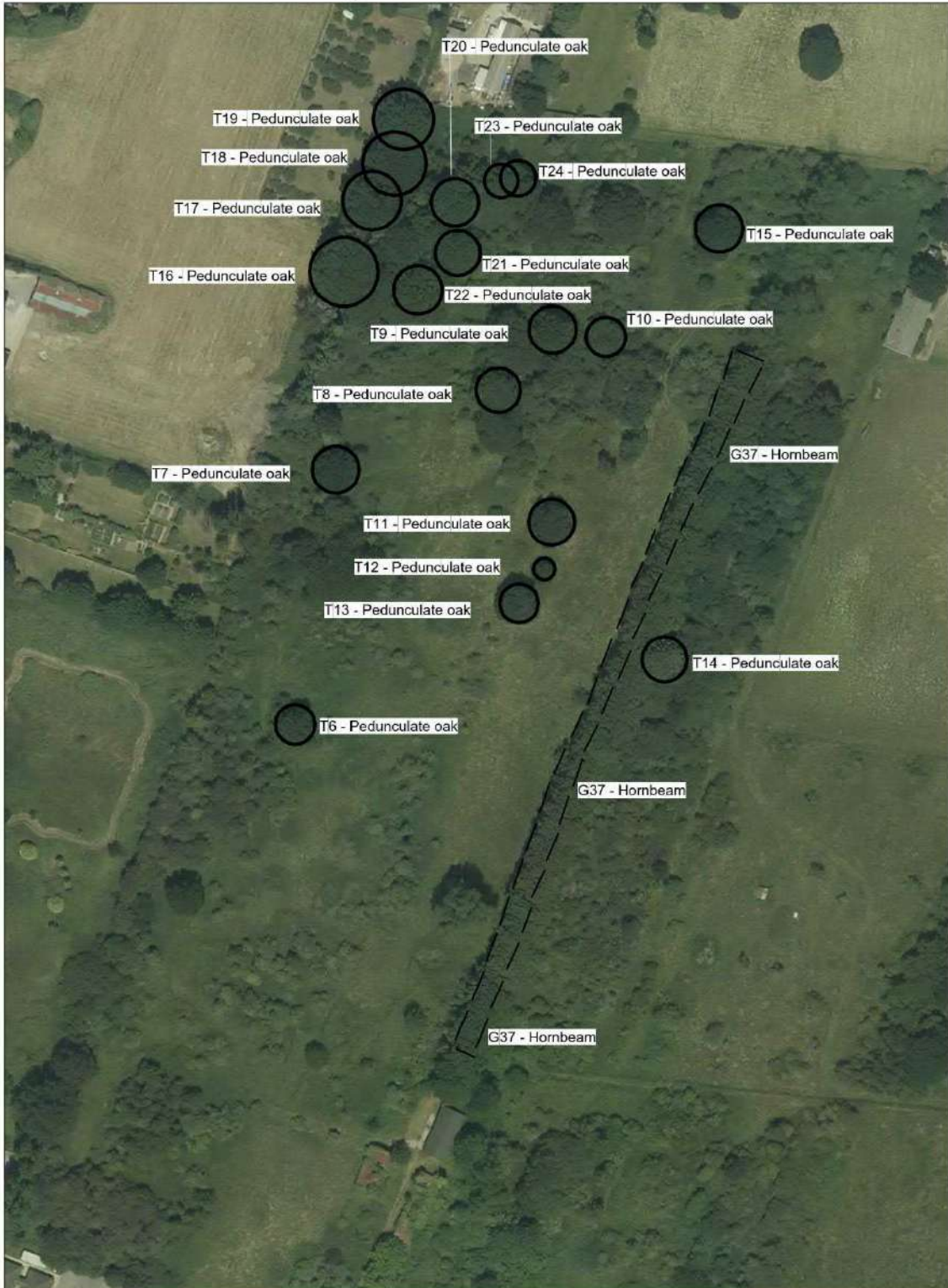


Figure F-2 - TPO/BN/1/20 - Map 2

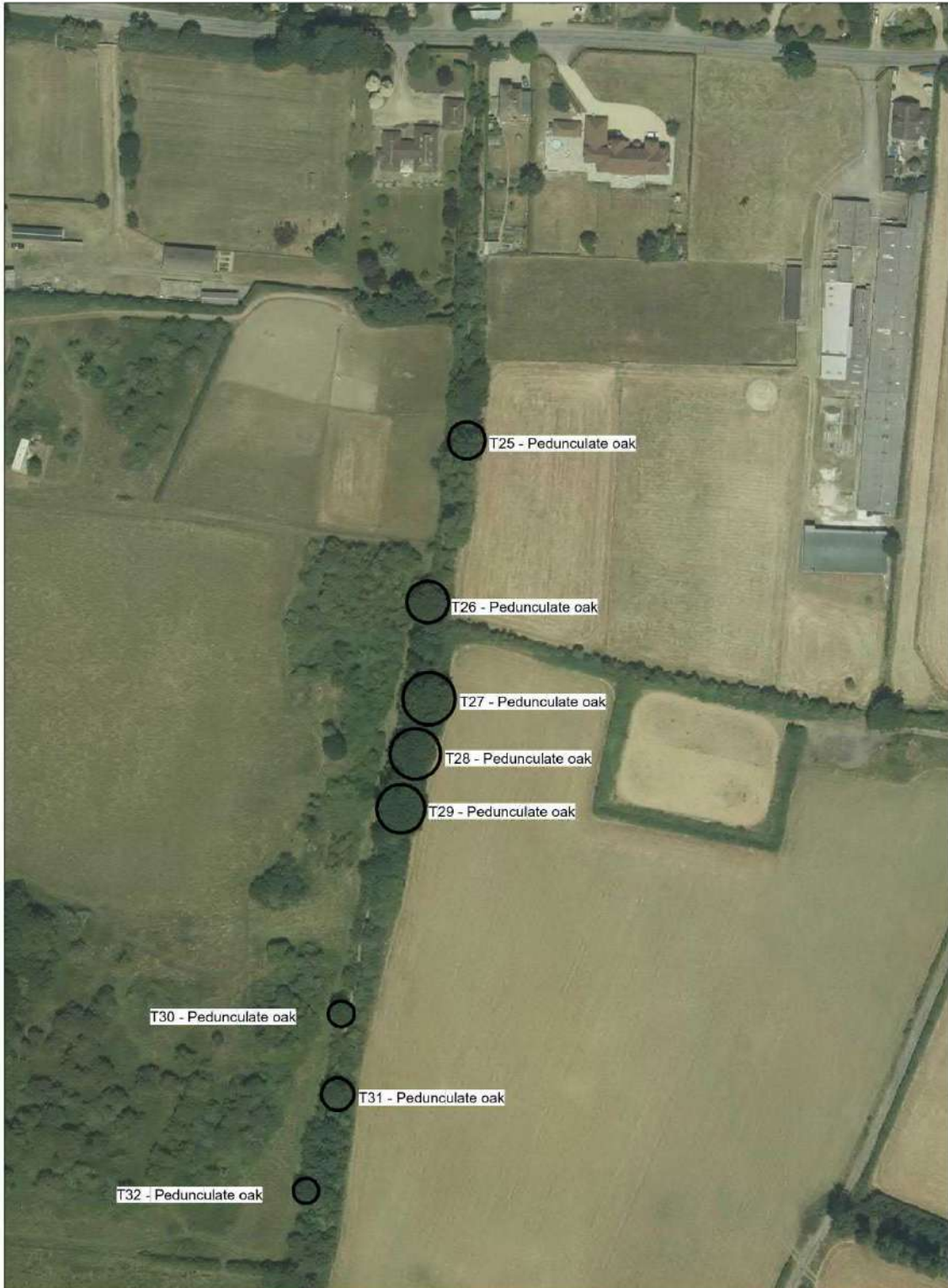
Land N of Barnham Road, Eastergate, W.Sussex, PO20 3SJ



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Figure F-3 - TPO/BN/1/20 - Map 3

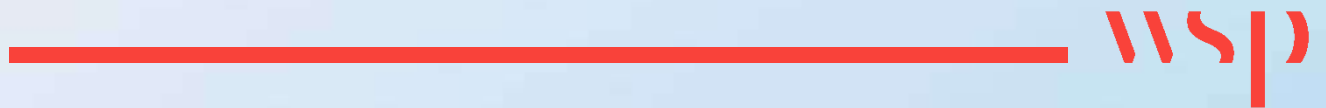
Land N of Barnham Road, Eastergate, W.Sussex, PO20 3SJ



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Appendix G

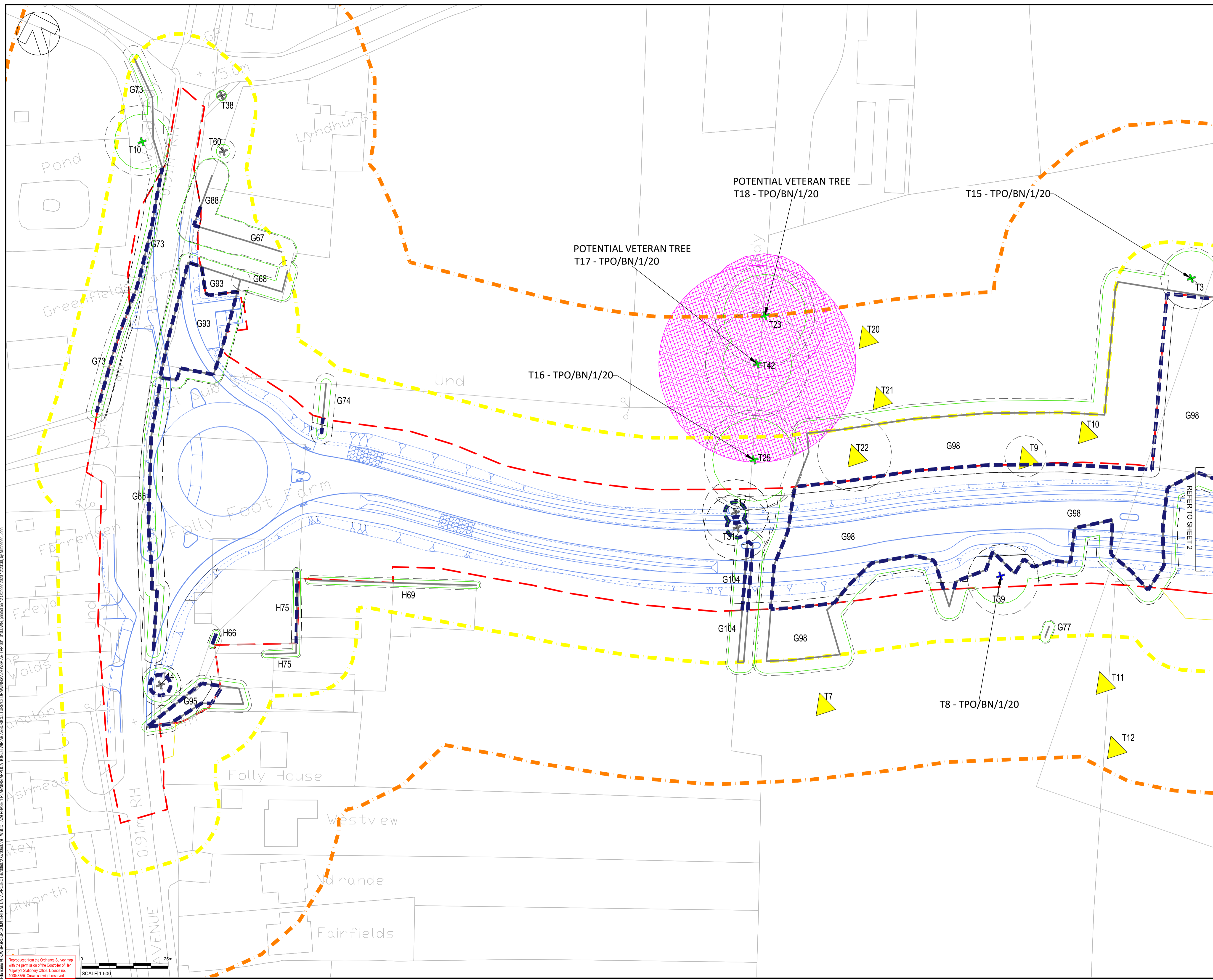
TREE PROTECTION PLANS



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- NOTES:
1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
 2. DO NOT SCALE, IF IN DOUBT CONTACT WSP PROJECT MANAGER.
 3. THE WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE DFT MCHW, DMRB AND THE LOCAL REQUIREMENTS OF WEST SUSSEX COUNTY COUNCIL DESIGN GUIDE & SPECIFICATIONS.

- KEY:
- T TREE
 - G TREE GROUP
 - H HEDGE
 - BS 5837 CATEGORY GRADING / QUALITY
 - + A CATEGORY / HIGH
 - + B CATEGORY / MODERATE
 - + C CATEGORY / LOW
 - ROOT PROTECTION AREA
 - SEMI-NATURAL BUFFER - POTENTIAL VETERAN TREES
 - TREE CANOPY
 - ARBORICULTURAL FEATURE TO BE REMOVED
 - △ TPO TREE (UN-SURVEYED)
 - △ TPO TREE GROUP (UN-SURVEYED)
 - △ TREE GROUP - UN-SURVEYED
 - PLANNING APPLICATION BOUNDARY
 - ARBORICULTURAL STUDY AREA (WALKOVER SURVEY)
 - ARBORICULTURAL STUDY AREA (DESK STUDY)



REV	DATE	BY	DESCRIPTION	CHK	APP
B	08/10/2020	JM	UPDATED RLB	CIT	ND
A	21/08/2020	JM	FIRST ISSUE	CIT	ND

DRAWING STATUS: S3 - FOR REVIEW



1 Capital Quarter, Tyndall St, Cardiff, CF10 4BZ, UK
T+ 44 (0) 292 076 9200
wsp.com

CLIENT: WEST SUSSEX COUNTY COUNCIL

ARCHITECT:

SITE PROJECT: A29 REALIGNMENT PHASE 1

TITLE: TREE PROTECTION PLAN (TREE REMOVALS) (SHEET 1 OF 10)

SCALE @ A1:	CHECKED:	APPROVED:
1:500	CIT	ND

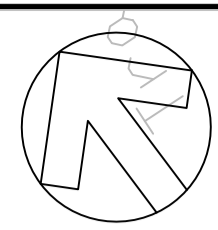
PROJECT NO:	DESIGNED:	DRAWN:	DATE:
70060779	JM	JM	October 20

DRAWING No: A29-WSP-AR-TPP-001 REV: B

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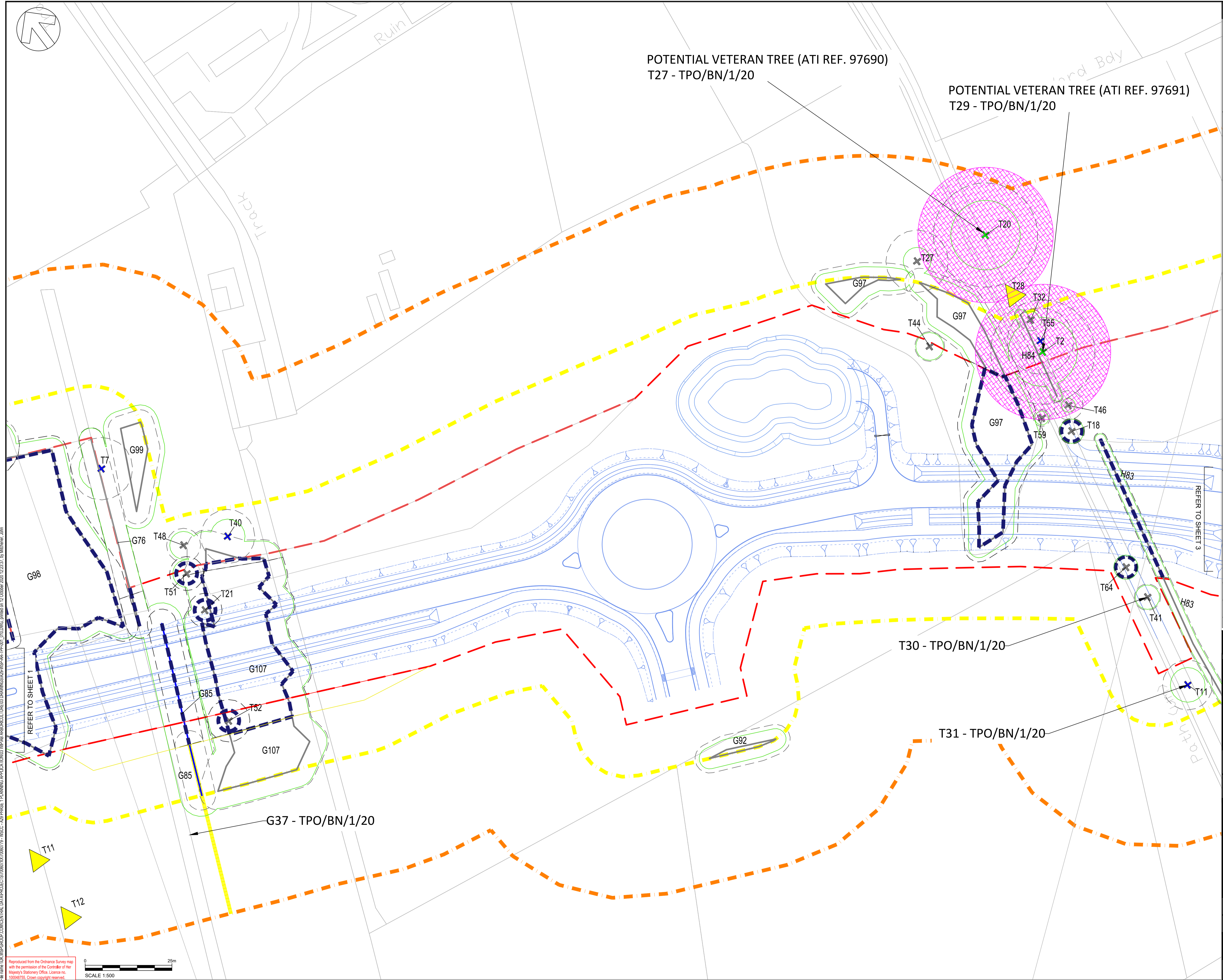
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 - TPO TREE GROUP (UN-SURVEYED)
 - TREE GROUP - UN-SURVEYED
 - PLANNING APPLICATION BOUNDARY
 - ARBOICULTURAL STUDY AREA (WALKOVER SURVEY)
 - ARBOICULTURAL STUDY AREA (DESK STUDY)

POTENTIAL VETERAN TREE (ATI REF. 97690)
T27 - TPO/BN/1/20

POTENTIAL VETERAN TREE (ATI REF. 97691)
T29 - TPO/BN/1/20



B	08/10/2020	JM	UPDATED RLB		CIT	ND
A	21/08/2020	JM	FIRST ISSUE		CIT	ND
REV	DATE	BY	DESCRIPTION		CHK	APP

DRAWING STATUS: **S3 - FOR REVIEW**

1 Capital Quarter, Tyndall St, Cardiff, CF10 4BZ, UK
T+ 44 (0) 292 076 9200
wsp.com

CLIENT: WEST SUSSEX COUNTY COUNCIL

ARCHITECT: -

SITE PROJECT: A29 REALIGNMENT PHASE 1

TITLE: TREE PROTECTION PLAN (TREE REMOVALS) (SHEET 2 OF 10)

SCALE @ A1:	1:500	CHECKED:	CIT	APPROVED:	ND
PROJECT NO:	70060779	DESIGNED:	JM	DRAWN:	JM
				DATE:	October 20

DRAWING No: A29-WSP-AR-TPP-002 REV: B

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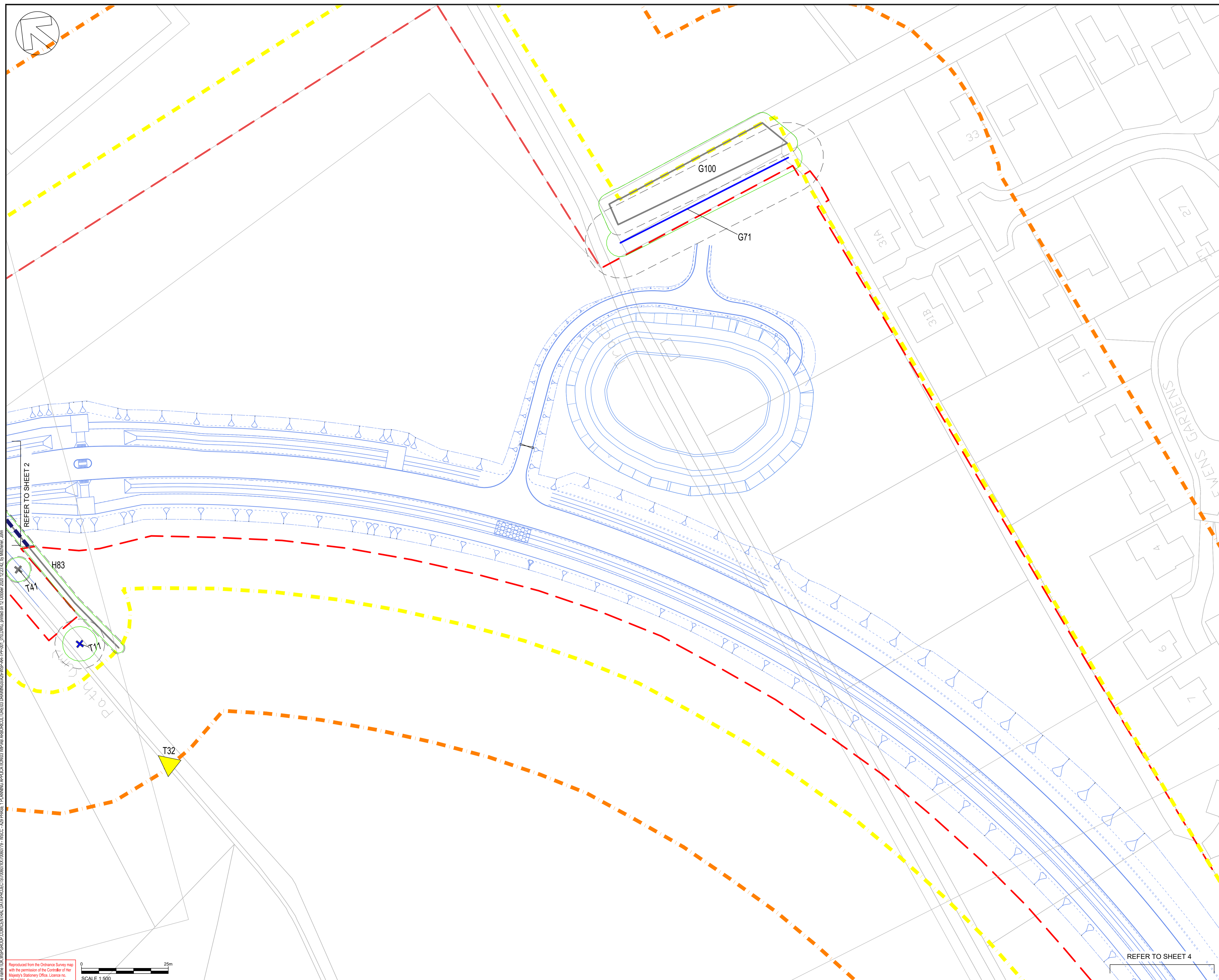
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(SHEET 3 OF 10)

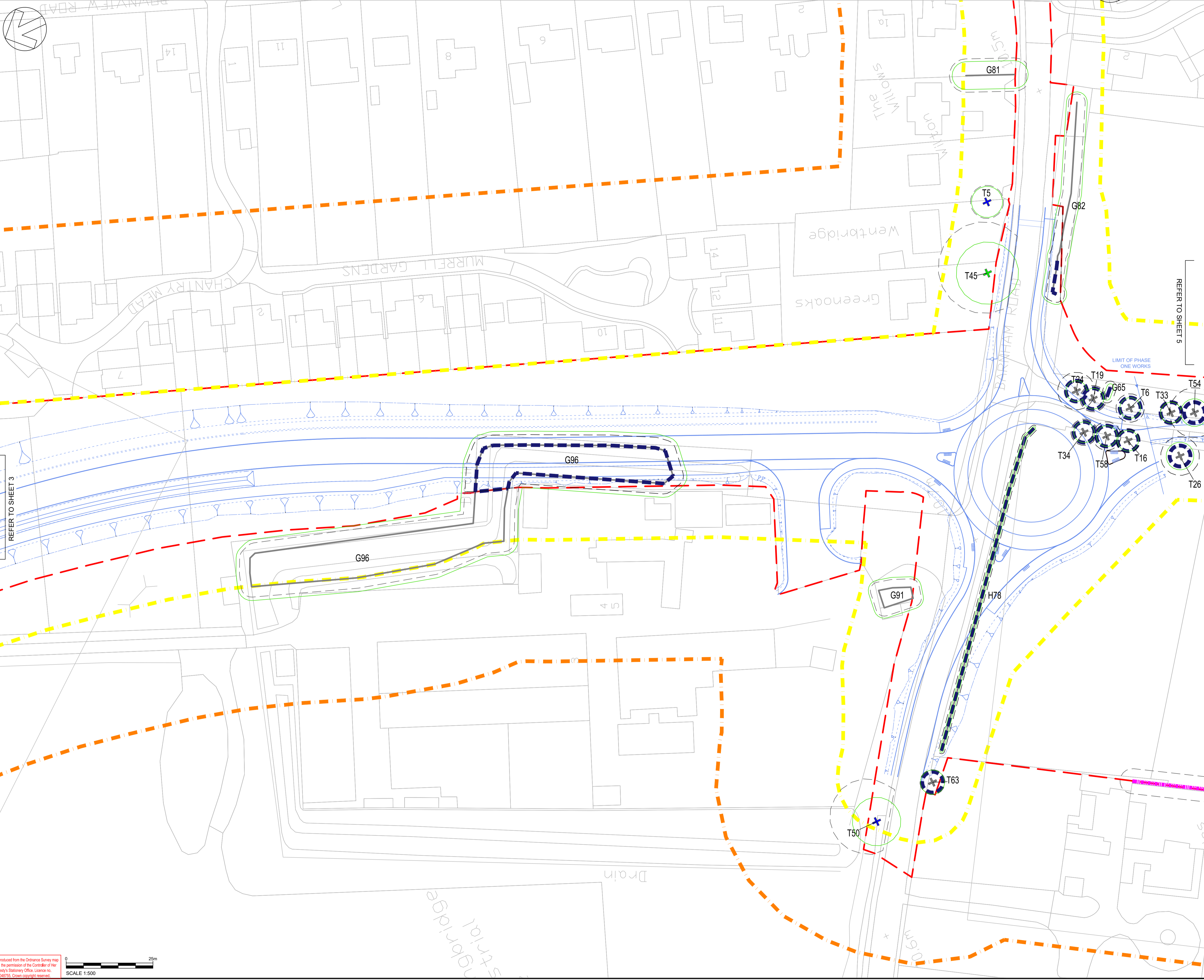
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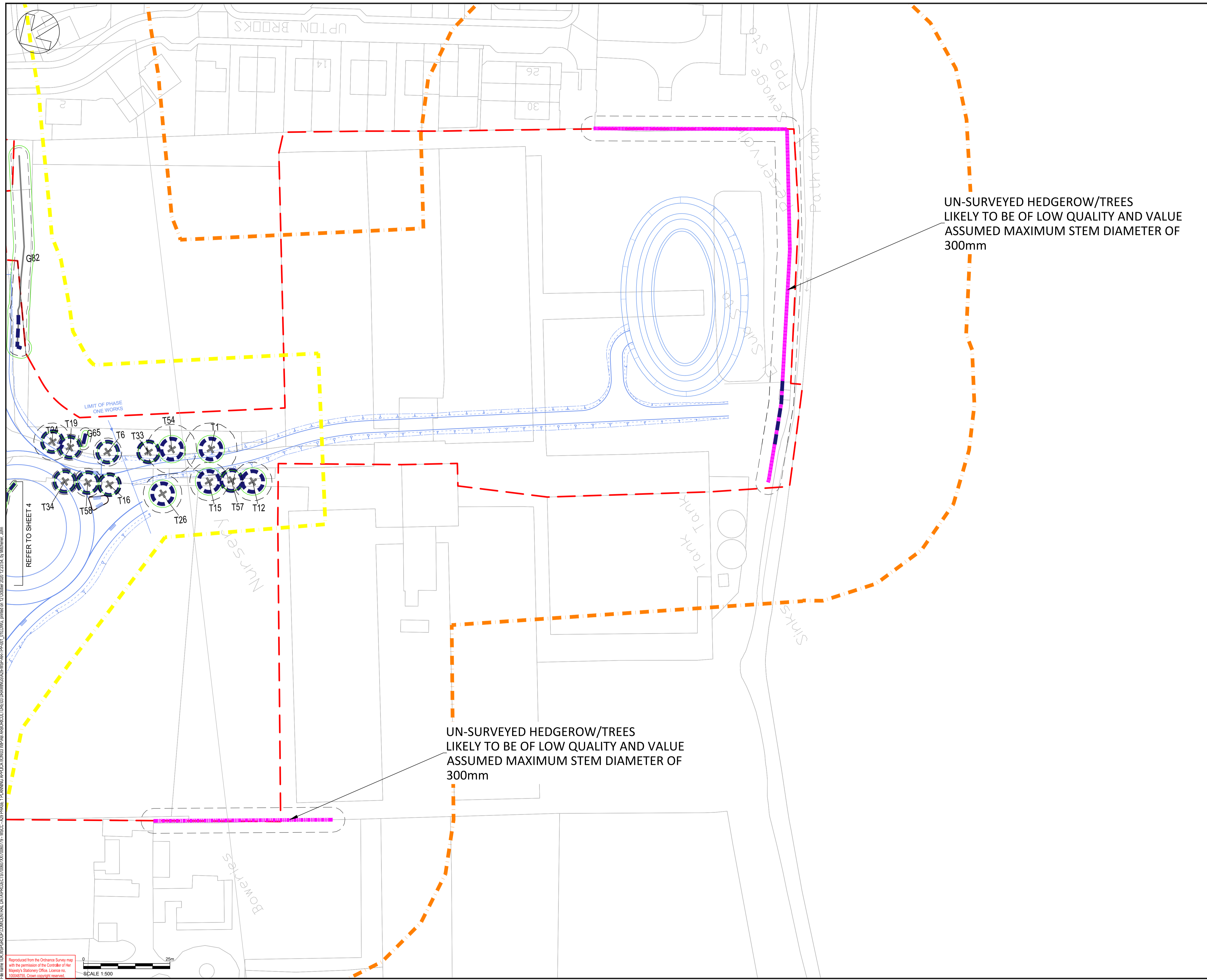
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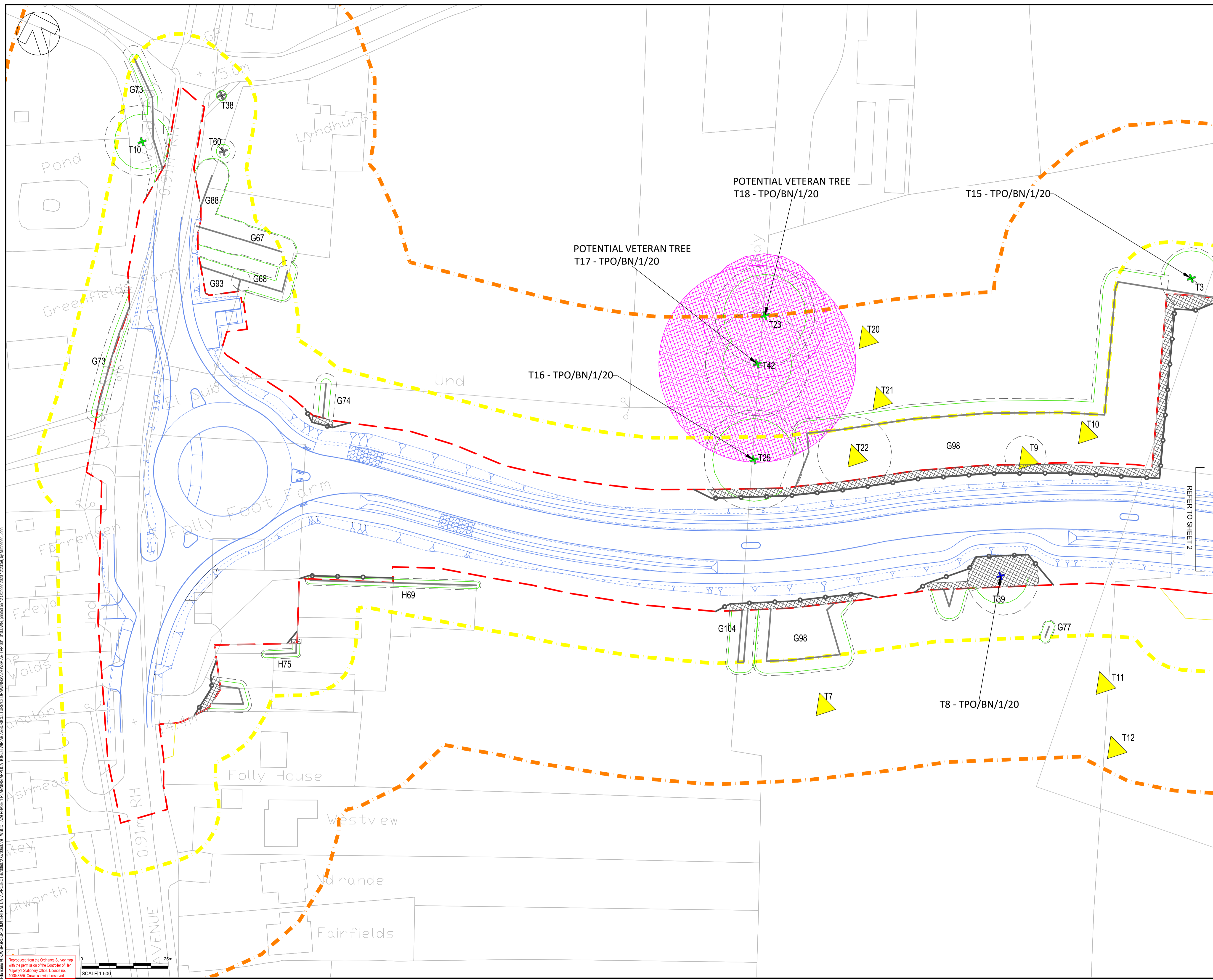
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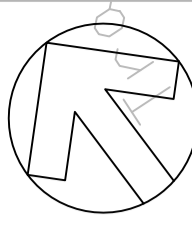
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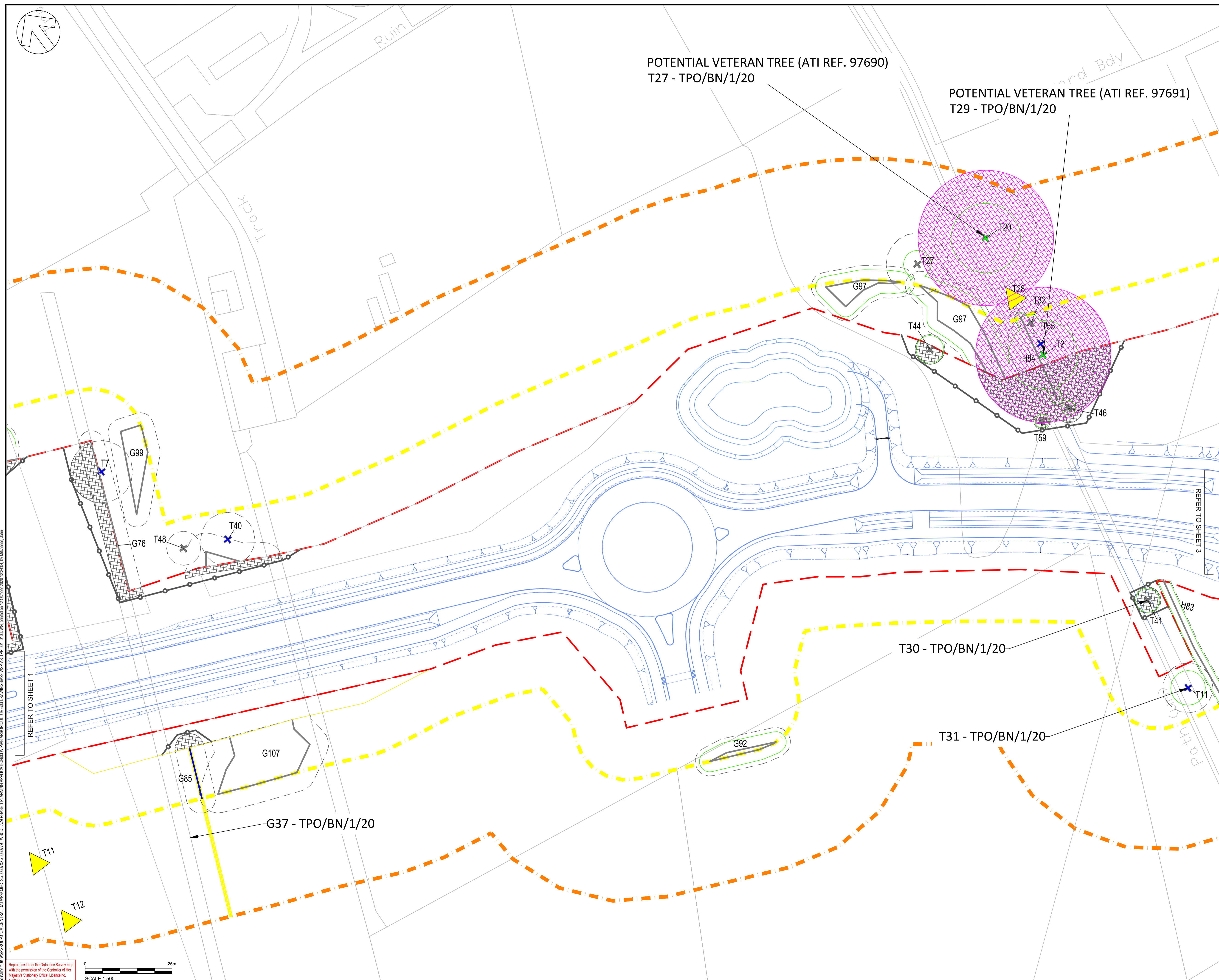
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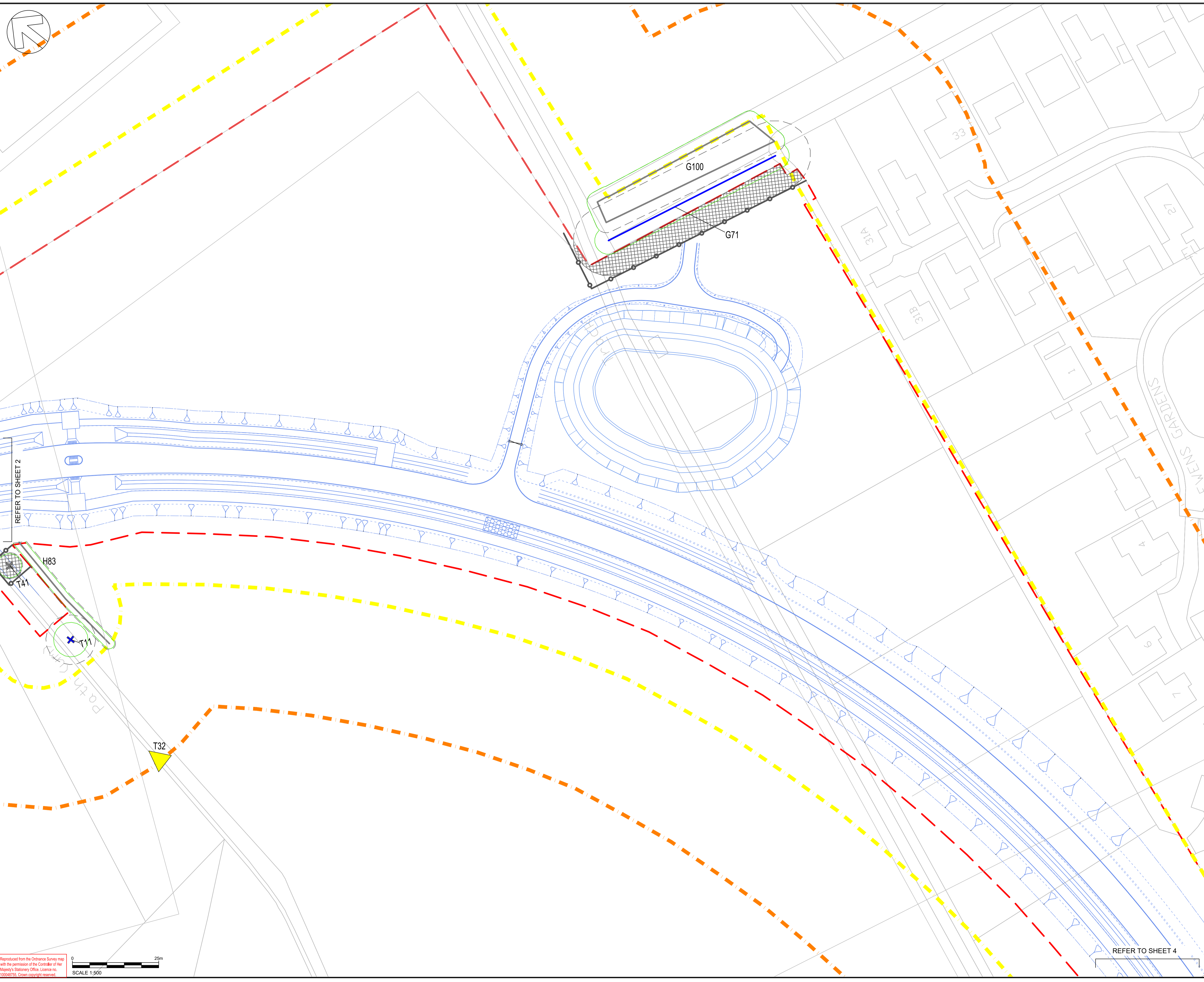
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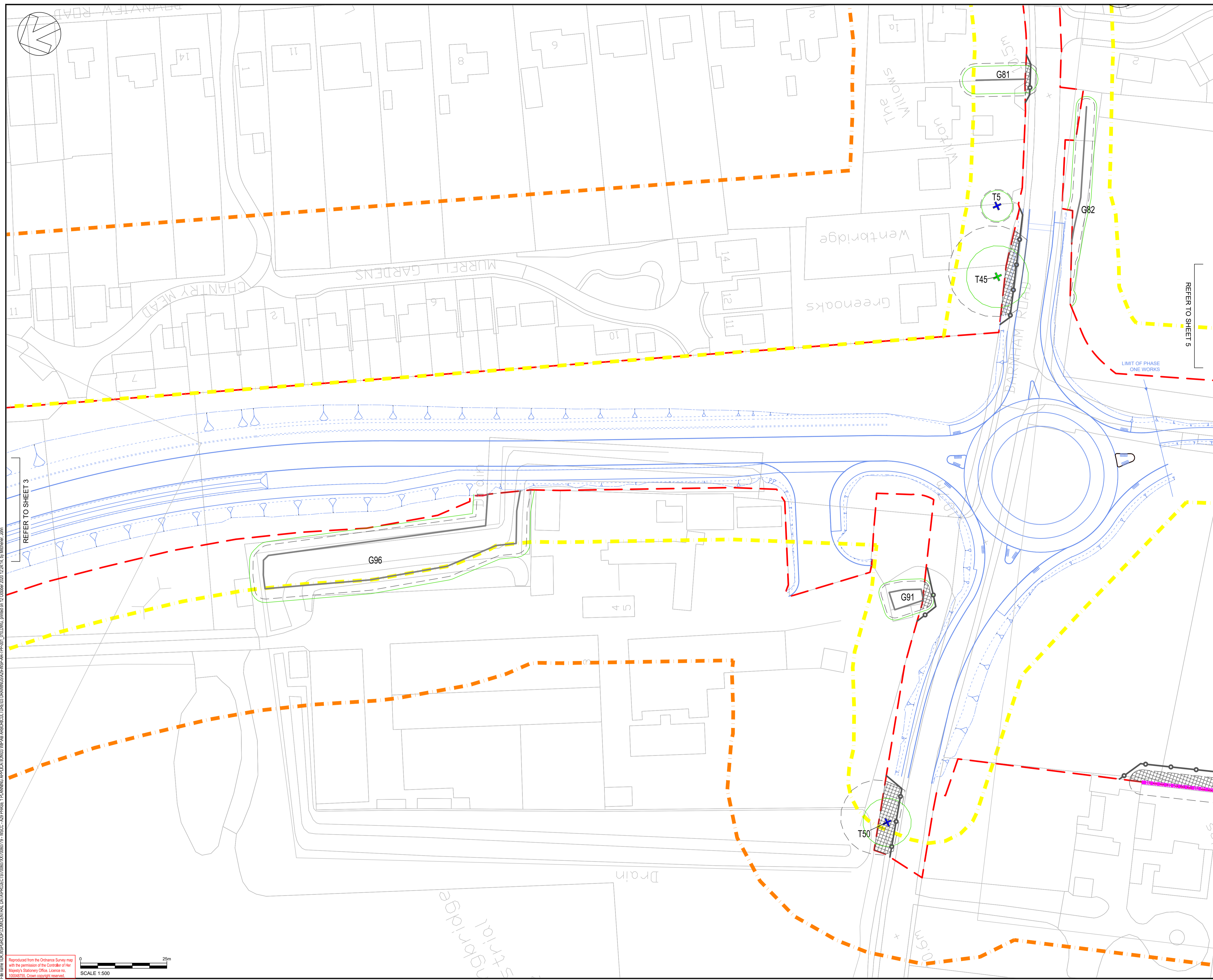
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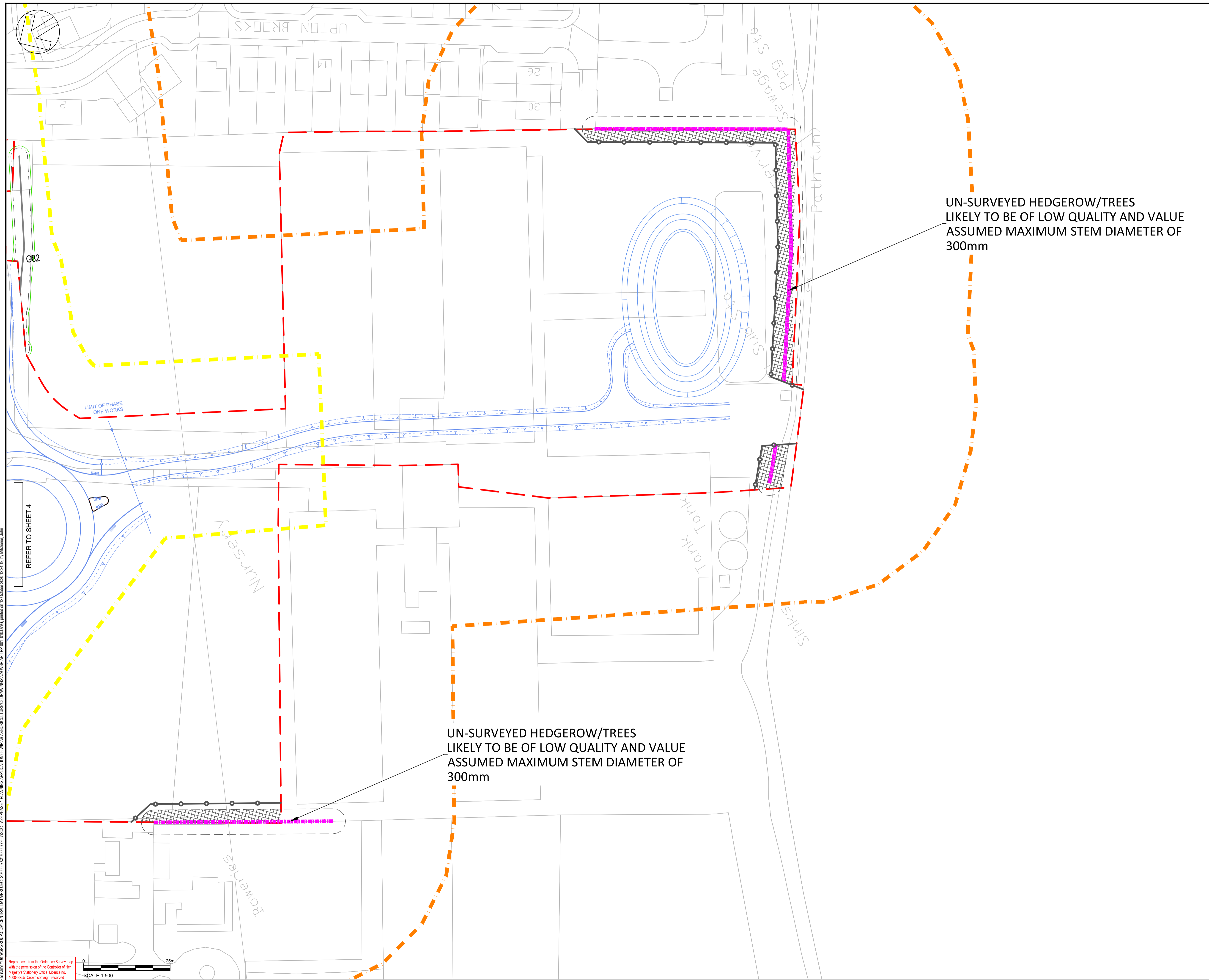
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Appendix C

Ecological Management Plan



West Sussex County Council

A29 REALIGNMENT

Outline Ecological Management Plan





West Sussex County Council

A29 REALIGNMENT

Outline Ecological Management Plan

TYPE OF DOCUMENT (VERSION) PUBLIC

PROJECT NO. 70060779

OUR REF. NO. OUTLINE EMP

DATE: SEPTEMBER 2020

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APPENDICES

APPENDIX A

RELEVANT LEGISLATION

1 INTRODUCTION

1.1 PROJECT BACKGROUND

- 1.1.1. West Sussex County Council (referred to as 'the Applicant') is seeking to obtain detailed planning permission for Phase 1 of the realignment of the A29 (referred to as the 'Scheme'), to the north of Eastergate and the north-west of Barnham, villages north of Bognor Regis (as shown in Figure 1).
- 1.1.2. The proposed planning application will seek permission for:
- The construction of a 1.3km single carriageway with a 3m wide shared cycleway / footway, 2.5m wide central island, four uncontrolled crossings, three roundabouts, landscaping, noise barriers and other associated works.*
- 1.1.3. The planning application boundary for the Scheme, the area which it encompasses, will hereafter be referred to as 'the Application Site'.
- 1.1.4. The Application Site is currently greenfield agricultural land which is used as an orchard. A wooded Public Right of Way (PRoW) runs in a north-to-south direction and connects between Eastergate Lane and the B2233 Barnham Road. To the west of the Application Site is the current route for the A29. To the north of the Application Site is Eastergate Lane. There is a self-storage facility on the northern side of Eastergate Lane, opposite and residential dwellings on the south side of Eastergate Lane. The B2233 Barnham Road runs along the southern side of the Application Site. On the eastern side of the Application Site is a residential complex.

1.2 AIMS AND OBJECTIVES

- 1.2.1. WSP was commissioned by the Applicant to support the planning application with the implementation of an outline Ecological Management Plan (EMP) for inclusion within the Construction Environmental Management Plan (CEMP) (WSP 2020a). This document intends to:
- Provide an overview of the baseline ecological information for the Scheme and a surrounding area.
 - Provide a mitigation plan to be implemented during construction and operation, based on the recommendations of baseline ecological assessments and the Chapter 9 Ecology and Nature Conservation of the associated Environmental Statement (ES) (WSP 2020b).
- 1.2.2. The ecological mitigation strategy will enable compliance with relevant nature conservation legislation and planning policy and to avoid the killing/injury of notable and protected species.

1.3 LEGISLATION AND POLICY OVERVIEW

- 1.3.1. The outline EMP has been compiled with reference to the following relevant nature conservation legislation and planning policy, and the UK Biodiversity Framework from which the protection of sites, habitats and species is derived in England. The relevant legislation discussed within this report includes (detailed further within Appendix A):

National Legislation and Policy

- The Conservation of Habitats and Species Regulations 2017 (as amended) (Habitats Regulations);
- The Wildlife and Countryside Act 1981 (as amended) (WCA);

- Countryside Rights of Way Act 2000;
- The Natural Environment and Rural Communities (NERC) Act 2006 (England);
- The Protection of Badgers Act 1992;
- The Hedgerow Regulations 1997;
- The Wild Mammals (Protection) Act 1996;
- UK Government's 25 Year Environment Plan (DEFRA, 2018);
- The UK Post-2010 Biodiversity Framework (2011-2020) (JNCC and DEFRA, 2012);
- Biodiversity 2020: A strategy for England's wildlife and ecosystem services (DEFRA, 2011);
- UK Biodiversity Action Plan (UKBAP)¹; and
- The National Planning Policy Framework (NPPF) 2019 (Ministry of Housing Communities & Local Government, February 2019).

Local Policy

- West Sussex Transport Plan 2011 – 2026 (WSCC, 2011);
- West Sussex Structure Plan 2001-2016 (WSCC, 2005); and
- Adoption Arun Local Plan 2011-2031 (Arun District Council, 2018).

¹ The UK BAP has now been replaced by the UK Post-2010 Biodiversity Framework, however, it contains useful information on how to characterise important species assemblages and habitats which is still relevant.

2 ECOLOGICAL BACKGROUND

2.1 OVERVIEW

- 2.1.1. Habitats within the Application Site are considered to be of low to high ecological value including hedgerows, grasslands, woodland and scrub. Habitats of Principal Importance (HPI) were identified within the Application Site including traditional orchard and hedgerow.
- 2.1.2. Habitats within the Application Site and surrounding area are considered suitable to support a number of notable and protected species. After completion of specific ecological surveys, the following species/species groups are considered likely to be present to varying degrees within the Application Site; bats (foraging, commuting and roosting), badger *Meles meles*, other small mammals, wintering birds, breeding birds, common reptile species and invertebrates.

2.2 ECOLOGICAL RECEPTORS

- 2.2.1. The Scheme will result in a loss of habitat and disturbance to retained habitats within the “Survey Area” (defined within the A29 Preliminary Ecological Appraisal (PEA), WSP 2020c). In the absence of mitigation, habitat loss and disturbance could have negative effects on notable and protected habitats and species.
- 2.2.2. Table 2-1 provides details of the ecological receptors located within the Scheme and surrounding habitats. Information included within Table 2-1 is derived from the A29 Realignment PEA (WSP 2020c), bat report (WSP 2019a), badger report (WSP 2019b), hazel dormouse report (WSP 2019c), breeding bird report (WSP 2019d) wintering bird report (WSP 2019e), reptile report (WSP 2019f), great crested newt report (WSP 2019g) and invertebrate report (WSP 2019h), as well as the Habitat Regulations Screening Assessment (2019i).

Table 2-1 – Ecological Baseline

Ecological Receptor		Detail	Relevant Legislation and Policy
Designated Sites	Statutory Designated Sites	<p>No statutory designated sites were recorded within the Application Site.</p> <p>The Application Site was however found to be within 10km of five statutory sites of international importance (Habitats Sites), including Pagham Harbour Ramsar, Pagham Harbour Special Protection Area (SPA), Ducton to Bignor Escarpment Special Area of Conservation (SAC), Chichester to Langstone Harbours Ramsar and Solent and Dorset Coast Special Protection Area (SPA). Two additional SACs designated for bats were located within 30km, The Mens and Ebernoe Common.</p> <p>A Habitats Regulations Screening Assessment (HRSA) was undertaken for the Scheme. The HRSA concluded that the Scheme alone is not considered to have likely significant effects any of the five designated sites.</p> <p>No UK statutory designated sites are within 2km of the Scheme.</p>	<p>The Conservation of Habitats and Species Regulations 2017 (as amended) (“Habitats Regulations”) provide strict protection to sites of European and/or international importance. This includes requiring projects or plans to be screened for likely significant effects upon Special Protected Area (SPA), Special Area of Conservation (SAC) and candidate SACs (cSACs). Guidance also requires potential SPAs (pSPAs) and Ramsars are subject to the same assessment.</p>
	Non-Statutory Designated Sites	<p>No non-statutory designated sites were recorded within the Scheme.</p> <p>Non-statutory designated sites have been scoped out of the ES.</p>	
Habitats	Habitats (including HPI)	<p>The following HPI are present within 2km of the Application Site:</p> <ul style="list-style-type: none"> ■ Coastal and floodplain grazing marsh – two parcels 	<p>Semi-natural broadleaved woodland (deciduous woodland) and hedgerow are identified as HPI in accordance with Section 41 of the NERC Act 2006. Under Section 40 of this legislation, every public body (including</p>

Ecological Receptor	Detail	Relevant Legislation and Policy
	<ul style="list-style-type: none"> ■ Lowland meadows – two parcels ■ Lowland fens – one parcel ■ Deciduous woodland – 79 parcels ■ Traditional orchard – 12 parcels, some of which fall within the Scheme itself². <p>Within the Application Site itself, there are a number of habitats that qualify as HPI, including:</p> <ul style="list-style-type: none"> ■ Three species poor hedgerows, which from an ecological perspective are considered unlikely to meet the criteria for important hedgerows. ■ One parcel of plantation broadleaved woodland that is likely to qualify as Traditional orchard HPI. <p>Given the widespread nature of hedgerow HPI within the local area, it is considered to be of value at up to Local conservation value. Within the local area, traditional orchard occurs less frequency, with areas previously identified as traditional orchard HPI becoming scrubbed over that they no longer meet the criteria for HPI. As such, traditional orchard is considered to be of up to District conservation value.</p>	<p>planning authorities) must, <i>'in exercising its functions, have regard so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity'</i>.</p> <p>At a local level, Policy CP7 Green Infrastructure Network of the core strategy states <i>'the integrity of the existing network of green infrastructure will be protected and enhanced through the lifetime of the Core Strategy. Planning permission for development that would harm the network will only be granted if it can incorporate measures that avoid the harm arising or sufficiently mitigate its effects.'</i></p>

² although the desk study shows several parcels of traditional orchard HPI falling within the Scheme, the Phase 1 habitat survey confirmed only one parcel present within the Scheme itself.

Ecological Receptor		Detail	Relevant Legislation and Policy
Protected and Notable Species	Bats (Foraging and Commuting)	<p>Habitats within the Application Site include orchard, semi-improved neutral grassland, scrub and hedgerows. Bat activity surveys focussed on linear features within the Application Site, such as hedgerows, with four static detectors deployed monthly between April and October.</p> <p>At least eight species of bat were recorded, however common and soprano pipistrelle <i>Pipistrellus pipistrellus</i> and <i>Pipistrellus pygmaeus</i> which are widespread and common bat species (BCT 2017a and 2017b) accounted for over 75% of all bat activity recorded. Ecobat analysis revealed these were the only two species that recorded high activity levels.</p> <p>The remaining recordings were made by a range of species, including greater horseshoe bat <i>Rhinolophus ferrumequinum</i>, barbastelle bat <i>Barbastella barbastellus</i> and Leisler's bat <i>Nyctalus leisleri</i>. Other species recorded included noctule <i>Nyctalus noctule</i>, serotine <i>Eptesicus serotinus</i> and Nathusius' pipistrelle <i>Pipistrellus nathusii</i>. Other genus were also recorded that could not be identified to species level including <i>Plecotus</i> sp. and <i>Myotis</i> sp.</p> <p>Location 3 alongside a row of hornbeam trees recorded the highest activity levels, with Location 2, alongside the footpath that bisects the Application Site is considered to be important for barbastelle bats.</p> <p>Overall, the Application Site is regarded to be conservation importance at up to a District level for its assemblage of bats.</p>	<p>All species of bats recorded within the UK are protected from killing, injury and disturbance and their roosts protected from damage or destruction under the Habitats Regulations. Protection is also afforded under the WCA with respect to disturbance of individuals occupying places of rest or shelter and obstruction of access to these. Activities that would otherwise constitute an offence under this legislation may be licensed by Natural England for certain purposes.</p> <p>Certain species of bats, including noctule bat <i>Nyctalus noctula</i>, brown long eared bat <i>Plecotus auritus</i> and soprano pipistrelle bat are also listed as Species of Principal Importance (SPI) for the conservation of biodiversity in England in accordance with Section 41 of the NERC 2006. Section 40 obliges public bodies (including local planning authorities) to have regard for the conservation of biodiversity (including SPI) when discharging their duties (including determining planning applications).</p>

Ecological Receptor	Detail	Relevant Legislation and Policy
<p>Bats (Roosting)</p>	<p>The PBRA identified a number of buildings / trees with the potential to support roosting bats:</p> <ul style="list-style-type: none"> ■ Three buildings with bat roosting potential, including one with low potential (B2) and two with moderate (B5 and B7). ■ Forty-four trees with bat roosting potential, including eight with low potential (T5, T7, T11-12, T14, T29, T31 and T43), 26 with moderate potential (T1, T4, T6, T8-10, T13, T15-16, T18, T21, T23-24, T27-28, T20, T32-33, T35-40, T42, T44), nine with high potential (T2, T17, T19, T20, T22, T25-26, T34, T41) and one confirmed bat roost (T3) (via the presence of droppings). <p>For the buildings, subsequent dusk emergence and dawn re-entry surveys were undertaken. During which, B5 was confirmed as a roost for soprano pipistrelle <i>Pipistrellus pygmaeus</i> and serotine <i>Eptesicus serotinus</i>. The likely absence of roosting bats was confirmed at buildings B2 and B7.</p> <p>For trees with moderate or high potential, at-height inspections were conducted, during which five trees were assessed as negligible (T3³, T15, T16, T33 and T41),</p>	

³ T3 was confirmed as a roost during the PBRA survey but was subsequently downgraded to negligible during the at-height surveys. This is due to branch damage that was sustained between the PBRA and at-height survey, exposing the features where the droppings had previously been recorded, and no longer provided the same protection and shelter for bats.

Ecological Receptor		Detail	Relevant Legislation and Policy
		<p>eight trees with low potential (T1, T6, T9, T13, T27, T32, T36 and T42), 18 trees with moderate potential (T2, T4, T8, T10, T18-19, T21-26, T30, T35, T37-38 and T40) and one confirmed roost (T20) (via the presence of droppings).</p> <p>One tree, T44 could not be climbed due to health and safety reasons. Instead, this tree was subject to a dusk emergence and dawn re-entry survey. The likely absence of roosting bats was confirmed during this survey.</p> <p>Overall, the Application Site is regarded to be conservation importance at up to a Local level for roosting bats.</p>	
	Badger	<p>A badger survey, undertaken in April 2019, identified a number of setts within the Application Site and surrounding area, including a main sett located within the alignment of the Scheme. A second potential main sett was subsequently identified though an extension of the survey area.</p> <p>A badger bait marking survey was undertaken in September / October 2019 to identify whether multiple clans were present within the area.</p> <p>The results of the surveys identified one badger clan residing within the Badger Bait Marking Survey Area, with at the time of the survey, this clan had three very active setts (Sett 1-3) likely comprising a main, annex and subsidiary. Several outlier setts were also identified within the Application Site.</p> <p>Badgers are widespread within Sussex and southern England and are afforded legal protection for reasons of</p>	<p>The Protection of Badgers Act 1992 makes it illegal to wilfully kill, injure or take any badger, or attempt to do so. It also makes it an offence to intentionally or recklessly damage, destroy or obstruct access to any part of a badger sett.</p> <p>Activities that would otherwise constitute an offence under this legislation may be licensed by Natural England for certain purposes.</p>

Ecological Receptor	Detail	Relevant Legislation and Policy
	<p>animal cruelty, not rarity. However, given the presence of a main, annex, subsidiary and outlier setts, the Application Site and surrounding area is considered to be of Local importance for badgers.</p>	
Hazel Dormouse	<p>A hazel dormouse survey was undertaken during 2019. No evidence of this species was identified within the Application Site.</p> <p>As such, this species is considered likely absent from the Application Site.</p>	<p>Hazel dormice are protected from killing, injury and disturbance and their places of rest or shelter (occupied habitat) protected from damage or destruction under the Habitats Regulations. Protection is also afforded under the WCA with respect to disturbance of individuals occupying places of rest or shelter and obstruction of access to these. Activities that would otherwise constitute an offence under this legislation may be licensed by Natural England for certain purposes.</p> <p>Hazel dormice are also listed as SPI in accordance with Section 41 of the NERC Act 2006. Public bodies have an obligation under Section 40 to have regard for these species when carrying out their functions.</p>
Other Species of Principal Importance (SPI)	<p>As detailed in the PEA (Technical Appendix 9.1), records of other SPI were returned in the desk study, including hedgehog <i>Erinaceus europaeus</i> and polecat <i>Mustela putorius</i>, with suitable habitat for these species present within the Scheme. Further, although not identified within desk study records, the open grassland habitat has the potential to support brown hare <i>Lepus europaeus</i> and areas of hedgerow and unmanaged grassland have the potential to support harvest mice <i>Micromys minutus</i>. SPI are considered of importance at up to a Local level.</p>	<p>These species are listed as SPI in accordance with Section 41 of the NERC Act 2006. Public bodies have an obligation under Section 40 to have regard for these species when carrying out their functions.</p>

Ecological Receptor		Detail	Relevant Legislation and Policy
	Breeding Birds	<p>A total of 44 species were recorded during the breeding bird surveys, of these, 15⁴ are legally protected or species of conservation concern, including:</p> <ul style="list-style-type: none"> ■ three Wildlife and Countryside Act Schedule 1 species; ■ eight Species of Principal Importance (SPI) listed under the Natural Environment and Rural Communities (NERC) Act 2006; ■ six Birds of Conservation Concern (BoCC) red list species; and ■ seven BoCC amber species. <p>No specific barn owl surveys have been undertaken; however, a barn owl was recorded incidentally during a bat survey foraging within the Application Site and therefore may have a breeding site locally.</p> <p>Given the species records and the habitats present, the breeding bird community within the Application Site is considered to be of District conservation importance.</p>	<p>The Habitat Regulations 2017 Part 1 Regulation 10(2) & (3) state that local authorities '<i>must take such steps in the exercise of their functions as they consider appropriate to contribute to...the preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the UK including by means of the upkeep, management and creation of such habitat...</i>'. The legislation continues to state that economic and recreation requirements must be taken into consideration in considering which measures are appropriate.</p> <p>Under the WCA all wild birds are protected from killing and injury, and their nests and eggs protected from taking, damage and destruction whilst in use. Additional protection is extended to species listed under Schedule 1 of the Act, meaning it is also an offence to disturb these species at or near the nest, or whilst they have dependent young.</p> <p>Some bird species are also listed as SPI in accordance with Section 41 of the NERC Act 2006. Public bodies have an obligation under Section 40 to have regard for these species when carrying out their functions.</p>
	Wintering Birds	<p>A total of 40 species were recorded during the wintering bird surveys, of these, 16⁴ are legally protected or species of conservation concern, including:</p> <ul style="list-style-type: none"> ■ three Wildlife and Countryside Act Schedule 1 species; 	

⁴ It should be noted that these categories are not exclusive, and a species can be listed in more than one conservation category (for example listed as both a SPI and BoCC red list species).

Ecological Receptor		Detail	Relevant Legislation and Policy
		<ul style="list-style-type: none"> ▪ eight Species of Principal Importance (SPI) listed under the Natural Environment and Rural Communities (NERC) Act 2006; ▪ eight Birds of Conservation Concern (BoCC) red list species; and ▪ seven BoCC amber species. <p>No SPA qualifying species / assemblages (gulls) were recorded foraging in significant numbers, as such the wintering bird assemblage is considered to be of Local conservation importance.</p>	
	Reptiles	<p>The reptile survey confirmed the presence of two reptile species within the Application Site; slow worm <i>Anguis fragilis</i> and common lizard <i>Zootoca vivipara</i>, with low populations of both species present. Additionally, records of grass snake <i>Natrix helvetica</i> were returned in the desk study as within 150m of the Application Site. Due to the close proximity of these records and also the suitability of the habitats present on Application Site, it is considered that a low population of grass snake may also be present.</p> <p>Overall, the population of reptiles within the Survey Area is considered to be of importance at a Local level. This is because of widespread habitat within the local area and the low population size recorded of a relatively widespread species within West Sussex.</p>	<p>Native widespread reptile species (common or viviparous lizard, adder, grass snake and slow worm) are partially protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This includes protection from killing and injury.</p> <p>All reptile species are also listed as SPI in accordance with Section 41 of the NERC Act 2006. Public bodies have an obligation under Section 40 to have regard for these species when carrying out their functions.</p>
	Amphibians (Great Crested Newt)	<p>A great crested newt (GCN) <i>Triturus cristatus</i>, Habitat Suitability Index (HSI) was undertaken within the Application Site and within 500m, during 2019. No</p>	<p>Great crested newts are protected from killing, injury and disturbance and their places of rest or shelter (occupied habitat) protected from damage or destruction under the Habitats Regulations. Protection is also afforded under the</p>

Ecological Receptor		Detail	Relevant Legislation and Policy
		<p>waterbodies were identified which were considered suitable to support GCN within the Application Site.</p> <p>As such, GCN species is considered likely absent from the Application Site.</p>	<p>Wildlife and Countryside Act 1981 (as amended) with respect to disturbance of individuals occupying places of rest or shelter and obstruction of access to these. Activities that would otherwise constitute an offence under this legislation may be licensed by Natural England for certain purposes.</p> <p>Great crested newts and common toad are also listed as SPI in accordance with Section 41 of the NERC Act 2006. Public bodies have an obligation under Section 40 to have regard for these species when carrying out their functions.</p>
	Terrestrial Invertebrates	<p>Due to the presence of orchard habitat within the Application Site, invertebrate surveys were undertaken, with a particular focus on noble chafer <i>Gnorimus nobilis</i> found in traditional orchards. During the surveys, noble chafer were not identified so their likely absence from the Application Site is assumed.</p> <p>The surveys recorded six species of conservation concern including:</p> <ul style="list-style-type: none"> ■ three nationally scarce species (an ant <i>Lasius brunneus</i>, longhorn beetle <i>Prionus coriarius</i> and flower beetle <i>Mordellistena humeralis</i>); ■ three SPI (small heath butterfly <i>Coenonympha pamphilus</i>, ghost moth <i>Hepialus humuli</i> and cinnabar moth <i>Tyria jacobaea</i>). <p>Additionally, stag beetle <i>Lucanus cervus</i> a SPI which are of high conservation concern were recorded incidentally on Application Site, with suitable habitat present, and are considered of importance at up to a Local level.</p>	<p>Some invertebrate species (including stag beetle) are listed as SPI in accordance with Section 41 of the NERC Act 2006. Public bodies have an obligation under Section 40 to have regard for these species when carrying out their functions.</p> <p>Stag beetle are also protected under Schedule 5 of the Wildlife and Countryside Act.</p>

3 ECOLOGICAL MANAGEMENT PLAN

3.1 OVERVIEW

- 3.1.1. Ecological mitigation measures are required to avoid and reduce potential effects that could occur during the operation and construction phases of the Scheme. The Scheme will integrate a landscape strategy to mitigate effects upon protected species and achieve 10% Biodiversity Net Gain (BNG), a drainage strategy that promotes habitat diversity and a lighting strategy that is sensitive to ecological features such as foraging and commuting bats.
- 3.1.2. Further measures are also outlined to ensure the protection of retained habitats, protection of notable species and avoidance of habitat degradation during the construction phase.
- 3.1.3. Figure 3 provides indicative locations for ecological mitigation measures including bat boxes, bird boxes and refugia piles.

3.2 DESIGN MEASURES

AVOIDANCE MEASURES

- 3.2.1. The Scheme designs will ensure retention and protection of woodland and hedgerows as far as possible in order to minimise effects upon a range of protected species (bats, badgers, other mammals, breeding birds, reptiles, and invertebrates). This includes retention and maintenance of HPI (woodland, hedgerows and waterbody) for their intrinsic value.
- 3.2.2. Where habitat loss is unavoidable, compensation will be required in line with local and national policy as discussed below in the landscape strategy.

LANDSCAPE STRATEGY

- 3.2.3. To compensate for the loss of habitat during construction of the Scheme, a strategic landscape strategy has been designed, as detailed within Chapter 10 of the ES, Landscape and Visual Assessment (WSP 2020d). The layout of habitats is shown in the landscape general arrangement plans (shown in Figure 2 - Drawing ref A29-WSP-LA-GA-005).
- 3.2.4. The landscape strategy creates new habitat and enhances habitats within the Scheme to provide greater opportunities for protected and notable species such as bats, badger, birds, amphibians and invertebrates. The key features of the proposed landscape mitigation include:
- New woodland planting to provide green visual containment in addition to creating habitat for wildlife.
 - New specimen tree planting to enhance visual appeal and integrate the Scheme into the surrounding landscape.
 - New hedgerow planting to enhance visual amenity of the Scheme, respond positively to the local character and screen the nearby residents from the proposed noise barrier.
 - Areas of wildflower grassland and bulb planting to enhance the biodiversity along with visual appeal.
 - Established areas of existing vegetation are proposed to be retained and enhanced where possible.
- 3.2.5. The landscape strategy proposes to create eight habitat types, broadly categorised as below:

- shrub;
- scattered specimen trees;
- woodland core;
- woodland edge planting;
- native hedgerow;
- species-rich grassland; and
- species-rich wet grassland.

3.2.6. These habitats will provide suitable foraging opportunities for a variety of species including bats, terrestrial mammals (such as badger), birds, reptiles, common amphibians and invertebrates. Woodland and scrub creation will provide nesting opportunities for birds as well as refuge for mammals, amphibians and invertebrates.

3.2.7. The landscape strategy should utilise a native and species-rich mix of plants for all habitat types, mirroring surrounding retained semi-natural habitats including species-rich grassland and broadleaved woodland. Utilising native species, flowering species and berry bearing shrubs will benefit a range of wildlife, providing food source throughout the year.

3.2.8. In line with local and national policy, the Scheme aims to achieve at least a 10% gain in biodiversity post-development, as supported by a BNG assessment (WSP 2020e). The final figures and results of the assessment are detailed in the BNG report, however it is understood that a net gain in biodiversity of at least 10% has been reached.

Landscape Management/Maintenance

3.2.9. Specific detail of habitat management (e.g. grassland mowing regime etc.) is provided in the Landscape Maintenance and Management Plan (LMMP) (WSP 2020f). Appropriate landscape planting recommendations are provided within the LMMP to ensure:

- correct planting/sowing seasons;
- correct soil conditions are created for specific species/habitats;
- sufficient spacing is provided between standard trees to prevent future oversharing; and
- viability of trees, bulbs and grassland mixes.

3.2.10. New and retained landscaped areas should be subject to low-intensity management regimes. This should include:

- Sensitively timed grass cutting, as to avoid the peak flowering season and retain a species-rich sward.
- Grass cuttings/arising should be left in situ for a few days to drop seeds as appropriate, prior to removal. Arisings should be removed to prevent an increase in soil fertility and retain the species-rich grasslands.
- No more than one cut/prune of hedgerow and standard trees per year. This should also be undertaken only once specimens have fruited in order to maximise food availability for a range of wildlife.

LIGHTING STRATEGY

3.2.11. Artificial lighting may affect sensitive fauna within the Scheme, most notably bat species. Lighting can affect bat roosts, commuting routes and established and created dark corridors. The lighting strategy for the Scheme should therefore be developed to be sensitive to bats. A bat sensitive

lighting strategy will also reduce the effect of lighting upon other light sensitive and nocturnal species, such as badger, crepuscular birds and invertebrates.

- 3.2.12. Bat activity surveys within the Application Site identified Folly Foot Farm Barn, Land to south of Eastergate Lane and the PRow (Footpath 318) as being sensitive areas for bat species.
- 3.2.13. In accordance with best practice guidance (Institution of Lighting Professionals (IPL) (2018)), the lighting strategy (WSP 2020g) aims to:
- Avoid light spill onto confirmed or suspected roosts, in addition to new bat boxes, primarily through good design and secondarily by physical shields, where necessary.
 - Avoid, light spill onto trees and hedgerows, minimised through good design, with physical shields installed where necessary, and maintain dark corridors along retained areas of retained woodland and hedgerows, to ensure continued connectivity, notably along the PRow (Footpath 318). A 15m buffer will be utilised along the PRow in which there will be no lighting.
 - Creation of a 'buffer zone' of very low illuminance (if any) adjacent to established or proposed key habitats, such as adjacent to treelines.
 - Landscaping measures in the form of shrubs and tree planting to further act as secondary mitigation to screen and soften the effects of installed artificial light sources should be considered.
 - Use the minimum light levels necessary for the relevant task / function, this may equate to reducing light intensity, and/or using the minimum number of light sources or minimum column height.
 - Use hoods, louvres or other luminaire design features to avoid light spill onto retained and newly created areas of vegetation likely to be used by foraging and commuting bats. In particular, light spill on to any trees with bat roost potential from the construction or operational phase lighting should be avoided to minimise the risk of disturbance.
 - Use narrow spectrum light sources where possible to lower the range of species affected by lighting, specifically avoiding shorter wavelength blue light, using instead warm/neutral colour temperature lighting.
 - Use light sources that emit minimal ultra-violet light to avoid attracting night-flying invertebrate species which in turn may attract bats to the light.
- 3.2.14. It is understood that the lighting strategy will utilise Mayflower smart control lighting, a control that makes it is possible to establish a site-specific switching regime, whereby each lighting unit fitted with a Mayflower external node can be controlled individually and set to dim at any time of day during operation. Furthermore, the dimming regime can be adjusted at any time to suit seasons. By using this control, it will be possible to reduce the lighting at the times when bats are active.

DRAINAGE STRATEGY

- 3.2.15. A sensitive drainage strategy will be implemented for the operation of the Scheme. Details of the drainage strategy are set out within Chapter 11 Water Resources and Flood Risk of the ES (WSP 2020h), the Flood Risk Assessment (FRA) (WSP 2020i) and the Surface Water Drainage Strategy (SWDS) (Capita 2020).
- 3.2.16. A combination of Sustainable Drainage Systems (SuDS) features will be designed into the Scheme to provide mitigation for the potential effect of increases in physical contamination (i.e. sedimentation) of surface water bodies. Whilst the drainage strategies will primarily aim to mitigate the potential impacts upon groundwater and surface water, a number of these features will also