



A30 Chiverton to Carland Cross Environmental Statement

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A30 CHIVERTON CROSS TO CARLAND CROSS

HEDGEROW SURVEY REPORT

CONFIDENTIAL

FEBRUARY 2018



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HEDGEROW SURVEY REPORT

Highways England

Final Confidential

Project no: 70004582 Date: February 2018

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1 INTRODUCTION

1.1 OVERVIEW

- 1.1.1 WSP was commissioned by Highways England to undertake ecological surveys in respect of the proposed A30 Chiverton Cross to Carland Cross Improvement Scheme (hereafter referred to as 'the proposed Scheme'). The proposed Scheme comprises a new dual carriageway to run alongside the existing single carriageway road to relieve traffic pressures within the area. Surveys are required in order to inform an Ecological Impact Assessment (EcIA) forming part of an Environmental Statement (ES) supporting a Development Consent Order (DCO) Application for the proposed Scheme.
- 1.1.2 A Phase 1 Habitat Verification Survey¹ undertaken in August 2015 identified a number of hedgerows within the proposed Scheme footprint and surrounding area. It was recommended that those potentially affected by the proposed Scheme should be subject to further survey to establish whether they qualified as 'Important' under the Hedgerow Regulations (1997). Hedgerow Regulation Assessments were undertaken and the Hedgerow Evaluation and Grading System (HEGS)² was used to identify 'Important' hedgerows within the survey area.

1.2 SITE CONTEXT

- The A30 is a major trunk road running through the centre of Cornwall from West to East. The A30 forms an important route through the county of Cornwall and is under pressure during the summer months due to the high volume of tourism-related traffic. The section of road between Chiverton and Carland Cross is a traffic pinch point, where the dual carriageway narrows to single carriageway in both directions between two roundabouts. The single carriageway sits between grid references SW 74759 46978 at the western end and SW 84665 53957 at the eastern end.
- 1.2.2 The area assessed for 'Important' hedgerows consisted of the 100 m area either side of the 12.7 km length of the proposed Scheme. It should be noted that at the early stage of the survey design, the preferred Scheme option had not been finalised. As such, the survey area incorporated additional Scheme options and variations that have been subsequently removed.
- 1.2.3 The proposed Scheme area covers a variety of habitats; predominately arable farmland, but also including areas of heathland, woodland, wetland and grassland. The soft estate along this section of road contains hedgerows in some areas but also includes wide grass verges in others. The road at times is raised up offering panoramic views, at others it is cut into the bed rock with steep banks above.

¹ WSP|PB (2015). A30 Carland Cross to Chiverton Cross Phase 1 Habitat Verification Survey. A Report to Highways England

² Clements D.K, and Toft R.J, (1993). Hedgerow Evaluation and Grading Systems (HEGS): A Methodology for the Ecological Survey, Evaluation and Grading of Hedgerows

1.3 LEGISLATION

- 1.3.1 In England, The Hedgerow Regulations (1997) (hereafter referred to as 'the Regulations') are intended to protect important countryside hedgerows from destruction or damage. Hedgerows are assessed against a number of criteria in relation to their archaeology, and history, and wildlife and landscape, from which it is determined whether a hedgerow is 'Important'.
- 1.3.2 Under the Regulations, any person wishing to remove a hedgerow must submit a hedgerow removal notice to the Local Planning Authority (LPA). The LPA will then decide whether to approve the notice or issue a hedgerow retention notice if the hedgerow has been identified as 'Important' under the Regulations. The provisions of the Hedgerow Regulations 1997 do not apply where the Secretary of State for Transport, or Highways England on their behalf, are carrying out works which are already subject to an environmental assessment. However, it is used in the context of this report as the basis of the survey undertaken.
- 1.3.3 All native hedgerows are also listed as Habitats of Principal Importance (HPI) in accordance with Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006). HPIs are habitats in England that were identified as requiring action in the UK Biodiversity Action Plan (UK BAP) and continue to be regarded as conservation priorities in the UK Post-2010 Biodiversity Framework which superseded the UK BAP. The definition of this priority habitat has been amended from the pre-existing Habitat Action Plan for ancient and/or species rich hedgerows and is as follows:
- 1.3.4 A hedgerow is defined as any boundary line of trees or shrubs over 20m long and less than 5m wide, and where any gaps between the trees or shrub species are less that 20m wide³.
- 1.3.5 Under Section 40 of the NERC Act (2006), LPAs are required to have due regard for these habitats when exercising their functions, including determining planning applications.

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³ DEFRA (2007) The Hedgerow Survey Handbook. 2nd Ed.

2 METHODS

2.1 DESK STUDY

As part of the Phase 1 Habitat Verification Survey, a desk study was undertaken. Designated sites and protected species records were obtained from the Environmental Records Centre for Cornwall and the Isles of Scilly (ERCCIS) for the area within 5 km of the existing A30 between Chiverton and Carland Cross. Those desk records of relevance within 2 km of the proposed Scheme were assessed.

2.2 FIELD SURVEY

Hedgerow Regulations Assessment

- 2.2.1 A hedgerow survey, in accordance with the Regulations, was undertaken by competent botanists between the 14th of June and 25th of August 2017 of all hedgerows within 100m of the proposed Scheme (the 'survey area').
- 2.2.2 The hedgerows within the survey area were measured from the point or points where they met another hedgerow(s), or where there was a gap of more than 20 metres between the end of the hedgerow and the nearest line of hedgerow. Gaps within a hedgerow were included in the total length provided they were 20 metres or less in length.
- 2.2.3 Notes were made on the following in accordance with the criteria outlined in Schedule 1, Part II of the Regulations:
 - → Number of woody species, on average, in a 30 metre length;
 - → Presence of rare tree species such as black poplar Populus nigra ssp. betulifolia, large-leaved lime Tilia platyphyllos and small-leaved lime Tilia cordata, and wild service tree Sorbus torminalis;
 - → Number of standard trees, on average, within each 50 metre section;
 - Number of gaps in the hedge;
 - Presence of woodland ground flora species listed in Schedule 2 of the Regulations;
 - Presence of ditches, banks or walls;
 - → Number of connections with other hedgerows, ponds or woodland;
 - Presence of parallel hedges within 15 metres of the hedge; and
 - Presence of bridleways, footpaths, byways or public paths.
- 2.2.4 In accordance with the Regulations the number of woody species present per 30 metre length was recorded in the following manner:
 - → Where the length of the hedgerow did not exceed 30 metres, the total number of woody species present in the hedgerow was recorded;
 - → Where the hedgerow was between 30 metres and 100 metres in length, the number of woody species present in the central 30 metre stretch was recorded:
 - → Where the hedgerow length was between 100 metres and 200 metres, the number of woody species present in the central 30 metre stretches of the two halves of the

- hedgerow were recorded and the mean of the two calculated; and
- → Where the length of the hedgerow was over 200 metres, the numbers of woody species present in the central 30 metre stretch of each third of the hedgerow were recorded and the mean of the three calculated.
- 2.2.5 The field survey information was then assessed to establish whether each hedge fulfilled the Wildlife and Landscape criteria of the Regulations, from which it is determined whether a hedgerow is 'Important'.

Additional Evaluation Criteria

- 2.2.6 The Hedgerow Survey Handbook (2nd Edition)⁴ was used to assess further details, not required under the Regulations, such as hedgerow height, width, integrity, structure, and management history.
- 2.2.7 The Hedgerow Evaluation and Grading System⁵, which broadly follows the above Hedgerow Regulations methodology was undertaken in accordance to the CIEEM Technical Guidance Series⁶ for hedgerows and provides a greater level of detail when assessing hedgerow features. The methodology provides a score between 0 (bad) and 4 (good) for hedgerow features with a final grade assigned based on the results, as indicated below. Grades above 2 are classed as being of nature conservation priority.
 - → Grade 1 High (-1) to very high (1+) value
 - → Grade 2 Moderately high (-2) to high (2+) value
 - → Grade 3 Moderate value (-3 to 3+)
 - → Grade 4 Low value (-4 to 4+)
- 2.2.8 Survey sheets are presented in Appendix B. Hedge record and evaluation sheets and scoring matrix as prepared by the Hedgerow evaluation and Grading System are presented in Appendix C.
- A further classification was used to distinguish the presence of largely un-vegetated Cornish Hedges. A typical Cornish Hedge can be defined as a stoned faced earth bank with a frequently shrubby hedgerow atop (although these can vary from turffaced or stone core with little or no woody vegetation⁷). Any hedgerow with a bank may be considered a Cornish Hedge (see Appendix A), therefore, hedgerows may fall into multiple categories.
- 2.2.10 Due to presence of largely un-vegetated banks, which are recognised as Cornish Hedges within Cornwall but not adhering to the Hedgerows Survey Handbook⁸ and could not be assessed by the above guidelines, the below classification was applied:
 - A. Scrub topped Cornish Hedges:
 - B. Grass topped Cornish Hedges; and

⁸ DEFRA (2007) The Hedgerow Survey Handbook. 2nd Ed.

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⁴ DEFRA (2007) The Hedgerow Survey Handbook. 2nd Ed.

⁵ Clement's D.K, and Toft R.J, (1993). Hedgerow Evaluation and Grading Systems (HEGS): A Methodology for the Ecological Survey, Evaluation and Grading of Hedgerows

⁶ https://www.cieem.net/habitats-terrestrial.

Ornish Hedge Management: For Hedges Adjacent to Highways. Cornwall Council. http://www.cornwall.gov.uk/media/3628255/Cornish-Highway-hedge-leaflet-web-2010.pdf

C. Bracken topped Cornish Hedges.

2.3 SURVEY LIMITATIONS

- 2.3.1 The survey was conducted within the optimum time of year for a hedgerow survey. The suitable field survey period extends approximately from April to October. However, June and July are considered to be the most suitable months for the assessment of ground flora. Surveys for the proposed Scheme were spread across the season and were not limited to June and July. However, this did not result in any significant limitation with regard to the identification of ground flora species.
- 2.3.2 The hedgerow assessments did not include criteria which relate to historical and archaeological evidence under which hedgerows can be classified as 'Important'. For purposes of this hedgerow assessment only ecological features were assessed. This was not considered a limitation to the hedgerow assessments within an ecological context.
- 2.3.3 Within Cornwall all hedgerows that are a top a stone-faced, turf-faced or stone-core earth bank are considered to be Cornish Hedges. Due to the majority of surveyed hedgerows having a degraded bank with stone-facing no longer visible, it was difficult to accurately identify Cornish Hedges. Therefore, traditional hedgerows were surveyed following the Hedgerow Regulation and HEGS guidelines, with the un-vegetated or sparsely vegetated banks being categorised as Cornish Hedges due to their importance as a landscape feature.
- 2.3.4 Overall there were no significant limitations to the survey works.

3 RESULTS

3.1 OVERVIEW

3.1.1 A total of 305 native hedgerows and Cornish Hedges were identified within the survey area. Of these 179 were native woody hedgerows, which included 45 'Important' hedgerows and 98 hedgerows of nature conservation priority. In total 148 hedgerows can be considered Cornish Hedges with a further 126 un-vegetated Cornish Hedges forming linear boundary features.

'Important' Hedgerows (Hedgerow Regulations)

3.1.2 A total of 179 native woody hedgerows were assessed against the Regulations and of these, 45 qualified as 'Important' hedgerows under the Wildlife and Landscape criteria of the Regulations. Of these, 45 'Important' hedgerows, 44 were atop a bank and could be categorised as Cornish Hedges; one single 'Important' hedgerow was not considered to also be a Cornish Hedge.

Nature Conservation Priority Hedges (Under HEGS Guidelines)

- 3.1.3 Of the 179 woody hedgerows assessed, a total of 98 hedgerows were classed as a nature conservation priority under the HEGS guidelines (this included only 40 of the 45 'Important' hedgerows). See Appendix A for further details.
- 3.1.4 Of the 98 hedgerows classified as a nature conservation priority under the HEGS guidelines, 79 were atop a bank and could be categorised as Cornish Hedges. See Appendix A for further details.
- 3.1.5 Of the remaining 81 hedgerows, which were not classified as nature conservation priority under the HEGS guidelines, 69 were Cornish Hedges.
 - <u>Un-vegetated Cornish Hedges (not assessed under the Hedgerow Regulations Criteria or HEGS Guidelines)</u>
- 3.1.6 In addition to the 179 native woody hedgerows, 126 Cornish Hedges with little or no woody species growth were identified and therefore were not assessed by the HEGS or Hedgerow Regulations methodology. However, they were classified using the methods described in Section 2 above.
- 3.1.7 These were formed by 51 scrub topped Cornish Hedges, 69 grass topped Cornish Hedges and six bracken topped Cornish Hedges.
- 3.1.8 In total 274 of the 305 recorded hedges can be classified as Cornish Hedges.

3.2 ECOLOGICAL FIELD SURVEY OF HEDGEROWS

3.2.1 All identified native hedgerows and Cornish Hedges locations and classifications are shown in Figure 1. A summary of the 'Important Hedgerows' is presented in Table 1 below and raw survey data is included in Appendix A.

Table 1: Summary for all 'Important' Hedgerows Identified within 100m of the Proposed Scheme and Associated Features

	Approx.	TOTAL				REGULATION	I HEDGEROW FEATURE	es .		
NUMBER NUMBER	LENGTH (M)	NUMBER OF WOODY SPECIES	Average number of woody species per 30m section	Bank (m)	Gap (%)	Mature Tree per 50m Present	Presence of 3+ Schedule 3 Woodland Species	Ditch Present	Number of Connections	Parallel Hedge
Н3	254	9	6	0.5	<10	Yes	Yes	No	Yes	Yes
H13	107	6	5	0.5	0	Yes	Yes	Yes	Yes	No
H24	108	5	5	0.5-1.0	0	Yes	Yes	No	Yes	No
H25A	141	10	6	0.5	<10	Yes	No	Yes	Yes	Yes
H26	120	7	5	0.5	<10	No	Yes	No	Yes	Yes
H35	40	6	6	0.5-1.0	<10	No	Yes	No	Yes	No
H41	183	5	5	>1.0	0	Yes	Yes	No	Yes	No
H46	273	8	6	0.5	<10	No	Yes	No	Yes	Yes
H47	307	8	5	0.5-1.0	<10	Yes	Yes	No	Yes	No
H49A	64	7	7	>1.0	<10	Yes	Yes	No	Yes	Yes
H49B	122	9	6	0.5	0	No	No	No	Yes	No
H53	216	9	6	0.5-1.0	>10	Yes	No	Yes	Yes	No
H55	132	6	5	0.5-1.0	>10	Yes	Yes	Yes	Yes	No
H56	120	5	5	0.5-1.0	>10	Yes	Yes	No	Yes	No
H58	70	8	6	>1.0	>10	No	Yes	No	Yes	No
H59	77	6	6	>1.0	<10	No	Yes	No	Yes	No
H62	180	5	4	>1.0	<10	No	Yes	No	Yes	Yes
H63	148	6	5	>1.0	<10	No	Yes	No	Yes	Yes
H65	55	6	6	0.5-1.0	<10	Yes	Yes	Yes	Yes	No
H66	81	9	9	0.5-1.0	0	Yes	Yes	Yes	Yes	No
H69	140	6	5	>1.0	>10	Yes	Yes	No	Yes	No

HEDGEROW NUMBER	APPROX. LENGTH (M)	TOTAL NUMBER OF WOODY				REGULATION	HEDGEROW FEATUR	RES		
H75	144	9	6	0.5-1.0	0	Yes	Yes	No	Yes	No
H76	162	11	9	0.5-1.0	<10	Yes	Yes	No	Yes	No
H77	75	7	5	0.5	<10	Yes	Yes	No	Yes	No
H78	432	10	6	0.5	<10	No	Yes	No	Yes	No
H81	280	10	7	0.5	<10	Yes	Yes	No	Yes	Yes
H82	278	7	5	0.5-1.0	>10	No	Yes	No	Yes	Yes
H86B	82	6	6	>1.0	>10	No	Yes	No	Yes	No
H87	142	8	7	0.5	<10	No	Yes	No	Yes	No
H91	68	9	6	0.5-1.0	<10	Yes	Yes	No	Yes	No
H92	128	9	9	0.5	<10	Yes	Yes	Yes	Yes	Yes
H93	119	9	6	0	>10	Yes	Yes	No	Yes	Yes
H94	154	8	7	>1.0	<10	No	Yes	Yes	Yes	Yes
H97	144	8	7	0.5	<10	No	Yes	No	Yes	No
H106	300	9	6	>1.0	0	No	Yes	No	Yes	No
H116	33	5	5	0.5-1.0	>10	Yes	Yes	No	Yes	No
H117	65	6	5	0.5	<10	Yes	Yes	No	Yes	No
H118	60	5	5	0.5-1.0	<10	Yes	Yes	Yes	Yes	No
H136	175	5	5	0.5-1.0	<10	Yes	Yes	No	Yes	No
H160	246	11	5	>1.0	>10	Yes	Yes	No	Yes	No
H161	138	9	5	>1.0	<10	No	Yes	No	Yes	Yes
H162	295	8	5	>1.0	<10	No	Yes	No	Yes	Yes
H164	386	9	6	>1.0	0	No	Yes	No	Yes	No
H165	220	7	6	0.5-1.0	<10	No	Yes	No	Yes	No
H167	137	10	5	0.5	0	Yes	Yes	No	Yes	Yes

Appendix A

HEDGEROW SURVEY DATA SUMMARY

HEDGEROW SURVEY DATA

HEDGEROW NUMBER	LENGTH (M)	RECENT	HEIGHT	WIDTH	CROSS- SECTION	MATURE PER 100M	YOUNG PER 100M	No. Gaps	No. Connections	No. WOODY SPECIES	NATIVE DOMINANCE	WOODY SPECIES	BANK	D ITCH	Verge	SCHEDULE 3 WOODLAND SPECIES AS A QUALIFYING FEATURE	AVERAGE NUMBER OF SPECIES PER 30M SECTION	HEGS	REGS	CORNISH HEDGE
H1	502	0	2	2	2	0	0	3	4	5	2	2	3	0	2	Yes	2	-3	No	Yes
H2	243	0	1	2	1	0	0	1	2	5	2	2	4	0	2	Yes	3	4+	No	Yes
Н3	254	0	4	3	4	0	0	3	2	9	4	3	2	0	0	Yes	6	-2	Yes	Yes
H4	85	0	4	4	3	0	0	2	3	8	2	3	0	0	0	No	5	3+	No	No
H5	154	0	3	2	3	0	0	2	4	8	4	3	2	0	0	No	3	2	No	Yes
Н6	98	0	2	2	3	0	0	3	4	3	2	1	3	0	0	Yes	3	-2	No	Yes
H7	218	0	3	4	3	0	0	3	2	4	4	1	3	0	0	Yes	4	3+	No	Yes
Н8	424	0	3	4	4	0	0	3	4	7	4	2	0	0	2	Yes	3	2	No	No
Н9	304	0	2	1	1	0	0	3	2	7	2	2	0	0	2	Yes	4	4+	No	No
H10	277	0	2	1	1	0	0	1	0	4	2	1	2	0	0	No	3	-4	No	Yes
H11	184	0	2	3	2	0	0	1	0	3	2	1	0	0	0	No	2	-3	No	No
H12	284	0	3	2	4	0	1	2	4	7	2	2	3	0	2	Yes	4	3+	No	Yes
H13	107	0	3	3	3	0	3	4	4	6	2	2	2	4	0	Yes	5	-2	Yes	Yes
H14	152	0	2	2	2	0	2	3	4	4	2	1	2	0	2	No	4	-2	No	Yes
H15	236	0	1	1	1	0	0	1	1	1	2	1	4	0	0	No	1	-4	No	Yes
H16	201	0	1	1	1	0	0	1	1	3	2	1	4	0	0	No	2	-4	No	Yes
H17	340	0	2	3	3	0	1	1	3	6	2	2	2	0	2	No	3	3	No	Yes
H18	520	0	4	3	3	0	4	4	4	5	4	2	3	2	2	Yes	4	-1	No	Yes
H18B	200	0	2	2	3	0	1	3	4	5	2	2	2	0	2	Yes	3	-2	No	Yes
H19	244	0	4	3	4	4	4	3	4	6	2	2	2	0	2	Yes	3	2+	No	Yes
H20	465	0	2	3	3	0	1	2	3	8	2	3	3	2	2	Yes	3	-2	No	Yes
H21	220	0	3	3	2	0	0	4	1	8	2	3	3	0	0	No	3	3+	No	Yes
H22	55 110	0	3	3	3	0	0	4	1	1	2	1	4	0	0	No	1	-4	No	Yes
H23 H24	110 108	0	4	4	2	0	0	1	1 4	<u>2</u>	4	1	3	0	0	No Yes	5	2	No Yes	Yes Yes
H25A	141	0	3	3	3	0	2	3	4	10	4	4	2	2	2	No	6	<u>-1</u>	Yes	Yes
H25B	70	0	3	2	3	0	0	3	2	3	2	1	3	0	0	No	3	3	No	Yes
H26	120	0	3	3	3	0	1	3	2	7	2	2	2	0	2	Yes	5	3	Yes	Yes
H27	38	0	3	4	4	0	0	3	4	3	2	1	2	0	0	Yes	3	-2	No	Yes
H28	105	0	4	3	2	0	0	0	4	4	4	1	3	0	0	No	4	3+	No	Yes
H29	92	0	2	3	3	0	0	3	2	4	2	1	4	0	0	Yes	4	3	No	Yes
H30A	66	0	2	2	2	0	0	2	2	3	2	1	4	0	0	No	3	4	No	Yes
H30B	248	0	3	2	2	0	0	2	3	5	4	2	3	0	0	No	5	-2	No	Yes
H31	158	0	2	3	3	0	0	1	2	3	2	1	4	0	0	No	3	-3	No	Yes
H32	112	0	2	3	4	0	1	3	4	5	2	2	3	0	0	No	4	-2	No	Yes
H33	182	0	1	3	2	0	0	2	4	6	2	2	4	0	0	Yes	3	4+	No	Yes
H34	66	0	2	3	2	0	0	3	4	4	2	1	3	0	0	No	3	-2	No	Yes
H35	40	0	2	3	2	0	0	3	4	6	2	2	3	0	0	Yes	6	-2	Yes	Yes
Н36	54	0	2	3	4	0	0	3	4	4	2	1	3	0	0	No	4	-2	No	Yes
H37	179	0	2	2	3	0	0	3	4	4	2	1	4	0	0	No	4	-2	No	Yes
H38	86	0	2	3	2	0	0	3	2	2	2	1	3	0	0	No	2	3	No	Yes
H39	310	0	2	3	3	0	0	2	4	5	2	2	3	0	0	No	4	3+	No	Yes
H40	193	0	2	2	2	0	0	2	4	7	2	2	3	0	0	No	4	4+	No	Yes
H41	183	0	3	3	3	2	0	4	4	5	2	2	4	0	0	Yes	5	-2	Yes	Yes

HEDGEROW NUMBER	LENGTH (M)	RECENT	HEIGHT	WIDTH	CROSS- SECTION	MATURE PER 100M	YOUNG PER 100M	No. Gaps	No. CONNECTIONS	No. WOODY SPECIES	NATIVE DOMINANCE	WOODY SPECIES	BANK	D ITCH	Verge	SCHEDULE 3 WOODLAND SPECIES AS A QUALIFYING FEATURE	AVERAGE NUMBER OF SPECIES PER 30M SECTION	HEGS	REGS	CORNISH HEDGE
H42	150	0	2	2	2	0	0	3	4	5	2	2	3	0	0	No	4	-3	No	Yes
H43	242	0	2	2	1	0	0	3	4	5	2	2	0	0	0	No	2	-3	No	No
H44	116	0	2	3	3	0	0	3	3	3	2	1	3	0	0	No	3	3+	No	Yes
H45	120	0	2	3	3	0	0	3	2	4	2	1	2	0	0	No	3	3	No	Yes
H46	273	0	4	4	3	0	0	3	3	8	4	3	2	0	0	Yes	6	2	Yes	Yes
H47	307	0	3	2	2	0	3	3	2	8	4	3	3	0	0	Yes	5	-2	Yes	Yes
H48	217	0	4	3	3	4	2	3	2	8	4	3	3	2	2	Yes	4	-1	No	Yes
H49A	64	0	4	4	4	4	0	3	4	7	4	2	4	0	2	Yes	7	-1	Yes	Yes
H49B	122	0	3	3	3	0	2	4	2	9	4	3	2	0	0	No	6	2	Yes	Yes
H50	284	0	1	1	1	0	0	2	3	4	2	1	4	0	0	No	4	4	No	Yes
H51	270	0	1	1	1	0	1	3	4	6	2	2	4	0	0	Yes	2	-3	No	Yes
H52	275	0	1	1	1	0	2	3	4	4	2	1	4	0	0	No	2	-3	No	Yes
H53	216	0	4	4	2	4	4	2	4	9	4	3	3	2	0	No	6	-1	Yes	Yes
H54	299	0	1	1	1	0	0	1	4	10	2	4	4	2	2	Yes	5	3+	No	Yes
H55	132	0	4	4	3	4	4	2	4	6	4	2	3	2	2	Yes	5	-1	Yes	Yes
H56	120	0	4	4	1	4	4	2	4	5	4	2	3	0	0	Yes	5	-1	Yes	Yes
H57	297	0	2	2	2	1	0	3	4	9	2	3	3	0	0	No	2	-2	No	Yes
H58	70	0	1	2	3	0	0	2	4	8	2	3	4	0	0	Yes	6	-3	Yes	Yes
H59	77	0	2	2	2	0	0	3	2	6	2	2	4	0	2	Yes	6	-3	Yes	Yes
H60	58	0	2	3	3	0	2	3	4	7	4	2	3	0	0	Yes	6	2	No	Yes
H61	190	0	2	3	3	0	1	2	4	7	4	2	4	0	0	No	5	2	No	Yes
H62	180	0	2	2	2	1	0	3	4	5	4	2	4	0	0	Yes	4	2	Yes	Yes
H63	148	0	2	2	2	0	2	3	4	6	4	2	4	0	0	Yes	5	2	Yes	Yes
H64	37	0	4	3	3	0	0	2	2	5	4	2	3	0	0	No	5	-2	No	Yes
H65	55	0	4	4	3	2	4	3	4	6	4	2	3	3	2	Yes	6	1	Yes	Yes
H66	81	0	4	4	3	2	2	4	4	9	4	3	3	3	2	Yes	9	1	Yes	Yes
H67	145	0	4	3	3	1	0	2	2	6	4	2	3	0	0	No	6	-2	No	Yes
H68	229	0	3	2	2	0	0	4	2	4	2	1	0	0	2	No	4	3+	No	No
H69	140	0	2	3	2	2	2	1	3	6	2	2	4	0	0	Yes	5	3	Yes	Yes
H70	317	0	3	2	2	0	0	2	3	6	2	2	4	0	0	Yes	4	3	No	Yes
H71	210	0	2	2	3	0	3	3	4	9	2	3	4	0	0	Yes	5	-2	No	Yes
H72	181	0	3	3	2	0	0	4	2	5	2	2	4	0	0	No	4	3+	No	Yes
H73	202	0	3	2	2	0	0	3	4	6	2	2	4	0	0	Yes	5	-2	No	Yes
H74	135	0	3	2	2	1	0	3	4	4	2	1	4	0	0	Yes	3	-2	No	Yes
H75	144	0	3	3	3	2	2	4	4	9	2	3	3	0	0	Yes	6	2+	Yes	Yes
H76	162	0	4	4	3	4	4	3	4	11	4	4	3	0	2	Yes	9	1	Yes	Yes
H77	75	0	4	3	3	4	4	3	3	7	4	2	2	0	0	Yes	5	-1	Yes	Yes
H78	432	0	4	3	1	0	2	3	4	10	4	4	2	0	2	Yes	6	-1	Yes	Yes
H79	105	0	2	2	2	0	2	1	2	5	2	2	2	0	0	No	3	-3	No	Yes
H80	321	0	2	4	2	0	2	3	3	7	2	2	4	0	2	Yes	3	-2	No	Yes
H81	280	0	4	3	3	2	4	3	4	10	4	4	2	0	0	Yes	7	1	Yes	Yes
H82	278	0	4	3	3	0	1	2	3	7	4	2	3	0	0	Yes	5	-2	Yes	Yes
H83	118	0	3	3	3	0	1	2	4	5	4	2	4	0	0	No	5	2	No	Yes
H84	152	0	3	4	3	0	2	2	3	7	2	2	2	0	0	Yes	5	3	No	Yes
H85	30	0	3	2	1	0	4	1	3	8	4	3	4	0	0	Yes	5	-2	No	Yes
H86A	99	0	3	3	2	0	2	2	4	4	2	1	4	0	0	Yes	4	3+	No	Yes
H86B	82	0	3	3	2	0	0	2	4	6	2	2	4	0	0	Yes	6	3+	Yes	Yes

HEDGEROW NUMBER	LENGTH (M)	RECENT	HEIGHT	WIDTH	CROSS- SECTION	MATURE PER 100M	YOUNG PER 100M	No. Gaps	No. CONNECTIONS	No. WOODY SPECIES	NATIVE DOMINANCE	WOODY SPECIES	BANK	D ITCH	Verge	SCHEDULE 3 WOODLAND SPECIES AS A QUALIFYING FEATURE	AVERAGE NUMBER OF SPECIES PER 30M SECTION	HEGS	REGS	CORNISH HEDGE
H86C	71	0	3	3	2	0	0	2	4	4	2	1	4	0	0	Yes	4	3+	No	Yes
H87	142	0	4	3	3	0	2	3	2	8	4	3	2	0	0	Yes	7	-2	Yes	Yes
H88	135	0	4	3	3	0	0	3	4	7	4	2	2	0	0	Yes	4	2	No	Yes
H89	145	0	3	2	3	0	1	2	3	6	2	2	3	0	0	Yes	5	3	No	Yes
H90	68	0	4	3	3	0	2	4	3	4	2	1	0	0	0	No	3	-2	No	No
H91	68	0	4	3	3	4	0	3	4	9	4	3	3	0	0	Yes	6	-1	Yes	Yes
H92	128	0	4	4	3	4	4	3	4	9	4	3	2	2	2	Yes	9	-1	Yes	Yes
H93	119	0	3	4	4	2	4	2	3	9	4	3	0	0	0	Yes	6	-1	Yes	No
H94	154	0	4	3	3	1	4	3	4	8	4	3	4	3	2	Yes	7	1	Yes	Yes
H95	92	0	3	2	2	0	2	3	3	5	2	2	3	0	0	Yes	4	3+	No	Yes
H96	85	0	3	2	2	0	2	4	3	5	2	2	3	0	0	Yes	5	-2	No	Yes
H97	144	0	3	3	3	0	1	3	4	8	4	3	2	0	2	Yes	7	2+	Yes	Yes
H98	72	0	3	3	3	0	0	4	3	4	4	1	2	0	2	Yes	4	-2	No	Yes
H99	90	0	3	4	4	0	0	4	4	6	4	2	4	0	0	Yes	6	2	No	Yes
H100	155	0	3	3	3	0	2	2	3	6	4	2	3	0	2	Yes	4	-2	No	Yes
H101	116	0	2	2	3	0	0	2	4	8	4	3	2	2	2	No	4	2	No	Yes
H102	187	0	3	3	3	0	4	3	3	7	4	2	4	0	0	Yes	4	-1	No	Yes
H103	111	0	2	1	2	0	0	4	3	3	2	1	0	0	2	No	1	-3	No	No
H104	80	0	3	3	3	0	0	4	4	4	2	1	4	0	0	Yes	4	-2	No	Yes
H105	190	0	2	2	3	0	0	4	2	2	2	1	4	0	2	No	2	-2	No	Yes
H106	300	0	3	2	3	0	0	4	3	9	2	3	4	0	0	Yes	6	-2	Yes	Yes
H179	226	0	2	2	3	0	0	4	3	3	2	1	4	0	0	No	3	-2	No	Yes
H107	131	0	3	2	2	0	1	2	4	6	4	2	0	0	2	Yes	6	2	No	No
H108	117	0	4	3	3	0	3	1	4	8	4	3	3	0	2	Yes	5	-1	No	Yes
H109	108	0	3	2	3	1	3	2	4	5	2	2	3	0	0	Yes	5	3+	No	Yes
H110	174	0	2	4	4	0	0	1	4	4	2	1	3	0	0	No	4	3	No	Yes
H111	90	0	3	2	3	0	0	3	4	5	2	2	3	0	0	Yes	4	-2	No	Yes
H112	55	0	3	3	3	0	2	3	3	5	4	2	3	0	0	No	5	2	No	Yes
H113	222	0	2	3	3	0	3	2	3	5	4	2	2	0	0	Yes	3	-2	No	Yes
H114	98	0	4	3	3	4	4	2	4	4	4	1	3	0	0	Yes	3	2+	No	Yes
H115	117	0	3	3	1	0	1	1	2	6	4	2	3	0	2	Yes	4	3+	No	Yes
H116	33	0	4	3	3	3	0	2	4	5	4	2	3	0	0	Yes	5	-1	Yes	Yes
H117	65	0	3	3	3	2	0	3	4	6	4	2	2	0	0	Yes	5	2	Yes	Yes
H118	60	0	3	3	3	3	3	3	4	5	4	2	3	4	0	Yes	5	-1	Yes	Yes
H119	485	0	2	2	2	1	1	1	4	7	2	2	3	0	0	Yes	4	3	No	Yes
H120	445	0	2	3	2	0	1	2	3	7	2	2	3	0	0	Yes	3	3	No	Yes
H121	133	0	4	2	3	0	3	3	3	5	4	2	0	0	0	Yes	4	2	No	No
H122	95	0	4	2	3	2	0	3	3	5	4	2	0	0	0	Yes	4	2	No	No
H123	236	0	2	2	2	0	0	3	1	4	2	1	0	0	0	No	3	4	No	No
H124	280	0	4	2	1	2	0	2	3	4	2	1	0	0	0	No	2	3	No	No
H125	121	0	4	2	1	0	1	1	1	7	4	2	2	0	0	No	4	3+	No	Yes
H126	129	0	2	3	3	4	0	2	1	4	4	1	0	0	0	Yes	3	3	No	No
H127	46	0	4	3	3	0	0	1	2	4	4	1	2	0	0	Yes	3	3	No	Yes
H128	88	0	3	2	1	0	0	1	1	1	2	1	0	0	0	Yes	1	-4	No	No
H129	148	0	2	3	3	0	0	1	3	5	2	2	2	0	0	No	4	3	No	Yes
H130	200	0	3	4	4	0	0	3	4	3	2	1	2	0	0	No	3	-2	No	Yes
H131	102	0	4	3	3	0	1	2	3	3	2	1	0	0	0	Yes	3	3	No	No

HEDGEROW NUMBER	LENGTH (M)	RECENT	HEIGHT	WIDTH	CROSS- SECTION	MATURE PER 100M	YOUNG PER 100M	No. Gaps	No. Connections	No. WOODY SPECIES	NATIVE DOMINANCE	WOODY SPECIES	BANK	D ITCH	VERGE	SCHEDULE 3 WOODLAND SPECIES AS A QUALIFYING FEATURE	AVERAGE NUMBER OF SPECIES PER 30M SECTION	HEGS	REGS	CORNISH HEDGE
H132	72	0	3	3	2	0	0	1	4	3	4	1	2	0	0	Yes	3	3+	No	Yes
H133	102	0	4	2	3	0	0	3	3	1	2	1	0	0	0	No	1	3+	No	No
H134	456	0	4	2	3	0	0	3	3	1	2	1	0	0	0	No	1	3+	No	No
H135	198	0	4	3	4	0	0	3	3	7	2	2	4	0	0	Yes	4	3+	No	Yes
H136	175	0	3	3	4	2	0	3	4	5	4	2	3	0	0	Yes	5	2	Yes	Yes
H137	130	0	4	3	4	0	0	1	3	5	2	2	4	0	0	Yes	5	3	No	Yes
H138	66	0	3	3	2	0	0	1	3	4	2	1	3	0	0	No	4	3	No	Yes
H139	126	0	4	3	3	3	0	3	3	4	4	1	0	0	0	Yes	4	2+	No	No
H140	565	0	3	4	4	0	0	1	3	5	2	2	4	0	0	No	4	3	No	Yes
H141	140	0	4	3	3	0	4	2	2	6	2	2	0	0	0	Yes	3	2	No	No
H142	130	0	4	3	3	0	4	2	0	2	2	1	0	0	2	Yes	2	-2	No	No
H143	77	0	3	3	3	0	0	2	2	4	2	1	0	0	0	Yes	4	3	No	No
H144	40	0	3	2	2	0	0	1	1	3	2	1	4	0	0	No	3	-3	No	Yes
H145	515	0	4	4	3	0	2	2	4	9	4	3	0	0	0	No	4	-1	No	No
H146	120	0	3	3	2	0	0	1	2	5	2	2	0	0	0	No	3	-3	No	No
H147	144	0	3	2	1	0	0	1	2	3	2	1	2	0	0	No	2	-4	No	Yes
H148	215	0	3	2	3	0	0	1	1	2	2	1	4	0	0	Yes	2	-3	No	Yes
H149	88	0	3	2	3	0	2	3	0	7	2	2	4	0	0	Yes	4	-3	No	Yes
H150	155	0	2	1	2	0	2	1	2	4	2	1	0	2	0	No	3	-3	No	No
H151	210	0	3	3	3	0	2	2	4	6	2	2	3	0	0	No	4	3+	No	Yes
H152	142	0	2	2	2	1	1	2	4	10	4	4	4	0	0	Yes	5	2+	No	Yes
H159	230	0	2	2	2	0	0	1	3	4	2	1	4	0	0	Yes	3	4	No	Yes
H160	246	0	4	3	3	2	1	2	4	11	2	4	4	0	0	Yes	5	-1	Yes	Yes
H161	138	0	4	3	3	0	2	3	3	9	4	3	4	0	1	Yes	5	2	Yes	Yes
H162	295	0	4	3	3	0	1	3	3	8	4	3	4	0	0	Yes	5	2	Yes	Yes
H163	100	0	2	2	2	0	0	1	4	4	2	1	4	0	0	No	4	4	No	Yes
H164	386	0	3	3	3	0	2	3	4	9	4	3	4	0	0	Yes	6	2+	Yes	Yes
H165	220	0	3	3	3	1	1	3	3	7	2	2	3	0	0	Yes	6	3+	Yes	Yes
H166	92	0	4	3	2	0	0	3	3	7	2	2	2	0	0	Yes	5	3+	No	Yes
H167	137	0	4	3	2	1	0	4	4	10	2	4	2	0	0	Yes	5	2	Yes	Yes
H168	121	0	3	1	4	3	0	1	3	5	2	2	2	0	0	Yes	5	3	No	Yes
H169	85	0	4	4	4	0	0	3	4	7	2	2	0	0	0	Yes	6	-2	No	No
H170	123	0	4	4	4	0	3	3	3	7	2	2	0	0	0	Yes	6	2+	No	No
H171	88	0	3	3	3	2	0	4	4	4	2	1	0	0	0	No	4	-2	No	No
H172	92	0	3	3	4	0	3	4	2	4	2	1	0	0	0	No	4	2+	No	No
H173	66	0	2	3	4	0	3	4	2	4	2	1	0	0	0	No	4	3+	No	No
H174	62	0	3	2	4	0	0	4	4	4	2	1	3	0	0	No	4	-2	No	Yes
H175	70	0	3	2	4	0	4	4	3	4	2	1	3	0	0	No	4	2+	No	Yes
H176	80	0	3	3	4	0	2	3	2	4	2	1	2	0	0	Yes	4	3	No	Yes
H177	80	0	4	4	4	2	4	4	4	4	2	1	3	0	0	Yes	4	2+	No	Yes
H178	94	0	3	2	2	2	4	4	4	4	2	1	3	0	0	Yes	4	2+	No	Yes

Appendix B

SURVEY SHEETS AND HEGS ASSESSMENT CRITERIA

PEGS and REGS Fleidwork Sheet (A3. All field notes required to complete HEGS and REGS. The remainder can be done at desk), Use HEGS score except on 5a and 5b when use actual number.

ge No	Length	1 Recent	2 Height	3 Width	4 Cross-	5a Mature	5b No Young	9 No. Gaps	10 No.	12 Native	14 Bank	15 Ditch	16 Verge	Phase I Notes - general description	Species List
	(m)	1000-00-00	0.0000000000000000000000000000000000000	0.00000000	section	Standards Actual No	Standards Actual No		Connection		Dank	Ditch	75.65	features (e.g. walk etc), any protected species present or potential, nesting NERC binds (if in summer), connection to ponds / woodland.	species ast
	EDECATE TO A	NETET All non-	woods mades	and wondland	doubs added also	s all woody specie		30 or of comm. 1	DO- 1-1 1-1-1	to design					
	SPECIES TRA	resect; an new	woody species	and woodiand j	pantis added, pro	s an woody speci	es within centre	30m or every 1	uum, incaude s + :	scandaru.					
												-	1 2		
									0	0.00				201	
				14-1											
					1										
		705	4 ———												
		1										7			
											-	250			

| Exemply hald no completed | TID | Mills | # per, and 7 and basis SCORE on 1

2 Height (reclude back) 5 Watth 4 Arrisge Criss-Stellin

6

9 Percentage Gaps 10 No. of End Connections [nil]

12 Native Species Dominant [nil]

10-0% | no gaps 4+ 1-2 spp mixed

14 Hedgeliank/Lynchet 15 Ditch

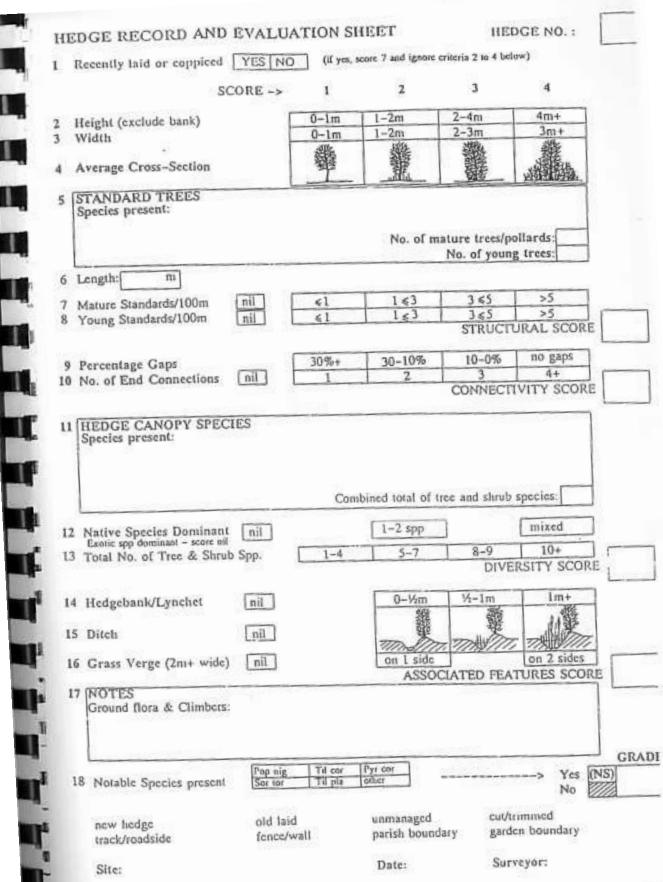
16 Grass Verge (2m+ wide) [nil]

mil |

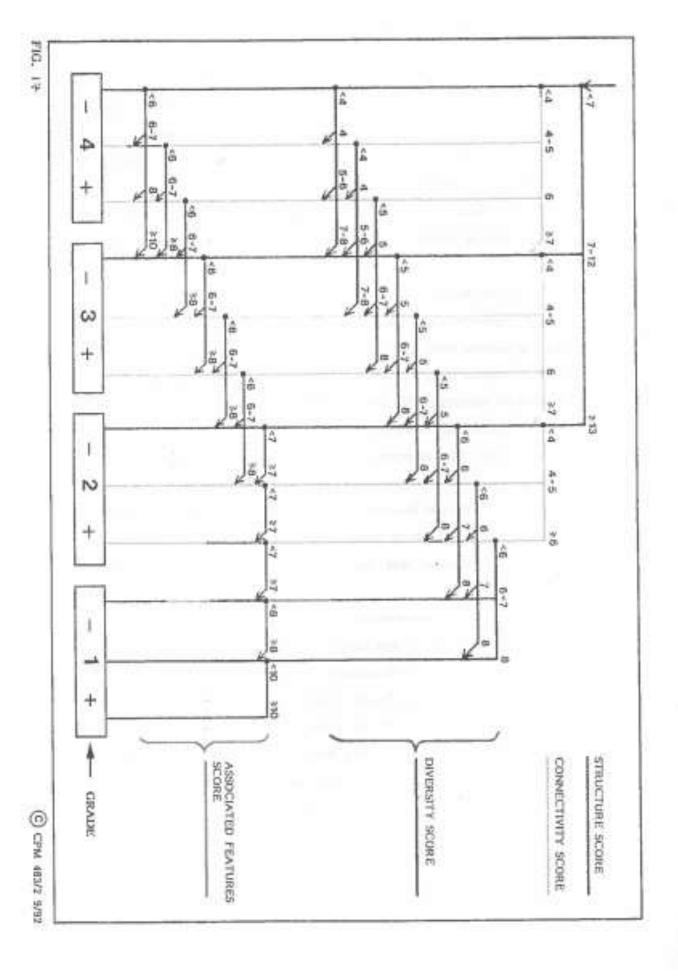
nil

Appendix C

HEDGE RECORD AND EVALUATION SHEETS AND SCORING MATRIX AS PREPARED BY THE HEDGEROW EVALUATION AND GRADING SYSTEM



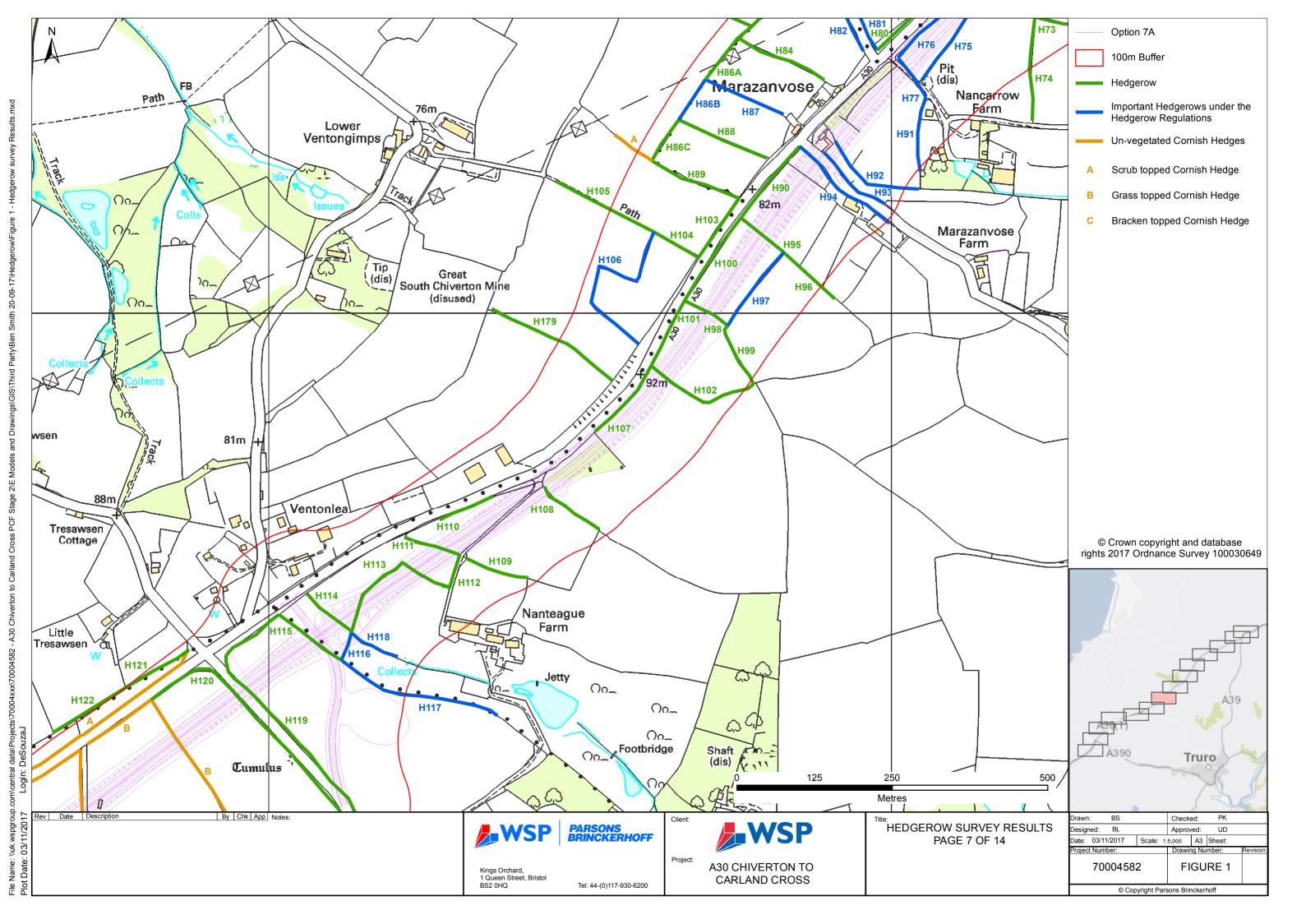
CPH\$63.1 9/42/0



Appendix D

FIGURES

Third Party\Ben Smith 20-09-17\Hedge \central data\Projects\70004xxx\70004582 - A30 Chiverton to Carland Cross PCF Stage 2\E Models Login: DeSouzaJ : \\uk.wspgroup. : 03/11/2017



and Drawings\GIS\Third Party\Ben Smith 20-09-17\Hedge

Smith 20-09-17\Hedge

igs\GIS\Third Party\Ben Smith 20-09-17\Hedg

to Carland Cross PCF Stage 2\E Models

survey Results. igs\GIS\Third Party\Ben Smith 20-09-17\Hedgel Ncentral data\Projects\70004xxx\70004582 - A30 Chiverton to Carland Cross PCF Stage 2\E Models and Drav Login: DeSouzaJ File Name: \\uk.wspgroup Plot Date: 03/11/2017

igure 1 - Hedgerow survey Results. | data\Projects\70004xxx\70004582 - A30 Chiverton to Carland Cross PCF Stage 2\E Models and Drawings\GIS\Third Party\Ben Smith 20-09-17\Hedge DeSouzaJ

