Woodbarn Farm, Broadford Bridge

Stage 1 Road Safety Audit

Barton Willmore

6 July 2012
Final Report
9X0727-04

Royal HaskoningDHV
Enhancing Society Together

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Document title	Woodbarn Farm, Broadford Bridge Stage 1 Road Safety Audit
Document short title	Woodbarn Farm: Stage 1 RSA
Status	Final Report
Date	6 July 2012
Project name	Woodbarn Farm, Broadford Bridge
Project number	9X0727-04
Client	Barton Willmore
Reference	9X0727-04/RSA02/304032/Birm

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Date/initials check	6th July, 2012	SDB
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Date/initials approval	6th July, 2012	SDB

CONTENTS

1 INTRODUCTION

1.1.1 Haskoning UK Limited has been appointed by Barton Willmore to undertake a Stage 1 Road Safety Audit for highway works associated with a temporary construction access at Woodbarn Farm, Broadford Bridge, West Sussex.

1.1.2 A daytime site visit was undertaken by the Audit Team on Tuesday 3rd July 2012 at 1100 during the late morning inter-peak period, traffic conditions observed were steady with a relatively high HGV content. The weather was overcast with wet surface conditions.

1.1.3 The Authors of this Audit have examined and reported only on road safety implications of the scheme as presented on site and on the drawings provided and have not examined or identified the compliance of the designs to any other criteria.

1.1.4 The Audit is only concerned with the proposed scheme highway works and their interface with the adjacent highway network managed by West Sussex County Council.

1.1.5 The highways proposals include the following:

- Alteration to the existing access to provide temporary access for construction traffic associated with exploratory borehole works; and
- Traffic signage associated with proposed temporary construction access.

1.1.6 A site location plan is appended to this report as **Figure 1**.

1.1.7 The terms of reference of the audit are as described in the following documents:

- Design Manual for Roads and Bridges: Volume 5 - HD 19/03;
- Interim Advice Note 152/11: Road Safety Audit – Compliance with EC Directive 2008/96/EC; and
- Road Safety Audit, Chartered Institute of Highways & Transportation, 2008.

1.1.8 The Audit Team were provided with the following information:

- Figure 4.4 – Access Track Entrance; and
- Transport & Access Chapter (Final, dated July 2012).

1.1.9 Copies of this information can be found in **Appendix A** for information only.

1.1.10 Whilst recommendations have been made as part of this report, there may be equally satisfactory alternatives. The Auditors will be pleased to consider recommendations if required.

2 QUALIFICATIONS AND EXPERIENCE OF THE REPORT WRITERS

2.1.1 This Road Safety Audit was carried out by the following Audit Team in accordance with the requirements of HD 19/03 and IAN 152/11.

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2.1.2 A summary of the Audit Team's qualifications and experience is provided in **Appendix B** of this report.

3 MATTERS ARISING FROM THIS AUDIT

A1 General

A1.1 Departures from Standards

The audit team have not been advised of any Departures from Standard.

A1.2 Drainage

A1.2.1 PROBLEM

Location: Proposed site access, Adversane Lane

Description: Existing drainage ditch running along site boundary could flood where filled to accommodate access construction, leading to potential to create ponding / flooding on Adversane Lane.

Recommendation
Drainage measures should be provided where ditch is to be filled, ensuring ponding / flooding does not arise on Adversane Lane as a result of the proposed access construction.

A1.3 Access

A1.3.1 PROBLEM

Location: Proposed site access, Adversane Lane

Description: Large vehicles accessing / egressing the proposed development would create conflict with other road users if unable to safely access the site in a simple manoeuvre.

Recommendation
Provide drawings showing swept path analysis for all vehicle types required to access / egress the proposed development, ensuring vehicle movements can be undertaken in a single manoeuvre to avoid unnecessary conflict with traffic travelling on Adversane Lane.

A1.3.2 PROBLEM

Location: Proposed site access, Adversane Lane

Description: Proposed arrangement shows existing drainage ditch with no earthworks tie-in from access channel to ditch level. Aside from structural reasons, a verge should be provided to accommodate vehicle overrun into the ditch.

Recommendation
Provide appropriate minimum verge width and embankment to ditch level to ensure any vehicle overrun does not result in any vehicles overrunning the channel line tumbling into the ditch.

A2 Local Alignment

A2.1 Visibility

A2.1.1 PROBLEM

Location: Proposed site access, lateral visibility to east.

Description: Visibility to right when egressing sight constrained by overgrowth of verge landscaping, which could result in conflict between vehicles exiting the site and those travelling westbound along Adversane Lane.

Recommendation
Ensure visibility splays meet required standards by trimming overgrown verge landscaping, ensuring a maintainance regime for verge trimming is in place for the lifespan of the development access.

A5 Road Signs, Carriageway Markings and Lighting

A5.1 Signs

A5.1.1 PROBLEM

Location: Approaches to proposed site access from Adversane Lane

Description: Information and warnings conveyed by road signage to drivers at risk of being lost as a result of unclean signage on approaches to the proposed access, resultant from muddy, wet surface conditions observed during site visit.

Recommendation
Implement regular sign cleansing maintenance regime, ensuring signage gives clear warning of proposed construction access particularly during autumn / winter conditions and hours of darkness.

A5.1 Posts / Columns

A5.1.1 PROBLEM

Location: Approaches to proposed site access from Adversane Lane

Description: Sign mounting details not provided for Stage 1 Road Safety Audit. Signs mounted without sufficient clearance of vehicles travelling in both directions on the relatively narrow Adversane Lane are at risk of vehicle strikes.

Recommendation
Ensure sign mounting details are provided for Stage 2 Road Safety Audit, giving consideration to road width and visibility with context to landscaping.

4 AUDIT TEAM STATEMENT

We certify that we have examined the drawings and documents listed in the Appendices to this report. The examination has been carried out with the sole purpose of identifying any features of the design that could be removed or modified in order to improve the safety of the scheme. The problems identified have been noted in this report, together with associated safety improvement suggestions, which we recommend should be studied for implementation. The writers have not been involved with the scheme design.

Signed .....

Date ..... 06/07/2012 .....

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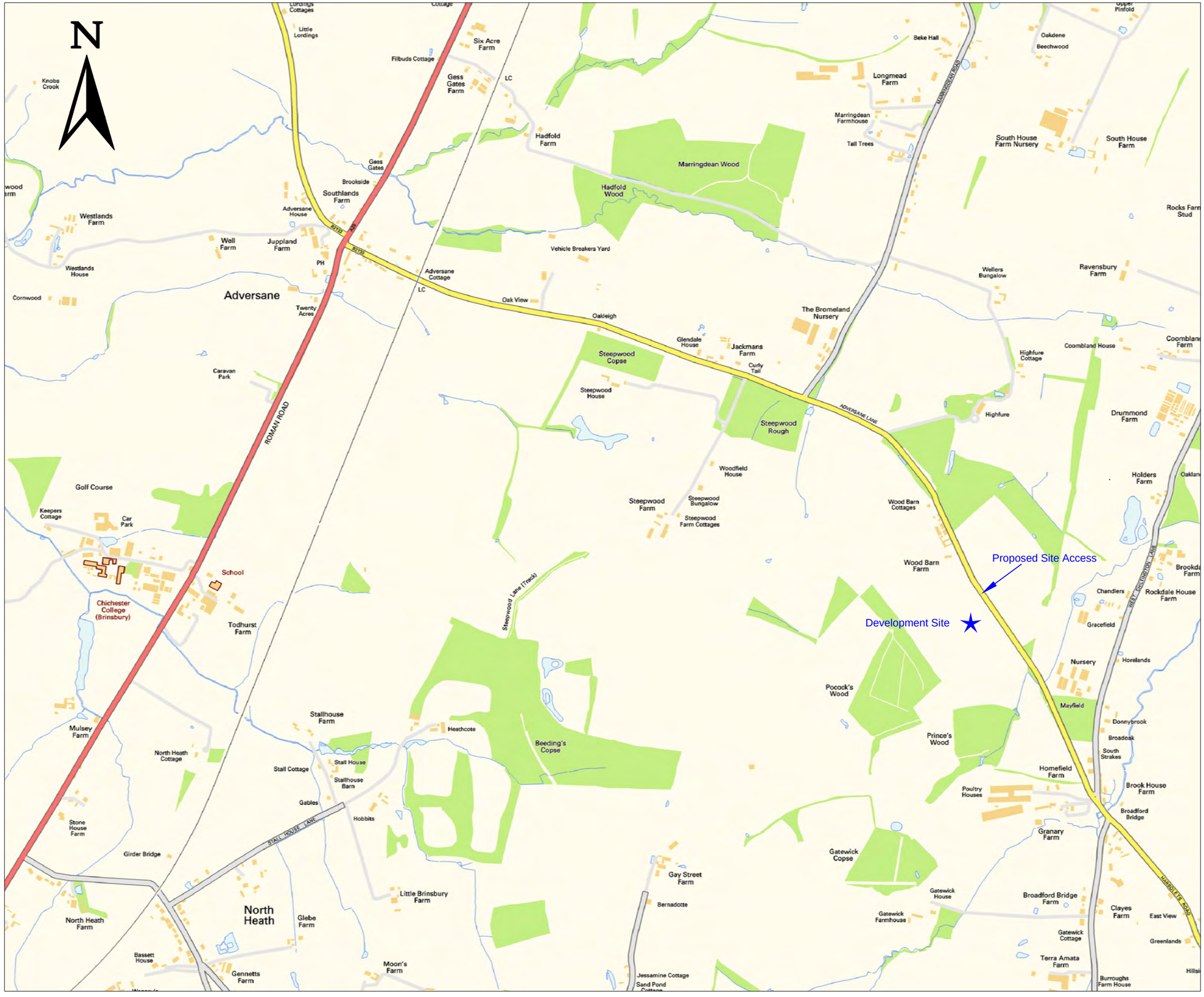
Report Figures

DRG No. FIGURE 1

DO NOT SCALE



Proposed site location:

Woodbarn Farm, Adversane Lane
Broadford Bridge
West Sussex

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DEVELOPMENT AND TRANSPORT

BARTON WILLMORE

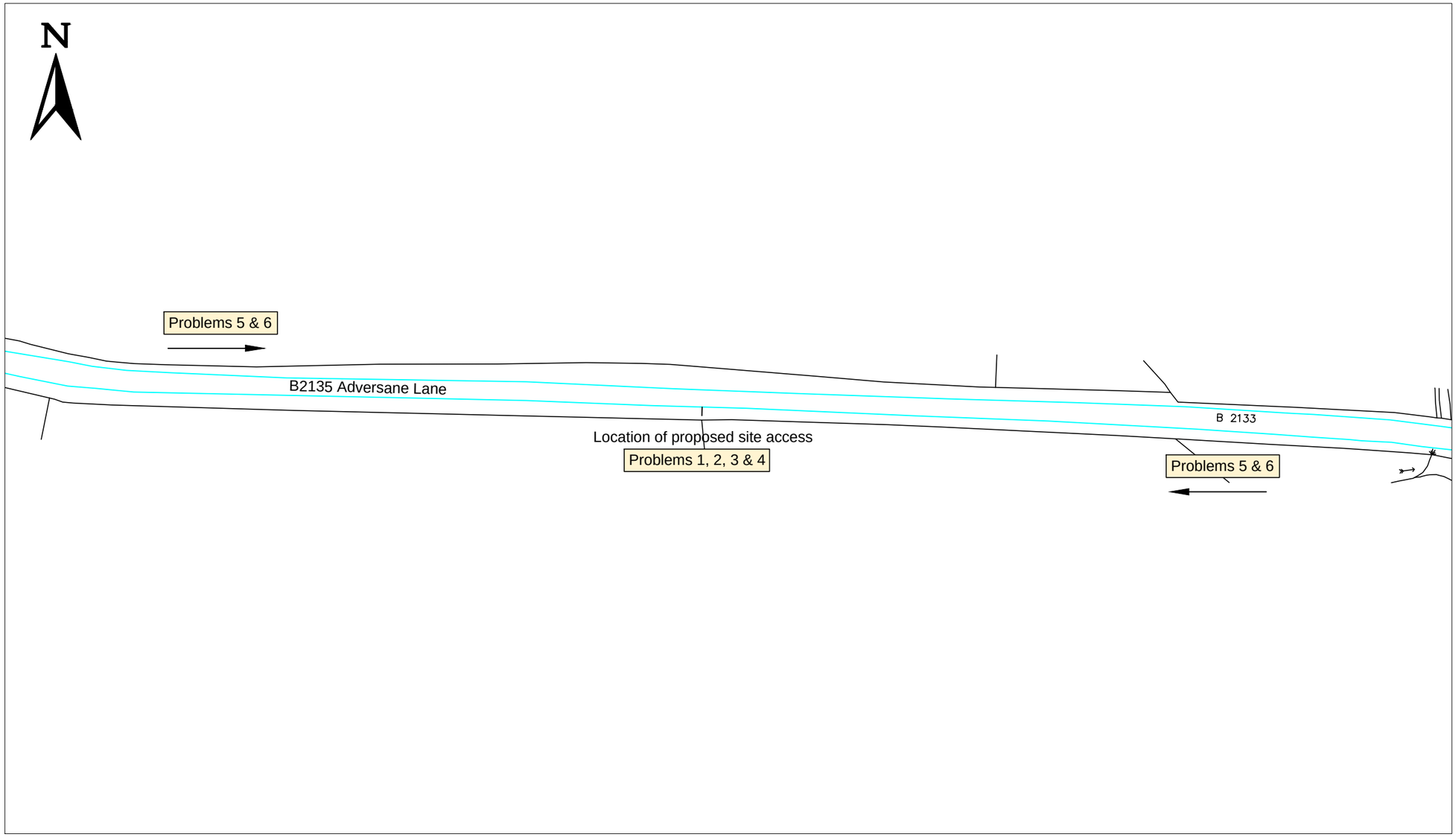
WOODBARN FARM, BROADFORD BRIDG
ROAD SAFETY AUDIT STAGE 1

SITE LOCATION PLAN

FIGURE 1

DRG No. FIGURE 2

DO NOT SCALE



Location of Road Safety Audit Problems Identified

Scale 1:1250

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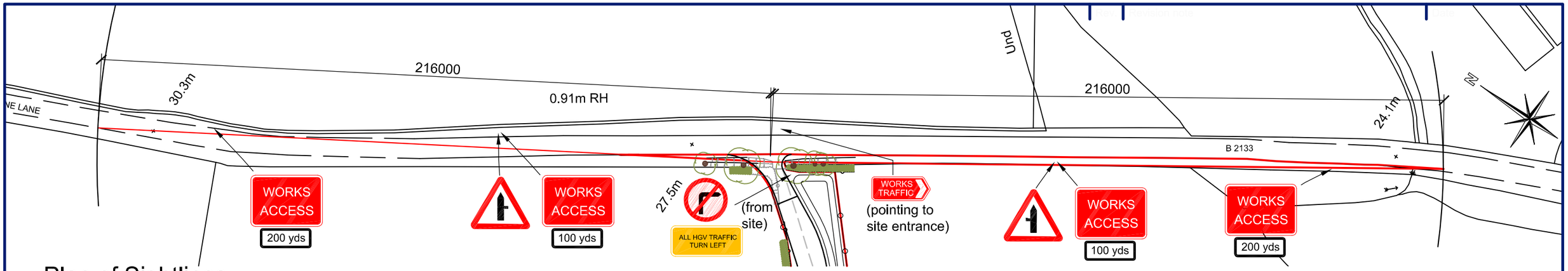
WOODBARN FARM, BROADFORD BRIDGE
ROAD SAFETY AUDIT STAGE 1

LOCATION OF ROAD
SAFETY AUDIT PROBLEMS

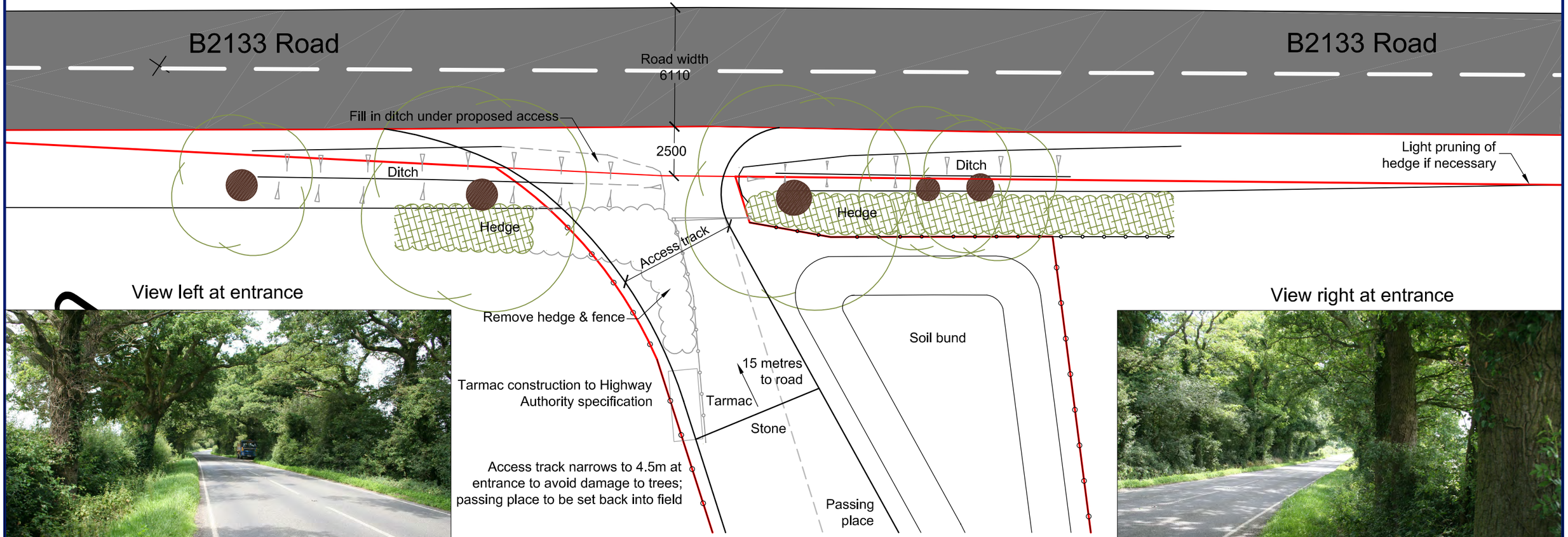
FIGURE 2

Appendix A
Road Safety Audit Background Information



Plan of Sightlines

Scale 1:1250



View left at entrance

View right at entrance

Proposed Sightlines & Entrance Detail

0 2m 4m

Scale 1:200

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Client: Celtique Energie Petroleum Broadford Bridge West Sussex	Drawn By: AJNE	Date: February 2012	Sheet Size: A3
	Drawing Title: Proposed Site Entrance (1:500)		
Job Title: Broadford Bridge Site	Drawing Number: Figure 4.4		Revision:

10.0 TRANSPORT AND ACCESS

Introduction

10.1 This chapter assesses the potential environmental effects on and in the vicinity of the Application Site which are attributable to changes in predicted travel patterns associated with the Proposed Development.

10.2 The chapter describes the assessment methodology; the baseline conditions currently existing at the Application Site and surroundings; the likely significant environmental effects; the mitigation measures required to prevent, reduce or offset significant adverse effects; and the likely residual effects after these measures have been employed. This chapter has been prepared by Royal Haskoning.

10.3 The assessment has been scoped with, and undertaken in liaison with, officers at WSCC including the submission of a draft Transport and Access chapter for comment. The county's response to the draft assessment was received on the 4th May 2012 and stated:

> **"Although we wouldn't provide direct comment on the acceptability in terms of the environmental impact, I am satisfied that the figures are representative of the traffic conditions and movements expected of the proposed development. In capacity terms, the thresholds that would require junction analysis are not exceeded and we would not consider the development to have a material impact."**

10.4 Accordingly a separate full Transport Assessment has not been prepared.

Planning Policy Context

National Planning Policy Framework (Ref. 10.1)

10.5 The National Planning Policy Framework sets out the Government's planning policies for England and how these are expected to be applied.

10.6 Section 13 deals with facilitating the sustainable use of materials and at the 6th bullet of paragraph 143 identifies that local planning authorities should:

> **"Set out environmental criteria, in line with the policies in this Framework, against which planning applications will be assessed so as to ensure that permitted operations do not have unacceptable adverse impacts on ……[inter alia] ……traffic"**

West Sussex Transport Plan 2011-2026 (Ref. 10.2)

10.7 The West Sussex Transport Plan (TP) sets out the County's strategy for managing movement within the County as well as the integrity of its transport assets over the next 15 years. It recognises that the main movement of freight is through road haulage, and this will continue to be the case through the lifetime of the TP.

10.8 Whilst supporting freight movement the TP seeks to manage movements in order to mitigate the consequences of noise, emissions and rat running.

10.9 The key aspects of the County's approach to freight management include, inter alia:

- Lorry Route Network – maintaining and promoting a lorry route network for main lorry movements in the County; and
- Minimising Construction Traffic – identifying and assessing lorry routes for construction traffic and sites which require high levels of Heavy Vehicles (HV) movements such as mineral extraction and waste sites.

10.10 This policy sets a clear requirement to maintain freight movements on specified routes as far as possible.

Assessment Methodology

Approach

10.11 The assessment process comprises three main activities:

i. Determination of baseline conditions;
ii. Determination of baseline conditions with the Proposed Development; and
iii. Determination of baseline conditions with the Proposed Development and cumulatively with other planned developments.

10.12 The outcome of activities (i.) and (ii.) in comparison provide an indication of the net potential environmental transport effects of the Proposed Development and therefore the extent to which mitigation measures may be required. The outcome of activities (i.) and (iii.) in comparison determine the extent to which the Proposed Development will integrate with other developments planned for the area and any further design or mitigation measures which may be required to achieve this.

Assessment Criteria

10.13 The assessment of environmental effects has been carried out in accordance with the "Guidelines for the Environmental Assessment of Road Traffic" published by the Institute of Environmental Assessment (IEA) (now Institute of Environmental Management and Assessment) (Ref. 10.3). Reference has also been made to Volume 11 of the Design Manual for Roads and Bridges (DMRB), published by the former DETR, now Department for Transport (DfT) (Ref. 10.4). These are recommended tools for the appraisal of environmental effects of transport and they identify appropriate standards for assessment. Reference has also been made to the "Guidance on Transport Assessment" March 2007 published by DfT (Ref. 10.5).

Methodology

10.14 The approach to determining the nature and extent of effects from the Proposed Development focuses on five main components:

1. Changes in travel patterns arising as a consequence of the Proposed Development for the morning (08:00 – 09:00 hours) and evening (15:00 – 16:00 hours) weekday peak hours and over a 24-hour period in the assessment year which is 2012;
2. Transport Modelling to determine changes in travel demand on key movement corridors arising from the Proposed Development in the assessment year;
3. Capacity Assessments to examine the extent of effects arising from the changes in travel demand on key links;
4. Development of Mitigation Measures which involves the examination of the effects identified and, where these are considered necessary, the development and testing of mitigation measures; and
5. Identification of Residual Effects which remain after mitigation; their quantification and recommendations on possible further measures to minimise these.

10.15 The five components set out above, in combination, provide a robust assessment of the Proposed Development in terms of transport effects.

Assessment Years

10.16 The Proposed Development is temporary in nature and is therefore most likely to commence and be completed in 2013. Should further works be undertaken at the Application Site then these would be the subject of a separate planning application and EIA, if necessary.

Potential Transport Effects

10.17 The main potential transport effects of construction and operational phases arise from changes in travel patterns on routes in the vicinity of the Application Site and associated issues in terms of the following elements:

- Landscape and Visual effects (these have been separately assessed in Chapter 8.0: Landscape and Visual Assessment);
- Air Pollution (this has been scoped out of the ES);
- Noise (this has been separately assessed in Chapter 9.0: Noise);
- Severance;
- Driver delay;
- Pedestrian delay and amenity;
- Fear and intimidation;
- Accidents and road safety; and
- Hazardous Loads (no hazardous loads are expected).

10.18 In considering whether these effects are likely to be significant and therefore should be investigated in greater detail, the IEA Guidelines suggest that the following screening tests should be applied:

- Test 1: include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%); and
- Test 2: include any other specifically sensitive areas where traffic flows have increased by 10% or more.

10.19 The above guidance is based upon knowledge and experience of environmental effects of traffic and also acknowledges that traffic forecasting is not an exact science. The

30% threshold is based upon research and experience of the environmental effects of traffic, with less than a 30% increase generally resulting in imperceptible changes in the environmental effects of traffic. The Guidance considers that projected changes in traffic flow of less than 10% create no discernible environmental effect, hence the second threshold as set out in Test 2. Notwithstanding this, the IEA guidelines also identify that where significant increases in HVs are predicted, the highway links affected should be considered.

10.20 In addition construction activities could result in the trafficking of mud onto the public highway and slow moving heavy vehicles leading to potential driver delay and accident and road safety effects.

10.21 There may also be the need for abnormal loads to be delivered to the Application Site again leading to potential driver delay and accident and road safety effects.

Magnitude and Significance

10.22 Where the screening test outlined above identifies that transport effects are likely to be significant, a standard approach to expressing the magnitude of these based on guidance contained in DMRB is applied. Environmental effects can be either adverse or beneficial and a description of the magnitude of significance is provided below in **Table 10.1**.

Table 10.1: Magnitude of Significance

Magnitude	Significance
Negligible	No significant effects
Minor	Not noteworthy or material – effects are of low magnitude and frequency and will not exceed relevant quality standards, residual effects will be negligible
Moderate	Noteworthy, material – effects are of moderate magnitude and frequency. Relevant quality standards may be exceeded to limited extent. Possible secondary impacts, residual effects will be minimal.
Major	Effects are likely to be of a high magnitude and frequency with quality standards being exceeded, at times considerably. There may be secondary effects of some magnitude, residual effects will be of some significance.
Substantial	Effects will be of a consistently high magnitude and frequency with Standards exceeded by a significant margin. Secondary impacts also likely to have a high magnitude and frequency. Significant residual effects.

Baseline Conditions

Walking

10.23 The importance of walking in contributing towards sustainable travel patterns has been, and continues to be, a central focus of government policy at all levels. The most recent National Travel Survey (Ref. 10.6) reports in table NTS0306 that the average walking trip length is 0.7 miles.

10.24 In terms of walking therefore, the location of the Application Site relative to existing centres of activity would tend to limit the use of this mode. Furthermore there is limited infrastructure in place to enable journeys to be safely made by foot.

Cycling

10.25 The importance of cycling in contributing towards sustainable travel patterns has been, and continues to be, a central focus of government policy at all levels. The most recent National Travel Survey (Ref. 10.6) reports in table NTS0306 that the average cycle trip length is 2.8 miles. There are a number of settlements within a 2.8 mile cycle ride to the Application Site.

10.26 There are no dedicated on or off road cycle routes in the vicinity of the Application Site. However, there is an extensive rural network of roads in the vicinity of the Application Site with low traffic flows, making them suitable for use by cyclists.

10.27 In terms of cycling therefore, the location of the Application Site relative to existing centres of activity would lend itself to cycling, providing a reasonable alternative to travelling by private car for some people.

Public Transport

10.28 There are no public transport services within access of the Application Site. However given the nature of the activities which form the Proposed Development, it is expected that the majority of journeys will need to be made by private vehicle carrying plant, equipment or materials.

Highway Network

10.29 The main local vehicular access routes identified in relation to the Application Site are

illustrated on **Figure 10.1**.

10.30 The B2133 Adversane Lane is a single carriageway road that connects the A29 to the northwest with the A24 to the southeast. Adversane Lane joins the A29 at a priority junction at the village of Adversane. Immediately to the southeast of the Application Site access is the village of Broadford Bridge. Adversane Lane is rural in nature being approximately 6m wide and derestricted. It is predominantly unlit and has no footways the exception being within Adversane village.

10.31 The A29 connects the A27 in the south and A24 to the north. The A29 is predominantly a single carriageway road with some sections of dual-carriageway. It is predominantly rural in nature being mostly derestricted and unlit. There are no continuous footways along the route.

10.32 Beyond these two main routes, other roads in the area are rural in nature being predominantly unlit, derestricted and of varying widths from 6m to narrower.

10.33 Traffic survey data were obtained from WSCC for two locations on Adversane Lane. The data comprises speed, volume and classification of traffic. The traffic surveys were undertaken at different times and have been factored to a common base year of 2012 using TEMPRO traffic growth factors. The factors for West Sussex have been used as these result in the highest traffic growth levels. The resulting baseline traffic flows are presented below in **Table 10.2**. TEMPRO data is provided at **Appendix 10.1**.

Table 10.2: Baseline Traffic Flows

Location	Time period	Two-way Traffic Volumes			Speed (mph)	
		Total	LV[2] (<1.5t)	HV[3] (>1.5t)	85th %ile	Mean Ave
B2133 Adversane, Adversane east of Oakleigh Cottage	AM Peak (08:00-09:00)	251	242	9	55.8	49.9
	PM Peak (15:00-16:00)	118	110	8	54.2	47.1
	24-hour (AAWT)[1]	1832	1722	110	55.8	49
B2133 Adversane Lane just south of Woodbarn Farm	AM Peak (08:00-09:00)	357	350	8	53.1	47.2
	PM Peak (15:00-16:00)	169	161	8	52.1	45.4
	24-hour (AAWT)	2519	2418	101	53.6	46.8

Note 1: Annual Average Weekday Traffic

Note 2: Light Vehicle
Note 3: Heavy Vehicle

10.34 It is noted that the surveys were undertaken at different times however from the data shown in **Table 10.2** it can be seen that traffic flows to the south of the Application Site are generally higher than those nearer Adversane village over the course of the day and at peak times.

10.35 Two-way traffic flows along Adversane Road in the vicinity of the Application Site access, during the morning peak hour reach up to 357 vehicles. Of these, eight are HVs which equates to 2.2%. Mean average speeds in the vicinity of the Application Site access amount to 47.2mph with the 85 percentile speeds (the speeds which are most relevant for design purposes) amounting to 53.1mph. In both cases speeds are lower than the legal limit for the road which is 60mph.

10.36 During the afternoon the busiest hour is 15:00 – 16:00 which is earlier than the normally expected weekday peak of 17:00-18:00. During this afternoon peak period, two-way traffic flows along Adversane Road in the vicinity of the Application Site access reach up to 169 vehicles. Of these eight HVs which equates to 4.8%. Mean average speeds in the vicinity of the Application Site access amount to 45.4mph with the 85 percentile speeds (the speeds which are most relevant for design purposes) amounting to 52.1mph. In both cases speeds are lower than the legal limit for the road which is 60mph.

10.37 Over the 24 hour weekday average, two-way traffic flows along Adversane Road in the vicinity of the Application Site access during the morning peak hour reach up to 2,519 vehicles. Of these 101 are HVs which equates to 4.0%. Mean average speeds in the vicinity of the Application Site access amount to 46.8mph with the 85 percentile speeds (the speeds which are most relevant for design purposes) amounting to 53.6mph. In both cases speeds are lower than the legal limit for the road which is 60mph.

Accidents

10.38 Personal Injury Accident (PIA) data was obtained from WSCC for the adjoining highway network for the most recent five year period available which was up to 31st January 2012. The study area includes Adversane Lane, the junction of Adversane Lane / A29 and Broadford Bridge. A summary of the PIAs in terms of their location and severity is provided in **Appendix 10.2**.

10.39 During the three year period, there were a total of 19 PIAs in the vicinity of the Application Site, 13 of which resulted in slight injury and five resulted in serious injury. There was one fatal injury accident within the study area which involved the death of a pedestrian. There were 27 injuries reported all of which related to drivers or car passengers with the exception of the pedestrian fatality. There were no reported accidents involving pedal cycles or motorcycles.

10.40 In terms of accident clusters which might indicate a deficiency in the highway network, there is a cluster of six accidents at and within 50m of the junction of Adversane Lane and the A29.

10.41 Turning to the one fatality recorded within the study area, this occurred on a stretch of the B2133 to the north of Wood Barn Farm which has restricted forward visibility for / to motorists.

Likely Significant Effects

Construction Activities

10.42 The main transport effects of construction are additional traffic (especially HV movements) on roads leading to the Application Site. Details of expected operations and traffic volumes are provided at **Appendix 10.3**.

10.43 Construction activities would comprise four phases which are:

- Phase 1 - Construction of access road and well site;
- Phase 2 - Mobilisation of Drill Rig - set up, drilling mode and dismantling;
- Phase 3a/3b - Short term test and evaluation programme;
- Phase 4a/4b - Restoration / Retention.

10.44 The likely significant effects of each of these phases are discussed in more detail below.

Phase 1 - Construction of the Access Road and Well Site

10.45 Phase 1 is expected to last 6 weeks and comprise the following activities which will require transportation:

- Vegetation and soil clearance, with soil retained on site in separate top and sub

soil bunds;

- Construction of access road comprising a tarmac entrance off Adversane Lane with the remainder of consisting of crushed stone with soil bunds to the north with drainage where required;
- The internal well site surface will be formed with crushed stone compacted on top of a geotextile layer and to a normal fall to a perimeter interceptor ditch;
- Interceptor ditches will be lined with a Bentomat geomembrane falling to a corner sump area; and
- A concrete "cellar" will be constructed at site level comprising of a reinforced concrete chamber sunk into the ground with its top surface being level with the main site level with an initial section of large diameter pipework built into its base to provide a starting point for operations.

10.46 **Table 10.3** below sets out the forecast construction traffic associated with Phase 1 of the Proposed Development together with an assessment of the change in traffic volumes on Adversane Lane associated with the works. For the purposes of the assessment the traffic flow data for Adversane Lane east of Oakleigh Cottage has been used. Being lower than the traffic volumes south of Woodbarn Farm, the environmental effects of additional road traffic will be proportionately greater than with a higher baseline traffic flow.

Table 10.3: Likely Significant Effects of Phase 1

Phase 1: Construction of Access Road and Well Site	Time Period	Two-way Traffic Volumes		
		Total	LV (<1.5te)	HV (>1.5te)
Forecast traffic associated with Phase 1 of the Proposed Development	AM Peak (08:00-09:00)	9	7	2
	PM Peak (15:00-16:00)	2	0	2
	24-hour (AAWT)	35	13	22
Percentage change in vehicle movements	AM Peak (08:00-09:00)	3.6%	2.9%	22.0%
	PM Peak (15:00-16:00)	1.7%	0.0%	24.8%
	24-hour (AAWT)	1.9%	0.8%	20.0%

10.47 **Table 10.3** shows that the maximum expected number of daily two-way HV movements is expected to be 22 HVs with the corresponding maximum daily two-way Light Vehicle (LV) movements at 13. During the peak hours, two-way HV movements or not expected to exceed three with two-way LV movements not exceeding 13.

10.48 **Table 10.3** demonstrates that during the construction phase there would be a less than 10% increase in LVs compared to baseline traffic volumes. In terms of HV traffic, it is expected to be less than a 30% increase in HV volumes compared to the 2012 baseline HV volumes. The IEA guidance states that changes in traffic volumes of this magnitude would result in imperceptible changes in the environmental effects of traffic. On this basis, it is concluded that the Phase 1 operations would lead to a negligible impact in terms of road traffic. No further detailed analysis of individual environmental elements with respect to construction traffic is therefore considered necessary.

Phase 2 - Mobilisation of the Drill Rig and Drilling Operations

10.49 Phase 2 is expected to last 6 weeks and comprise the following activities which will require transportation:

- The rig (MR7000 type rig or similar) will be brought onto site in sections and constructed in situ with the associated infrastructure including water tanks, pipe store, mud and fuel tanks, 24 hour staff living accommodation including mess, shower and WC;
- Drilling will be undertaken 24 hours a day, 7 days a week to prevent collapse of the borehole with staff working 12 hours shifts;
- Water supplies delivered by 5,000 gallon capacity tanker to two onsite storage tanks. It is estimated there would be an initial requirement of up to 36,000 gallons per day (eight tanker loads) for the first three days of drilling reducing to 10,000 gallons per day (two tanker loads) thereafter;
- Semi-dry drilling mud and rock cuttings would be collected in purpose built tanks which would be located on either a concrete pad or in skips and transported from the site by road for disposal at an authorised waste disposal facility;
- The contents of the site portaloos would be removed periodically to an approved disposal site;
- The contents of the surface water collection ditch and compound sump would be emptied as necessary and transported by road tanker for disposal at an approved location. A portable skip for refuse collection would be provided and its contents disposed of periodically to a licensed waste disposal site;
- Normally 12 staff will be onsite during drilling operations; and
- Staff car parking will be made available within the Application Site.

10.50 **Table 10.4** below sets out the forecast construction traffic associated with Phase 2 of

the Proposed Development together with an assessment of the change in traffic volumes on Adversane Lane associated with the works. For the purposes of the assessment the traffic flow data for Adversane Lane east of Oakleigh Cottage has been used. Being lower than the traffic volumes to the south of Woodbarn Farm, the environmental effects of additional road traffic will be proportionately greater than with a higher baseline traffic flow.

Table 10.4: Likely Significant Effects of Phase 2

Phase 2 - Mobilisation of Drill Rig - set up, drilling mode and dismantling	Time Period	Two-way Traffic Volumes		
		Total	LV (<1.5te)	HV (>1.5te)
Forecast traffic associated with Phase 1 of the Proposed Development	AM Peak (08:00-09:00)	14	13	1
	PM Peak (15:00-16:00)	1	0	1
	24-hour (AAWT)	35	27	8
Percentage change in vehicle movements	AM Peak (08:00-09:00)	5.6%	5.4%	11.0%
	PM Peak (15:00-16:00)	0.8%	0.0%	12.4%
	24-hour (AAWT)	1.9%	1.6%	7.3%

10.51 **Table 10.4** shows that the maximum expected number of daily two-way HV movements is expected to be eight HVs with the corresponding maximum daily two-way LV movements at 35. During the peak hours, two-way HV movements or not expected to exceed one with two-way LV movements not exceeding 14.

10.52 **Table 10.4** demonstrates that during the construction phase there would be a less than 10% increase in LVs compared to baseline traffic volumes. In terms of HV traffic, it is expected to be less than a 30% increase in HV volumes compared to the 2012 baseline HV volumes. The IEA guidance states that changes in traffic volumes of this magnitude would result in imperceptible changes in the environmental effects of traffic. On this basis, it is concluded that the Phase 2 operations would lead to a negligible impact in terms of road traffic. No further detailed analysis of individual environmental elements with respect to construction traffic is therefore considered necessary.

Phase 3a/3b - Short Term Test and Evaluation

10.53 If hydrocarbons are discovered then short term drilling will be undertaken at the Application Site. The duration of this phase will be dependent on whether it is gas or oil being tested. It is anticipated that gas testing would be carried out over a period of 2 weeks with oil testing lasting for 14 weeks.

10.54 Both Phase 3a and Phase 3b are expected to result in similar traffic volumes during peak activities. **Table 10.5** below sets out the forecast construction traffic associated with Phases 3a and 3b of the Proposed Development together with an assessment of the change in traffic volumes on Adversane Lane associated with the works. For the purposes of the assessment the traffic flow data for Adversane Lane east of Oakleigh Cottage has been used. Being lower than the traffic volumes to the south of Woodbarn Farm, the environmental effects of additional road traffic will be proportionately greater than with a higher baseline traffic flow.

Table 10.5: Likely Significant Effects of Phases 3a and 3b

Phase 3 - Short term test and evaluation programme	Time Period	Two-way Traffic Volumes		
		Total	LV (<1.5te)	HV (>1.5te)
Forecast traffic associated with Phase 1 of the Proposed Development	AM Peak (08:00-09:00)	3	2	1
	PM Peak (15:00-16:00)	0	0	0
	24-hour (AAWT)	6	4	2
Percentage change in vehicle movements	AM Peak (08:00-09:00)	1.2%	0.8%	11.0%
	PM Peak (15:00-16:00)	0.0%	0.0%	0.0%
	24-hour (AAWT)	0.3%	0.2%	1.8%

10.55 **Table 10.5** shows that the maximum expected number of daily two-way HV movements is expected to be two HVs with the corresponding maximum daily two-way LV movements at four. During the peak hours, two-way HV movements or not expected to exceed 1 with two-way LV movements not exceeding two.

10.56 **Table 10.5** demonstrates that during the construction phase there would be a less than 10% increase in LVs compared to baseline traffic volumes. In terms of HV traffic, it is expected to be less than a 30% increase in HV volumes compared to the 2012 baseline HV volumes. The IEA guidance states that changes in traffic volumes of this magnitude would result in imperceptible changes in the environmental effects of traffic. On this basis, it is concluded that Phase 3a and 3b operations would lead to a negligible impact in terms of road traffic. No further detailed analysis of individual environmental elements with respect to construction traffic is therefore considered necessary.

Phase 4a/4b - Restoration/Retention

10.57 If hydrocarbons are found at Phase 2 then Phase 3 is undertaken, followed by Phase 4b

– the retention of the well whilst an application is prepared for production. Should no hydrocarbons be found at Phase 2 then Phase 3 will be omitted and the works will move straight to Phase 4a – restoration of the Application Site. For restoration (Phase 4a) works are expected to last circa 6 weeks. For retention (Phase 4b) the period could extend to 30 months during which an application is prepared. However the main traffic movements are expected to occur during a 1 month period.

10.58 Phase 4a comprises the following activities which will require transportation:

- The well would be abandoned by plugging the borehole;
- The steel casing would be cut approximately 1.5m below surface and capped with a steel plate;
- Decommissioning of the rig;
- All structures including welfare and support buildings, the drill rig, storage tanks, the well cellar and sump-lining would be removed;
- Any remaining drilling mud and cutting waste would be removed from the site along with the pit liner and perimeter ditch-lining;
- The land would be re-graded and deep scarified in accordance with best silvicultural practice;
- Stored sub-soil and top-soil would be loose spread over the re-graded ground and subsoiled to relieve compaction; and
- The site would be re-contoured and allowed to regenerate naturally without the use of grass seed or planting and possibly replanted with trees in the future.

10.59 Phase 4b comprises the following activities which will require transportation:

- The well could be capped;
- Decommissioning of the rig;
- Welfare and support buildings, the drill rig and storage tanks would be removed;
- Any remaining drilling mud and cutting waste would be removed from the site; and
- The perimeter ditches, pit liner, cellar, security fencing, access road and well site compound including parking would be retained for future use pending the further grant of planning permission for production.

10.60 **Table 10.6** below sets out the forecast construction traffic associated with Phases 4a / 4b of the Proposed Development together with an assessment of the change in traffic volumes on Adversane Lane associated with the works. For the purposes of the

assessment the traffic flow data for Adversane Adversane east of Oakleigh Cottage has been used. Being lower than the traffic volumes to the south of Woodbarn Farm, the environmental effects of additional road traffic will be proportionately greater than with a higher baseline traffic flow.

Table 10.6: Likely Significant Effects of Phases 4a/4b

Phase 4a/4b - Restoration/ Retention	Time Period	Two-way Traffic Volumes		
		Total	LV (<1.5te)	HV (>1.5te)
Forecast traffic associated with Phase 1 of the Proposed Development	AM Peak (08:00-09:00)	9	7	2
	PM Peak (15:00-16:00)	3	0	3
	24-hour (AAWT)	35	13	22
Percentage change in vehicle movements	AM Peak (08:00-09:00)	3.6%	2.9%	22.0%
	PM Peak (15:00-16:00)	2.5%	0.0%	37.1%
	24-hour (AAWT)	1.9%	0.8%	20.0%

10.61 **Table 10.6** shows that the maximum expected number of daily two-way HV movements is expected to be 22 HVs with the corresponding maximum daily two-way LV movements at 35. During the peak hours, two-way HV movements or not expected to exceed three with two-way LV movements not exceeding nine.

10.62 **Table 10.6** demonstrates that during the construction phase there would be a less than 10% increase in LVs compared to baseline traffic volumes. In terms of HV traffic, it is expected to be less than a 30% increase in HV volumes compared to the 2012 baseline HV volumes. The IEMA guidance states that changes in traffic volumes of this magnitude would result in imperceptible changes in the environmental effects of traffic. On this basis, it is concluded that the Phases 4a/4b operations would lead to a negligible impact in terms of road traffic. No further detailed analysis of individual environmental elements with respect to construction traffic is therefore considered necessary.

Assessment of Abnormal Loads

10.63 There are no abnormal loads anticipated to be delivered to the Application Site however there may be some loads which need police escort during phases 1 and 4a/4b. In the absence of suitable mitigation measures, the Proposed Development would lead to a temporary minor adverse effect. Mitigation procedures for this will be set out in a Traffic Management Plan prepared for the Proposed Development (see below for further

details).

Assessment of Nuisance

10.64 In terms of nuisance arising from construction traffic, it is anticipated that In the absence of suitable mitigation measures, the Proposed Development would lead to a temporary minor adverse effect. Mitigation procedures for this will be set out in a Traffic Management Plan prepared for the Proposed Development (see below for further details).

Cumulative Effects

10.65 There are not considered to be any projects in the area that need to be assessed cumulatively with this development.

Mitigation Measures

Access - All Phases

10.66 It is proposed to make modifications to the existing field access for the duration of the construction period. The modified access is illustrated in Figure 4.4. The access is designed to safely accommodate the conventional and unconventional Heavy Goods Vehicle (HV) traffic associated with construction of the substation. Located on a long stretch of straight road, visibility in both directions along Adversane Lane meets current design visibility requirements.

10.67 Notwithstanding the good visibility in each direction, the access junction has been designed on the basis that all construction traffic will approach the Application Site from the north. This is to:

- reinforce that construction traffic should be travelling on WSC's advisory lorry route network for as long as possible which means approaching the Application Site from the north; and
- minimise the extent of highway modifications required to gain access which in themselves could lead to permanent adverse environmental effects if not minimised.

10.68 An alternative location for the Application Site access was considered which utilised the existing access into Wood Barn Farm. However this location was considered to be

inappropriate as it sits on the inside of a bend and so has restricted visibility along Adversane Lane. The only fatality in the study area was located in the vicinity of Wood Barn Farm which reinforces the unsuitability of this as a main access to the Application Site.

Construction Management Plan - All Phases

10.69 The Proposed Development is expected to lead to a temporary intensification of use of existing vehicular access points on the A47(T). This would be during the construction phase only with the use of the two vehicular access points reverting back to current traffic levels following the end of construction.

10.70 Notwithstanding the relatively low volumes of traffic movements forecast for the Proposed Development during the construction phase, a Traffic Management Plan (TMP) would be prepared with the focus of minimising disturbance which could potentially arise from construction traffic. The key elements of the TMP would include:

- Where identified as necessary for unconventional HV traffic, police presence and assistance with traffic control will be arranged;
- Routing traffic to the Application Site via the north in order to maintain HV traffic on WSC's advisory lorry route network for as long as possible and thereby minimise the impact of construction traffic on local communities;
- Provision of a hardstanding area within the Application Site in order to stagger vehicle arrivals and departures and therefore prevent queuing on the highway at the site entrance;
- Scheduling of construction traffic movements (equipment and materials), when possible, to avoid the peak traffic periods at the beginning and end of each day and other sensitive periods, in order to minimise any potential disturbance to local traffic or safety impacts at junctions;
- Provision of information to local village councils relating to the construction period, including any unconventional HV traffic which may be scheduled;
- Signage to identify access routes and to inform motorists that the local roads are accommodating construction traffic; and
- Wheel washing on site and road sweeping carried out to keep the local highway clear of mud and debris.

10.71 It is proposed that the preparation of the TMP would be a planning condition and that the TMP would be prepared and agreed with the Highway Authority Agency prior to

commencing activities on site.

Residual Effects

All Phases

10.72 The Proposed Development comprises 4 Phases each of which is temporary. On completion of each Phase, the traffic movements associated with that Phase will cease. Accordingly there are no residual effects identified in relation to Transport and Access.

Summary

10.73 This chapter has assessed the potential environmental effects on and in the vicinity of the Application Site which are attributable to changes in predicted travel patterns associated with the Proposed Development.

10.74 The assessment has been carried out in accordance with the "Guidelines for the Environmental Assessment of Road Traffic" published by the IEA (now Institute of Environmental Management and Assessment). Reference has also been made to Volume 11 of the DMRB, published by the former DETR, now DfT. These are recommended tools for the appraisal of environmental effects of transport and they identify appropriate standards for assessment.

10.75 Transport policy recognises that the main movement of freight is through road haulage, and this will continue to be the case into the foreseeable future. However there is a need to manage movements in order to mitigate the consequences of noise, emissions and rat running.

10.76 Construction traffic would access the Application Site via modifications to an existing field access for the duration of the construction period. The access meets current highway standards with respect to layout and safety.

10.77 Construction traffic would amount to less than 10% of total daily traffic volumes on the identified construction traffic access routes. No significant transport effects are therefore expected to arise as a consequence of traffic volumes.

10.78 There is the potential for adverse impacts to arise as a consequence of nuisance and the delivery of unconventional loads during construction. A Traffic Management Plan (TMP) would be prepared to mitigate this.

10.79 With mitigation measures in place, there are no residual effects identified in relation to Transport and Access.

10.80 A summary of the transport and access related effects are provided in **Table 10.7**.

Table 10.7: Table of Significance – Transport and Access

Potential Effect	Nature of Effect (Permanent/Temporary)	Significance (Major/Moderate/Minor) (Beneficial/Adverse/Negligible)	Mitigation / Enhancement Measures	Geographical Importance*							Residual Effects (Major/Moderate/Minor) (Beneficial/Adverse/Negligible)
				I	UK	E	R	C	B	L	
Phase 1: Construction of the access road and well site											
Changes in traffic volumes	Temporary	Negligible	None required							*	Negligible
Abnormal Loads	Temporary	Minor adverse	Traffic Management Plan							*	Negligible
Changes in HV volumes	Temporary	Negligible	None required							*	Negligible
Phase 2: Mobilisation of the drill rig and access road											
Changes in traffic volumes	Temporary	Negligible	None required							*	Negligible
Changes in HV volumes	Temporary	Negligible	None required							*	Negligible
Phase 3a/3b: Short term testing and evaluation											
Changes in traffic volumes	Temporary	Negligible	None required							*	Negligible
Changes in HV volumes	Temporary	Negligible	None required							*	Negligible
Phase 4a/4b: Restoration/Retention											
Changes in traffic volumes	Temporary	Negligible	None required							*	Negligible
Changes in HV volumes	Temporary	Negligible	None required							*	Negligible
Abnormal Loads	Temporary	Minor adverse	Traffic Management Plan							*	Negligible
All Phases											
Nuisance	Temporary	Minor adverse	Traffic Management Plan							*	Negligible

*** Geographical Level of Importance**

I = International; UK = United Kingdom; E = England; R = Regional; C = County; B = Borough; L = Local

References (Ref)

10.1 Department for Communities and Local Government (2012) National Planning Policy Framework.

10.2 West Sussex County Council (2011) *West Sussex Transport Plan 2011-2026.*

10.3 The Institute of Environmental Assessment (1994) *"Guidelines for the Environmental Assessment of Road Traffic."*

10.4 Department for Transport (Various*) the Design Manual for Roads and Bridges.*

10.5 Department for Transport (2007) *Guidance on Transport Assessment.*

10.6 Department for Transport (2011) National Travel Survey.

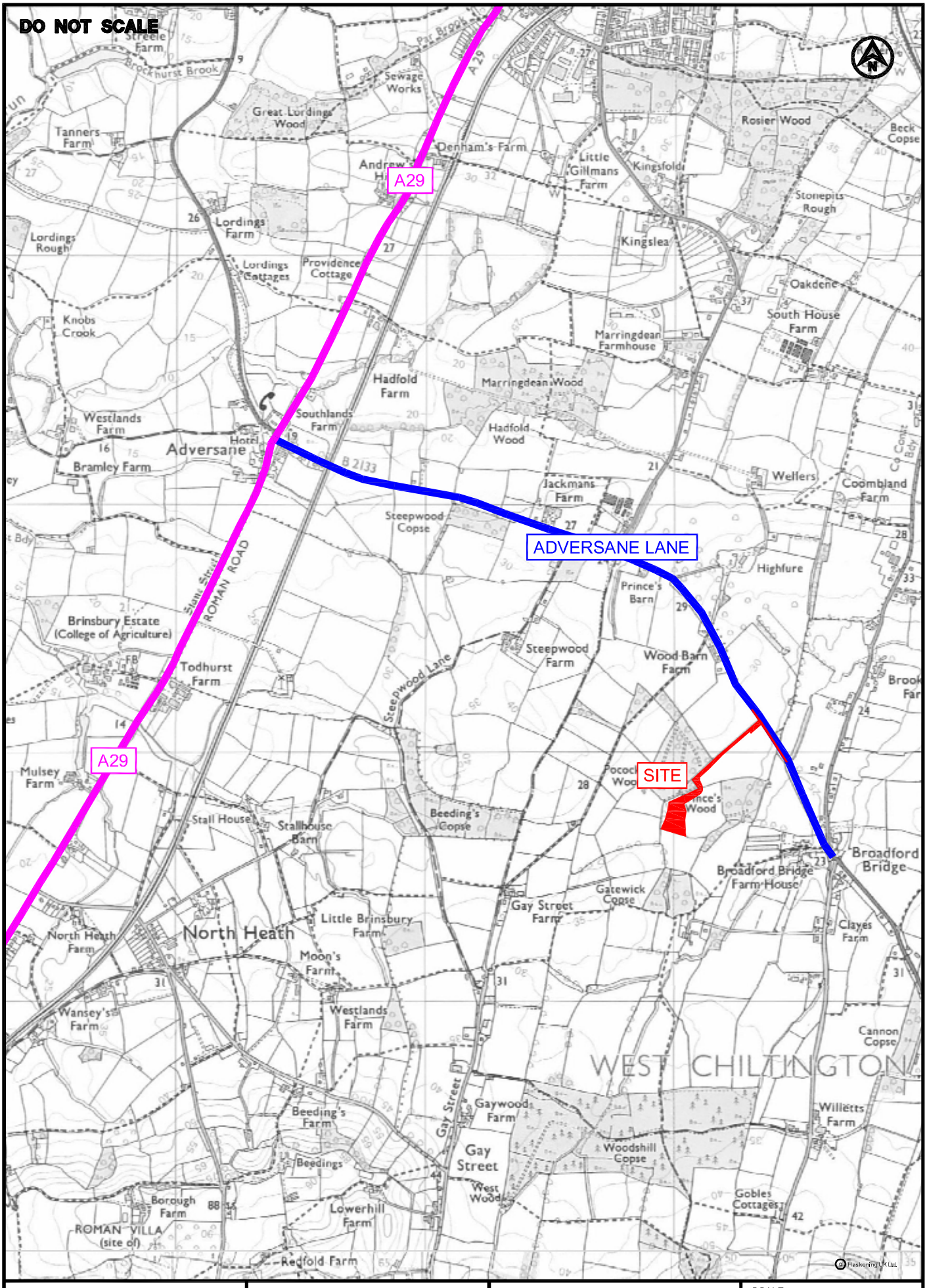


FIGURE 10.1 HIGHWAY LOCATION PLAN	PROJECT	REFERENCE	SCALE
	WILLOW 1	9W0727_10.1	1:20,000

TEMPRO Attraction and Production Factors

Billigshurst

Time period	Production	Attraction	Average
am peak	1.0078	1.0076	1.0077
pm peak	1.0080	1.0090	1.0085
Ave. weekday	1.0085	1.0086	1.0086

Horsham

Time period	Production	Attraction	Average
am peak	1.0082	1.0077	1.0080
pm peak	1.0084	1.0091	1.0088
Ave. weekday	1.0089	1.0086	1.0088

West Sussex

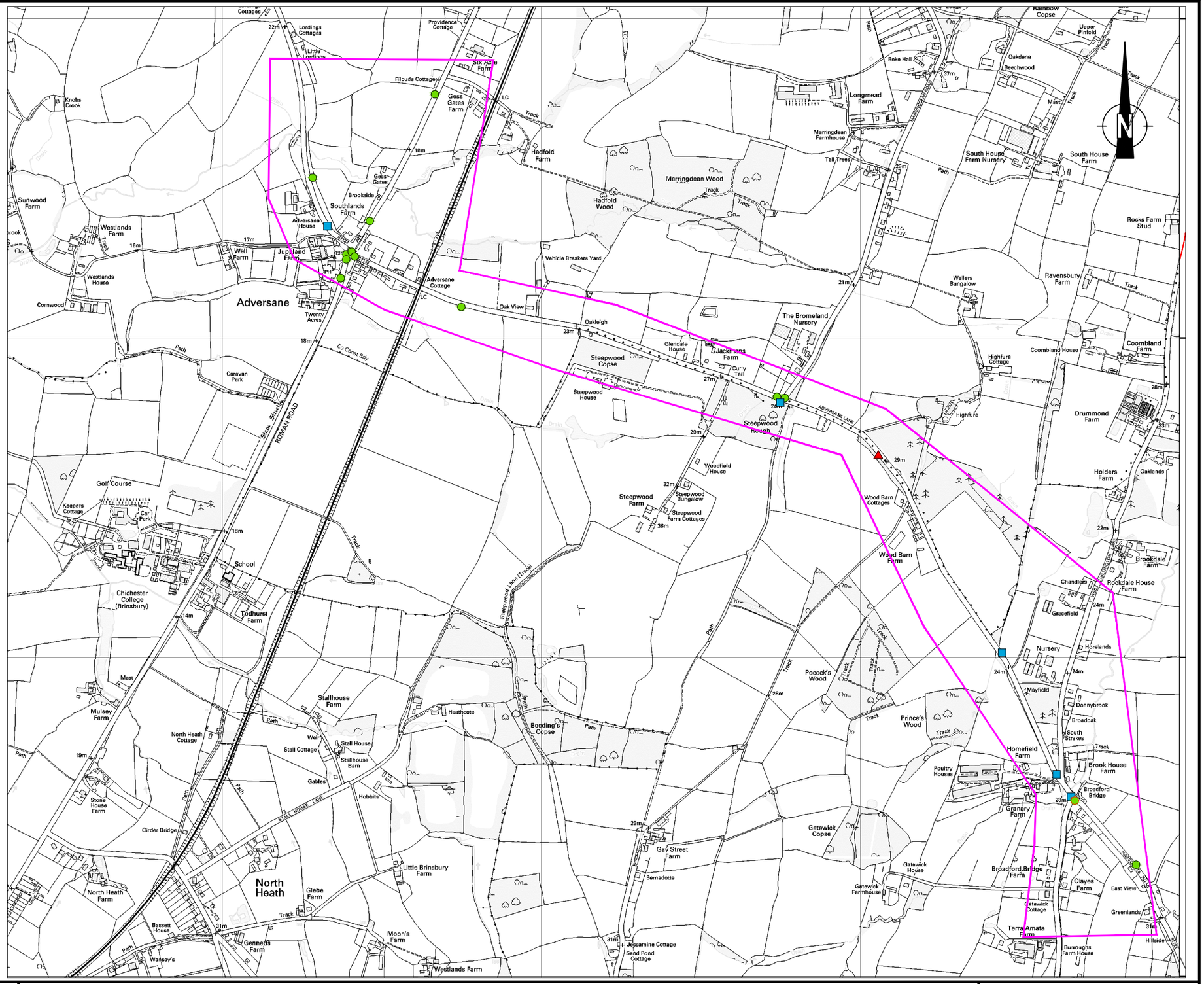
Time period	Production	Attraction	Average
am peak	1.0099	1.0098	1.0099
pm peak	1.0095	1.0097	1.0096
Ave. weekday	1.0099	1.0098	1.0099

Dataset version 62

Accident Severity	
Slight	13
Serious	5
Fatal	1

Casualty Severity	
Slight	21
Serious	5
Fatal	1

Casualty Class	
Driver	22
P.Riders	0
Pass.	4
Ped.	1



AREA	GD	DRAWN	dn
ROUTE No.		CHECKED	
FILE No.	12042	DATE	17/2/12

Rev	Date	Amendment	Name

West Sussex County Council

PIA Search Ref 12042
Adversane
5 Yrs to 31 Jan 2012

DRG No.

SCALE Not Std

Tony Toynton
Director of
Infrastructure Operations
County Hall, West Street
Chichester,
West Sussex, PO19 1RH
(Tel: 01243 642105)

Proposed Traffic Movements Associated with Exploratory Borehole – Willow Prospect, Broadford Bridge, West Sussex.

Construction (Phase 1)

Initially there would be movement of site preparation plant comprising 3-4 low-load articulated trucks at the outset of construction activity. The access, car-park and site would require approximately 5562 tonnes of stone (i.e. 278 lorry loads) delivered during a period of 5 weeks plus a small number of deliveries by HGV of ancillary construction materials/plant and 5-10 personnel movements per day by car or van. In total, the above movements equate to an average of 1 vehicle movement every 45 minutes during the normal working day of 8.00 am-5.00 pm, Monday to Friday, & 8.00 am-1.00 pm on Saturdays.

Mobilisation of the Drill Rig and Drilling of the Exploratory Borehole (Phase 2)

The following deliveries are for a typical drilling rig, 3 or 4 deliveries of which may be assisted by police escort, and would arise at the time of drill rig mobilisation: -

Derrick	1 load
Trailer with draw-works and rotary table	1 load
Sub-structure and ramp	1 load
Matting boards, Blow-out preventers & manifold	1 load
Mud pump buildings	2 loads
Mud tanks	2 loads
Light plant, accumulator & change house	1 load
Water tank and doghouse	1 load
Toolhouse and fuel tank	1 load
Catwalk, junk rack, V doors & stairs	1 load
Toolpush cabin	1 load
Forklift & washroom building	1 load
Cranes (for assembly)	2 loads
Total loads	**16 loads**

Additional deliveries would be required during mobilisation for ancillary services, as follows: -

Mud logging cabin & equipment	2 loads
Wireline logging	1 load
Drilling Mud Solids control equipment	1 load
Operational control cabin	1 load
Materials & chemicals	4 loads
Drill pipe & tubulars	4 loads
Accommodation modules	3 loads
Total loads	**16 loads**

The total number of deliveries (32) equates to 64 HGV movements would occur over an anticipated period of 3-4 days when the drill rig will be mobilised.

During drilling mode deliveries of equipment and removal of drilling mud and cuttings would generate 3-4 vehicles (6-8 trips) per day over a 4-5 week period. 20 light vehicle trips would be generated at 0800 and 2000 hrs at personnel shift changes.

Following the completion of the drilling work, the rig would be demobilised and removed from the site over a period of 3-4 days. Traffic movements would be the same as those during the mobilisation phase, that is, a maximum of 64 HGV movements.

Carrying out of a short-term test and evaluation programme (Phase 3)

It is anticipated that testing would be carried out over a period of 6 months. It is anticipated that vehicle movements would comprise no more than 6 movements by tanker per week. In addition, it is expected that there would two car movements per day for personnel to visit the site.

Restoration (Phase 4)

The restoration of the site would take place over a period of 5-6 weeks. Traffic movements are anticipated to be broadly similar to the construction phase as materials are removed from site. Movements may take place over a slightly longer period if adverse weather conditions prevent restoration and earth movements taking place. It is also possible that traffic movements could be significantly reduced compared to the construction period should the landowner wish to retain the stone on an adjoining part of the farm which does not involve access onto the public highway.

Appendix B
Summary of Road Safety Audit Team Experience

Summary of Road Safety Audit Experience

Steven Bibb

Present Position Senior Transport Planner

Contact Information

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Email: s.bibb@royalhaskoning.com

Career

1995 – 1999	WSP Development
1999 – 2000	Banners Gate Limited
2000 – 2005	Tamworth Borough Council / Staffordshire County Council
2005 – 2007	Scott Wilson
2007 – 2010	Mayer Brown
2010 – present	Royal Haskoning

Qualifications

CIHT, CILT	Member
SoRSA	Associate Member
RoSPA	Accident Investigation & Prevention, 2006

Highways Agency Approved Certificate of Competency, 2012

Recent Continuing Professional Development

Road Safety Audit: Keeping Up To Date (2 days)	TMS Consultancy, February 2012
Advanced Road Safety Audit: Roads & Highways (2 days)	Aston University, January 2011
Advanced Road Safety Audit: Junctions (2 days)	Aston University, February 2010

Summary of Road Safety Audit Experience

Steve has seven years' road safety related experience spanning the areas of collision investigation and remedial engineering, in addition to some safety experience prior to this working in the public sector delivering capital works projects, design of Tamworth Town Centre Pedestrianisation, involvement with Safer Routes to School projects and implementation of signage schemes on safety camera routes identified by Staffordshire's Safety Camera Partnership.

Previously employed at Scott Wilson, Steve was involved with numerous local safety scheme undertaken on behalf of Wolverhampton City Council, involving collision analysis, preparation of AIP reports and design of safety measures.

During his time at Mayer Brown Steve commenced his involvement with Road Safety Audits, undertaking the role of Observer on several audits associated with retail developments, residential schemes and cycle improvement schemes for local authorities.

Since joining Royal Haskoning in 2010 Steve has increased his Road Safety Audit experience, having taken part in over 20 Audits at Stages 1, 2 and 3. Steve has also been involved in providing collision analysis as part of the preliminary works associated with the construction of Hinkley Point C nuclear power station, on-shore cabling works for the extension to Kentish Flats wind farm and the rebuttal of a road safety objection associated with the proposed Linton Wind Farm, Cambridgeshire.

Since 2009 Steve has also being involved with Road Safety Audits, qualifying to the level as Audit Team Leader in accordance with the requirements of HD 19/03 and IAN 152/11.

Summary of Road Safety Audit Experience

Steven Bibb

Recent Road Safety Audit Experience

Steve has undertaken numerous Road Safety Audits in the last two years as an Audit Team Member and Team Leader. Some of these Audits shown in the table below demonstrate compliance with HD19/03 standards.

Date	Audit Stage	Audit Team Role	Details
May 2012	1	Team Member	**A47(T) Necton, Norfolk** - Highway access audit for sub-station works and site compound for construction works associated with Dudgeon Off-Shore Wind Farm on-shore cabling works
March 2012	2	Team Member	**Sainsbury's Whitchurch** - Highway works associated with proposed new store, including access / egress arrangements, toucan crossing and cycle route alterations.
March 2012	2	Team Leader	**Tennal Road, Harborne** - Access to proposed small residential development in Harborne, Birmingham
March 2012	2	Team Member	**Sainsbury's Whitchurch** - Highway works associated with proposed new store, including junction access arrangements, toucan crossing and cycle route alterations
February 2012	3	Team Member	**Sainsbury's Kidderminster** - Highway works associated with proposed store extension, including lane widening of signal junction approach and petrol filling station egress
January 2012	1	Team Leader	**Sainsbury's Court House Green** - Provision of new access / egress from dual carriageway to reconfigured car park arrangement
December 2011	2	Team Leader	**Sainsbury's Leek** - Proposed roundabout access junction associated with proposed store, access into residential element of development & pedestrian/cycle access
October 2011	1	Team Leader	**Steeple Bumpstead Flood Alleviation Scheme** - Highways and bridge works associated with culvert upgrade works as part of flood alleviation scheme
August 2011	3	Team Leader	**Route 301 Walsall Bus Showcase & Red Route** - Highway works associated with Bus Showcase route and Red Route on A34 between Walsall and Bloxwich
July 2011	2	Team Leader	**Bradford Place, Walsall** - Highway works & pedestrian improvements associated with bus stop improvements in Walsall town centre
April 2011	3	Team Member	**Route 529 Walsall Bus Showcase & Red Route** - Highway works associated with Bus Showcase route & Red Route, A454 Wolverhampton Rd, Walsall
November 2010	3	Team Member	**Sainsbury's, Newcastle-under-Lyme** - Highway works associated with new store, including signalised junction, geometric alterations and pedestrian crossing improvements
August 2010	1	Team Member	**M1 Junction 41** - Alteration of motorway junction arrangement to facilitate increased traffic flows arising from nearby development

Summary of Road Safety Audit Experience

Steven Bibb

Collision Investigation Experience

Steve has a variety of collision investigation experience undertaken in the context of Transport Assessments, Environmental Statements, with some recent examples summarised below. Also detailed are other examples of Accident Investigation and Prevention studies undertaken on Local Safety Schemes.

Date	Context of Study	Details
October 2011	Transport Assessment	**Sainsbury's Ledbury** – Summary analysis of 5 years collision data in the vicinity of a proposed supermarket development. Collision analysis demonstrated no patterns of collisions occurring within the site vicinity.
April 2011	Environmental Statement	**Hinkley Point C Preliminary Works, Somerset** – Preparation of safety section for ES Transport chapter assessing impacts of Hinkley Point C Preliminary Works, including preparatory earthworks and construction of a temporary jetty to support main construction works. Investigation of 379 collisions on approach routes including strategic routes such as the M5, A38 & A39 to determine baseline safety conditions, relationships to national averages and accident rate to determine predicted collision numbers using future year traffic flows. Mitigation measures identified included funding for road safety monitoring and delivery of road safety schemes by Somerset County Council in accordance with their requirements.
Dec 2010	Environmental Statement	**Angoflex, Lobito, Angola** – Prepared Transport & Safety chapter identifying potential impacts of traffic required for construction of cable manufacturing plant close to Lobito port. No collision data was available to assess road safety conditions of construction routes, however with national reports of circa 2,500 fatalities in Angola in 2010 (to date) sensitive receptors were identified for collision monitoring throughout the works, with mitigation measures including driver safety awareness training, a vehicle inspection regime and introduction of an incident reporting process.
June 2010	Road Safety Rebuttal Statement	**Linton Wind Farm, Cambridgeshire** – Prepared statement as rebuttal of AECOM report prepared for Linton Parish Council relating proposed wind farm development situated 800 metres from the A1307 and its potential to increase collisions on this route as a result of driver distraction. Analysis of 3 years before and after collision data for 6 comparative sites, in addition to review of national and international policy, zone of theoretical visibility and local clusters of collisions identified by AECOM concluded these wind farm proposals would not adversely affect road safety at this location.
March 2010	Road Safety & Junction Capacity Improvements	**Sainsbury's Heyford Hill, Oxfordshire** – Signalisation of an existing roundabout as solution to historical collision / capacity problems, undertaken as part of works associated with adjacent supermarket extension. Analysis of 5 years collision data revealed patterns of junction overshoot, rear end shunts on approaches and lane change within the roundabout. Steve also undertook preliminary design / modelling of the junction with inclusion of safety measures such as high friction surfacing and signage on approaches, with clearer 'spiral' lane markings within the roundabout itself.
May 2006	Local Safety Scheme	**Old Heath Road, Wolverhampton** – Study of 15 route collisions (1km) in a 5 year period on route identified by Wolverhampton City Council. Analysis identified pattern in speed related collisions where localised centre hatching was recommended to create narrowing of carriageway lane widths in addition to provision of 'slow' markings on coloured surfacing.
Dec 2005	Local Safety Scheme	**Prestwood Road, Wolverhampton** – Study of 34 route collisions (1.5km) in a 5 year period identifying high proportion of wet / dark collisions with particular concern to vehicle speed and pedestrians. Mitigation included road marking renewal, renewal of illuminated bollards as appropriate and use of high friction surfacing on controlled pedestrian crossing approaches.
June 2005	Local Safety Scheme	**New Hampton Road, Wolverhampton** – Study of 86 route collisions (2km) in a 5 year period identifying multiple clusters along route located at junctions, pedestrian crossings in addition to a high proportion occurring during wet and dark conditions. Recommended measures included renewal of road markings, alterations to on-street parking to improve junction visibility, relocation of bus stops, high friction surfacing at pedestrian crossings and 'slow' markings where appropriate.

Summary of Road Safety Audit Experience

Vicky Homer

Present Position Senior Transport Planner

Contact Information

Telephone: 0121 236 6555

Email: v.homer@royalhaskoning.com

Career

2000 – 2002 Oscar Faber

2002 – Present Haskoning UK Ltd, Royal Haskoning

Qualifications

BSc (Hons) Geology, The University of Birmingham, 1999

CIHT Member

CRASH@Aston – Road Safety Engineering Course – 10 days

Recent Continuing Professional Development

SoRSA Annual Conference (1.5 days)	SoRSA / CIHT, 18th-19th June 2012
Road Safety Audit: Keeping Up to Date (2 days)	TMS Consultancy, 23rd-24th May 2012
Advanced Road Safety Audit: Roads & Highways (2 days)	Aston University, January 2011
Advanced Road Safety Audit (2 days)	Aston University, February 2010

Summary of Road Safety Audit Experience

Vicky has twelve years road safety related experience spanning the fields of collision investigation, remedial engineering, Safer Routes to School and Road Safety Audit.

Previously employed at Oscar Faber's Birmingham Office, Vicky worked mainly in the development planning section. Vicky undertook works which include accident analysis and investigation with regard to general highway safety in the vicinity of proposed developments. She also carried out several Safer Routes to School studies.

Vicky later moved to Royal Haskoning where she continued to carry out accident investigation and analysis, again in terms of general highway safety in particular looking for inherent safety issues in the vicinity of proposed development. Many of these have related specifically to Heavy Goods Vehicles and the severity of accident associated with them.

Since joining Royal Haskoning, Vicky became involved with undertaking Road Safety Audits, taking part in over 50 Stage 1, 2 and 3 audits to date, of which 6 have been as Team Leader.

Vicky has also been involved in undertaking an area wide collision study and analysis as part of the works associated with the construction of the Hinkley Point C Nuclear Power Station. This involved liaising with the Somerset Road Safety Partnership.

Vicky is a safety auditor with Royal Haskoning and is qualified to HD19/03 standards as an Audit Team Leader.

Summary of Road Safety Audit Experience

Vicky Homer

Recent Road Safety Audit Experience

Vicky has undertaken several Road Safety Audits in the last two years as an Audit Team Member and Team Leader. These Audits shown in the table below demonstrate compliance with HD19/03 standards.

Date	Audit Stage	Audit Team Role	Details
May 2012	2	Team Leader	**Sainsbury's Bromsgrove Petrol Filling Station -** Access and egress arrangements associated with proposed Petrol Filling Station on Birmingham Road, Bromsgrove
May 2012	2	Team Member	**Sainsbury's Leek -** Proposed signal junction improvements associated with proposed new store
April 2012	1	Team Member	**Sainsbury's Shirley Convenience -** Highway works associated with a proposed convenience store
March 2012	2	Team Leader	**Sainsbury's Northfield Petrol Filling Station** - Access and egress arrangements associated with the new station on Sir Herbert Austin Way
February 2012	2	Team Leader	**Sainsbury's Biddulph Petrol Filling Station** – Access and egress arrangements associated with the new station on the A527
January 2012	1	Team Member	**Sainsbury's Court House Green** - Provision of new access / egress from dual carriageway to reconfigured car park arrangement
January 2012	1 / 2	Team Leader	**Sainsbury's Wednesfield** - Access and egress arrangements associated with a store extension and relocation of existing PFS on Kenmare Way
December 2011	2	Team Member	**Sainsbury's Leek** - Proposed roundabout access junction associated with proposed store, access into residential element of development & pedestrian/cycle access
December 2011	1	Team Member	**Sainsbury's Market Drayton** - Proposed priority junction providing access / egress from A53 facilitating right turn into proposed development site
October 2011	1	Team Member	**Steeple Bumpstead Flood Alleviation Scheme** - Highways and bridge works associated with culvert upgrade works as part of flood alleviation scheme
September 2011	3	Team Member	**A4148 Broadway Red Routes** - Highway works associated with Bus Showcase route and Red Route, A4148 Broadway, Walsall
August 2011	3	Team Member	**Route 301 Walsall Bus Showcase & Red Route** - Highway works associated with Bus Showcase route and Red Route on A34 between Walsall and Bloxwich
March 2010	3	Team Member	**Selly Oak New Road Phase 1A** – New link road, roundabouts and pedestrian / cycle facilties
March 2010	1	Team Leader	**Cadbury Site Improvements** – Access improvements and off-site highway works
March 2010	1	Team Member	**Sainsbury's Leek** - Proposed roundabout access junction associated with proposed store, access into residential element of development & pedestrian/cycle access
February 2010	1	Team Leader	**Sainsbury's Hereford –** associated highway works

Summary of Road Safety Audit Experience

Vicky Homer

Recent Road Safety Audit Experience

Vicky has a variety of collision investigation experience undertaken in the context of Transport Assessments, Environmental Statements, with some recent examples summarised below. Also detailed are other examples of Accident Investigation studies and Safety Reviews.

Date	Context of Study	Details
June 2012	Transport Assessment	**Perkins Engines –** Summary of 5 years Personal Injury Collision data in the vicinity of 2 proposed developments. Liaison with Local Highway Authority regarding junctions / links required for analysis.
July 2011	Transport Assessment	**Sainsbury's Dorridge –** Summary analysis of 5 years Personal Injury Collision data in the vicinity of a proposed Sainsbury's foodstore. A total of 27 collisions showing a cluster of collisions involving cyclists at a mini-roundabout. It was suggested that the junction is monitored further with regular liaison with the LHA.
July 2011	HGV Safety Review	**Sainsbury's Dorridge -** Following local concerns regarding increased HGV activity on the highway network in the vicinity of the proposed Sainsbury's foodstore and further afield, an audit of collision data associated with 10 foodstores within the West Midlands was carried out. The specific concerns were HGVs colliding with children on their way to/from school. A total of 407 Personal Injury Collisions were analysed specifically for HGV involvement. This analysis indicated that only 12 of the 407 collisions studied (2.95%) involved general HGV traffic of which 2 involved collisions with LGVs, 7 with cars and 3 involved collisions with pedal cyclists. There were no recorded collisions with pedestrians or children.
April 2011	Collision Investigation and Analysis	**Hinkley Point C, Somerset** – Involved in the preparation of the Collision Investigation and Analysis report for 5 years of PIC data on the highway network in the vicinity of the existing Hinkley Point Nuclear Power Station; this included sections of the M5, the A38, and the A39 as well as the network through Bridgewater and the local C class roads around the site. The study enabled baseline safety conditions to be established and comparisons made to national averages and accident rates for the post-development scenario to be predicted. Mitigation measures in the form of funding for future road safety schemes were suggested as well as further review of signal timings at existing signal controlled junctions where common causation factors were identified. Liaison was also undertaken with the local equestrian society due to the number of equestrian centres in the area.
June 2009	Safety Review	**Moreton Business Park –** An independent review of newly constructed highway improvements was carried out in response to a query relating to a Stage 3 Safety Audit (carried out by a third party). Specifically, the query related to the necessity of the recommended high friction surfacing and concerns relating vehicles overtaking cyclists adjacent to a right turn lane. A site visit was undertaken to understand the issues and observe the behaviour of drivers.
June 2007	Safety Review	**Sainsbury's Amblecote** – The existing car park had an observed problem of drivers' rat running through the site, often at high speeds. A traffic survey was commissioned to quantify the problem (this survey also included recording speed and direction as well as numbers of vehicles) and it was determined that physical measures be set in place to deter drivers from using the car park as a rat run. A design was drawn up involving speed reducing features, minor amendments to the access design, and measures to physically prevent drivers from taking an easy route through the car park thus making it safer for pedestrians, cyclists and all users of the facility.
September 2006	Environmental Statement	**Sainsbury's Wolverhampton** – preparation of the safety section of the ES Transport chapter assessing the impacts of the proposed new Sainsbury's foodstore. The proposals included amendments to existing signal controlled junctions, the provision of a new pedestrian crossing across the main Ring Road around the city.