

Transport Assessment

Chidden Farms
Land West of Horndean Road, Emsworth
May 2014

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Quality Assurance

Site name: Land west of Horndean Road, Emsworth

Client name: Chidden Farms

Type of report: Transport Assessment

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Signed

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Date May 2014

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Date May 2014

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1 Introduction

Background

- 1.1 Bidwells Transport Planning has been commissioned by Chidden Farms to undertake a Transport Assessment in support of an outline planning application to Havant Borough Council for residential development and flood alleviation measures on land to the west of Horndean Road, Emsworth.
- 1.2 The proposal site comprises an area of land west of Horndean Road extending to approximately 5.9 hectares and allocated for residential use by Havant Borough Council in the Draft Havant Borough Council Local Plan (Site Ref UE13). **Appendix 1** illustrates the location and extent of the proposal site.
- 1.3 Specifically, this report provides a detailed assessment of the proposed location in respect of its suitability as a sustainable location in transport terms for the purpose of the proposed development.
- 1.4 This report provides a technical appraisal of how appropriate access can be achieved for a sustainable development of up to 130 dwellings and sets out an access strategy encompassing public transport, cycle, pedestrian and vehicular access. It demonstrates the level of access that will be required and provides an analysis of the likely trip distribution and assignment for the development generated traffic and the potential impact on the routes in terms of vehicular impact, public transport capacity and available cycle and pedestrian infrastructure.
- 1.5 This assessment is informed by the requirements of Havant Borough Council as planning authority and Hampshire County Council as highway authority respectively.
- 1.6 The purpose of this assessment is to demonstrate that the development of up to 130 dwellings at this location is deliverable in the context of both the existing and proposed transport infrastructure and will not have a significantly deleterious impact on the function of that infrastructure.

Brief

- 1.7 The following matters have been considered in this appraisal:
 - Section 2 considers the way in which the proposals accord with and support the objectives of both national and local policy with respect to transport and movements.
 - Section 3 considers the existing site conditions and reviews the accessibility of the site by road, public transport, on foot and by bicycle, including an assessment of highway safety, to illustrate that the site is accessible to key services and local amenities by a range of alternative transport modes.
 - Section 4 addresses the development aspirations of the proposal site in respect to sustainable development and identifies the proposed access, servicing and parking strategies for the site.
 - Section 5 sets out the methodology for the calculation of traffic generation, trip distribution and assignment for the proposal site.
 - Section 6 identifies the existing available traffic data and sets out the methodology for the determination of assessment years and the calculation of background traffic growth, undertaking junction capacity assessments in respect of the surrounding highway network to consider the ability of the existing highway infrastructure to accommodate the trips generated by the proposed development.
 - Section 7 sets out a summary and conclusion to the Assessment.



2 Policy Background

Context

- 2.1 The proposed development is subject to both national and local planning policy guidance with respect to transport and its impact upon the local environment and surrounding infrastructure. A number of policies are directly pertinent to this site and are set out below.

National Policy

- 2.2 National policy sets out the context for local planning guidance and contains specific advice regarding transportation planning and its integration with land use planning to achieve sustainable development. The principal national policy document of relevance to this proposal is:

- **National Planning Policy Framework (NPPF)**

- 2.3 The National Planning Policy Framework (NPPF) published in March 2012 supersedes all previous Planning Policy Statements (PPS) and Planning Policy Guidance (PPG) and sets out the Government's core principles for the planning system in England, identifying that the purpose of the planning system is to contribute to the achievement of sustainable development.

- 2.4 Specifically the NPPF considers that the planning system should:

- *be genuinely plan-led, empowering local people to shape their surroundings, with succinct local and neighbourhood plans setting out a positive vision for the future of the area. Plans should be kept up-to-date, and be based on joint working and co-operation to address larger than local issues. They should provide a practical framework within which decisions on planning applications can be made with a high degree of predictability and efficiency;*
- *not simply be about scrutiny, but instead be a creative exercise in finding ways to enhance and improve the places in which people live their lives;*
- *proactively drive and support sustainable economic development to deliver the homes, business and industrial units, infrastructure and thriving local places that the country needs. Every effort should be made objectively to identify and then meet the housing, business and other development needs of an area, and respond positively to wider opportunities for growth. Plans should take account of market signals, such as land prices and housing affordability, and set out a clear strategy for allocating sufficient land which is suitable for development in their area, taking account of the needs of the residential and business communities;*
- *support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change, and encourage the reuse of existing resources, including conversion of existing buildings, and encourage the use of renewable resources (for example, by the development of renewable energy);*

- *contribute to conserving and enhancing the natural environment and reducing pollution. Allocations of land for development should prefer land of lesser environmental value, where consistent with other policies in the Framework;*
- *encourage the effective use of land by reusing land that has been previously developed (brownfield land), provided that it is not of high environmental value; and*
- *actively manage patterns of growth to make the fullest possible use of public transport, walking and cycling, and focus significant development in locations which are or can be made sustainable.*

2.5 Whilst not prescriptive, Section 4 of the NPPF with regards to transport, entitled **Promoting sustainable transport**, considers in paragraph 29 that:

'Transport policies have an important role to play in facilitating sustainable development but also in contributing to wider sustainability and health objectives' and that 'The transport system needs to be balanced in favour of sustainable transport modes, giving people a real choice about how they travel'.

2.6 The NPPF goes on to say in paragraph 30 that:

'In preparing Local Plans, local planning authorities should therefore support a pattern of development which, where reasonable to do so, facilitates the use of sustainable modes of transport'.

2.7 The proposed development site is well placed to provide residents with a real choice for access to sustainable transport modes in line with the requirements of paragraph 29 and 30 of the NPPF.

2.8 The location of the site is considered advantageous in terms of promoting these objectives as it can provide excellent opportunities for access to employment, education, shopping and leisure facilities in Emsworth and the surrounding area by sustainable modes of transport, thereby reducing the need to travel by private car as demonstrated in Section 3 of this report.

2.9 The NPPF advises in paragraph 32 that:

'All developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment' and that 'Plans and decisions should take account of whether:

- *The opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure;*
- *Safe and suitable access to the site can be achieved for all people; and*
- *Improvements can be undertaken within the transport network that cost effectively limit the significant impacts of the development. Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.*

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2.10 The proposed development of up to 130 dwellings is supported by a Transport Assessment which seeks to demonstrate that the proposals are in accordance with the conditions set out in paragraph 32 of the NPPF and that the residual impacts of the development are not 'severe'.

2.11 Paragraph 36 of the NPPF identifies that:

'A key tool to facilitate this (i.e. sustainable development) will be a Travel Plan'.

2.12 It is envisaged that the proposals will be supported by a Travel Plan setting out the framework for the delivery of a sustainable development in accordance with paragraph 36 of the NPPF.

2.13 The proposals for land west of Horndean Road, Emsworth seek to deliver a sustainable residential development in accordance with the principles outlined in the NPPF.

Local Policy

Hampshire County Council Local Transport Plan 2011-2031

2.14 Hampshire County Council's Local Transport Plan was formally approved on 24 February 2011. The Local Transport Plan is written in two parts: a 20 year strategy which sets out the long-term vision for how the transport network will be developed over the next 20 years and a 3 year Implementation Plan setting out planned expenditure on transport over the April 2013 – March 2016 period. The three main transport priorities set out in Hampshire's LTP are :

- ***To support economic growth by ensuring the safety, soundness and efficiency of the transport network in Hampshire.***
- ***Provide a safe, well-maintained, and more resilient road network in Hampshire as the basic transport infrastructure of the county on which all forms of transport directly or indirectly depend, and the key continued casualty reduction.***
- ***Manage traffic to maximise the efficiency of existing network capacity, improving journey time reliability and reducing emissions, thereby supporting the efficient and sustainable movement of people and goods;***

2.15 These are supported by 14 Policy Objectives set out in **Table 2.1** below.

Table 2.1 Policy Objectives

Hampshire
Policy Objective 1: Continue to work to improve road safety through targeted measures that deliver reductions in casualties, including applying a speed management approach that aims to reduce the impact of traffic on community life and promote considerate driver behaviour.
Policy Objective 2: Policy Objective 2: Work with district authorities to agree coherent policy approaches to parking, including supporting targeted investment in 'park and ride' to provide an efficient and environmentally sustainable alternative means of access to town centres, with small-scale or informal park and ride arrangements being considered as well as major schemes;

Hampshire		
Policy Objective 3: Promote, where they are stable and serve our other transport priorities, the installation of new transport technologies, including navigational aids, e-ticketing and smartcards, delivery of public transport information over the internet and on the move, and electric vehicle charging points.		
Policy Objective 4: Work with bus and coach operators to grow bus travel, seek to remove barriers that prevent some people using buses where affordable and practical, and reduce dependence on the private car for journeys on inter- and intra-urban corridors;		
Policy Objective 5: Maintain a 'safety net' of basic accessibility to services and support for independent living in rural areas, with Community Transport services as the primary alternative to the private car, including car-based provision such as Neighbour care schemes, car clubs and shared taxis;		
Policy Objective 6: Work with rail industry partners and Community Rail Partnerships to deliver priorities for long-term rail investment; including improved parking and access facilities at railway stations, movement of more freight by rail, upgrades of existing routes and stations and (where viable) new or re-opened stations or rail links;		
Policy Objective 7: Ensure that travel from home to school affordably serves changing curriculum needs, underpins sustainable schools and maximises individual opportunities for education and training;		
Policy Objective 8: Improve co-ordination and integration between transport modes through better local interchanges, for example at rail stations.		
Policy Objective 9: Introduce the 'shared space' philosophy, applying Manual for Streets design principles to support a better balance between traffic and community life in towns and residential areas;		
Policy Objective 10: Contribute to achieving local targets for improving air quality and national carbon targets through transport measures, where possible and affordable;		
Policy Objective 11: Reduce the need to travel through encouragement of a high-speed broadband network, supporting the local delivery of services and in urban areas the application of 'Smarter Choices' initiatives;		
Policy Objective 12: Invest in sustainable transport measures, including walking and cycling infrastructure, principally in urban areas, to provide a healthy alternative to the car for local short journeys to work, local services or schools; and work with health authorities to ensure that transport policy supports local ambitions for health and well-being.		
Policy Objective 13: Over the longer term, develop bus rapid transit and high-quality public transport provision in South Hampshire as a strategic transport direction, to reduce car dependence and improve journey time reliability;		
Policy Objective 14: Outline and implement a long-term transport strategy to enable sustainable development in major growth areas.		

- 2.16 The proposed development has the potential to contribute towards the attainment of Hampshire's Priorities and support the transport Policy Objectives set out above.

Havant Borough Core Strategy 2011 - 2026

- 2.17 The Havant Borough Core Strategy is the principal document in the council's Local Plan. It covers the Borough of Havant, setting out the spatial planning strategy for the area up to 2026. It sets out how many new homes and jobs are needed in the borough and their distribution. It also sets out what services, facilities and infrastructure such as green spaces, shops and community services are needed and when and how they will be delivered whilst having regard to the Borough's high quality natural environment.
- 2.18 Policies relevant to the proposal at land to the west of Horndean Road with respect to transport are set out below:

Policy CS20 Transport and Access Strategy

Development will be permitted that:

- 1. Is consistent with and contributes to the implementation of the 'Reduce, Manage and Invest' strategy.***
- 2. Does not increase congestion and promotes better use of existing transport networks.***
- 3. Improves accessibility to goods, services and employment and promotes equality in the transport system.***
- 4. Provides transport management measures to ensure the safe and efficient operation of the strategic and local road network.***
- 5. Ensures that highway design responds positively to the characteristics of the area and delivers a high quality public realm for all users.***
- 6. Maintains or improves the range of transport modes accessible to the users of the development site with specific emphasis on public transport, especially high quality/frequency buses and includes walking and cycling where appropriate.***

- 2.19 The proposed development seeks to address the transport and access strategy requirements of Havant Borough Council in accordance with the above policy.

DM11 Planning for More Sustainable Travel

The council will seek to ensure that every opportunity is taken to increase integration of sustainable travel modes and availability of non-motorised modes by appropriate measures including:

- 1. Securing on-site and/or off-site interventions that promote integrated travel and access by non-motorised modes.***
- 2. Requiring safe and secure vehicular and cycle parking and turning facilities to adopted standards.***

3. Securing appropriate improvements to public and community transport (including infrastructure requirements) in accordance with the Hampshire Local Transport Plan and (where applicable) the relevant sub-regional transport strategy.

4. Proposals for reducing opportunities for informal parking in the area surrounding the development where this would impact on the capacity, operation and safety of the local highway network and/or the amenity of the locality.

5. Ensuring that new developments are located and designed at the outset to encourage lower vehicle speeds and safe, permeable, inclusive layouts that integrate with existing pedestrian, cycle and public transport routes. This will facilitate and encourage short distance trips by cycle and walking, including to public transport interchanges.

- 2.20 The proposed development will contribute towards the promotion of sustainable travel modes in accordance with Havant Borough Council policy.

DM12 Mitigating the Impacts of Travel

New developments will be required to mitigate their travel impact, including the environmental impacts of travel (such as noise, air and visual pollution) and impacts on amenity, health and climate change by ensuring that, where relevant, the following criteria are met:

1. Adequate provision is made for integrated and improved transport infrastructure or appropriate mitigation measures, through direct improvements and S106 contributions in accordance with the Hampshire County Council Transport Contributions Policy.

2. The submission of a transport assessment and travel plan alongside any planning application on proposals for major development or where a proposal is likely to have significant transport implications.

3. The submission of a transport statement must accompany planning applications to explain changes to travel demand.

4. A bond is provided which will be used to mitigate negative travel impacts of the development, should the travel plan fail to achieve its targets. This bond will be held by the relevant local transport authority.

5. In relation to outline planning applications, a framework for the preparation of travel assessments and travel plans will be submitted with the planning application proposals.

- 2.21 The proposals for residential development on land to the west of Horndean Road, Emsworth are supported by an Interim Travel Plan.

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DM13 Car and Cycle Parking on Residential Development

Residential development will only be permitted where it provides car parking and cycle storage in accordance with the standards set out in the Residential Car Parking and Cycle Provision Supplementary Planning Document.

- 2.22 The proposals will be provided in accordance with the *Havant Borough Residential Parking and Cycle Provision SPD* adopted in March 2010.
- 2.23 The proposed outline planning application is in accordance with and conforms to the aims and objectives of the policies set out above.
- 2.24 Additionally the development principles with respect to transport and access to the highway shall be guided by the principles and design guidance set out in the *Design Manual for Roads and Bridges* (DMRB), *Manual for Streets* (MfS) and its companion document *Manual for Streets 2* (MfS2) as appropriate to this proposal.
- 2.25 It is considered that the proposed residential land use of this site is in accordance with the aims and objectives of transport policy as it applies to both the location and the uses proposed.

3 Existing Conditions

Site Location

- 3.1 The proposal site covers an area of approximately 5.9 hectares of arable agricultural land and is located to the west of the B2148 Horndean Road in Emsworth, Hampshire. The site is located within the administrative area of Havant Borough Council and has been allocated for residential development through the Draft Havant Borough Local Plan. It is bounded to the north by Southleigh Road, to the east by Horndean Road and the rear of existing residential properties on Horndean Road and to the south and west by arable agricultural land.
- 3.2 Emsworth is situated in south east Hampshire on the West Sussex Border and lies east of the town of Havant. Emsworth is designated as a 'District Centre' in the Havant Borough Core Strategy and is bisected by the A27 which runs in a broadly easterly direction between Portsmouth, approximately 15 kilometres west of the town and Chichester, approximately 16 kilometres to the east. The A3(M) runs in a north/south direction approximately 7 kilometres west of the site.
- 3.3 The location of the site in relation to the local area is illustrated by **Appendix 1**.

Highway Access to Development Area

- 3.4 The routes directly abutting the area of land being considered for development and their strategic links to the wider area road network have been examined in detail.
- 3.5 The B2148 Horndean Road runs in a generally north-west to south-east direction along the eastern boundary of the site from its junction with the A3(M) at Junction 2 to Emsworth town centre. The B2148 connects with the A259 via a roundabout junction in Emsworth providing onward connections to the A27.
- 3.6 The B2148 Horndean Road in the vicinity of the site is a good quality single carriageway road, approximately 5.5 metres in width and subject to a 30mph speed restriction. The B2148 is a bus route, benefits from a system of street lighting and has footway provision on both sides of the carriageway in the vicinity of the site, providing high quality vehicular and pedestrian routes accessing the town centre.
- 3.7 Horndean Road forms a staggered priority junction with Southleigh Road immediately north-east of the site. A dedicated stretch of on-road cycle lane is provided along Horndean Road in the vicinity of the Southleigh Road junction.
- 3.8 Southleigh Road runs along the northern boundary of the site and is a 5.5 metre wide single carriageway road benefitting from a 2.2 metre wide shared pedestrian and cycleway running along its southern kerb line. Southleigh Road is subject to a 40mph speed restriction and 7.5 tonne weight restriction.

Public Transport Accessibility: Rail Services

- 3.9 Emsworth Rail Station is located approximately 1.2km south of the proposal site providing easy and direct connections to mainline rail services to Brighton, Southampton, Portsmouth, London Victoria, and Little Hampton.
- 3.10 Emsworth Rail Station is unstaffed and provides a basic level of passenger facilities including ramped entrances, passenger seating and shelters, a help-point, cycle storage in the form of 4 uncovered stands and 10 sheltered spaces and a car park for 6 vehicles.
- 3.11 **Table 3.1** sets out the various train routes, frequencies and operating times accessible from Emsworth Rail Station.

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Table 3.1 Rail Services from Emsworth Rail Station (Monday to Friday)

Destination	Frequency	First Train	Last Train	Operator
Brighton	Hourly	05:58	23:57	Southern Railway
Southampton	Hourly	06:07	23:57	Southern Railway
London Victoria	Hourly	06:11	23:27	Southern Railway
Portsmouth	Hourly	06:07	00:29	Southern Railway
Littlehampton	Hourly	05:58	23:57	Southern Railway

3.12 The proposal site therefore benefits from excellent accessibility to rail based public transport services from Emsworth Rail Station.

3.13 The rail based public transport network information for routes accessible via Emsworth Rail Station is provided in **Appendix 2**.

Public Transport Accessibility: Bus Services

3.14 The provision of bus based public transport in the area has been assessed in terms of access to routes, frequencies of services and levels of reliability. The quality of the bus infrastructure in the area has also been assessed in respect of the provision and quality of shelters, information and seating.

3.15 Bus accessibility is measured by reference to the number and frequency of services available within easy walking distance of the proposal site. Easy walking distance is considered to be up to 400 metres in the case of accessing bus based public transport.

3.16 Existing bus stops are located on Horndean Road approximately 300m from the centre of the site; further stops are located on Allendale Avenue, 450m from the site, and at the southern end of Horndean Road 500m south providing additional services. **Table 3.2** sets out all of the available bus services and frequencies in the vicinity of the site.

Table 3.2 Bus Routes (Monday to Friday)

Route*	Frequency	First Bus	Last Bus
27 Southbourne –Emsworth – Havant (AA)	2 per hour	06:37	17:09
31A Chicester High Sch – Mill Rythe Sch (HD)	School Days Only 07:52(IB) & 15:43(OB)		
36 Southbourne – Havant – ASDA (HR)	2 per day	09:09	10:20
44B Hampshire Farm-Emsworth–Havant(HD)	School Days Only 07:52		
300 Denmead – Waterlooville – Chicester (HD)	Wednesday Only 10:08(IB)& 13:26(OB)		
605 Emsworth-Denvilles-Leigh Park-St Thomas More's Sch (AA)	School Days Only 08:11(WB) & 15:29(EB)		
611 Spencerfield–Emsworth Hospital–Emsworth Primary Sch (HR)	School Days Only 08:04 & 15:46		
T9 Southbourne – Chicester Tesco (HD)	Wednesday Only 10:29(IB)& 13:30(OB)		

*AA-Allendale Avenue HD-Helston Drive HR-Horndean Road

3.17 The bus based public transport information for routes accessible in the vicinity of the site is contained in **Appendix 3**.

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- 3.18 With regular bus services available between Southbourne and Havant and potential onward connections with services available to destinations further afield, the site is well provided for by bus based public transport.

Walking and Cycling Assessment

- 3.19 Manual for Streets and national and local policy recognises the importance of walking and cycling as modes of transport which offer a more sustainable alternative to car travel and can make a contribution towards the overall character of a place, improved public health and in helping to tackle climate change.
- 3.20 The walking and cycling network in the vicinity of the site is illustrated by the network maps contained within **Appendix 4**.

Walking

- 3.21 With respect to pedestrian access, a walk time of 10 minutes is generally considered the acceptable maximum to directly access any local facility or amenity and equates to a distance of approximately 800m.
- 3.22 The 800m pedestrian catchment area from the centre of the development site encompasses bus stops, schools and public recreation areas.
- 3.23 Whilst the MfS identifies that facilities within an 800m walk are preferable to create a walkable neighbourhood, it also recognises that this is not an upper limit and that, subject to the quality of the pedestrian route, walking has the potential to substitute for short car trips particularly those under 2km.
- 3.24 Emsworth town centre is located within a 2km walking distance of the site and provides all of the usual town centre services and facilities including shopping, recreation, education and employment. Emsworth Rail Station is also located within a 2km walk of the site.
- 3.25 The proposed development site area is served by a good quality pedestrian network comprising pedestrian footways, crossing facilities and street-lit routes adjacent to the highway network.
- 3.26 The provision of pedestrian routes through the proposal site will also enable further direct pedestrian connection between the site and the surrounding built up area, thus integrating the development into the existing community. The development aspirations are set out in Section 4 of this report.
- 3.27 The location of the proposal site is therefore considered to provide significant potential for access to a good range of local amenities within reasonable walking distance and as such, is considered to offer very good levels of accessibility and integration opportunities for travel on foot.

Cycling

- 3.28 Cycling has the potential to substitute for short car trips, especially those less than 5km. Cycle access to the development site has been considered in detail and for the purposes of cycle accessibility.
- 3.29 The 5km catchment area within an acceptable cycling distance of the proposal site covers a full range of facilities and amenities within Emsworth town centre and the surrounding area including:
- Local employment, shopping and services;
 - Post Office;
 - Schools and Colleges;
 - Restaurants and Pubs;

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- Local healthcare facilities and Victoria Cottage Hospital;
- Places of Worship;
- Community groups & organisations;
- Emsworth Sailing Club;
- Emsworth Rail Station; and
- Bus Stops.

3.30 Local roads in the vicinity of the proposal site are of a good standard and are conducive to the use of these routes by cyclists. Indeed, Southleigh Road is designated as a 'Cycle Network Link (Signposted)' by the Havant Borough Council *Cycling in Havant* map, an extract of which is contained in **Appendix 4**. Southleigh Road benefits from an off-road cycle path alongside its southern kerbline and forms a part of the Havant Borough Cycle Network linking Havant and Emsworth.

3.31 The site is therefore within reasonable cycling distance of a good range of local amenities and employment opportunities and as such, is considered to have the potential to provide very good levels of accessibility and integration opportunities for cyclists.

Highway Safety Assessment

3.32 A highway safety assessment has been undertaken for the highway network surrounding the site, broadly incorporating the length of Horndean Road and Southleigh Road in the vicinity of the site.

3.33 Personal Injury Accident Data was obtained from Hampshire Constabulary for the 5 year period from 06/06/2008 to 31/05/2013; in this period a total of 4 accidents were recorded, all of them classified as being of 'slight' severity.

3.34 Only one recorded accident occurred on Horndean Road, involving a head-on collision between two cars in wet street-lit conditions in December 2010 and attributed to driver fatigue. The remaining three recorded PIAs all involved cyclists on Southleigh Road, the first a collision between two cyclists in dark wet conditions in July 2008, the second a collision between a cyclist and car at the junction of Southleigh Road and Eastleigh Road in wet street-lit conditions in November 2009 and the third a collision between a cyclist and van at the access to Southleigh Farm in dry daylight conditions in July 2012.

3.35 It is clear from inspection of the data that there is no discernible accident pattern in the vicinity of the site nor is there any identifiable 'problem' area.

3.36 The full accident data is contained in **Appendix 5**.

3.37 A public consultation exercise undertaken by the applicant has identified a perceived issue of traffic speed on Horndean Road. Vehicle speed surveys have been undertaken to assess the 85thile vehicle speeds on the highway network adjacent to the site and are recorded below.

Road (Posted Speed Limit)	Direction 1	Direction 2
Horndean Road (30mph)	Northbound – 36mph	Southbound – 37mph
Southleigh Road (40mph)	Eastbound – 46mph	Westbound – 44mph

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- 3.38 Whilst it is acknowledged that observed traffic speed data confirms that 85%ile vehicle speeds currently exceed the posted speed limits on both Horndean Road and Southleigh Road there is no speed related accident history in either location.
- 3.39 In consideration of the observed vehicle speeds it is proposed that visibility splays from the new access junctions will be provided in accordance with the 85%ile speeds observed.
- 3.40 In view of the foregoing assessment and review it is considered that there are no significant prevailing highway safety concerns in relation to the proposed development.

4 Development Proposals

- 4.1 This Transport Assessment supports the outline planning application for up to 130 dwellings and flood alleviation measures on land west of Horndean Road, Emsworth. The proposed site layout masterplan is attached at **Appendix 6**.

Access, Servicing and Parking Strategy

- 4.2 Access to the site is proposed via Southleigh Road and Horndean Road and the access strategy for the proposed residential development is based upon the principles of accessible location and sustainable development.
- 4.3 Vehicular access to the site is proposed via two new priority junctions, one with Horndean Road and one with Southleigh Road, in accordance with the requirements of the Design Manual for Roads and Bridges (DMRB) and Manual for Streets (MfS) as appropriate. Achievable visibility splays will be provided in accordance with the requirements of MfS on Horndean Road of 2.4 metres x 59 metres in each direction and the requirements of DMRB on Southleigh Road of 2.4 metres x 120 metres in each direction, reflecting the character of each road and observed 85thile traffic speeds.
- 4.4 Achievable visibility splays at the proposed access junction locations with Horndean Road and Southleigh Road are illustrated on the proposed masterplan layout contained in **Appendix 6**.
- 4.5 The movement infrastructure for the site has been developed using the mode hierarchy principle considering the requirements for access in the following order:
- Pedestrian
 - Cycle
 - Public Transport
 - Servicing
 - Private Vehicle
- 4.6 Spaces and corridors for pedestrian movement have been devised in consideration of the likely desire lines and also in the context of the aspiration to provide attractive and safe routes for pedestrians that will positively encourage walking as the primary mode of transport within the development.
- 4.7 The walking routes will, where possible, accommodate the needs of cyclists by providing safe, convenient access throughout the development with connections into the surrounding pedestrian and cycle infrastructure.
- 4.8 The outline proposals provide significant opportunity to ensure that the whole of the development area is within a reasonable walking distance of existing bus services via safe, convenient and attractive pedestrian routes.
- 4.9 All servicing requirements including refuse collection and access by emergency vehicles will be wholly accommodated within the site.
- 4.10 Havant Borough Council policy with regard to vehicle parking provision for new development is set out in its *Residential Parking and Cycle Provision SPD* adopted in March 2010.
- 4.11 The provision for vehicle parking is applied as a maximum standard for cars and as a minimum standard for bicycles and is assessed on the accessibility of the site. North Emsworth where the site is located is not considered to be in a 'highly accessible' area therefore the 'standard' parking provision should be

utilised. The car and bicycle parking standards applicable to the proposal site are set out in **Table 4.1** below:

Table 4.1 Havant Parking Standards - C3 Dwelling Houses

Size of Dwelling	Standard Car Parking Provision	Cycle Parking
1 Bed unit	1 space	1 space
2 bed unit	2 spaces	2 spaces
3 bed unit	2 spaces	2 spaces
4+ bed unit	3 spaces	2 spaces

- 4.12 The Parking Standards state that 'a single garage / carport should measure 3m x 6m internally and a double garage / carport 6m x 6m internally', and that 'visitor parking will normally need to be considered and incorporated within a planning proposal'.
- 4.13 Any garages provided within the development will accord with the 6m x 3m minimum recommendation.

Flood Alleviation Construction Strategy

- 4.14 The proposals provide for the construction of flood alleviation measures, requiring the excavation of approximately 20,000 cubic metres of spoil from the development area. The majority of the excavated spoil will be re-deposited on-site as part of the flood alleviation scheme, forming an earth bund.
- 4.15 The movement of excavation plant to and from the site will take place at the beginning and end of the flood alleviation construction phase only. Movements of spoil during the excavations will be contained entirely within the site.
- 4.16 A detailed Construction Traffic Strategy will be developed and implemented in order to ensure that the impact of construction upon the adjacent highway network is minimised.

5 Traffic Generation and Assignment

Proposed Trip Generation

- 5.1 The trip generation potential of the site has been considered by reference to information held in the TRICS trip generation database, the nationally recognised trip information database.
- 5.2 The methodology utilised to determine the residential trip generation for the site can be summarised as follows:
- 'Total People' trip rates obtained from TRICS 2013(b) trip generation database;
 - Disaggregation of 'Total People' trip rates by Modal Split obtained from National Census 2001 Travel to Work data.
- 5.3 The application of the methodology and the resulting trip rates are set out in detail in **Tables 5.1 to 5.4** below.
- 5.4 The TRICS 2013(b) v6.12.1 trip generation database has been interrogated in order to provide forecast 'Total People' trip rates for the proposed residential development. Multi-modal 'Total People' trip generation rates and resultant forecast trips, representing the 'Residential - Houses Privately Owned' category have been obtained and are illustrated in **Table 5.1** below. The full TRICS 2013(b) output is contained in **Appendix 7**.

Table 5.1 TRICS 2013(b) 'Total People' Trip Rates

Land Use	AM Peak		PM Peak	
	Arrival Rate	Departure Rate	Arrival Rate	Departure Rate
Trip Rates (per dwelling)	0.243	0.869	0.663	0.402
No. Trips (130 dwellings)	32	113	86	52

- 5.5 For the purpose of this assessment of the potential traffic generation of the site, the forecast vehicular trip rates for privately owned housing have been utilised, being higher than that of 'affordable' accommodation, in the interests of providing a robust assessment.
- 5.6 The modal share has been obtained from 2001 National Census Travel to Work data for 'Havant' and has been used to provide an estimate of the likely split of trips by each mode shown in **Table 5.2**.

Table 5.2 Travel to Work Modal Split (From 2001 National Census)

Travel to Work Mode	Modal Share (%)
Car / Van	71.49%
Car Passenger	6.73%
Taxi	0.66%
Bus / Coach	4.98%
Motorcycle	1.21%

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Travel to Work Mode	Modal Share (%)
Bicycle	3.22%
Rail	3.20%
On Foot	7.95%
Other	0.55%
All Modes	100.0%

5.7 The disaggregated modal trip rates obtained are illustrated by mode in **Table 5.3** below.

Table 5.3 Disaggregated Residential 'Modal' Trip Rates

Mode	AM Peak		PM Peak	
	Arrival Rate	Departure Rate	Arrival Rate	Departure Rate
All	0.243	0.869	0.663	0.402
Car / Van	0.174	0.621	0.474	0.287
Car Passenger	0.016	0.058	0.045	0.027
Taxi	0.002	0.006	0.004	0.003
Bus / Coach	0.012	0.043	0.033	0.020
Rail	0.008	0.028	0.021	0.013
Motorcycle	0.003	0.011	0.008	0.005
Bicycle	0.008	0.028	0.021	0.013
On Foot	0.019	0.069	0.053	0.032
Other	0.001	0.005	0.004	0.002

5.8 **Table 5.4** below sets out the forecast vehicular trip generation for 130 dwellings based on the trip rates set out in **Table 5.3** above.

Table 5.4 Vehicular Trip Generation for 130 dwellings

	AM Peak		PM Peak	
	Arrivals	Departures	Arrivals	Departures
130 units	23	81	62	37

5.9 The trip generation recorded in **Table 5.4** forms the basis of the subsequent assessment of the highway network capacity considered in Section 6 of this report in accordance with the requirements of the Highway Authority. Nevertheless it should be noted that the forecast trip generation contained in **Table 5.4** represents a robust assessment of the likely impact of the proposals upon the highway network and does not reflect the likely peak spreading of employment trips or the benefits of sustainable travel measures and initiatives promoted throughout the site.

5.10 **Table 5.4** indicates that a development of up to 130 dwellings as proposed could generate in the region of 104 two-way vehicle trips in the AM Peak and 99 two-way vehicle trips in the PM Peak.

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- 5.11 Application of the National Census 2001 modal split data set out in **Table 5.3** identifies that a residential development of up to 130 dwellings would additionally be expected to generate approximately 5 cycle trips, 11 pedestrian movements and 12 bus and rail based public transport movements in the AM Peak and 4 bicycle trips, 11 pedestrian movements and 11 bus and rail based public transport movements in the PM Peak.
- 5.12 The forecast vehicular trip generation set out in **Table 5.4** is considered to represent a robust assessment of the likely peak hour traffic generation for the site.
- 5.13 It is considered that opportunity exists to minimise peak hour vehicular trip generation associated with the site through the application of measures and initiatives promoted through a site-wide Travel Plan.

Trip Distribution and Assignment

- 5.14 The distribution and assignment of trips generated by the proposed development is based upon an analysis of the National Census 2001 travel to work data for car drivers, applicable to the Emsworth Ward in which the site is located.
- 5.15 The trip distribution data obtained from the National Census identifies the existing origin and destination profiles for trips to and from Emsworth. **Table 5.5** sets out the forecast trip distribution, aggregated by route and reflecting the likely route choice for drivers accessing and departing the development site.

Table 5.5 Forecast Trip Distribution for Emsworth

Route	Outbound Distribution (%)	Inbound Distribution (%)
B2148 Horndean Road North	20.5	26.6
B2148 Horndean Road South	42.8	52.7
Southleigh Road East	2.4	2.4
Southleigh Road West	34.3	18.3
Total	100.0%	100.0%

Note: PM Peak distribution is reverse of AM Peak distribution

- 5.16 The trip distributions presented in **Table 5.5** represent the AM Peak Inbound and Outbound traffic distributions by route for the proposed development at Emsworth. The PM distributions are the AM distributions reversed.
- 5.17 The distribution information set out in **Table 5.5** has been utilised to determine the most likely routes of travel by vehicular traffic to and from the site, providing the basis for the forecast assignment of vehicular trips generated by the proposed development. The distributions highlighted in **Table 5.5** assume that vehicular traffic will generally utilise the most attractive (i.e. usually the shortest or quickest) route between the origin and destination points.
- 5.18 The forecast traffic generation associated with the proposed development has been assigned to the local highway network on the basis of the proportions defined in **Table 5.5** and is set out in the traffic flow diagrams detailed in **Appendix 8**.

6 Traffic Impact

Background Traffic Flows

- 6.1 Existing traffic data has been obtained via manually classified junction turning count (MCC) at the junction of Southleigh Road with Horndean Road on Thursday 4 July 2013 and Automatic Traffic Count (ATC) on Southleigh Road and Horndean Road between Friday 5 July and Thursday 11 July 2013. The surveys were undertaken by Advanced Transport Research Ltd. The full set of observed traffic data is contained in **Appendix 9**.
- 6.2 For the purposes of this assessment the observed AM and PM network peak hour periods of 08:00-09:00 and 17:00-18:00 have been used, as determined from the surveys undertaken on site. The observed peak hour network traffic flows are illustrated by the network diagrams contained in **Appendix 7**.

Assessment Year

- 6.3 The assessment of the impact of the proposed development upon the local highway network in the vicinity of the site is required by the Highway Authority in its scoping documentation to reflect:
- 5 years after proposed registration of the planning application.
- 6.4 An assessment year of 2019, being five years after the proposed registration of the planning application in 2014, has been applied for the assessment of the local highway network adjacent to the site.
- 6.5 The requirements of the Highways Agency (HA) in respect of DfT *Circular 02/2013* and its *Protocol for dealing with Planning Applications* have been considered with regard to the impact of the proposals upon the Strategic Road Network (SRN) comprising the A27. It is not considered that an assessment of the SRN over a period of up to 10 years after the date of registration of a planning application is required in relation to the current proposals on land west of Horndean Road, Emsworth.

Background Traffic Growth Rates

- 6.6 Background traffic growth rates have been established using the methodology described in the WebTAG guidance *TAG Unit 3.15.2 Use of TEMPRO data* to factor the observed network traffic flows up to the assessment year 2019.
- 6.7 The TEMPRO v6.2 software has been utilised to generate National Transport Model (NTM) adjusted local peak period growth factors for 'Emsworth', as set out in **Table 6.1** below.

Table 6.1 Background Traffic Growth Rates

Emsworth Zone:	All Roads	
	AM Peak	PM Peak
2013 to 2019	1.0916	1.0967

- 6.8 The calculated TEMPRO/NTM growth rates have been applied to the observed traffic data and the forecast 2019 background traffic flows are illustrated by the network diagrams contained in **Appendix 8**.

Assessment of Traffic Impact

- 6.9 The traffic impact of the proposals has been examined in terms of the total additional external trips forecast from the development based on the distribution methodology set out in Section 5 above.

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- 6.10 This section considers the immediate highway network, the number of additional trips in the AM and PM peak periods (the critical periods for network assessment), the ability of the existing network to accommodate additional traffic, the potential mitigation that may be required and an assessment of the deliverability of that mitigation.
- 6.11 The number of additional forecast two-way trips in the AM and PM Peak periods at each of the highway links adjacent to the site is summarised in **Table 6.2** below.

Table 6.2 Two-Way Trip Generation – Wide Area Assessment

Link	AM Forecast Trip Generation	AM Observed Background Flow	% Increase	PM Forecast Trip Generation	PM Observed Background Flow	% Increase
Horndean Road (north)	23	1041	2.2%	23	1264	1.8%
Horndean Road (south)	46	992	4.7%	46	1367	3.4%
Southleigh Road (east)	2	651	0.3%	2	619	0.3%
Southleigh Road (west)	32	336	10.1%	28	460	6.1%

- 6.12 **Table 6.2** illustrates that the increase in two-way traffic flows on the highway network links adjacent to the site is negligible in real terms, falling generally within the expected daily variation of traffic flow. On individual links where traffic flow increases are greater than 5% traffic flows are observed to be generally low and to fall comfortably within the theoretical capacity of their respective highway links in terms of hourly traffic flow based upon the guidance contained within the Design Manual for Roads and Bridges (DMRB) Volume 5, Section 1, Part 3 TA79/99.
- 6.13 A qualitative assessment of the impact of the proposed development upon the wider surrounding highway network has been undertaken, reflecting consultation with the Highway Authority and HBC Development Engineer, in respect of the potential strategic impact of the proposals at the following locations:
- Horndean Road j/w Southleigh Road;
 - Horndean Road j/w Bartons Road;
 - Horndean Road j/w Emsworth Common Road;
 - Southleigh Road j/w Eastleigh Road;
 - Warblington Level Crossing;
 - A27 j/w A259; and
 - Horndean Road in the vicinity of St James' School.
- 6.14 The increase in traffic flow at the locations identified above is illustrated by the wide area network traffic flow diagrams contained in **Appendix 8** and is not considered to be significant in relation to the existing background traffic flows on these highway links where the forecast increases in trip generation are likely to fall comfortably within the expected daily variation of traffic flow.

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- 6.15 Highways Agency protocol states that the performance of a HA junction should be reviewed if a proposed development generates more than 30 two-way vehicle trips on a Strategic Road Network (SRN) junction or slip road. Forecast unmitigated traffic flows on the roundabout junctions and slip roads forming the junction of the A27 with the A259 do not exceed the HA threshold of 30 two-way vehicle trips and a detailed assessment of the junctions comprising the interchange is not therefore considered to be required.
- 6.16 The principal junctions determining the capacity of the proposal site and which have been assessed in detail are:
- Site Access Junction on Southleigh Road;
 - Site Access Junction on Horndean Road;
 - Crossroads Junction B2148 Horndean Road / Southleigh Road
- 6.17 In accordance with the guidance contained in paragraph 32 of the NPPF the assessment of traffic impact seeks to demonstrate that the residual cumulative impacts of development upon the local highway network are not 'severe'.
- 6.18 The scenarios assessed and set out in **Tables 6.3 to 6.6** below are identified as follows:
- Observed 2013 Baseline;
 - Forecast 2019 Baseline; and
 - Forecast 2019 Baseline plus Unmitigated Development.
- 6.19 Traffic flow diagrams setting out the assigned traffic flows for the unmitigated development scenario are contained in **Appendix 8**.
- 6.20 Detailed assessments of the capacity of the proposed site access junctions and the existing priority T-junction of Horndean Road and Southleigh Road has been undertaken utilising the Junctions 8 PICADY software.
- 6.21 Junctions 8 PICADY capacity assessments set out the maximum Ratio of Flow to Capacity (RFC) and Maximum Queue (PCU) for each arm of the junction. Where the Ratio of Flow to Capacity (RFC) values are lower than 1.0 this indicates that there is available capacity on that arm of the junction. As RFCs approach 1.0 available capacity is reduced. RFCs in excess of 1.0 indicate that capacity has been exceeded and a level of queuing and delay will be evident.

Horndean Road / Southleigh Road

- 6.22 **Tables 6.3** and **6.4** below set out the Junctions 8 PICADY results for the Horndean Road / Southleigh Road staggered crossroad junction for the 2013 observed base, 2019 forecast base and 2019 base with development scenarios.

Table 6.3 Junctions 8 PICADY Assessment - Horndean Road j/w Southleigh Road (Base Scenarios)

Junction Arm*	AM Peak (08:00-09:00)				PM Peak (17:00-18:00)			
	2013 Observed		2019 Base		2013 Observed		2019 Base	
	Max RFC	Max Q (PCU)	Max RFC	Max Q (PCU)	Max RFC	Max Q (PCU)	Max RFC	Max Q (PCU)
B-C	0.152	0.19	0.199	0.26	0.100	0.11	0.959	2.07
B-AD	0.566	1.52	0.667	2.27	0.745	2.91	0.933	7.46
A-BCD	0.103	0.14	0.114	0.15	0.221	0.30	0.249	0.35
D-A	0.367	0.60	0.453	0.86	0.191	0.26	0.246	0.36
D-BC	0.625	1.84	0.709	2.63	0.589	1.57	0.681	2.29
C-ABD	0.029	0.05	0.032	0.04	0.071	0.08	0.082	0.09

*A = Horndean Road (S) B = Southleigh Road (W) C = Horndean Road (N) D = Southleigh Road (E)

- 6.23 The Junctions 8 PICADY assessment illustrated in **Table 6.3** above identifies that the staggered crossroad junction of Horndean Road with Southleigh Road currently operates comfortably within capacity, recording a maximum RFC value of 0.745 and queue value of 2.91 pcu on the Southleigh Road (west) approach arm in the PM peak. **Table 6.3** illustrates that the Southleigh Road (west) arm is likely to already be approaching capacity in 2019, recording a maximum RFC of 0.959 and queue value of 7.46 pcu in the PM Peak, irrespective of whether development takes place on land west of Horndean Road.

Table 6.4 Junctions 8 PICADY Assessment - Horndean Road j/w Southleigh Road (Development Scenario)

Junction Arm*	AM Peak (08:00-09:00)		PM Peak (17:00-18:00)	
	2019 with Development		2019 with Development	
	Max RFC	Max Q (Vehs)	Max RFC	Max Q (Vehs)
B-C	0.207	0.27	0.941	2.15
B-AD	0.683	2.42	0.956	8.43
A-BCD	0.114	0.15	0.251	0.35
D-A	0.457	0.87	0.252	0.37
D-BC	0.714	2.68	0.693	2.41
C-ABD	0.032	0.05	0.083	0.09

*A = Horndean Road (S) B = Southleigh Road (W) C = Horndean Road (N) D = Southleigh Road (E)

- 6.24 The Junctions 8 PICADY assessment illustrated in **Table 6.4** identifies that the addition of forecast unmitigated development traffic to the staggered crossroad junction of Horndean Road and Southleigh Road in the 2019 with development assessment scenario does not have a significant detrimental impact upon the recorded maximum RFC value or queue values on the Southleigh Road (west) arm.
- 6.25 The recorded maximum RFC value of 0.956 and maximum queue of 8.43 pcu represent an increased queue length of only one vehicle relative to the 2019 base scenario. In the context of the guidance

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contained within the NPPF the forecast traffic impact upon the junction of Horndean Road with Southleigh Road is not considered to be 'severe'.

- 6.26 The full Junctions 8 PICADY outputs for the junction are contained in **Appendix 10**.

Site Access / Horndean Road

- 6.27 The proposed site access junction with Horndean Road has been assessed with Junctions 8 PICADY and the results are illustrated in **Table 6.5** below.

Table 6.5 Junctions 8 PICADY Assessment – Site Access j/w Horndean Road (Development Scenario)

Junction Arm*	AM Peak		PM Peak	
	2019 with Development		2019 with Development	
	Max RFC	Max Q (Vehs)	Max RFC	Max Q (Vehs)
B-AC	0.162	0.19	0.137	0.16
C-AB	0.016	0.02	0.049	0.08

*A = Horndean Road (S) B = Site Access Road C= Horndean Road (N)

- 6.28 **Table 6.5** identifies that the proposed site access priority junction with Horndean Road will operate comfortably within capacity in the 2019 with development scenario recording a maximum RFC value of 0.162 on the Site Access Road approach arm at the junction in the AM Peak period.
- 6.29 The full Junctions 8 PICADY outputs for the junction are contained in **Appendix 10**.

Site Access / Southleigh Road

- 6.30 The proposed Site Access priority junction with Southleigh Road has been assessed for the 2019 with development scenario and the results are illustrated in **Table 6.6** below.

Table 6.6 Junctions 8 PICADY Assessment – Site Access j/w Southleigh Road (Development Scenario)

Junction Arm*	AM Peak		PM Peak	
	2019 with Development		2019 with Development	
	Max RFC	Max Q (Vehs)	Max RFC	Max Q (Vehs)
B-AC	0.055	0.06	0.016	0.02
C-AB	0.007	0.01	0.042	0.06

*A = Southleigh Road (E) B = Site Access Road C= Southleigh Road (W)

- 6.31 **Table 6.6** identifies that the proposed site access priority junction with Southleigh Road will operate comfortably within capacity in the 2019 with development scenario recording a maximum RFC value of 0.055 on the Site Access Road approach arm in the AM Peak period.
- 6.32 The full Junctions 8 PICADY outputs for the junction are contained in **Appendix 10**.

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Traffic Impact Summary

- 6.33 The assessment of the impact of the additional development trips upon the adjacent highway network in the AM and PM peak periods set out above illustrates that the existing network has capacity to accommodate the additional traffic associated with up to 130 dwellings on land west of Horndean Road without prejudicing the ability of the highway network to transport people and goods around the local and wider area and that as such no physical mitigation is required.
- 6.34 The assessment considered in **Tables 6.4 to 6.6** reflects an unmitigated development without the benefit of travel planning measures and sustainable transport initiatives and represents a robust assessment of the likely strategic impact of the proposals upon the surrounding highway network.

Mitigation Measures

- 6.35 In order to encourage sustainable transport use and reduce the reliance on the private car, it is proposed that a pedestrian and cycle friendly layout will be provided within the internal layout of the site. Internal pedestrian and cycle links will, as a part of the development proposals, be provided linking to the existing pedestrian and cycle networks within the surrounding community.
- 6.36 A supporting Interim Travel Plan has been developed, setting out a framework to promote and monitor the range of initiatives and schemes identified as part of the residential non-car package and to encourage a modal shift and reduction in single occupancy car use.

7 Summary and Conclusions

Summary

- 7.1 This report provides an assessment of the likely transport implications arising from the proposed sustainable residential development of up to 130 dwellings on land to the west of Horndean Road at Emsworth in Hampshire.
- 7.2 Specifically this report provides a detailed technical assessment of the proposed location in respect of its suitability as a sustainable location in transport terms for the purpose of the proposed development, identifying a detailed access strategy and illustrating how appropriate access can be achieved for public transport, cycle and pedestrian trips as well as by vehicular traffic.
- 7.3 The proposals accord with and support the objectives of local and national policy with respect to transport and its impact upon the local environment and surrounding infrastructure.
- 7.4 It is proposed that vehicular access is taken to the north and west of the site via Southleigh Road and Horndean Road respectively.
- 7.5 The accessibility of the site by public transport, bicycle and on foot has been assessed and proposals outlined to ensure accessibility by non-car modes in accordance with the objectives of national and local policy.
- 7.6 A qualitative highway safety assessment has been undertaken for the highway network surrounding the site and it is considered that there are no significant prevailing highway safety concerns in relation to the proposed land use.
- 7.7 The proposal site is considered to be within a reasonable walking distance of existing bus services via safe, convenient and attractive pedestrian routes.
- 7.8 All servicing requirements, including refuse collection and access by emergency vehicles, will be wholly accommodated within the site.
- 7.9 Provision for vehicle parking will be made on site in accordance with the requirements of Havant Borough Council and Hampshire County Council.
- 7.10 The forecast trip generation for the proposed development indicates that in unconstrained circumstances, a development of up to 130 dwellings, could generate in the region of 103 vehicle trips in the AM Peak and 99 vehicle trips in the PM Peak, distributed and assigned to the adjacent highway network on the basis of National Census 2001 Travel to Work Data.
- 7.11 A robust assessment of the traffic impact of the proposals upon the adjacent highway network has been undertaken, utilising the industry standard Junctions 8 PICADY software and based upon forecast development traffic flows for the proposed development and forecast 2019 background traffic flows.
- 7.12 The assessment demonstrates that the adjacent highway network has existing capacity to accommodate forecast unmitigated traffic flows in the forecast 2019 development scenario without the requirement for physical mitigation measures.
- 7.13 Notwithstanding, mitigation in the form of a robust Travel Plan which sets out a series of objectives, actions and targets to promote the use of alternative modes of transport to the private car and establish a modal shift away from single occupancy car use is proposed and an Interim Travel Plan, setting out a framework for the full Travel Plan has been submitted alongside this Transport Assessment.

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Conclusion

- 7.14 The foregoing assessment demonstrates that a residential development of up to 130 dwellings can be accommodated on the proposed site without prejudicing the ability of the highway network to transport people and goods around the local and wider area.
- 7.15 In conclusion, it is considered that there are no overriding transport or highway reasons why the proposed development on land to the west of Horndean Road in Emsworth should not be approved.

Appendices



Appendix 1

Site Location Plan

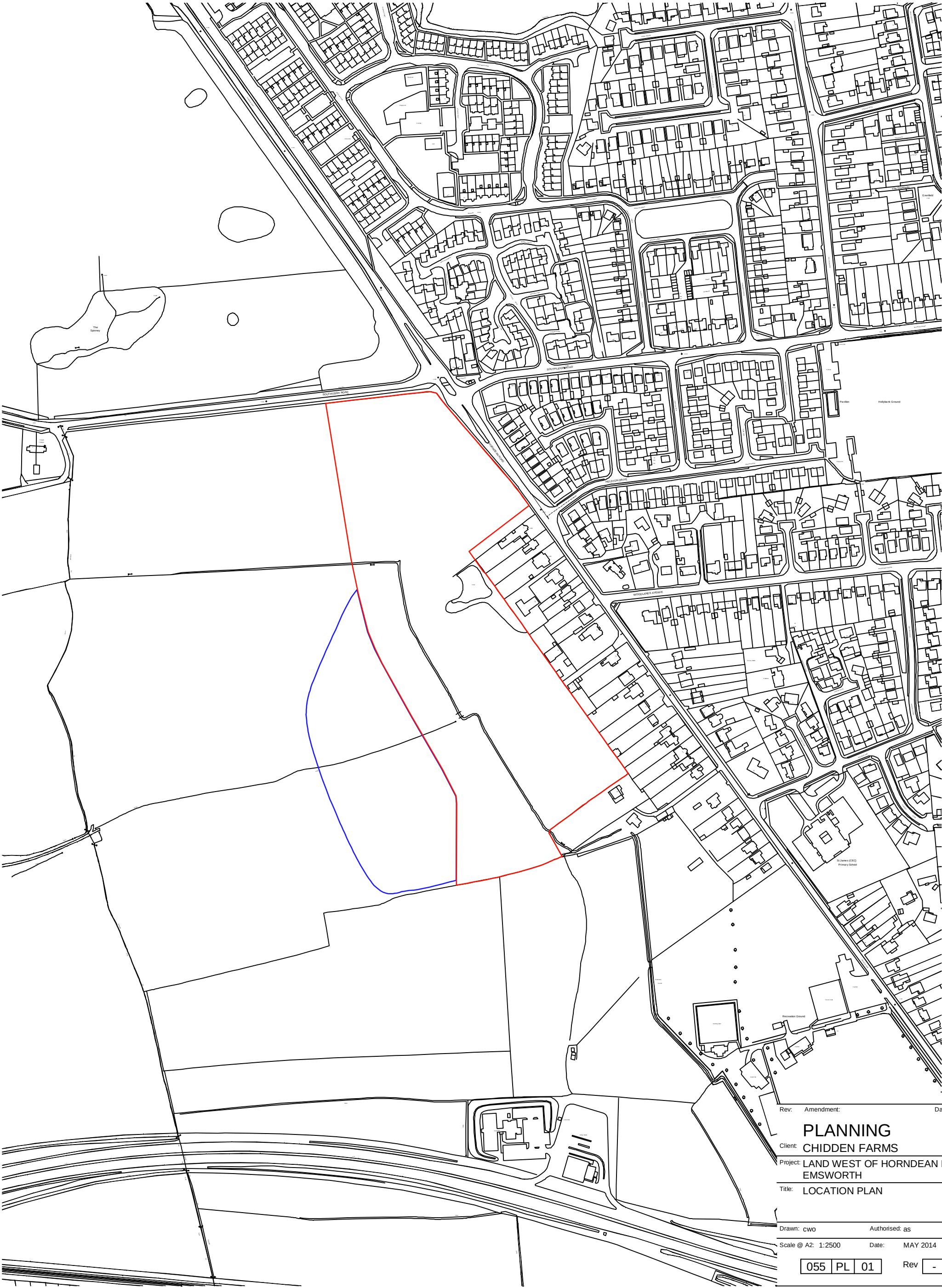


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project: 1375 Horndean Road, Emsworth
drawing title: **Site Location**
drawing no: **Figure 1**
date: **July 2013**

Scale for planning purposes only.
Contractors to confirm all dimensions before
commencing work on site or shop drawings.
STAINSBYARCHITECT to be notified of any
discrepancies.

Filepath: J:\Horndean Road



Rev: Amendment: Date:

PLANNING

Client: **CHIDDEN FARMS**

Project: **LAND WEST OF HORNDEAN ROAD
EMSWORTH**

Title: **LOCATION PLAN**

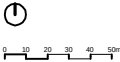
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Scale @ A2: 1:2500 Date: MAY 2014

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Appendix 2

Rail Based Public Transport Information

Key

Brighton Mainline route

West London route

Metro route

Oxted route

Redhill route

Mainline West route

Mainline East route

Coastway West route

Coastway East route

Gatwick Express route

Regular service

Limited service

Main stations

Step free access to all platforms#

Other train operator route

Ferry service

Limited Southern service station

London Underground interchange

London Overground interchange

DLR interchange

Tramlink interchange

Oyster can be used in this area

Eurostar interchange

Airport interchange

Ferry service interchange

Other train operators provide additional services along some routes served by Southern.

#: Access points may vary by platform, there may not be step-free access to all station areas; see accessibility guide for details.

24/10/12

The map illustrates the extensive Southern Railway network, connecting major hubs like London, Brighton, Southampton, and Portsmouth. Key features include:

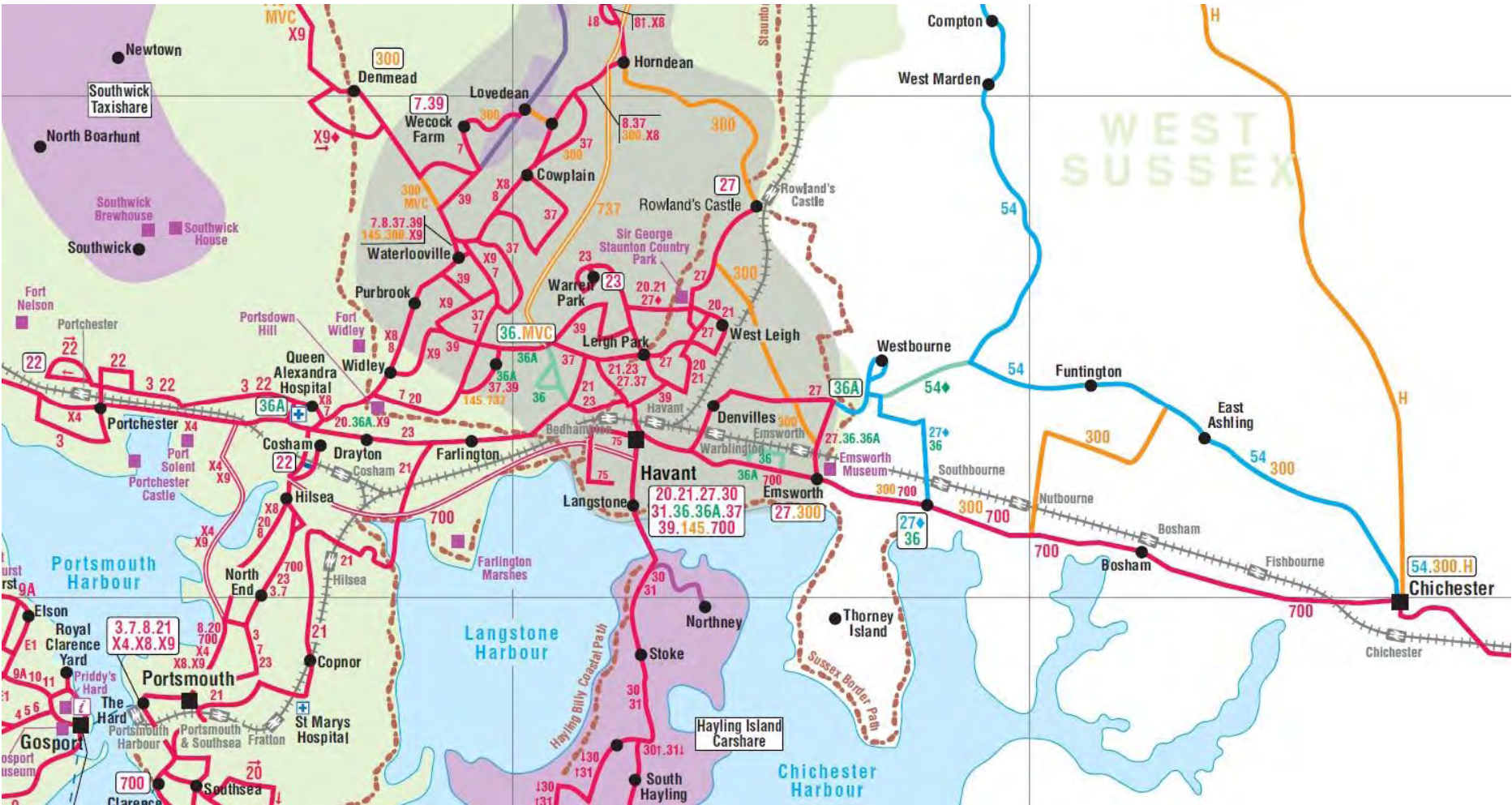
- Routes:** Brighton Mainline, West London, Metro, Oxted, Redhill, Mainline West, Mainline East, Coastway West, Coastway East, and Gatwick Express.
- Stations:** Major stations like London Victoria, London Bridge, Brighton, Southampton Central, and Portsmouth & Southsea are highlighted.
- Interchanges:** Connections with London Underground, DLR, Tramlink, Eurostar, and ferry services are marked.
- Accessibility:** Step-free access to all platforms is indicated at various stations.
- Service Types:** Regular and limited services are distinguished by line styles.



Appendix 3

Bus Based Public Transport Information

Extract from Hampshire County Council Bus Map

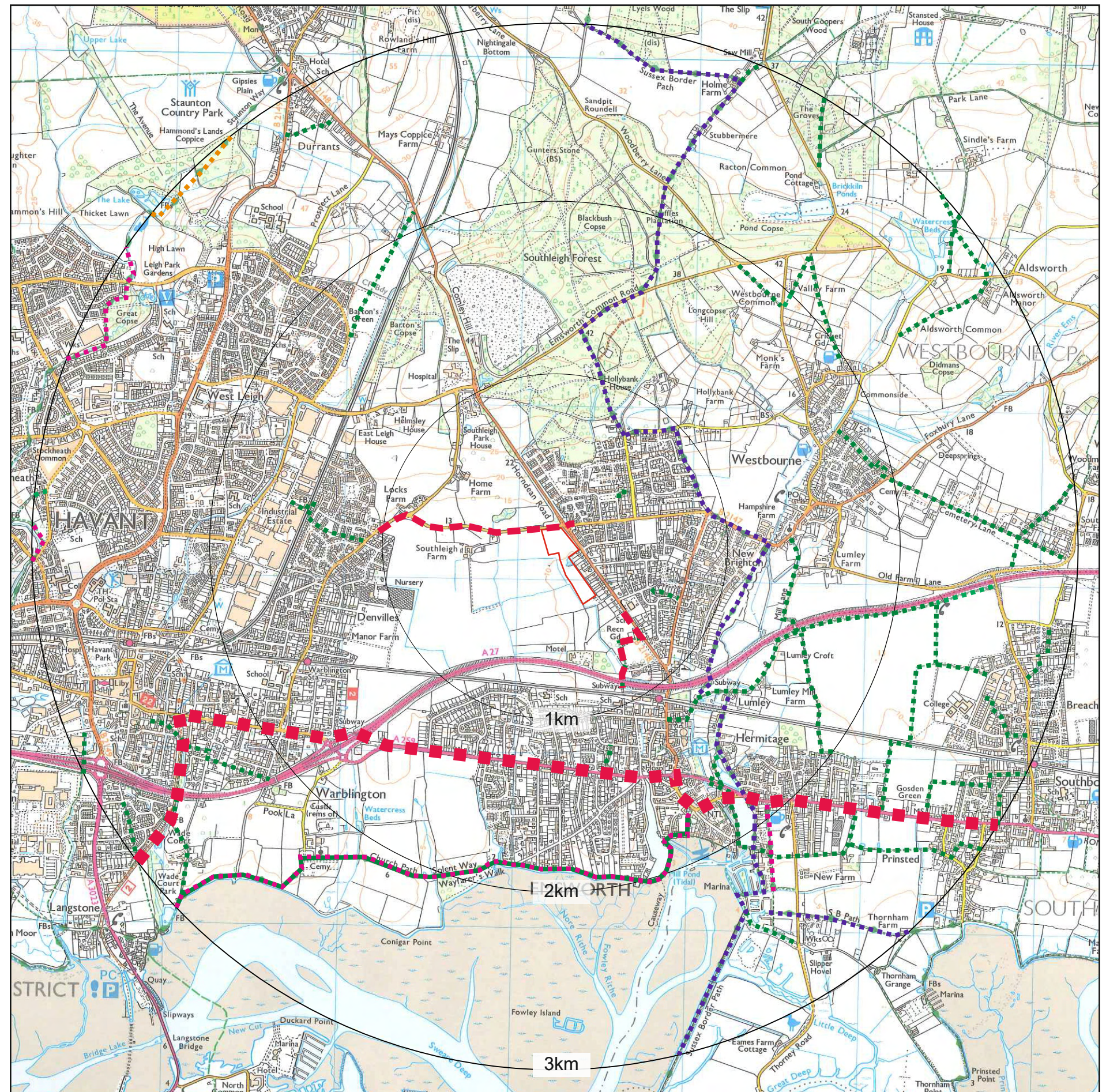


Appendix 4

Pedestrian and Cycle Network

KEY:

-  Site location
-  Public Right of Way (PROW)
-  Solent Way National Trail
-  Solent Way & Wayfarer's Walk National Trails
-  Sussex Border Path National Trail
-  Staunton Way National Trail
-  National Cycle Route - No. 2
-  Off-Road Cycle Track (only those adjacent to site shown)



project: 1375 Horndean Road, Emsworth
drawing title: Access - Footpaths and Cycle Routes
drawing no: Figure 2
date: July 2013

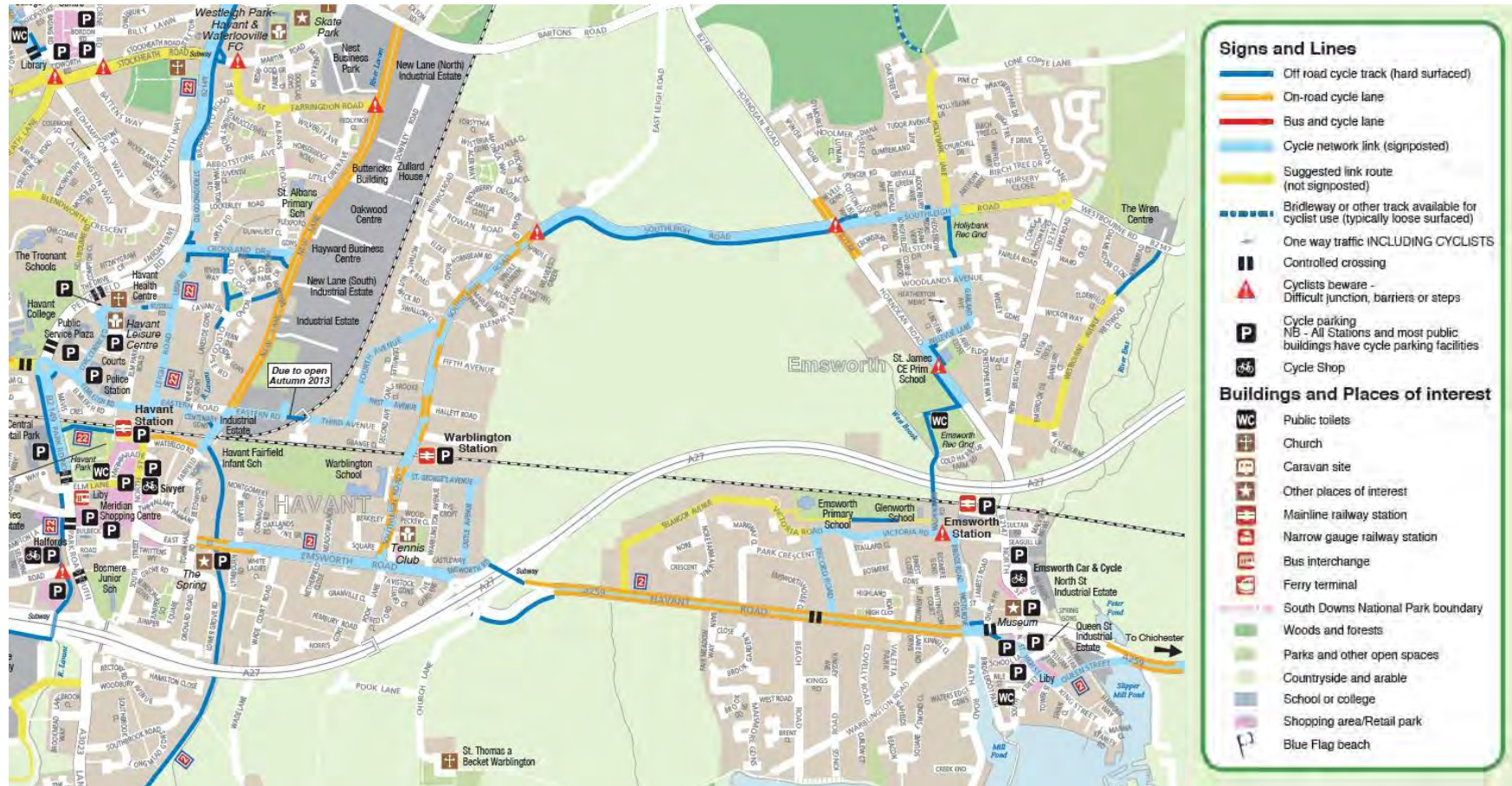
0m 500m 1km



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Extract from Havant Borough Council Cycle Map



Appendix 5

Personal Injury Accident Data

Accidents between dates 01/06/2008 and 31/05/2013 (60) months

Selection: Notes:

Selected using Build Query : ; Refined using Accidents within
selected Polygons -RPU Statistics Request ("NS HORNDEAN
ROAD")

Selected Polygon: NS HORNDEAN ROAD

090482970 06/11/2009 Time 1840 Vehicles 2 Casualties 1 Slight
E:473368 N: 107369 First Road: U Road Type 1
Speed limit: 40 Junction Detail: Mini roundabout Give way or controlled Unclassified
Crossing: Control None Facilities: None within 50m Road surface Wet/Damp
Darkness: street lights present and lit Raining with high winds
Special Conditions at Site None Carriageway Hazards: None
Place accident reported: Elsewhere DfT Special Projects:

	Factor:	Causation	Participant:	Confidence:
1st:	Slippery road (due to weather)		Vehicle 1	Possible
2nd:	Junction overshoot		Vehicle 1	Possible
3rd:	Failed to judge other persons path or speed		Vehicle 1	
4th:				
5th:				
6th:				

VEHICLE 1 (PEDAL CYCLE) TRAVELLING SOUTHWEST ALONG EASTLEIGH ROAD, ENTERS MINI RBT
INTENDING TO CONTINUE AHEAD ONTO SOUTHLEIGH ROAD. VEHICLE 2 (CAR) TRAVELLING
NORTHWEST ALONG SOUTHLEIGH ROAD PULLS ONTO RBT INTENDING TO TAKE 1ST EXIT (LEFT) ONTO
SOUT

Occurred on SOUTHLEIGH ROAD AT JUNCTION WITH EASTLEIGH ROAD, HAVANT, HAMPSHIRE

Vehicle Reference 1 Pedal Cycle Going ahead right bend
Vehicle movement from NE to W No tow / articulation Leaving the main road
On main carriageway No skidding, jack-knifing or overturning
Location at impact Mid Junction - on roundabout or 1 First impact Nearside Hit vehicle: 2
Hit object in road None Off road: None
Did not leave carr Age of Driver 59 Female
Not hit and run Breath test Driver not contacted Left hand drive:
Casualty Reference: 1 Vehicle: 1 Age: 59 Female Driver/rider Severity: Slight
Not a pupil
Seatbelt Not Applicable Cycle helmet:

Vehicle Reference 2 Car Turning left
Vehicle movement from SE to SW No tow / articulation Leaving the main road
On main carriageway No skidding, jack-knifing or overturning
Location at impact Entering roundabout First impact Front Hit vehicle: 1
Hit object in road None Off road: None
Did not leave carr Age of Driver Male
Not hit and run Breath test Driver not contacted Left hand drive:

Accidents between dates 01/06/2008 and 31/05/2013 (60) months

Selection: Notes:

Selected using Build Query : ; Refined using Accidents within selected Polygons -RPU Statistics Request ("NS HORNDEAN ROAD")

100514017 07/12/2010 Time 0741 Vehicles 2 Casualties 1 Slight
E:474431 N: 107090 First Road: B 2148 Road Type Single carriageway
Speed limit: 30 Junction Detail: T & Stag Jct Give way or controlled Unclassified
Crossing: Control None Facilities: None within 50m Road surface Wet/Damp
Darkness: street lights present and lit Fine without high winds
Special Conditions at Site None Carriageway Hazards: None
Place accident reported: At scene DfT Special Projects:

Causation			
Factor:	Participant:	Confidence:	
1st: Fatigue	Vehicle 1	Very Likely	
2nd:			
3rd:			
4th:			
5th:			
6th:			

VEH 1 (CAR) WAS TRAVELLING NW ALONG HORNDEAN ROAD WHEN THE DRIVER FELL ASLEEP. VEH 1 VEERED TOWARDS THE OPPOSITE SIDE OF THE ROAD AND COLLIDED HEAD-ON WITH VEH 2 (CAR) WHICH WAS TRAVELLING SE.

Occurred on B2148 HORNDEAN ROAD AT JUNCTION WITH WOODLANDS AVENUE, EMSWORTH, HAMPSHIRE

Vehicle Reference 1 Car Going ahead other
Vehicle movement from SE to NW No tow / articulation Leaving the main road
On main carriageway No skidding, jack-knifing or overturning
Location at impact Mid Junction - on roundabout or r First impact Front Hit vehicle: 2
Hit object in road None Off road: None
Did not leave carr Age of Driver 57 Male
Not hit and run Breath test Not applicable
Left hand drive:
Casualty Reference: 1 Vehicle: 1 Age: 57 Male Driver/rider Severity: Slight
Not a pupil
Seatbelt Not Applicable Cycle helmet:

Vehicle Reference 2 Car Going ahead other
Vehicle movement from NW to SE No tow / articulation Leaving the main road
On main carriageway No skidding, jack-knifing or overturning
Location at impact Mid Junction - on roundabout or r First impact Front Hit vehicle: 1
Hit object in road None Off road: None
Did not leave carr Age of Driver 33 Female
Not hit and run Breath test Not applicable
Left hand drive:

Accidents between dates 01/06/2008 and 31/05/2013 (60) months

Selection: Notes:

Selected using Build Query : ; Refined using Accidents within
selected Polygons -RPU Statistics Request ("NS HORNDEAN
ROAD")

120279801 20/07/2012 Time 1550 Vehicles 2 Casualties 1 Slight
E:473876 N: 107272 First Road: U Road Type Single carriageway
Speed limit: 60 Junction Detail: Pri Drive Give way or controlled Unclassified
Crossing: Control None Facilities: None within 50m Road surface Dry
Daylight Fine without high winds
Special Conditions at Site None Carriageway Hazards: None
Place accident reported: Elsewhere DfT Special Projects:

Causation			
Factor:	Participant:	Confidence:	
1st: Failed to judge other persons path or speed	Vehicle 2	Possible	
2nd: Failed to look properly	Vehicle 2	Possible	
3rd:			
4th:			
5th:			
6th:			

VEH 2 (VAN) TRAVELLING N OUT OF SOUTHLEIGH FARMHOUSE TURNS RIGHT ONTO SOUTHLEIGH ROAD
COLLIDING WITH VEH 1 (P/CYCLE) TRAVELLING W ALONG SOUTHLEIGH ROAD.

Occurred on SOUTHLEIGH ROAD AT JUNCTION WITH SOUTHLEIGH FARMHOUSE, HAVANT, HAMPSHIRE

Vehicle Reference 1 Pedal Cycle Going ahead other
Vehicle movement from E to W No tow / articulation Leaving the main road
On main carriageway No skidding, jack-knifing or overturning
Location at impact Mid Junction - on roundabout or 1 First impact Nearside Hit vehicle:
Hit object in road None Off road: None
Did not leave carr Age of Driver 40 Male
Not hit and run Breath test Driver not contacted
Left hand drive: No

Casualty Reference: 1 Vehicle: 1 Age: 40 Male Driver/rider Severity: Slight
Not a pupil
Seatbelt Not Applicable Cycle helmet: Not known

Vehicle Reference 2 Van or Goods 3.5 tonnes mgw and under Turning right
Vehicle movement from S to E No tow / articulation Leaving the main road
On main carriageway No skidding, jack-knifing or overturning
Location at impact Mid Junction - on roundabout or 1 First impact Front Hit vehicle:
Hit object in road None Off road: None
Did not leave carr Age of Driver Male
Not hit and run Breath test Driver not contacted
Left hand drive: No

Accidents between dates 01/06/2008 and 31/05/2013 (60) months

Selection: Notes:

Selected using Build Query : ; Refined using Accidents within selected Polygons -RPU Statistics Request ("NS HORNDEAN ROAD")

080306817 05/07/2008 Time 0129 Vehicles 1 Casualties 1 Slight
E:473593 N:107304 First Road: U Road Type Single carriageway
Speed limit: 40 Junction Detail: Not within 20m of junction
Crossing: Control None Facilities: None within 50m Road surface Wet/Damp
Darkness: no street lighting Raining without high winds
Special Conditions at Site None Carriageway Hazards: None
Place accident reported: Elsewhere DfT Special Projects:

Causation		Participant:	Confidence:
Factor:			
1st:	Rain, sleet, snow, or fog	Vehicle 1	Very Likely
2nd:			
3rd:			
4th:			
5th:			
6th:			

VEH 1 (CYCLE) TRAVELLING WEST ALONG SOUTHLEIGH ROAD WITH A COLLEAGUE CYCLING IN FRONT WHO STOPPED DUE TO NOT BEING ABLE TO SEE BECAUSE OF RAIN ON GLASSES. RIDER OF VEH 1 STUMBLED WHEN SEEING COLLEAGUE STOPPED UNEXPECTEDLY AND DROPPED BIKE TO THE GROUND. Occurred on SOUTHLEIGH ROAD, HAVANT, HAMPSHIRE

Vehicle Reference 1 Pedal Cycle Going ahead other
Vehicle movement from E to W No tow / articulation
Cycleway or shared use footway (not part of main car No skidding, jack-knifing or overturning
Location at impact Not at, or within 20M of Jct First impact Offside Hit vehicle: 0
Hit object in road None Off road: None
Did not leave carr Age of Driver 38 Female
Not hit and run Breath test Not applicable Left hand drive:
Casualty Reference: 1 Vehicle: 1 Age: 38 Female Driver/rider Severity: Slight
Not a pupil
Seatbelt 16 Cycle helmet:

Accidents between dates 01/06/2008 and 31/05/2013 (60) months

Selection:

Selected using Build Query : ; Refined using Accidents within selected Polygons -RPU Statistics Request ("NS HORNDEAN ROAD")

Notes:

Accidents involving:

	Fatal	Serious	Slight	Total
Motor vehicles only (excluding 2-wheels)	0	0	1	1
2-wheeled motor vehicles	0	0	0	0
Pedal cycles	0	0	3	3
Horses & other	0	0	0	0
Total	0	0	4	4

Casualties:

	Fatal	Serious	Slight	Total
Vehicle driver	0	0	1	1
Passenger	0	0	0	0
Motorcycle rider	0	0	0	0
Cyclist	0	0	3	3
Pedestrian	0	0	0	0
Other	0	0	0	0
Total	0	0	4	4

Appendix 6

Site Layout Plan

Scale for planning purposes only.
Contractors to confirm all dimensions before
commencing work on site or shop drawings.
STAINSBYARCHITECT to be notified of any
discrepancies.

Filepath:



J. Hordean Road

Rev: Amendment: Date:

PLANNING

Client: CHIDDEN FARMS

Project: LAND WEST OF HORDEAN ROAD
EMSWORTH

Title: ILLUSTRATIVE
MASTERPLAN

Drawn: cwo Authorised: as

Scale @ A2: 1:1250 Date: MAY 2014

055 PL 03 Rev -

STAINSBYARCHITECT

TAB HOUSE
TILFORD ROAD
HINDHEAD
SURREY
GU26 6RA
T 01428 607808
M 07775 357367
E andrew.stainsby@stainsbyarchitect.com



Appendix 7

TRICS Data

Bidwells Legg Street Chelmsford

Licence No: 343901

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : A - HOUSES PRIVATELY OWNED
 MULTI-MODAL VEHICLES

Selected regions and areas:

05	EAST MIDLANDS	
	LN LINCOLNSHIRE	1 days
	NT NOTTINGHAMSHIRE	1 days
06	WEST MIDLANDS	
	WO WORCESTERSHIRE	1 days
11	SCOTLAND	
	FI FIFE	1 days
15	GREATER DUBLIN	
	DL DUBLIN	1 days
17	ULSTER (NORTHERN IRELAND)	
	AR ARMAGH	1 days

Filtering Stage 2 selection:

Parameter: Number of dwellings
 Actual Range: 138 to 166 (units:)
 Range Selected by User: 135 to 170 (units:)

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/05 to 15/06/10

Selected survey days:

Monday	1 days
Tuesday	2 days
Wednesday	1 days
Friday	2 days

Selected survey types:

Manual count	6 days
Directional ATC Count	0 days

Selected Locations:

Suburban Area (PPS6 Out of Centre)	1
Edge of Town	5

Selected Location Sub Categories:

Residential Zone	6
------------------	---

Filtering Stage 3 selection:

Use Class:

C3	6 days
----	--------

Population within 1 mile:

1,001 to 5,000	1 days
15,001 to 20,000	3 days
25,001 to 50,000	2 days

Filtering Stage 3 selection (Cont.):

Population within 5 miles:

50,001 to 75,000	1 days
75,001 to 100,000	2 days
100,001 to 125,000	1 days
125,001 to 250,000	1 days
500,001 or More	1 days

Car ownership within 5 miles:

0.6 to 1.0	3 days
1.1 to 1.5	3 days

Travel Plan:

No	6 days
----	--------

LIST OF SITES relevant to selection parameters

1	AR-03-A-01	MIXED HOUSES	ARMAGH
	BIRCHDALE MANOR		
	LURGAN		
	Edge of Town		
	Residential Zone		
	Total Number of dwellings:	153	
	Survey date: <i>TUESDAY</i>	15/06/10	Survey Type: <i>MANUAL</i>
2	DL-03-A-06	DETACHED	DUBLIN
	UPPER KILMACUD ROAD		
	DUNDRUM		
	DUBLIN		
	Edge of Town		
	Residential Zone		
	Total Number of dwellings:	147	
	Survey date: <i>FRIDAY</i>	30/04/10	Survey Type: <i>MANUAL</i>
3	FI-03-A-03	MIXED HOUSES	FIFE
	WOODMILL ROAD		
	DUNFERMLINE		
	Edge of Town		
	Residential Zone		
	Total Number of dwellings:	155	
	Survey date: <i>MONDAY</i>	30/04/07	Survey Type: <i>MANUAL</i>
4	LN-03-A-01	MIXED HOUSES	LINCOLNSHIRE
	BRANT ROAD		
	BRACEBRIDGE		
	LINCOLN		
	Edge of Town		
	Residential Zone		
	Total Number of dwellings:	150	
	Survey date: <i>TUESDAY</i>	15/05/07	Survey Type: <i>MANUAL</i>
5	NT-03-A-03	SEMI DETACHED	NOTTINGHAMSHIRE
	B6018 SUTTON ROAD		
	KIRKBY-IN-ASHFIELD		
	Edge of Town		
	Residential Zone		
	Total Number of dwellings:	166	
	Survey date: <i>WEDNESDAY</i>	28/06/06	Survey Type: <i>MANUAL</i>
6	WO-03-A-03	DETACHED	WORCESTERSHIRE
	BLAKEBROOK		
	BLAKEBROOK		
	KIDDERMINSTER		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	138	
	Survey date: <i>FRIDAY</i>	05/05/06	Survey Type: <i>MANUAL</i>

Bidwells Legg Street Chelmsford

Licence No: 343901

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL TOTAL PEOPLE

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	6	152	0.113	6	152	0.435	6	152	0.548
08:00 - 09:00	6	152	0.243	6	152	0.869	6	152	1.112
09:00 - 10:00	6	152	0.251	6	152	0.378	6	152	0.629
10:00 - 11:00	6	152	0.244	6	152	0.315	6	152	0.559
11:00 - 12:00	6	152	0.297	6	152	0.301	6	152	0.598
12:00 - 13:00	6	152	0.318	6	152	0.311	6	152	0.629
13:00 - 14:00	6	152	0.355	6	152	0.288	6	152	0.643
14:00 - 15:00	6	152	0.352	6	152	0.325	6	152	0.677
15:00 - 16:00	6	152	0.646	6	152	0.380	6	152	1.026
16:00 - 17:00	6	152	0.551	6	152	0.336	6	152	0.887
17:00 - 18:00	6	152	0.663	6	152	0.402	6	152	1.065
18:00 - 19:00	6	152	0.518	6	152	0.461	6	152	0.979
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			4.551			4.801			9.352

Parameter summary

Trip rate parameter range selected: 138 - 166 (units:)
Survey date range: 01/01/05 - 15/06/10
Number of weekdays (Monday-Friday): 6
Number of Saturdays: 0
Number of Sundays: 0
Surveys manually removed from selection: 0

Appendix 8

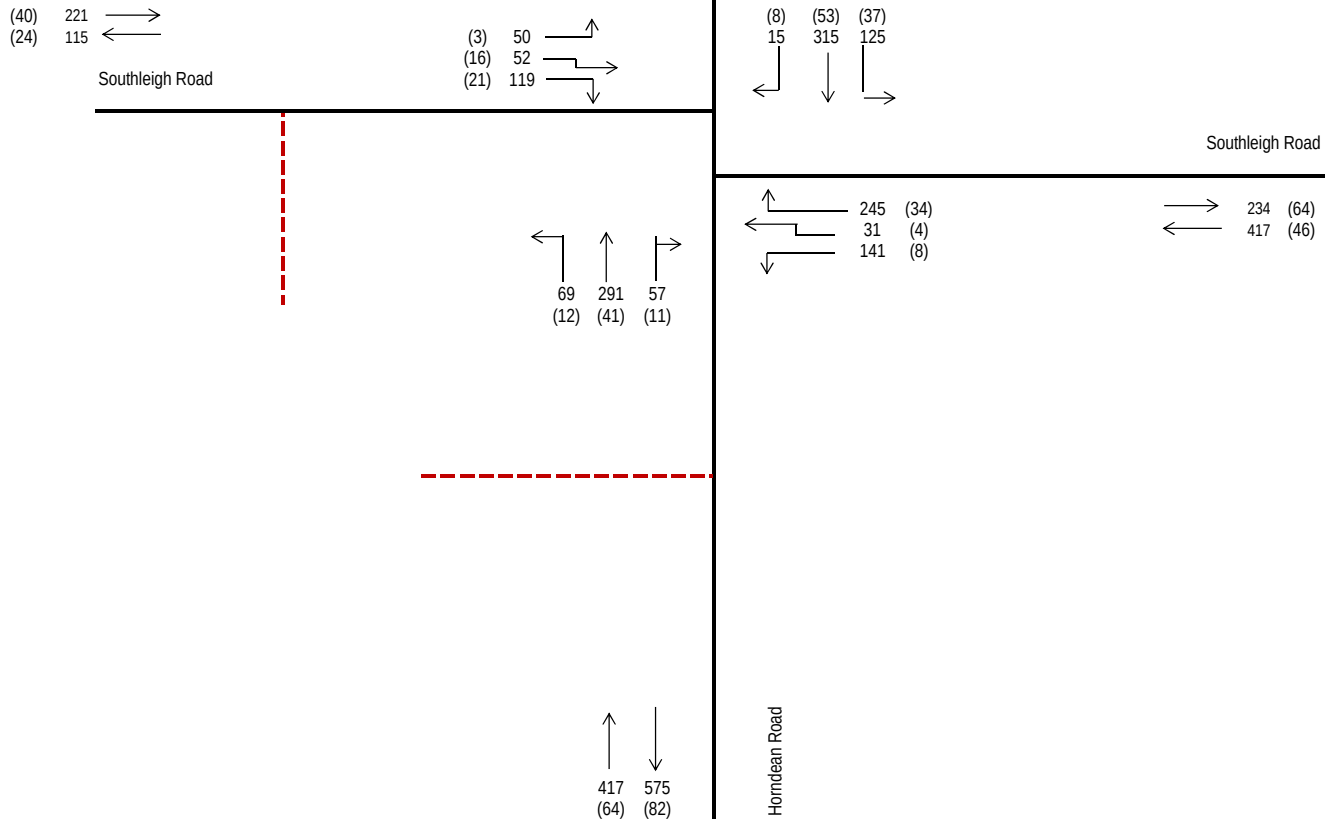
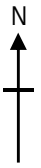
Traffic Flow Diagrams

Horndean Road, Emsworth

Observed Traffic Flows

AM Peak (08:00-09:00)

NB: All flows in vehicles
Total Vehicles (of which HGV)



DRAWING TITLE:

2013 AM Peak Observed Base

PROJECT TITLE:

Horndean Road, Emsworth

DRAWN BY:

SB

DATE:

July '13

SCALE:

NTS

REF:

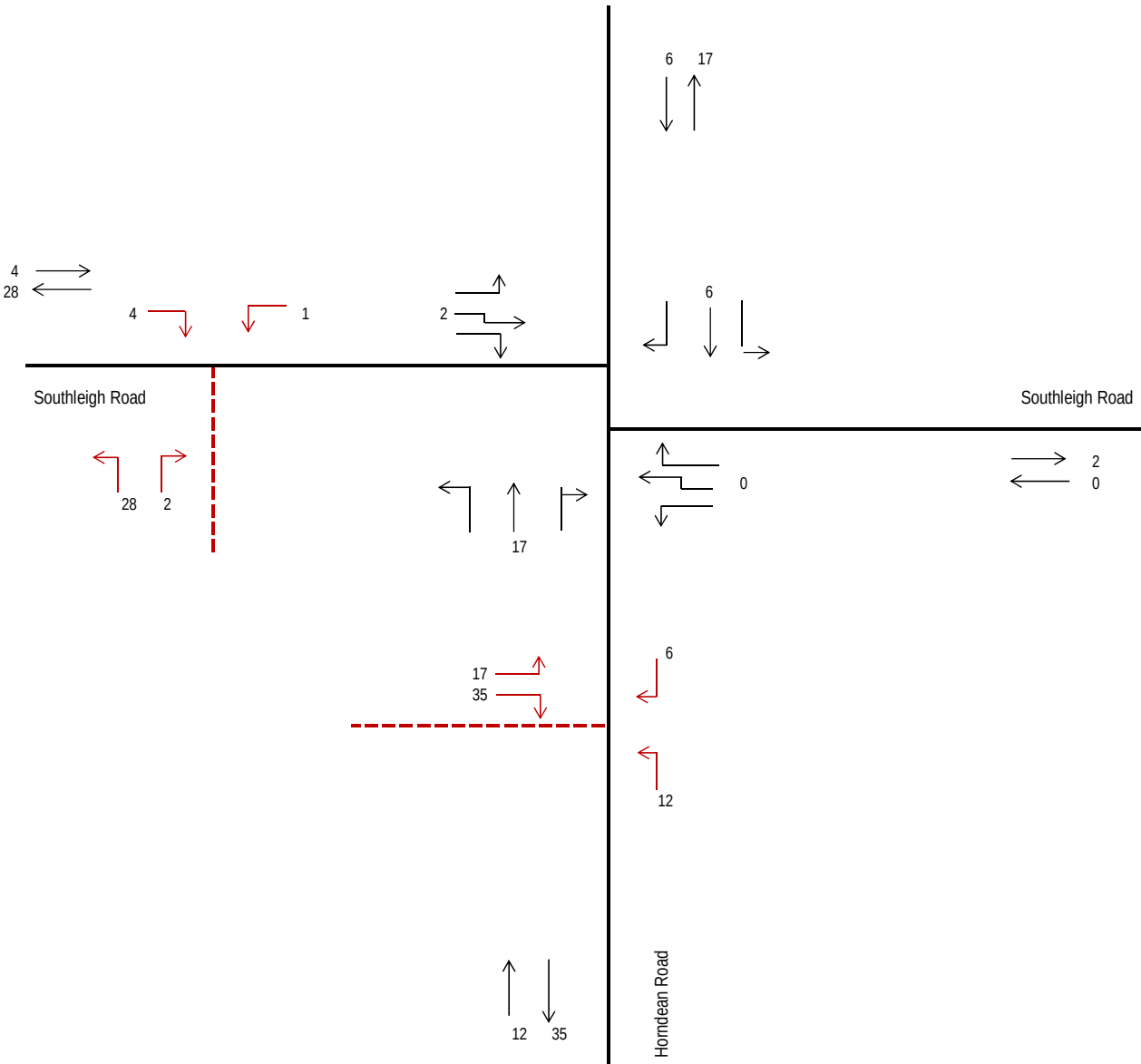
Appendix 8

BIDWELLS

Saxon House, 27 Duke Street
Chelmsford
Essex, CM1 1HT
t: 01245 250998
f: 01245 251214
bidwells.co.uk

Horndean Road, Emsworth

AM Peak (08:00-09:00)
NB: All flows in vehicles



IN OUT
AM Forecast 23 81

DRAWING TITLE:

AM Forecast Distribution

PROJECT TITLE:

Horndean Road, Emsworth

DRAWN BY:

AB

DATE:

Jan-14

SCALE:

NTS

REF:

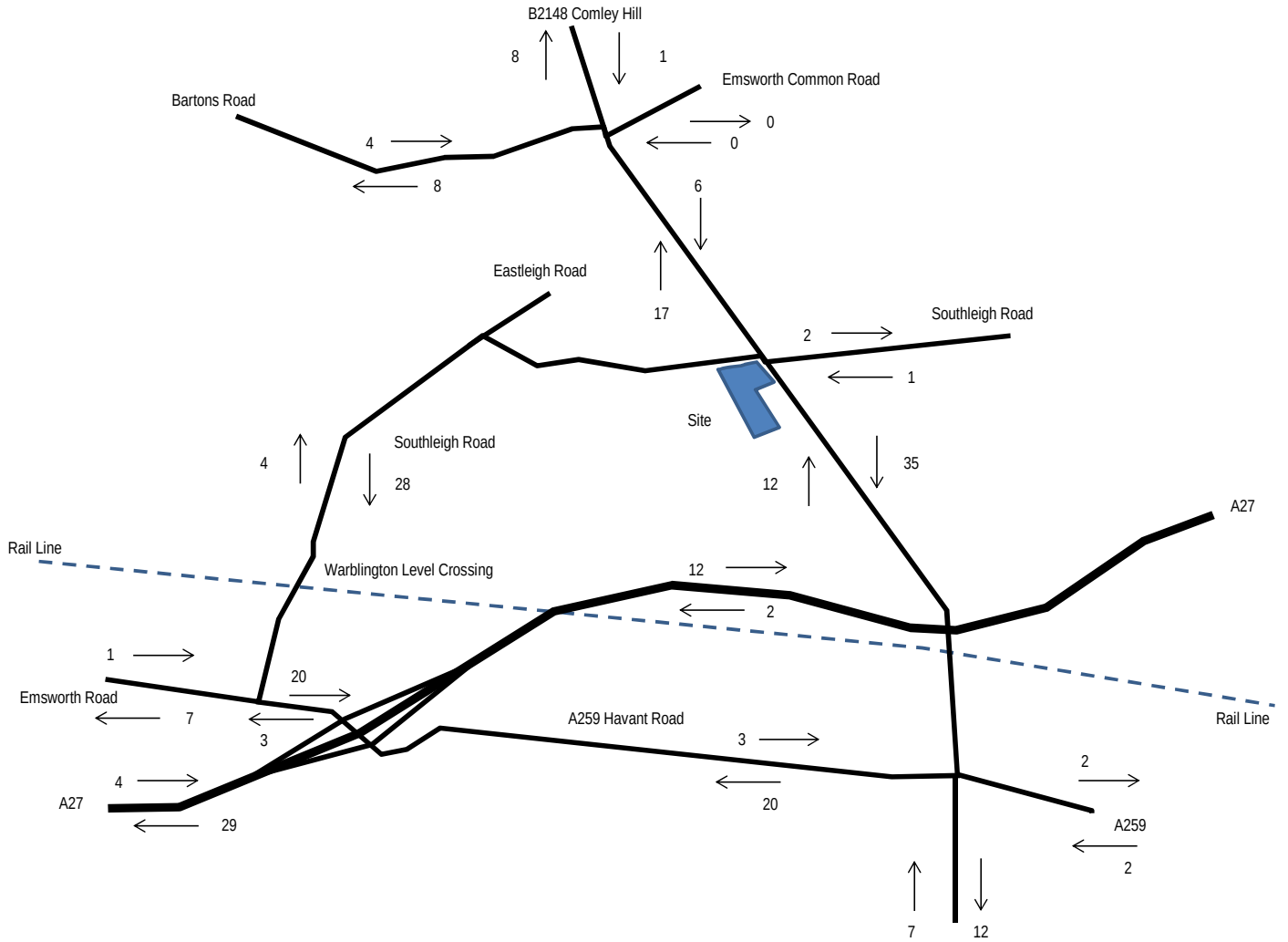
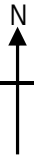
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Chelmsford
Essex, CM1 1HT
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f: 01245 251214
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Horndean Road, Emsworth

AM Peak (08:00-09:00)
NB: All flows in vehicles



AM Forecast IN 23 OUT 81

DRAWING TITLE:

AM Forecast Wide Area Distribution

PROJECT TITLE:

Horndean Road, Emsworth

DRAWN BY:

AB

DATE:

Jan-14

SCALE:

NTS

REF:

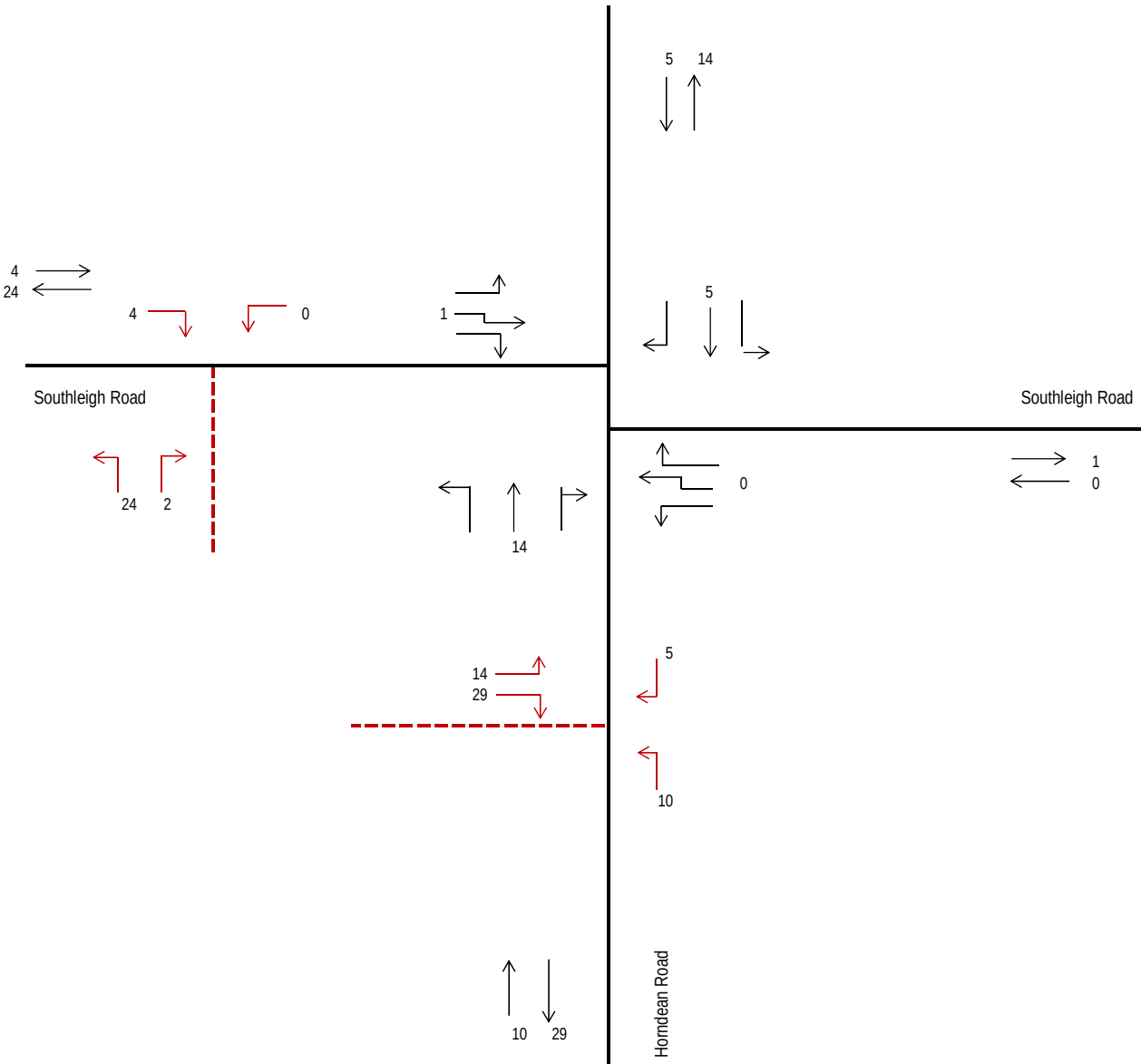
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Chelmsford
Essex, CM1 1HT
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Horndean Road, Emsworth

AM Peak (08:00-09:00)
NB: All flows in vehicles



AM Forecast IN OUT
 19 69

DRAWING TITLE:

AM Mitigated Forecast Distribution

PROJECT TITLE:

Horndean Road, Emsworth

DRAWN BY:

AB

DATE:

Jan-14

SCALE:

NTS

REF:

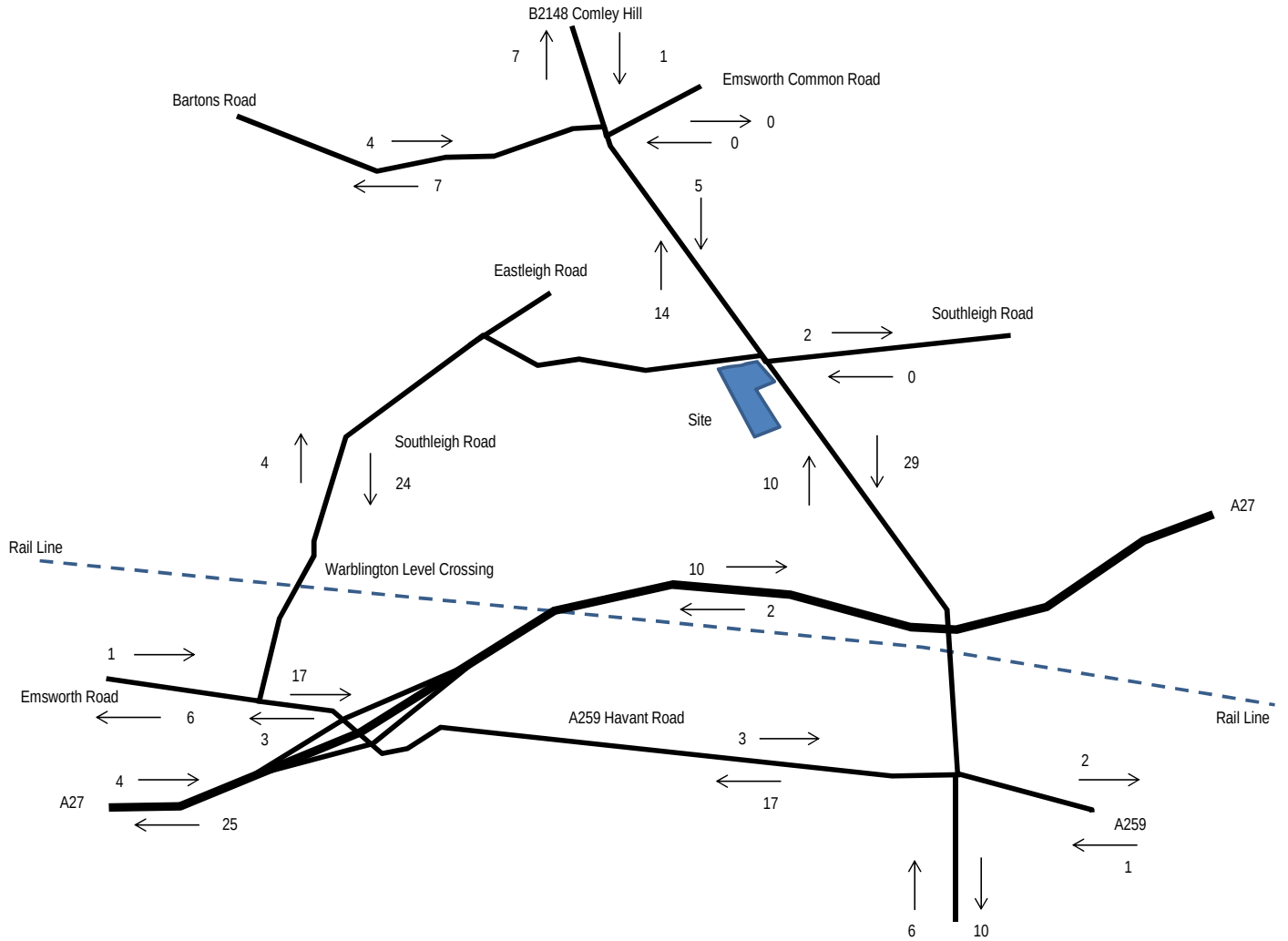
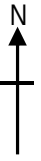
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Essex, CM1 1HT
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Horndean Road, Emsworth

AM Peak (08:00-09:00)
NB: All flows in vehicles



AM Forecast IN OUT
 19 69

DRAWING TITLE:

AM Mitigated Forecast Wide Area Distribution

PROJECT TITLE:

Horndean Road, Emsworth

DRAWN BY:

AB

DATE:

Jan-14

SCALE:

NTS

REF:

Appendix 8

BIDWELLS

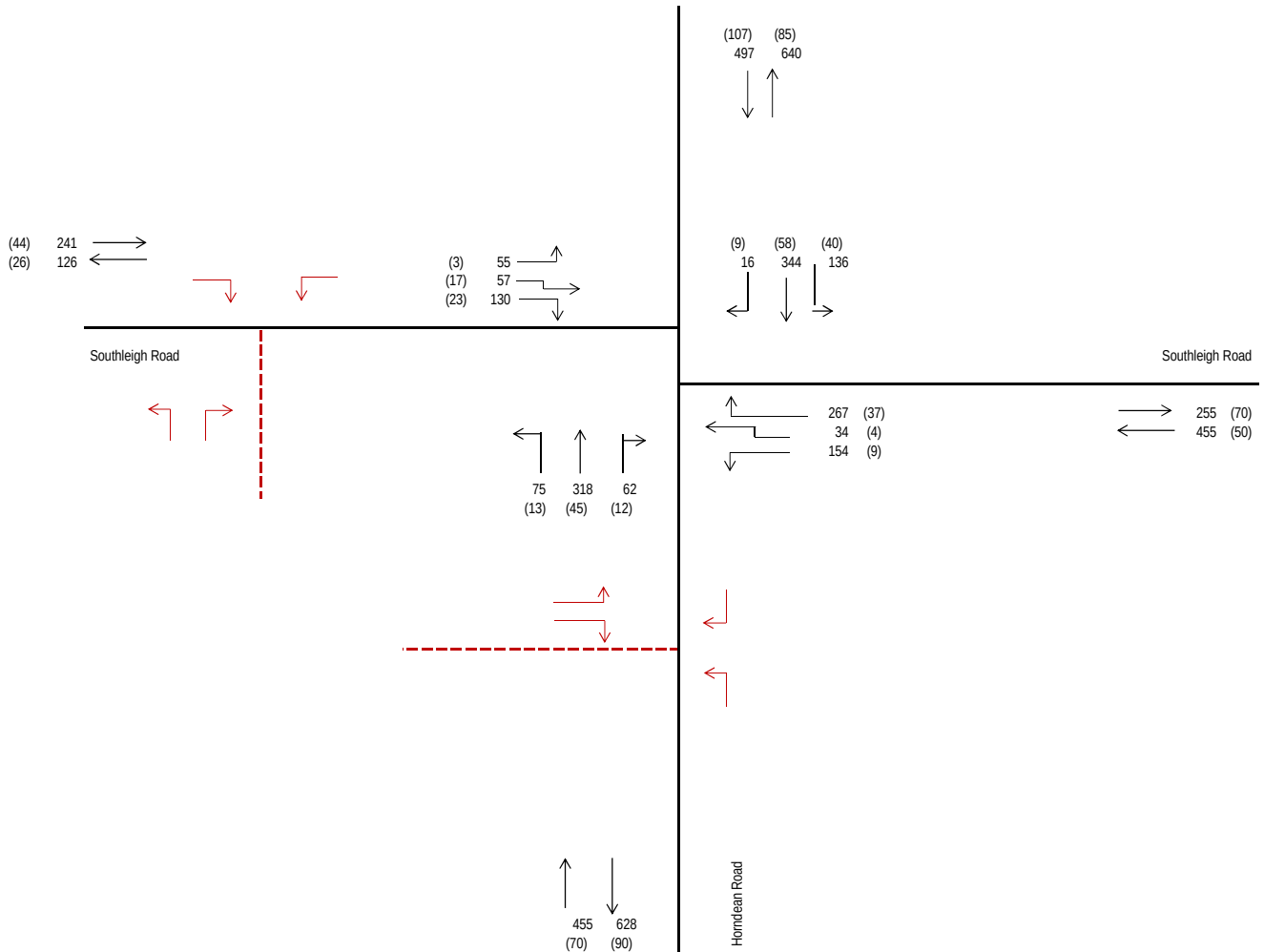
Saxon House, 27 Duke Street
Chelmsford
Essex, CM1 1HT
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f: 01245 251214
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Horndean Road, Emsworth

AM Peak (08:00-09:00)

NB: All flows in vehicles

Total Vehicles (of which HGV)



Growth Factor 1.092

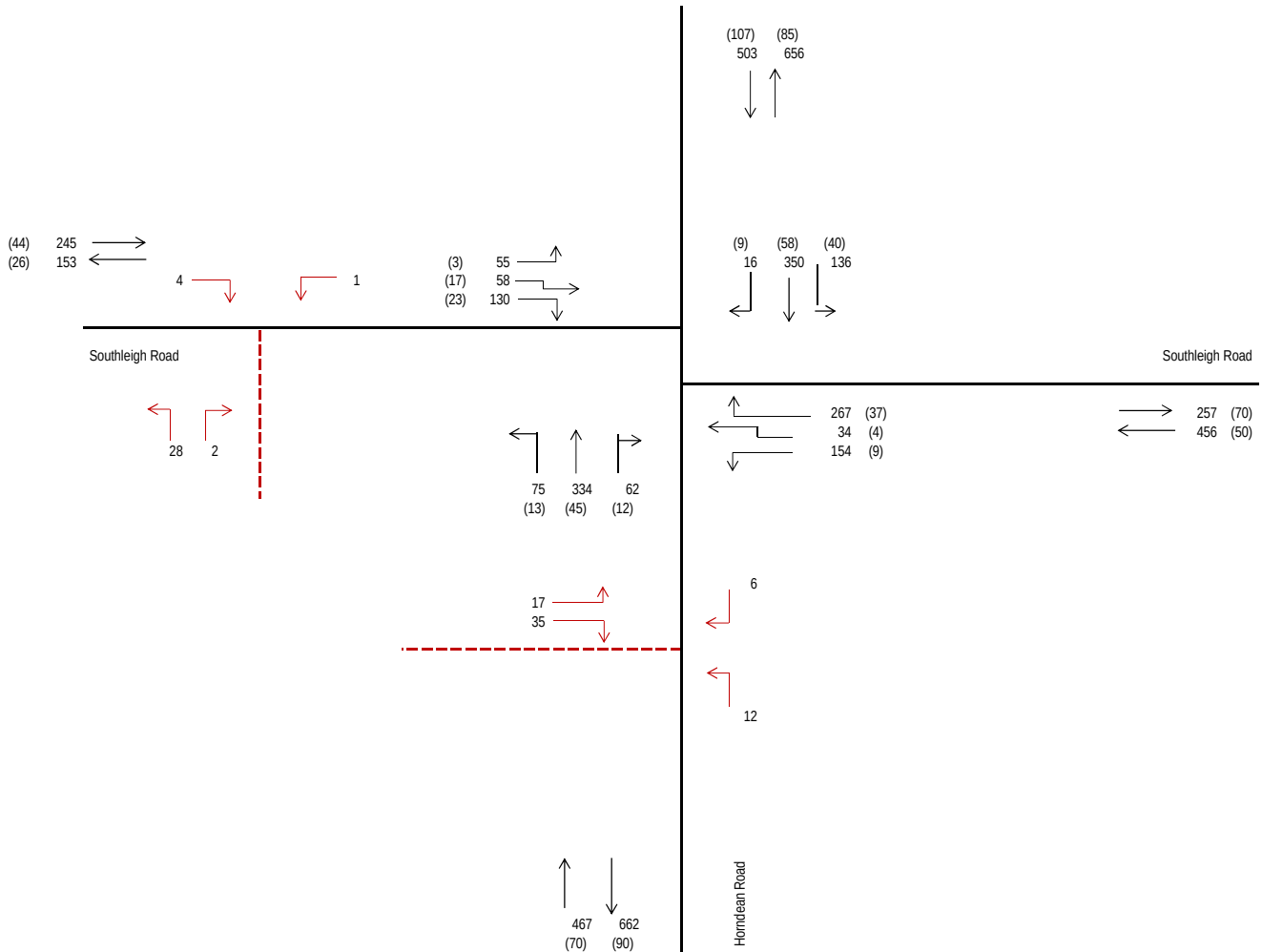
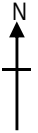
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2019 AM Base				
PROJECT TITLE:				
Horndean Road, Emsworth				
DRAWN BY:	DATE:	SCALE:	REF:	
AB	Jan-14	NTS	Appendix 8	

Horndean Road, Emsworth

AM Peak (08:00-09:00)

NB: All flows in vehicles

Total Vehicles (of which HGV)



DRAWING TITLE:

2019 AM Base + Forecast Traffic

PROJECT TITLE:

Horndean Road, Emsworth

DRAWN BY:

AB

DATE:

Jan-14

SCALE:

NTS

REF:

Appendix 8

BIDWELLS

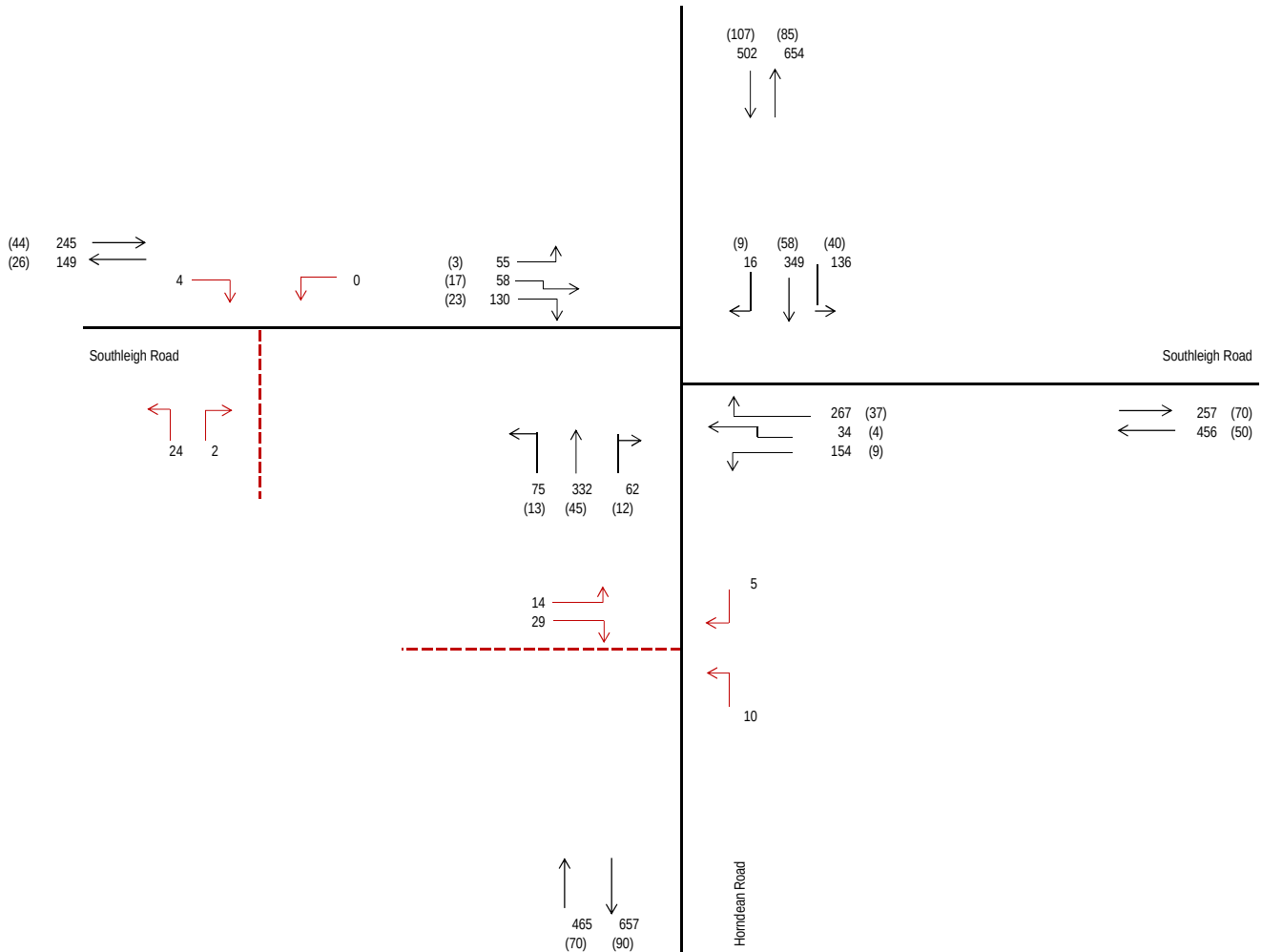
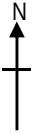
Saxon House, 27 Duke Street
Chelmsford
Essex, CM1 1HT
t: 01245 250998
f: 01245 251214
bidwells.co.uk

Horndean Road, Emsworth

AM Peak (08:00-09:00)

NB: All flows in vehicles

Total Vehicles (of which HGV)



DRAWING TITLE:

2019 AM Base + Mitigated Forecast Traffic

PROJECT TITLE:

Horndean Road, Emsworth

DRAWN BY:

AB

DATE:

Jan-14

SCALE:

NTS

REF:

Appendix 8

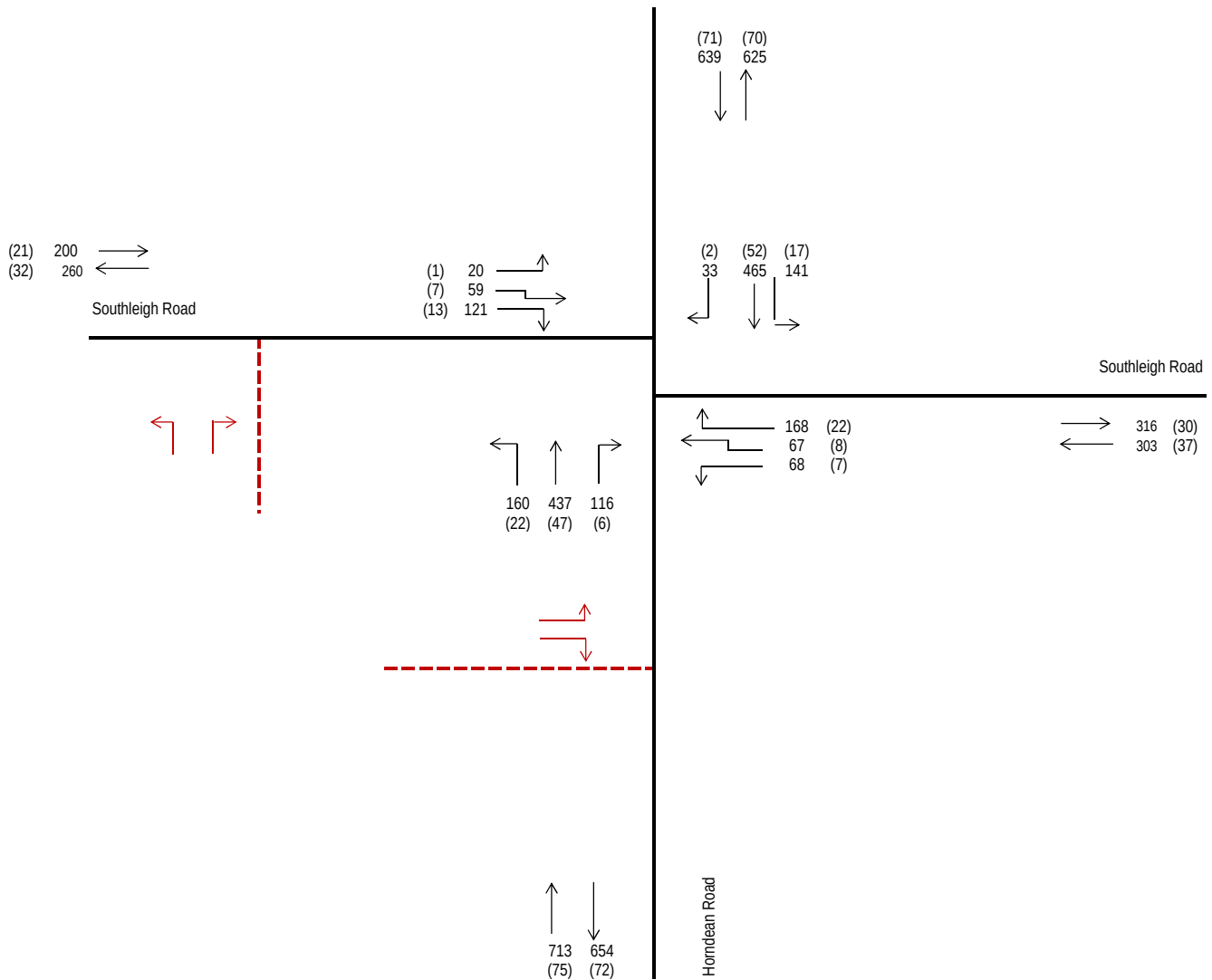
BIDWELLS

Saxon House, 27 Duke Street
Chelmsford
Essex, CM1 1HT
t: 01245 250998
f: 01245 251214
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Horndean Road, Emsworth

PM Peak (17:00-18:00)
NB: All flows in vehicles
Total Vehicles (of which HGV)

Observed Traffic Flows



DRAWING TITLE:

2013 PM Peak Observed Base

PROJECT TITLE:

Horndean Road, Emsworth

DRAWN BY:

SB

DATE:

July '13

SCALE:

NTS

REF:

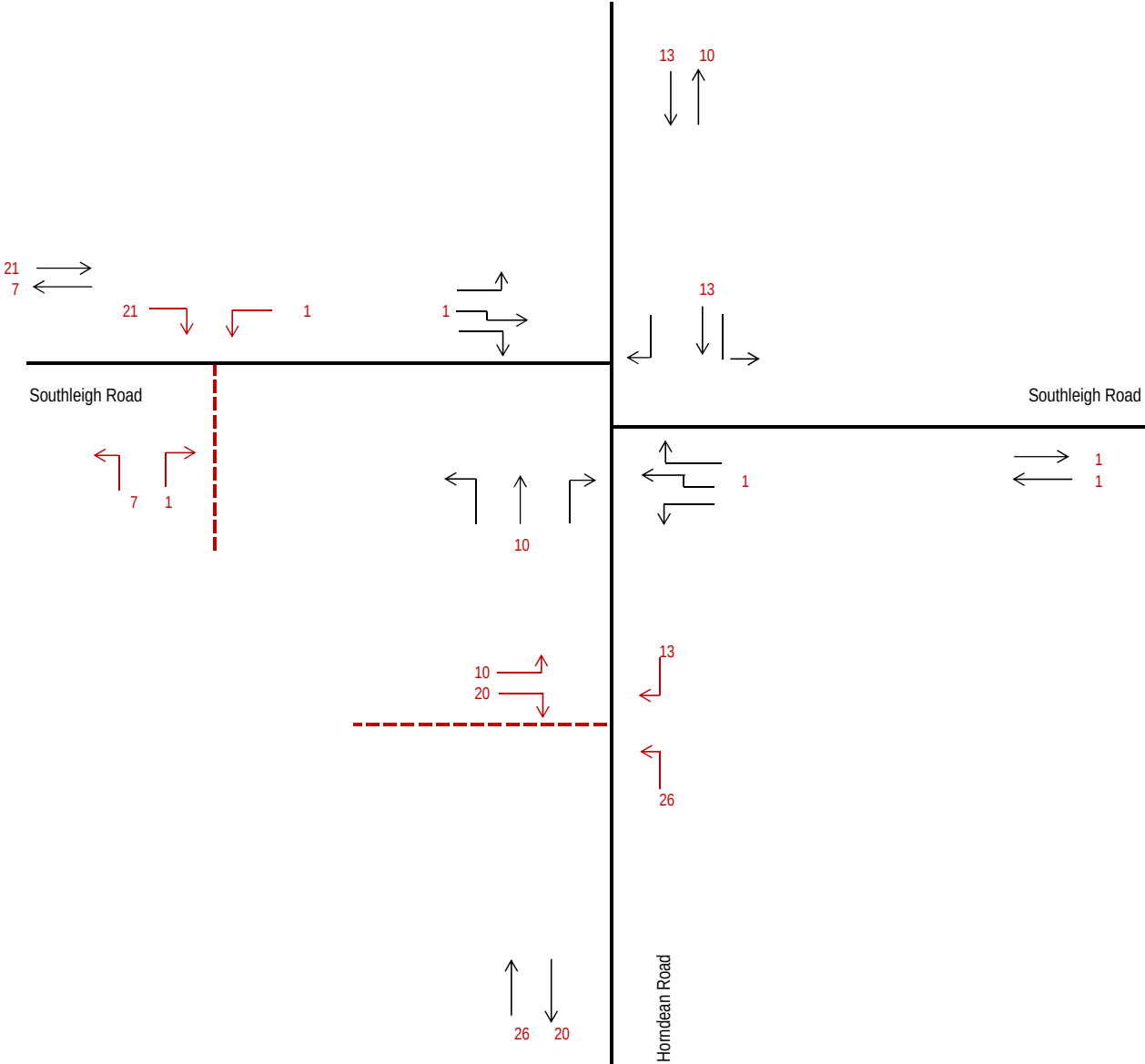
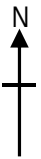
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BIDWELLS

Saxon House, 27 Duke Street
Chelmsford
Essex, CM1 1HT
t: 01245 250998
f: 01245 251214
bidwells.co.uk

Horndean Road, Emsworth

PM Peak (17:00-18:00)
NB: All flows in vehicles



AM Forecast IN OUT
 62 37

DRAWING TITLE:

PM Forecast Distribution

PROJECT TITLE:

Horndean Road, Emsworth

DRAWN BY:

AB

DATE:

Jan-14

SCALE:

NTS

REF:

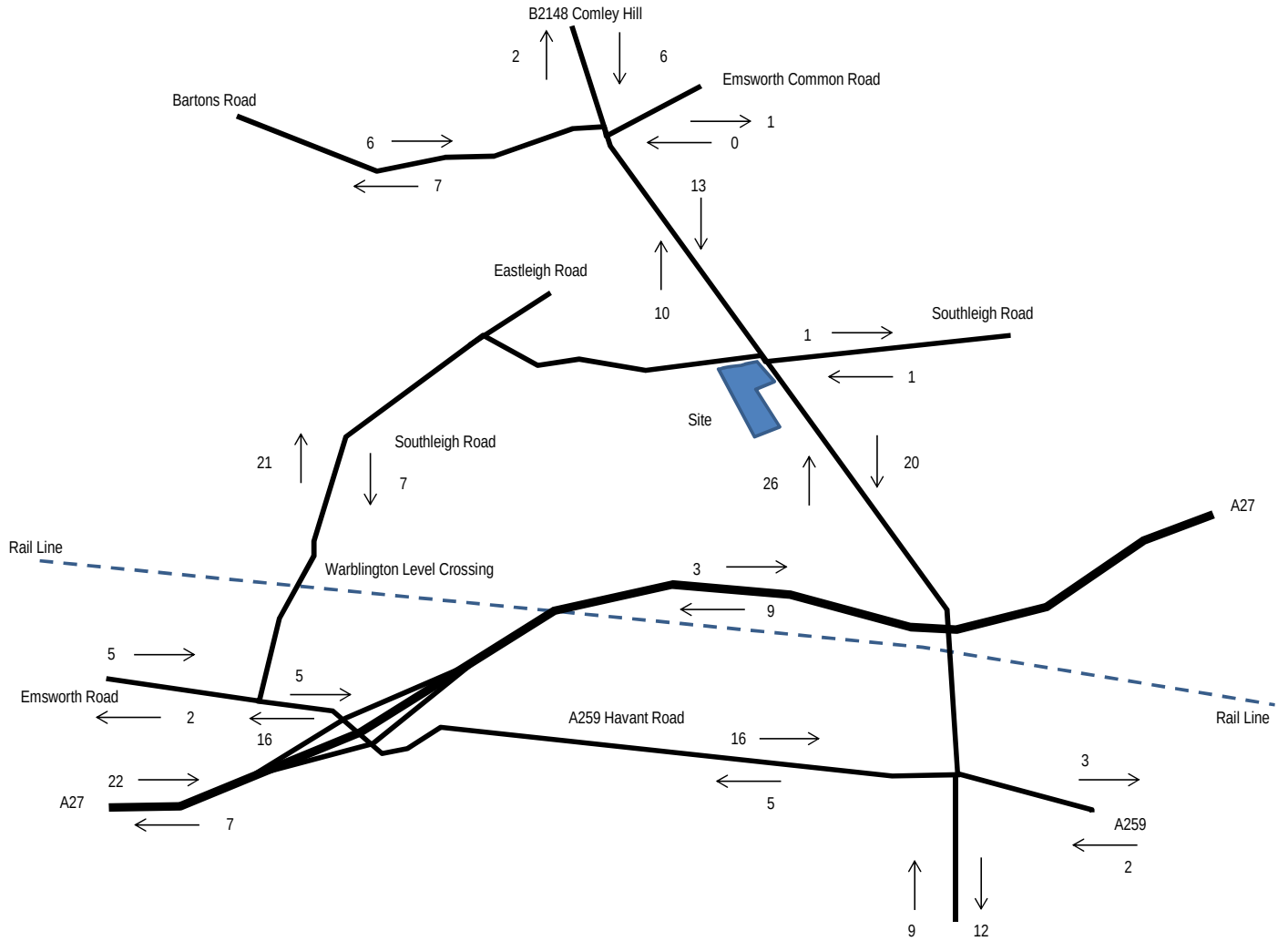
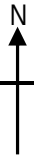
Appendix 8



Saxon House, 27 Duke Street
Chelmsford
Essex, CM1 1HT
t: 01245 250998
f: 01245 251214
bidwells.co.uk

Horndean Road, Emsworth

PM Peak (17:00-18:00)
NB: All flows in vehicles



AM Forecast IN 62 OUT 37

DRAWING TITLE:

PM Forecast Wide Area Distribution

PROJECT TITLE:

Horndean Road, Emsworth

DRAWN BY:

AB

DATE:

Jan-14

SCALE:

NTS

REF:

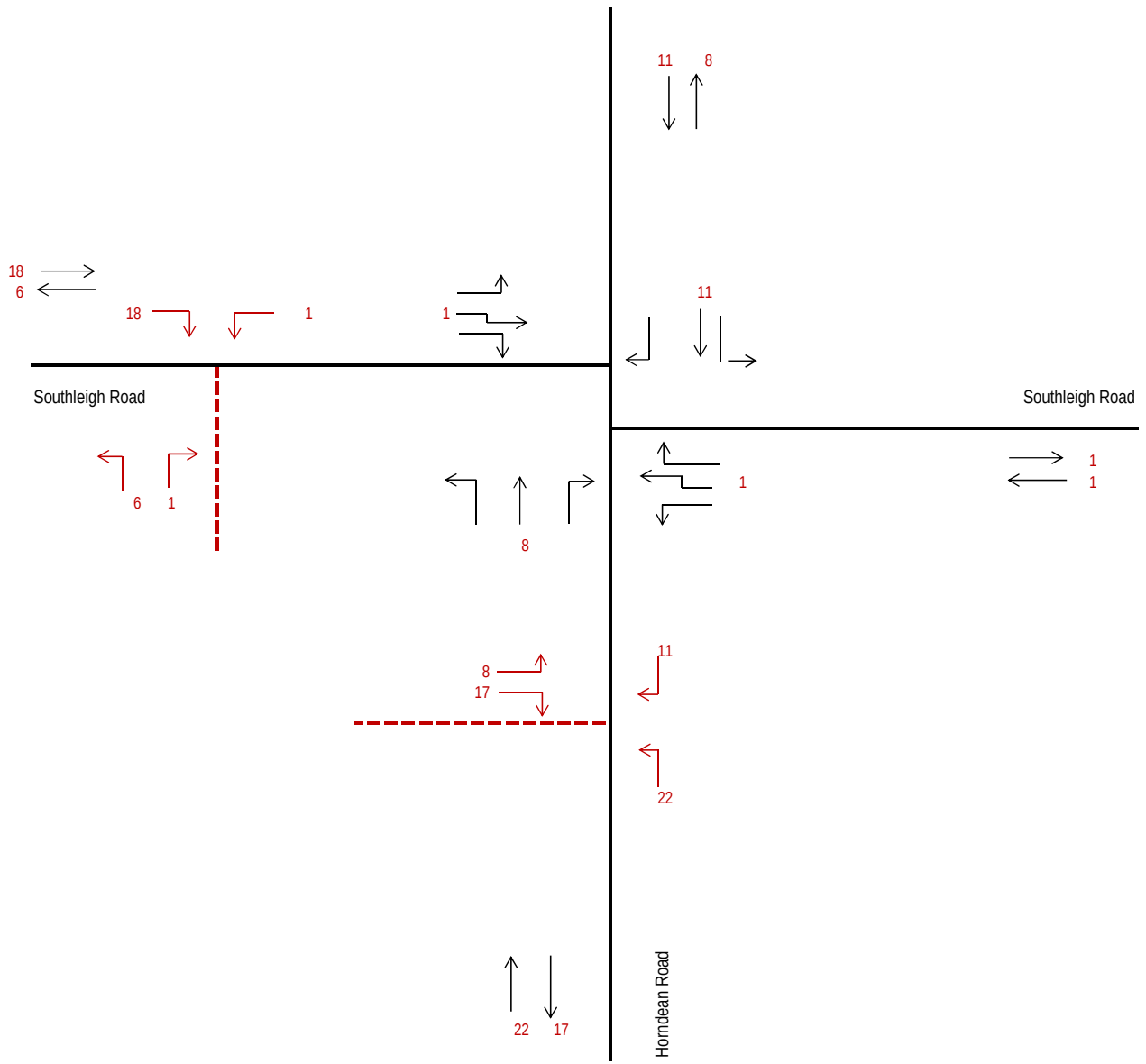
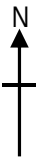
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BIDWELLS

Saxon House, 27 Duke Street
Chelmsford
Essex, CM1 1HT
t: 01245 250998
f: 01245 251214
bidwells.co.uk

Horndean Road, Emsworth

PM Peak (17:00-18:00)
NB: All flows in vehicles



AM Forecast IN OUT
 52 32

DRAWING TITLE:

PM Forecast Distribution

PROJECT TITLE:

Horndean Road, Emsworth

DRAWN BY:

AB

DATE:

Jan-14

SCALE:

NTS

REF:

Appendix 8



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Chelmsford
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The diagram illustrates a road network with the following features:

- Roads:** Barton's Road, Emsworth Common Road, Southleigh Road, A259 Havant Road, A27, and B2148 Comley Hill.
- Accident Counts:**
 - Barton's Road: 5 (right), 6 (left)
 - Emsworth Common Road: 1 (right), 0 (left)
 - Southleigh Road (top): 1 (right), 1 (left)
 - Southleigh Road (middle): 18 (up), 6 (down)
 - A259 Havant Road: 3 (right), 8 (left)
 - A27: 2 (right), 1 (left)
 - Bottom vertical road: 8 (up), 10 (down)
 - Other counts: 11, 8, 22, 17, 4, 13, 6, 1, 13, 4, 2, 1
- Site:** A blue shaded area labeled "Site" is located near the intersection of Southleigh Road and A259.
- Rail Line:** A dashed blue line labeled "Rail Line" crosses the roads.
- Warblington Level Crossing:** Indicated near the intersection of Southleigh Road and A259.

	IN	OUT
AM Forecast	52	32

PM Mitigated Forecast Wide Area Distribution

Horndean Road, Emsworth

AB

Jan-14

NTS

Appendix 8



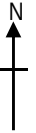
Saxon House, 27 Duke Street
Chelmsford
Essex, CM1 1HT
t: 01245 250998
f: 01245 251214
bidwells.co.uk

Horndean Road, Emsworth

AM Peak (08:00-09:00)

NB: All flows in vehicles

Total Vehicles (of which HGV)



(23) 219
(35) 285

(1) 22
(8) 65
(14) 133

(78) 701
(77) 685

(2) 36
(57) 510
(19) 155

Southleigh Road

Southleigh Road

175 479 127
(24) (52) (7)

(0) 184
(24) 73
(9) 75
(8)

347 (33)
332 (41)

782 717
(82) (79)

Horndean Road

Growth Factor 1.097

DRAWING TITLE:

2019 PM Base

PROJECT TITLE:

Horndean Road, Emsworth

DRAWN BY:

AB

DATE:

Jan-14

SCALE:

NTS

REF:

Appendix 8

BIDWELLS

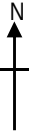
Saxon House, 27 Duke Street
Chelmsford
Essex, CM1 1HT
t: 01245 250998
f: 01245 251214
bidwells.co.uk

Horndean Road, Emsworth

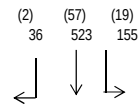
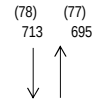
AM Peak (08:00-09:00)

NB: All flows in vehicles

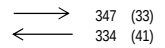
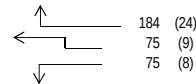
Total Vehicles (of which HGV)



Southleigh Road



Southleigh Road



Horndean Road

DRAWING TITLE:

2019 PM Base + Forecast Traffic

PROJECT TITLE:

Horndean Road, Emsworth

DRAWN BY:

AB

DATE:

Jan-14

SCALE:

NTS

REF:

Appendix 8

BIDWELLS

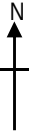
Saxon House, 27 Duke Street
Chelmsford
Essex, CM1 1HT
t: 01245 250998
f: 01245 251214
bidwells.co.uk

Horndean Road, Emsworth

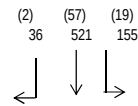
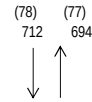
AM Peak (08:00-09:00)

NB: All flows in vehicles

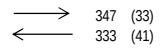
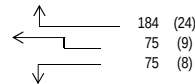
Total Vehicles (of which HGV)



Southleigh Road



Southleigh Road



Horndean Road

DRAWING TITLE:

2019 PM Base + Mitigated Forecast Traffic

PROJECT TITLE:

Horndean Road, Emsworth

DRAWN BY:

AB

DATE:

Jan-14

SCALE:

NTS

REF:

Appendix 8

BIDWELLS

Saxon House, 27 Duke Street
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Appendix 9

Observed Traffic Data



Job Number & Name: 4324 Emsworth

Site Number/Name: Horndean Road/Southleigh Road

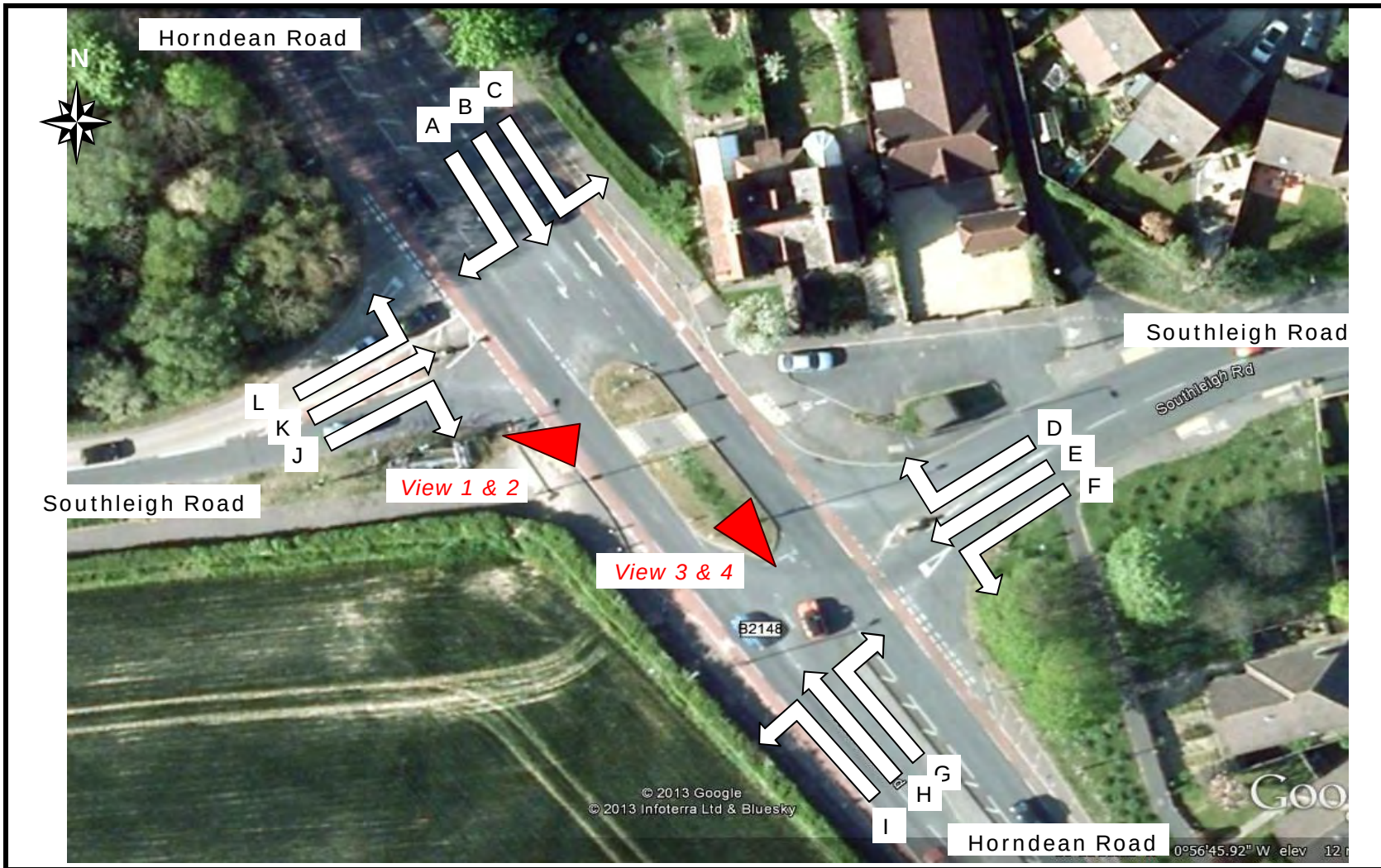
Client: Bidwells

Date: 04/07/2013

Weather: Sunny, Dry

Comments: None

PCU Values
Cars 1.0



	Movement A							Movement B							Movement C						
Times	Cars	LGV	OGV1	OGV2	PSV	M/B	Cyc	Cars	LGV	OGV1	OGV2	PSV	M/B	Cyc	Cars	LGV	OGV1	OGV2	PSV	M/B	Cyc
07:00 - 07:15	2	0	0	0	0	0	0	29	8	0	0	0	0	3	9	6	0	1	0	1	3
07:15 - 07:30	1	0	0	0	0	0	0	48	9	2	1	0	0	2	14	8	1	2	0	0	1
07:30 - 07:45	1	0	0	0	0	0	1	47	9	4	0	0	1	0	11	5	1	0	0	1	0
07:45 - 08:00	3	0	0	0	0	0	0	56	12	1	1	0	0	0	18	9	1	1	0	0	0
Hourly Total	7	0	0	0	0	0	1	180	38	7	2	0	1	5	52	28	3	4	0	2	4
08:00 - 08:15	1	1	0	0	0	0	0	54	7	3	0	0	0	1	20	8	1	0	0	0	1
08:15 - 08:30	2	2	1	0	0	0	0	67	13	2	1	0	0	2	24	5	1	0	1	0	1
08:30 - 08:45	1	1	0	1	0	0	1	69	8	2	0	1	1	0	15	8	1	1	1	1	0
08:45 - 09:00	3	1	1	0	0	0	0	71	11	4	1	0	0	1	28	8	1	1	0	0	1
Hourly Total	7	5	2	1	0	0	1	261	39	11	2	1	1	4	87	29	4	2	2	1	3
09:00 - 09:15	3	2	0	0	0	0	0	64	6	2	2	1	1	2	23	2	1	1	0	0	1
09:15 - 09:30	7	0	0	0	0	0	0	49	10	0	1	0	0	0	14	6	1	2	0	0	1
09:30 - 09:45	1	1	0	0	0	0	0	54	8	3	1	0	0	1	20	6	1	1	1	0	1
09:45 - 10:00	0	0	0	0	0	0	0	52	13	4	1	0	0	1	17	6	2	1	0	1	2
Hourly Total	11	3	0	0	0	0	0	219	37	9	5	1	1	4	74	20	5	5	1	1	5

16:00 - 16:15	5	2	0	0	0	0	1	70	12	0	0	1	1	1	22	2	0	0	1	1	0
16:15 - 16:30	4	4	0	0	0	0	1	71	11	1	0	0	4	3	16	3	0	0	0	1	1
16:30 - 16:45	5	0	0	0	0	1	0	85	13	2	0	0	2	0	19	3	1	0	1	0	0
16:45 - 17:00	5	0	0	0	0	0	0	76	10	0	0	0	0	4	27	4	0	0	0	0	1
Hourly Total	19	6	0	0	0	1	2	302	46	3	0	1	7	8	84	12	1	0	2	2	2
17:00 - 17:15	6	1	0	0	0	1	0	101	12	1	0	1	0	0	29	3	0	0	1	0	0
17:15 - 17:30	9	0	0	0	0	0	0	111	12	2	0	0	0	4	34	3	1	0	2	0	0
17:30 - 17:45	9	1	0	0	0	0	0	113	11	2	0	0	0	0	33	4	0	0	0	0	1
17:45 - 18:00	7	0	0	0	0	0	0	88	10	1	0	0	0	1	28	1	1	0	1	0	1
Hourly Total	31	2	0	0	0	1	0	413	45	6	0	1	0	5	124	11	2	0	4	0	2
18:00 - 18:15	6	3	0	0	0	0	0	90	11	0	0	0	0	0	34	2	1	0	0	0	1
18:15 - 18:30	5	0	0	0	0	0	0	90	10	2	0	0	0	2	24	4	0	0	1	0	1
18:30 - 18:45	1	0	0	0	0	0	0	69	10	2	0	0	0	3	24	1	0	0	0	1	0
18:45 - 19:00	7	0	0	0	0	0	0	73	4	1	0	1	1	2	25	2	1	0	1	1	1
Hourly Total	19	3	0	0	0	0	0	322	35	5	0	1	1	7	107	9	2	0	2	2	3

	Movement D							Movement E							Movement F						
Times	Cars	LGV	OGV1	OGV2	PSV	M/B	Cyc	Cars	LGV	OGV1	OGV2	PSV	M/B	Cyc	Cars	LGV	OGV1	OGV2	PSV	M/B	Cyc
07:00 - 07:15	22	7	0	0	1	0	1	2	1	0	0	0	0	2	13	0	0	0	0	0	0
07:15 - 07:30	34	1	3	1	1	0	2	2	0	1	0	0	0	2	19	0	1	0	0	4	0
07:30 - 07:45	38	6	2	0	0	2	2	4	1	0	0	0	0	2	30	2	0	0	0	1	1
07:45 - 08:00	60	5	1	0	0	0	1	4	0	0	0	0	0	1	22	2	0	0	1	1	0
Hourly Total	154	19	6	1	2	2	6	12	2	1	0	0	0	7	84	4	1	0	1	6	1
08:00 - 08:15	43	5	3	0	1	0	1	7	1	0	0	0	0	2	32	4	0	0	0	1	0
08:15 - 08:30	49	4	0	0	1	0	0	4	1	0	0	0	0	1	31	2	0	0	0	0	0
08:30 - 08:45	61	7	1	0	0	0	0	7	2	0	0	0	0	1	42	1	0	0	0	1	0
08:45 - 09:00	58	9	3	0	0	0	0	7	1	1	0	0	0	0	26	1	0	0	0	0	0
Hourly Total	211	25	7	0	2	0	1	25	5	1	0	0	0	4	131	8	0	0	0	2	0
09:00 - 09:15	38	5	5	0	1	0	0	8	0	0	0	0	0	0	18	0	0	0	0	0	0
09:15 - 09:30	34	4	2	1	0	0	2	6	1	1	0	0	0	1	13	0	0	0	0	0	1
09:30 - 09:45	33	3	0	0	0	1	2	5	0	0	0	0	0	0	13	1	0	1	0	0	0
09:45 - 10:00	30	9	2	3	1	2	1	4	2	0	0	0	0	0	12	1	0	0	0	0	0
Hourly Total	135	21	9	4	2	3	5	23	3	1	0	0	0	1	56	2	0	1	0	0	1

16:00 - 16:15	23	7	3	0	0	0	0	13	2	0	0	0	0	0	9	1	0	0	1	0	0
16:15 - 16:30	34	10	0	0	0	0	0	11	4	0	0	0	0	0	19	0	0	0	0	3	1
16:30 - 16:45	38	9	1	0	1	2	2	11	2	0	0	0	0	0	14	0	0	0	0	0	0
16:45 - 17:00	32	7	1	0	0	1	1	13	3	0	0	0	0	0	11	0	0	0	0	0	0
Hourly Total	127	33	5	0	1	3	3	48	11	0	0	0	0	0	53	1	0	0	1	3	1
17:00 - 17:15	43	3	0	0	1	0	2	17	2	0	0	0	0	1	9	2	0	0	1	0	0
17:15 - 17:30	29	6	0	0	0	0	2	12	2	0	0	0	0	1	13	0	0	0	0	0	1
17:30 - 17:45	41	3	2	0	0	0	0	16	2	0	0	0	1	0	23	3	0	0	0	0	0
17:45 - 18:00	33	7	0	0	0	0	1	13	2	0	0	0	0	1	16	1	0	0	0	0	0
Hourly Total	146	19	2	0	1	0	5	58	8	0	0	0	1	3	61	6	0	0	1	0	1
18:00 - 18:15	33	3	0	0	0	1	1	14	1	0	0	0	0	2	14	2	0	0	0	1	0
18:15 - 18:30	30	1	0	0	0	0	2	10	1	0	0	0	0	0	13	3	0	0	0	0	0
18:30 - 18:45	32	5	0	0	0	0	0	11	1	0	0	0	0	2	12	0	0	0	0	0	0
18:45 - 19:00	30	1	0	0	0	0	1	9	1	0	0	0	0	1	23	0	0	0	0	1	0
Hourly Total	125	10	0	0	0	1	4	44	4	0	0	0	0	5	62	5	0	0	0	2	0

	Movement G							Movement H							Movement I						
Times	Cars	LGV	OGV1	OGV2	PSV	M/B	Cyc	Cars	LGV	OGV1	OGV2	PSV	M/B	Cyc	Cars	LGV	OGV1	OGV2	PSV	M/B	Cyc
07:00 - 07:15	3	1	0	0	0	0	0	34	4	0	0	1	0	3	5	3	0	0	0	0	4
07:15 - 07:30	4	1	0	0	0	0	0	47	10	1	0	0	0	1	4	0	1	0	1	0	4
07:30 - 07:45	5	2	1	0	0	0	0	43	4	1	0	0	0	1	9	2	0	0	0	1	6
07:45 - 08:00	5	1	0	0	1	0	0	54	6	0	1	0	1	0	8	1	0	1	0	0	1
Hourly Total	17	5	1	0	1	0	0	178	24	2	1	1	1	5	26	6	1	1	1	1	15
08:00 - 08:15	6	1	0	0	0	0	0	72	10	1	0	0	0	1	16	1	1	0	1	0	4
08:15 - 08:30	15	2	0	0	0	0	0	55	5	1	0	0	1	1	8	1	0	0	1	0	1
08:30 - 08:45	11	6	0	0	0	0	0	62	8	1	0	0	0	0	17	3	0	0	0	0	1
08:45 - 09:00	14	2	0	0	0	0	0	60	9	6	0	0	0	0	16	2	1	1	0	0	0
Hourly Total	46	11	0	0	0	0	0	249	32	9	0	0	1	2	57	7	2	1	2	0	6
09:00 - 09:15	11	1	0	0	0	0	0	49	7	0	0	0	0	1	17	1	1	0	1	0	1
09:15 - 09:30	7	2	0	0	0	0	0	60	5	1	0	0	1	1	15	1	1	1	0	0	2
09:30 - 09:45	8	0	0	0	0	0	0	37	4	0	0	0	0	0	10	1	0	0	0	1	1
09:45 - 10:00	14	0	1	0	0	0	0	33	5	0	1	0	2	0	8	3	0	1	1	1	1
Hourly Total	40	3	1	0	0	0	0	179	21	1	1	0	3	2	50	6	2	2	2	2	5

16:00 - 16:15	24	2	0	0	0	1	0	85	13	2	0	1	2	0	30	3	1	0	1	0	0
16:15 - 16:30	26	1	0	0	0	0	0	75	12	1	0	1	5	0	25	8	0	0	0	1	1
16:30 - 16:45	25	2	0	0	0	2	0	78	12	0	0	0	4	3	26	4	0	0	1	1	1
16:45 - 17:00	24	6	0	0	0	1	0	76	15	2	0	0	1	1	30	7	0	0	0	1	1
Hourly Total	99	11	0	0	0	4	0	314	52	5	0	2	12	4	111	22	1	0	2	3	3
17:00 - 17:15	23	1	0	0	0	1	1	107	14	1	0	0	0	2	40	6	0	0	1	0	2
17:15 - 17:30	26	1	0	0	0	0	0	88	9	1	0	1	2	2	28	3	0	0	1	1	1
17:30 - 17:45	31	3	0	0	0	0	1	96	8	1	0	0	4	0	36	3	0	0	0	2	1
17:45 - 18:00	29	1	0	0	0	0	0	93	10	1	0	1	0	1	31	6	1	0	1	0	1
Hourly Total	109	6	0	0	0	1	2	384	41	4	0	2	6	5	135	18	1	0	3	3	5
18:00 - 18:15	29	1	0	0	0	0	1	78	5	0	1	0	1	3	32	2	0	1	0	0	4
18:15 - 18:30	21	3	0	0	0	0	0	63	6	3	0	1	0	1	22	3	0	0	1	0	0
18:30 - 18:45	23	3	0	0	0	0	0	61	6	1	0	0	0	4	24	3	1	0	0	0	3
18:45 - 19:00	19	1	0	0	0	0	0	61	7	1	0	0	0	2	21	3	0	0	0	0	2
Hourly Total	92	8	0	0	0	0	1	263	24	5	1	1	1	10	99	11	1	1	1	0	9

	Movement J							Movement K							Movement L						
Times	Cars	LGV	OGV1	OGV2	PSV	M/B	Cyc	Cars	LGV	OGV1	OGV2	PSV	M/B	Cyc	Cars	LGV	OGV1	OGV2	PSV	M/B	Cyc
07:00 - 07:15	4	4	0	1	0	0	3	4	3	0	0	0	0	1	4	1	0	0	0	0	0
07:15 - 07:30	7	5	0	2	0	0	1	6	3	0	0	0	0	0	2	1	0	0	0	1	0
07:30 - 07:45	8	6	0	1	0	0	0	5	2	1	0	0	0	0	8	0	0	0	0	0	0
07:45 - 08:00	16	8	0	1	0	0	0	8	4	0	0	0	0	0	9	0	0	0	0	0	0
Hourly Total	35	23	0	5	0	0	4	23	12	1	0	0	0	1	23	2	0	0	0	1	0
08:00 - 08:15	15	5	0	0	0	0	0	8	3	0	0	0	0	0	14	1	0	0	0	0	0
08:15 - 08:30	27	5	0	0	0	0	2	10	2	1	0	0	0	1	12	0	0	0	0	0	0
08:30 - 08:45	15	3	1	1	1	1	0	6	4	1	0	0	0	0	9	1	0	0	0	0	0
08:45 - 09:00	40	5	0	0	0	0	1	12	4	1	0	0	0	0	12	1	0	0	0	0	0
Hourly Total	97	18	1	1	1	1	3	36	13	3	0	0	0	1	47	3	0	0	0	0	0
09:00 - 09:15	17	2	0	0	0	0	1	10	1	1	0	0	0	1	4	1	0	0	0	0	0
09:15 - 09:30	8	3	1	1	0	0	1	6	3	0	0	0	0	0	6	0	0	0	0	0	0
09:30 - 09:45	12	6	3	0	1	0	1	8	3	1	0	0	0	1	3	0	0	0	0	0	0
09:45 - 10:00	18	4	1	0	0	1	3	8	2	1	0	0	0	1	2	3	0	0	0	0	0
Hourly Total	55	15	5	1	1	1	6	32	9	3	0	0	0	3	15	4	0	0	0	0	0

16:00 - 16:15	27	6	0	0	1	0	0	10	1	0	0	0	0	0	1	1	0	0	0	0	0
16:15 - 16:30	27	3	1	0	1	0	2	7	2	0	0	0	1	1	1	0	0	0	0	0	0
16:30 - 16:45	17	4	0	0	1	0	0	8	2	1	0	0	0	0	4	0	0	0	0	0	0
16:45 - 17:00	29	7	0	0	1	0	0	11	2	0	0	0	0	0	2	0	0	0	0	0	0
Hourly Total	100	20	1	0	4	0	2	36	7	1	0	0	1	1	8	1	0	0	0	0	0
17:00 - 17:15	29	6	0	0	0	0	0	12	2	0	0	0	0	0	5	0	1	0	0	0	0
17:15 - 17:30	26	0	1	0	2	0	2	14	2	0	0	0	0	0	4	0	0	0	0	0	0
17:30 - 17:45	22	2	0	0	0	0	1	14	2	0	0	0	0	0	5	0	0	0	0	0	0
17:45 - 18:00	31	2	0	0	0	0	0	12	1	0	0	0	0	0	5	0	0	0	0	0	0
Hourly Total	108	10	1	0	2	0	3	52	7	0	0	0	0	0	19	0	1	0	0	0	0
18:00 - 18:15	32	3	2	0	0	0	0	15	1	0	0	0	0	1	1	1	0	0	0	0	0
18:15 - 18:30	15	3	0	0	1	0	1	10	2	0	0	0	0	1	1	0	0	0	0	0	0
18:30 - 18:45	33	2	0	0	0	0	0	10	0	0	0	0	0	0	4	0	0	0	0	0	0
18:45 - 19:00	21	2	1	0	0	1	1	11	1	0	0	0	1	0	2	0	0	0	0	0	0
Hourly Total	101	10	3	0	1	1	2	46	4	0	0	0	1	2	8	1	0	0	0	0	0

Advanced Transport Research

Report Id - CustomList-385
Site Name - 4324-001
Description - B2148[30M]
Direction - North

05 July 2013

Time	Total	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Fix1	Time	Vbin 0 10	Vbin 10 15	Vbin 15 20	Vbin 20 25	Vbin 25 30	Vbin 30 35	Vbin 35 40	Vbin 40 45	Vbin 45 50	Vbin 50 60	Vbin 60 70	Vbin 70 80	Vbin 80 90	Vbin 90 100	Mean	Vpp 85	JPSL 30	JPSL% 30	JSL1 35 ACPO	JSL1% 35 ACPO	JSL2 45 DFT	JSL2% 45 DFT	
0000	14	2	11	0	1	0	0	0	0	0	0	0	0000	0	0	0	1	3	7	3	0	0	0	0	0	0	0	31.6	36	10	71.4	3	21.4	0	0	
0100	6	0	6	0	0	0	0	0	0	0	0	0	0100	0	0	0	0	6	0	0	0	0	0	0	0	0	0	32.9	-	6	100	0	0	0	0	
0200	3	0	3	0	0	0	0	0	0	0	0	0	0200	0	0	0	0	1	1	0	0	1	0	0	0	0	0	35.4	-	2	66.7	1	33.3	1	33.3	
0300	2	0	2	0	0	0	0	0	0	0	0	0	0300	0	0	0	0	0	0	1	1	0	0	0	0	0	0	41.2	-	2	100	2	100	0	0	
0400	6	0	3	1	2	0	0	0	0	0	0	0	0400	0	0	0	0	0	0	2	2	1	1	0	0	0	0	43.5	-	6	100	6	100	2	33.3	
0500	23	3	18	0	2	0	0	0	0	0	0	0	0500	0	1	0	0	1	4	7	4	3	2	1	0	0	0	39.7	48.3	21	91.3	17	73.9	6	26.1	
0600	78	1	71	0	6	0	0	0	0	0	0	0	0600	0	0	1	1	2	27	26	12	5	4	0	0	0	0	37.5	42.9	74	94.9	47	60.3	9	11.5	
0700	210	9	187	1	11	0	2	0	0	0	0	0	0700	1	4	2	4	36	85	56	17	4	0	0	1	0	0	33.5	38.7	163	77.6	78	37.1	5	2.4	
0800	330	3	311	0	15	0	0	0	1	0	0	0	0800	1	2	0	7	57	192	60	11	0	0	0	0	0	0	32.4	35.8	263	79.7	71	21.5	0	0	
0900	314	3	292	1	17	1	0	0	0	0	0	0	0900	0	2	1	8	73	157	66	5	0	2	0	0	0	0	32.3	36	230	73.2	73	23.2	2	0.6	
1000	234	4	217	1	10	0	0	0	1	0	1	1	1000	0	2	1	8	73	108	30	11	1	0	0	0	0	0	31.5	35.6	150	64.1	42	17.9	1	0.4	
1100	262	4	242	0	16	0	0	0	0	0	0	0	1100	0	1	2	5	82	120	45	6	0	0	1	0	0	0	31.8	36	172	65.6	52	19.8	1	0.4	
1200	278	7	256	2	13	0	0	0	0	0	0	0	1200	1	2	1	9	80	129	38	13	5	0	0	0	0	0	31.7	35.3	185	66.5	56	20.1	5	1.8	
1300	304	11	278	4	11	0	0	0	0	0	0	0	1300	2	1	1	9	82	146	53	8	1	1	0	0	0	0	31.9	36	209	68.8	63	20.7	2	0.7	
1400	287	6	273	0	8	0	0	0	0	0	0	0	1400	1	3	0	9	75	143	47	6	3	0	0	0	0	0	31.7	35.6	199	69.3	56	19.5	3	1	
1500	402	6	373	2	19	0	1	0	1	0	0	0	1500	2	3	6	7	113	188	74	8	1	0	0	0	0	0	31.6	35.6	271	67.4	83	20.6	1	0.2	
1600	390	3	366	4	17	0	0	0	0	0	0	0	1600	0	0	3	3	84	209	72	18	0	1	0	0	0	0	32.6	36.5	300	76.9	91	23.3	1	0.3	
1700	369	6	350	4	7	0	2	0	0	0	0	0	1700	0	2	3	9	108	164	68	10	4	1	0	0	0	0	32.1	36.5	247	66.9	83	22.5	5	1.4	
1800	261	6	247	1	6	0	1	0	0	0	0	0	1800	1	2	1	5	63	131	50	7	1	0	0	0	0	0	32	35.8	189	72.4	58	22.2	1	0.4	
1900	253	8	240	0	4	0	1	0	0	0	0	0	1900	0	2	2	4	59	111	63	9	3	0	0	0	0	0	32.7	36.9	186	73.5	75	29.6	3	1.2	
2000	150	5	138	1	5	0	1	0	0	0	0	0	2000	0	1	0	2	39	58	34	13	2	1	0	0	0	0	33.2	38.7	108	72	50	33.3	3	2	
2100	122	1	119	0	1	0	1	0	0	0	0	0	2100	0	1	0	2	33	59	22	3	2	0	0	0	0	0	32.2	36.7	86	70.5	27	22.1	2	1.6	
2200	90	4	83	0	3	0	0	0	0	0	0	0	2200	0	0	0	3	39	35	10	2	1	0	0	0	0	0	30.9	34.7	48	53.3	13	14.4	1	1.1	
2300	70	2	64	1	3	0	0	0	0	0	0	0	2300	0	1	0	4	19	33	8	3	2	0	0	0	0	0	31.9	36.7	46	65.7	13	18.6	2	2.9	
07-19	3641	68	3392	20	150	1	6	0	3	0	1	1	07-19	9	24	21	83	926	1772	659	120	20	5	1	1	0	0	0	32.1	36	2578	70.8	806	22.5	27	0.7
06-22	4244	83	3960	21	166	1	9	0	3	0	1	1	06-22	9	28	24	92	1059	2027	804	157	32	10	1	1	0	0	0	32.3	36.5	3032	71.4	1005	23.7	44	1
06-00	4404	89	4107	22	172	1	9	0	3	0	1	1	06-00	9	29	24	99	1117	2095	822	162	35	10	1	1	0	0	0	32.2	36.5	3126	71	1031	23.4	47	1.1
00-00	4458	94	4150	23	177	1	9	0	3	0	1	1	00-00	9	30	24	100	1122	2113	835	169	40	13	2	1	0	0	0	32.3	36.5	3173	71.2	1060	23.8	56	1.3

06 July 2013

Time	Total	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Fix1	Time	Vbin 0 10	Vbin 10 15	Vbin 15 20	Vbin 20 25	Vbin 25 30	Vbin 30 35	Vbin 35 40	Vbin 40 45	Vbin 45 50	Vbin 50 60	Vbin 60 70	Vbin 70 80	Vbin 80 90	Vbin 90 100	Mean	Vpp 85	JPSL 30	JPSL% 30	JSL1 35 ACPO	JSL1% 35 ACPO	JSL2 45 DFT	JSL2% 45 DFT
0000	42	1	41	0	0	0	0	0	0	0	0	0	0000	0	0	0	1	5	21	12	2	0	1	0	0	0	0	34.1	37.1	36	85.7	15	35.7	1	2.4
0100	11	2	9	0	0	0	0	0	0	0	0	0	0100	0	0	0	1	3	2	2	2	0	1	0	0	0	0	35.1	40.5	7	63.6	5	45.5	1	9.1
0200	7	0	5	0	2	0	0	0	0	0	0	0	0200	0	0	0	0	0	1	6	0	0	0	0	0	0	0	36.2	-	7	100	6	85.7	0	0
0300	5	0	5	0	0	0	0	0	0	0	0	0	0300	0	0	0	0	1	1	1	2	0	0	0	0	0	0	36.9	-	4	80	3	60	0	0
0400	5	0	5	0	0	0	0	0	0	0	0	0	0400	0	0	0	0	0	1	2	1	0	1	0	0	0	0	40	-	5	100	4	80	1	20
0500	12	0	10	0	2	0	0	0	0	0	0	0	0500	0	0	1	0	0	2	5	0	2	2	0	0	0	0	38.9	48.1	11	91.7	9	75	4	33.3
0600	24	1	22	0	1	0	0	0	0	0	0	0	0600	0	0	0	0	2	7	7	4	4	0	0	0	0	0	37.9	44.7	22	91.7	15	62.5	4	16.7
0700	75	2	72	0	1	0	0	0	0	0	0	0	0700	0	2	0	2	17	13	25	8	8	0	0	0	0	0	34.8	41.6	54	72	41	54.7	8	10.7
0800	165	0	156	1	8	0	0	0	0	0	0	0	0800	0	0	4	8	50	59	32	10	0	1	1	0	0	0	32	37.1	103	62.4	44	26.7	2	1.2
0900	235	5	219	2	8	0	1	0	0	0	0	0	0900	0	2	1	7	57	115	42	11	0	0	0	0	0	0	32.2	36.2	168	71.5	53	22.6	0	0
1000	296	7	272	0	16	0	1	0	0	0	0	0	1000	1	3	5	16	94	122	47	7	1	0	0	0	0	0	30.8	35.6	177	59.8	55	18.6	1	0.3
1100	314	5	302	3	3	0	1	0	0	0	0	0	1100	1	2	0	9	87	160	44	10	0	0	1	0	0	0	31.7	35.6	215	68.5	55	17.5	1	0.3
1200	289	13	266	2	8	0	0	0	0	0	0	0	1200	2	1	2	5	92	137	36	11	3	0	0	0	0	0	31.6	35.3	187	64.7	50	17.3	3	1
1300	306	8	285	3	8	0	2	0	0	0	0	0	1300	1	4	3	7	82	152	47	8	2	0	0	0	0	0	31.5	35.6	209	68.3	57	18.6	2	0.7
1400	287	7	271	2	7	0	0	0	0	0	0	0	1400	1	2	1	4	59	154	53	11	2	0	0	0	0	0	32.4	36.2	220	76.7	66	23	2	0.7
1500	252	4	238	2	7	0	1	0	0	0	0	0	1500	0	1	2	10	65	115	46	10	3	0	0	0	0	0	32.3	36.5	174	69	59	23.4	3	1.2
1600	258	7	248	0	3	0	0	0	0	0	0	0	1600	0	1	1	6	48	153	40	8	1	0	0	0	0	0	32.3	35.6	202	78.3	49	19	1	0.4
1700	246	6	230	3	6	0	1	0	0	0	0	0	1700	1	2	1	6	53	129	46	7	0	1	0	0	0	0	32.3	36	183	74.4	54	22	1	0.4
1800	202	3	193	1	5	0	0	0	0	0	0	0	1800	0	0	3	1	47	101	39	10	0	1	0	0	0	0	32.5	36	151	74.8	50	24.8	1	0.5
1900	159	5	153	0	1	0	0	0	0	0	0	0	1900	0	1	3	3	28	86	34	2	2	0	0	0	0	0	32.5	36.7	124	78	38	23.9	2	1.3
2000	129	4	123	0	2	0	0	0	0	0	0	0	2000	0	1	1	4	22	63	29	7	1	0	1	0	0	0	33.2	36.7	101	78.3	38	29.5	2	1.6
2100	123	3	115	1	4	0	0	0	0	0	0	0	2100	1	0	0	1	38	61	16	6	0	0	0	0	0	0	31.9	36	83	67.5	22	17.9	0	0
2200	82	1	80	0	1	0	0	0	0	0	0	0	2200	0	0	0	5	25	42	5	4	1	0	0	0	0	0	31.4	34	52	63.4	10	12.2	1	1.2
2300	86	2	82	0	2	0	0	0	0	0	0	0	2300	0	0	1	2	23	39	13	7	1	0	0	0	0	0	32.5	37.8	60	69.8	21	24.4	1	1.1

07-19	2925	67	2752	19	80	0	7	0	0	0	0	07-19	7	20	23	81	751	1410	497	111	20	3	2	0	0	0	32	36.2	2043	69.8	633	21.6	25	0.9
06-22	3360	80	3165	20	88	0	7	0	0	0	0	06-22	8	22	27	89	841	1627	583	130	27	3	3	0	0	0	32.1	36.2	2373	70.6	746	22.2	33	1
06-00	3528	83	3327	20	91	0	7	0	0	0	0	06-00	8	22	28	96	889	1708	601	141	29	3	3	0	0	0	32.1	36.2	2485	70.4	777	22	35	1
00-00	3610	86	3402	20	95	0	7	0	0	0	0	00-00	8	22	29	98	898	1736	629	148	31	8	3	0	0	0	32.2	36.5	2555	70.8	819	22.7	42	1.2

07 July 2013

Time	Total	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Fix1	Time	Vbin 0 10	Vbin 10 15	Vbin 15 20	Vbin 20 25	Vbin 25 30	Vbin 30 35	Vbin 35 40	Vbin 40 45	Vbin 45 50	Vbin 50 60	Vbin 60 70	Vbin 70 80	Vbin 80 90	Vbin 90 100	Mean	Vpp 85	JPSL 30	JPSL% 30	JSL1 35 ACPO	JSL1% 35 ACPO	JSL2 45 DFT	JSL2% 45 DFT	
0000	48	0	47	0	1	0	0	0	0	0	0	0	0000	0	0	0	2	7	21	9	6	2	1	0	0	0	0	34.6	40.5	39	81.3	18	37.5	3	6.3	
0100	19	0	18	0	1	0	0	0	0	0	0	0	0100	0	0	0	2	2	10	5	0	0	0	0	0	0	0	32.4	36.7	15	78.9	5	26.3	0	0	
0200	9	0	9	0	0	0	0	0	0	0	0	0	0200	0	0	0	0	0	5	3	0	0	1	0	0	0	0	36.9	-	9	100	4	44.4	1	11.1	
0300	12	0	11	0	1	0	0	0	0	0	0	0	0300	0	0	0	0	3	2	3	3	0	1	0	0	0	0	36.8	41.2	9	75	7	58.3	1	8.3	
0400	7	1	4	0	2	0	0	0	0	0	0	0	0400	0	0	0	0	2	0	1	1	2	1	0	0	0	0	39.4	-	5	71.4	5	71.4	3	42.9	
0500	8	0	8	0	0	0	0	0	0	0	0	0	0500	0	0	0	0	0	0	0	4	2	2	0	0	0	0	46.3	-	8	100	8	100	4	50	
0600	16	0	16	0	0	0	0	0	0	0	0	0	0600	0	0	0	0	2	4	6	1	2	1	0	0	0	0	37.6	45.9	14	87.5	10	62.5	3	18.8	
0700	56	0	55	0	1	0	0	0	0	0	0	0	0700	0	0	0	0	7	15	27	5	2	0	0	0	0	0	35.5	39.8	49	87.5	34	60.7	2	3.6	
0800	83	3	76	0	3	0	1	0	0	0	0	0	0800	0	1	2	0	11	36	22	8	1	1	1	0	0	0	34.1	39.6	69	83.1	33	39.8	3	3.6	
0900	202	17	178	1	2	1	3	0	0	0	0	0	0900	1	3	3	9	46	91	41	6	2	0	0	0	0	0	31.7	36	140	69.3	49	24.3	2	1	
1000	220	3	212	1	2	0	2	0	0	0	0	0	1000	0	0	3	9	64	94	39	8	3	0	0	0	0	0	32	36.2	144	65.5	50	22.7	3	1.4	
1100	289	9	274	0	5	0	1	0	0	0	0	0	1100	0	3	1	4	76	149	42	14	0	0	0	0	0	0	31.9	35.8	205	70.9	56	19.4	0	0	
1200	272	7	257	2	5	0	1	0	0	0	0	0	1200	0	3	1	9	73	138	40	7	1	0	0	0	0	0	31.7	35.3	186	68.4	48	17.6	1	0.4	
1300	227	8	215	2	2	0	0	0	0	0	0	0	1300	0	3	2	1	42	124	42	12	1	0	0	0	0	0	32.6	36.2	179	78.9	55	24.2	1	0.4	
1400	218	3	210	0	3	0	2	0	0	0	0	0	1400	0	3	1	4	47	104	54	4	1	0	0	0	0	0	32.4	36.7	163	74.8	59	27.1	1	0.5	
1500	191	4	181	2	3	0	1	0	0	0	0	0	1500	1	1	0	3	41	104	32	7	2	0	0	0	0	0	32.4	36	145	75.9	41	21.5	2	1	
1600	230	6	221	0	2	0	1	0	0	0	0	0	1600	1	3	0	8	43	114	51	8	1	1	0	0	0	0	32.5	36.5	175	76.1	61	26.5	2	0.9	
1700	216	6	205	0	2	0	2	1	0	0	0	0	1700	0	3	0	1	46	99	50	15	2	0	0	0	0	0	33.1	37.8	166	76.9	67	31	2	0.9	
1800	190	2	184	1	3	0	0	0	0	0	0	0	1800	0	1	2	2	39	77	51	16	2	0	0	0	0	0	33.5	38.3	146	76.8	69	36.3	2	1.1	
1900	169	2	162	3	2	0	0	0	0	0	0	0	1900	0	0	1	2	38	68	42	15	3	0	0	0	0	0	33.6	37.6	128	75.7	60	35.5	3	1.8	
2000	165	2	160	2	0	0	1	0	0	0	0	0	2000	0	0	3	4	43	83	22	9	0	1	0	0	0	0	32.1	35.8	115	69.7	32	19.4	1	0.6	
2100	93	4	87	0	2	0	0	0	0	0	0	0	2100	0	1	0	7	35	27	19	4	0	0	0	0	0	0	31.4	36.9	50	53.8	23	24.7	0	0	
2200	59	4	54	1	0	0	0	0	0	0	0	0	2200	1	1	1	0	11	26	11	6	2	0	0	0	0	0	32.8	38.3	45	76.3	19	32.2	2	3.4	
2300	21	0	21	0	0	0	0	0	0	0	0	0	2300	0	0	0	0	5	8	3	3	2	0	0	0	0	0	34.8	41.2	16	76.2	8	38.1	2	9.5	
07-19	2394	68	2268	9	33	1	14	1	0	0	0	0	07-19	3	24	15	50	535	1145	491	110	18	2	1	0	0	0	0	32.5	36.7	1767	73.8	622	26	21	0.9
06-22	2837	76	2693	14	37	1	15	1	0	0	0	0	06-22	3	25	19	63	653	1327	580	139	23	4	1	0	0	0	0	32.5	36.7	2074	73.1	747	26.3	28	1
06-00	2917	80	2768	15	37	1	15	1	0	0	0	0	06-00	4	26	20	63	669	1361	594	148	27	4	1	0	0	0	0	32.5	36.7	2135	73.2	774	26.5	32	1.1
00-00	3020	81	2865	15	42	1	15	1	0	0	0	0	00-00	4	26	20	67	683	1399	615	162	33	10	1	0	0	0	0	32.7	36.9	2220	73.5	821	27.2	44	1.5

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Time	Total	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Fix1	Time	Vbin 0 10	Vbin 10 15	Vbin 15 20	Vbin 20 25	Vbin 25 30	Vbin 30 35	Vbin 35 40	Vbin 40 45	Vbin 45 50	Vbin 50 60	Vbin 60 70	Vbin 70 80	Vbin 80 90	Vbin 90 100	Mean	Vpp 85	JPSL 30	JPSL% 30	JSL1 35 ACPO	JSL1% 35 ACPO	JSL2 45 DFT	JSL2% 45 DFT	
0000	10	2	7	0	1	0	0	0	0	0	0	0	0000	0	0	0	0	1	1	4	1	3	0	0	0	0	0	39.7	-	9	90	8	80	3	30	
0100	9	0	9	0	0	0	0	0	0	0	0	0	0100	0	0	0	0	0	4	2	1	1	0	1	0	0	0	0	39.8	-	9	100	5	55.6	2	22.2
0200	3	1	2	0	0	0	0	0	0	0	0	0	0200	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	35.4	-	2	66.7	2	66.7	0	0
0300	2	0	2	0	0	0	0	0	0	0	0	0	0300	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	42.5	-	2	100	2	100	1	50
0400	5	0	4	0	1	0	0	0	0	0	0	0	0400	0	0	0	0	2	0	1	1	1	0	0	0	0	0	0	35.9	-	3	60	3	60	1	20
0500	34	0	31	0	3	0	0	0	0	0	0	0	0500	0	0	0	1	2	9	8	8	3	3	0	0	0	0	0	38.4	45.2	31	91.2	22	64.7	6	17.6
0600	86	3	73	0	10	0	0	0	0	0	0	0	0600	0	2	1	1	6	25	27	15	8	1	0	0	0	0	0	36.3	42.9	76	88.4	51	59.3	9	10.5
0700	230	4	212	2	12	0	0	0	0	0	0	0	0700	1	2	2	8	34	109	50	19	3	2	0	0	0	0	0	33.3	37.8	183	79.6	74	32.2	5	2.2
0800	333	3	313	1	16	0	0	0	0	0	0	0	0800	1	1	0	7	72	186	55	11	0	0	0	0	0	0	0	32.2	35.3	252	75.7	66	19.8	0	0
0900	289	2	267	2	17	0	1	0	0	0	0	0	0900	0	0	3	13	97	129	42	5	0	0	0	0	0	0	0	31.3	35.1	176	60.9	47	16.3	0	0
1000	235	3	214	3	15	0	0	0	0	0	0	0	1000	1	1	0	11	67	115	35	5	0	0	0	0	0	0	0	31.3	35.1	155	66	40	17	0	0
1100	222	3	202	2	15	0	0	0	0	0	0	0	1100	0	1	0	2	61	119	33	6	0	0	0	0	0	0	0	32.1	35.3	158	71.2	39	17.6	0	0
1200	237	6	214	0	15	0	0	0	1	1	0	0	1200	0	3	0	8	72	117	30	6	1	0	0	0	0	0	0	31.5	34.9	154	65	37	15.6	1	0.4
1300	266	6	245	0	14	0	1	0	0	0	0	0	1300	1	3	2	7	66	141	39	7	0	0	0	0	0	0	0	31.6	35.3	187	70.3	46	17.3	0	0
1400	271	8	246	3	13	0	1	0	0	0	0	0	1400	2	3	1	3	58	146	52	6	0	0	0	0	0	0	0	32	35.8	204	75.3	58	21.4	0	0
1500	359	4	328	3	21	1	1	0	0	0	0	0	1500	1	1	1	4	101	192	48	10	1	0	0	0	0	0	0	31.7	35.1	251	69.9	59	16.4	1	0.3
1600	360	4	328	3	25	0	0	0	0	0	0	0	1600	0	1	0	5	87	180	76	10	1	0	0	0	0	0	0	32.4	36	267	74.2	87	24.2	1	0.3
1700	359	6	342	2	9	0	0	0	0	0	0	0	1700	0	1	5	15	94	191	42	9	2	0	0	0	0	0	0	31.4	34.9	244	68	53	14.8	2	0.6
1800	261	6	249	1	5	0	0	0	0	0	0	0	1800	0	2	1	4	53	127	61	7	5	1	0	0	0	0	0	33	37.4	201	77	74	28.4	6	2.3
1900	207	8	196	1	2	0	0	0	0	0	0	0	1900	1	2	3	5	48	101	40	6	0	1	0	0	0	0	0	31.9	36	148	71.5	47	22.7	1	0.5
2000	147	5	139	0	3	0	0	0	0	0	0	0	2000	0	5	1	5	40	65	28	3	0	0	0	0	0	0	0	31	35.6	96	65.3	31	21.1	0	0
2100	110	3	104	0	2	0	1	0	0	0	0	0	2100	2	1	2	6	36	38	22	2	1	0	0	0	0	0	0	30.8	36.5	63	57.3	25	22.7	1	0.9
2200	54	2	48	0	3	0	0	0	0	0	0	1	2200	0	1	1	0	15	19	12	5	1	0	0	0	0	0	0	32.6	38.9	37	68.5	18	33.3	1	1.9
2300	26	0	24	0	1	0	0	0	0	0	0	1	2300	0	1	0	1	4	12	6	2	0	0	0	0	0	0	0	32.4	37.1	20	76.9	8	30.8	0	0
07-19	3422	55	3160	22	177	1	4	1	1	0	0	1	07-19	7	19	15	87	862	1752	563	101	13	3	0	0	0	0	0	32	35.8	2432	71.1	680	19.9	16	0.5
06-22	3972	74	3672	23	194	1	5	1	1	0	1	0	06-22	10	29	22	104	992	1981	680	127	22	5	0	0	0	0	0	32	36	2815	70.9	834	21	27	0.7
06-00	4052	76	3744	23	194	1	5	1	1	0	3	06-00	10	31	23	105	1011	2012	698	134	23	5	0	0	0	0	0	0	32	36	2872	70.9	860	21.2	28	0.7