

Dunsbury Hill Farm (Stage 2)

Highway Design Report

March 2012

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Contents

Section	Page
1. Introduction	4
2. Proposed Development	5
Description of Development	5
Highways Requirements	6
Land Ownership Plans	6
Highway Authority	6
Environmental Impact Assessment	6
3. Existing Data Review	7
Accident Review	7
Abnormal Loads	7
Non Motorised User (NMU) Context Report	7
4. Proposed Highway Design	8
Designers Competence	8
Highway Design	8
Speed Limit	8
Design Principles	8
Departures from Standards	10
Transport Assessment	10
A3(M) Junction 3	10
Lay Bys	11
Existing Structures	12
Bridge	12
Street Lighting	12
Drainage	12
Public Transport	12
Arboriculture Report	13
Statutory Undertakers' Equipment	13
Construction Cost Estimate	13
Road Safety Audit and Designers Response	14
Highways Agency	14
Construction Period	14
5. Conclusion	15
List of Tables	
Table 4.1 – Construction Cost Estimate	14

Appendices

Appendix A	17
Appendix B	19
Appendix C	21
Appendix D	23
Appendix E	25
Appendix F	27
Appendix G	29
Appendix H	31
Appendix I	33
Appendix J	35
Appendix K	37
Appendix L	39
Appendix M	41
Appendix N	43
Appendix O	45
Appendix P	47
Appendix Q	49
Appendix R	51

1. Introduction

- 1.1 Atkins has been appointed jointly by Portsmouth City Council (PCC) and the Partnership for Urban South Hampshire (PUSH) to prepare the planning application for a proposed business park development at Dunsbury Hill Farm. The site is owned by PCC but is located within Havant Borough Council (HBC). A copy of the project brief is provided in Appendix A. A location plan of the site is provided on Drawing No. 5099849/TP/LP/101 Rev B (see Appendix B).
- 1.2 PCC have decided to submit a hybrid planning application. The proposed access junction and link road through the development will form the detailed part of the application and the remainder of the development will be an outline application.
- 1.3 Atkins has prepared the highway design and this report provides details required by Hampshire County Council (HCC), the highway authority, for the assessment of the preliminary highway design for the proposed scheme.
- 1.4 The report is structured as follows:
 - Section 2 provides details of the proposed development and the existing land ownership;
 - Section 3 reviews existing data relating to the highway design proposal;
 - Section 4 details the proposed design parameters, including departures or relaxations from the highway design standards; and
 - Section 5 provides a conclusion to this report.
- 1.5 This report should be read in conjunction with the design drawings and supporting data.

2. Proposed Development

Description of Development

- 2.1 The proposals for the development of employment uses at Dunsbury Hill Farm have been evolving for a number of years. The Dunsbury Hill Farm Development Brief (June 2007) sets out the following concept for the development:
- “The development concept is for a prestigious high quality Business and Technology Park development in a generous landscape setting. The development should represent a flagship of sustainable design and construction within a strong framework of environmental management in relation to all buildings and land within the site and adjoining land.”*
- 2.2 Phase 1 of the development is located in the southern and central portions of the site and, in line with the requirements of the Core Strategy, comprises 13.2 ha of land which will accommodate 46,450 m² of employment floor space, including 10,000 m² Enterprise Centre and 5,574 m² of hotel floor space.
- 2.3 The hotel is located on the south western side of the site to enable the creation of a high quality entrance and landmark feature for the scheme. Phase 1 also includes other ancillary uses required to support the site and its employment uses.
- 2.4 Phase 2 of the development comprises 7 ha of land and is located in the northern portion of the site. Phase 2 will provide an additional 15,329 m² of employment floor space.
- 2.5 Access is provided by a new link road which originates at a junction with Hulbert Road. The development is envisaged to be phased as follows:
- Link road – construction to commence in 2013;
 - Phase 1 – construction to commence in 2014 with occupation from 2016 onwards; and
 - Phase 2 – construction to commence in 2020 with occupation from 2022 onwards.
- 2.6 In line with the requirements in the Core Strategy, a maximum of 20% of the employment floorspace will be for B8 storage and distribution, with the remainder of the floorspace split flexibly between B1 business and B2 general industrial uses (as defined in the Use Classes Order 2005). B1(a) uses will be acceptable on the site providing a sequential test has been carried out to ensure there are no suitable sites in the town centres.
- 2.7 A dedicated public transport link is proposed between residential areas to the east and west. The scheme will also include a range of cycle and pedestrian linkages connecting the development with the surrounding areas. These will include the provision of a metalled surface for Park Lane. The scheme will be supported by a Green Travel Plan.
- 2.8 The proposed development will include a 150-180m wide landscaped buffer between the employment uses and the A3(M). This will form part of a comprehensive landscape framework which provides broad bands of woodland planting to create woodland “fingers” extending eastwards into the development from Beech Wood. The scheme includes the retention of existing important trees, particularly protected trees, and hedgerows, within the development. Enhanced green infrastructure links between Havant Thicket Reservoir and Dunsbury Hill Farm are proposed. The scheme also seeks to preserve the site’s important habitats and features of ecological value as far as possible.
- 2.9 The development will be designed to be an exemplar for sustainable construction and design. All commercial buildings constructed on the site after 2012 will be required to achieve at least BREEAM ‘excellent’ standard. The development will contribute to the PUSH target of delivering 100MW of renewable energy by 2020 by maximising on-site renewable energy production and resource efficiency.

- 2.10 The scheme includes the enhancement of the Hermitage Stream Corridor through the restoration of a section of the Stream and provision of a new wetland feature to provide both wildlife benefits and increased flood storage capacity. The scheme will be developed with appropriate sustainable drainage system (SUDS) techniques to ensure that greenfield run-off rates are achieved.

Highways Requirements

- 2.11 As highlighted above it has been agreed that access to the development will be via Hulbert Road. A new junction will be required on Hulbert Road with a link road passing through the development site and connecting with the existing roundabout stub at the Woolston Road roundabout within Leigh Park. The implementation of a bus gate on the proposed link road at the Woolston Road roundabout would prevent access to the development by general traffic.
- 2.12 It has been agreed that a hybrid planning application will be submitted for the proposed development. A detailed application is to be prepared for the proposed access junction and link road, with an outline application for the remainder of the development.
- 2.13 The masterplan for the site is provided in Appendix C.

Land Ownership Plans

- 2.14 Land ownership plans have been prepared (see Drawing Nos. 5099849/TP/LO/101 to 104 Rev B in Appendix D) for the area affected by the proposed junction and link road. There are four different land owners in the vicinity of the proposed works. These are:
- Portsmouth City Council (PCC) – shown in blue hatching on the above drawings;
 - Secretary of State for Transport – shown in orange cross hatching on the above drawings;
 - The Minister of Transport – shown in green hatching on the above drawings; and
 - Peter Lewis Bank – shown in pink hatching on the above drawings.

At this stage it is anticipated that land owned by Peter Lewis Bank will not be affected by the proposals.

There has been initial correspondence between PCC and the Department for Transport regarding the two plots of land affected by the proposed scheme. At this stage there is no written correspondence available providing an agreement in principle to use / purchase of this land for the development access. However, discussions are in hand and relevant documentation will be provided when available.

Highway Authority

- 2.15 Whilst the development site is within HBC land, the highway authority for Hulbert Road and the roundabout at the A3(M) Junction 3 is HCC. The HA is the highway authority for the A3(M), including the on and off slips at Junction 3.

Environmental Impact Assessment

- 2.16 A copy of the Environmental Statement (ES) is provided under separate cover for inclusion in Appendix E.

3. Existing Data Review

Accident Review

- 3.1 An accident analysis of the Personal Injury Accidents reported on the section of Hulbert Road between the A3(M) Junction 3 and the proposed Hulbert Road roundabout has been undertaken and is provided in Appendix F.

Abnormal Loads

- 3.2 Consultation has been undertaken via telephone with:
- Hampshire County Council – specifically Phil Wright within the abnormal loads team;
 - National Farmers Union (NFU) – specifically John Archer, the environment and land use adviser; and
 - Hampshire Constabulary – specifically Jan Barfoot within the abnormal loads team.
- 3.3 All three organisations have confirmed that as far as they are aware, the route is not used by abnormal loads; further details are provided below:
- HCC noted that the only loads that might use the route may be agricultural vehicles, such as combine harvesters or transporting transformers to and from the Lovedean Lane transformer station, although these would very seldom be sent down the route (it is some distance from the site). Other than that, it could possibly be used by cranes and retention of the 4m running carriageway width was suggested;
 - The NFU explained that there is no arable farming within the area, but if there was, the largest vehicles would be combine harvesters, which tend to be 4.3m wide at most, and while there are larger combines, they are rare. It was also identified that agricultural vehicles do not exceed 12m in length; and
 - Hampshire Constabulary confirmed that the route is not a designated abnormal loads route, and thus there are no really large loads, which tend to use the A3 / A27. As far as they were aware, there are no large loads using the route, but noted that there could be some large agricultural vehicles or vehicles associated with new sites within Havant, although any transformers tend to be transported via the old A3.

Non Motorised User (NMU) Context Report

- 3.4 An NMU Context report has been prepared and is provided in Appendix G. A Preliminary NMU Audit has also been undertaken on the proposed design and is included in Appendix G.

4. Proposed Highway Design

- 4.1 This section provides a summary of the highway design and issues that have influenced the development of the proposals.

Designers Competence

- 4.2 It was agreed with HCC on 30th August 2011 that the designer's competence as required under CDM Regulations will be confirmed once a CDM Coordinator (CDM-C) has been appointed. PCC have appointed William Dawes as CDM-C for the project and the required duties of the CDM-C at this stage have been completed.

Highway Design

- 4.3 At the outset of the highway design Atkins met with HCC to discuss the design requirements for the proposed access junction and link road. Following this the initial scheme design was discussed with HCC and a revised design was submitted with supporting data to HCC in August 2011. The design package was also issued to the Highways Agency (HA), Transport for South Hampshire (TfSH), HBC and PCC. Based on comments received changes were made to the design which was submitted to all stakeholders detailed above on 4th November 2011. At a meeting on 13th February 2012 formal comments were received from HCC on the proposed design. Revisions to the design have been made and the revised design is included in this preliminary design submission.
- 4.4 The proposed highway design is detailed on Drawing Nos. 5099849/TP/GA/101 to 104 Rev B (see Appendix H). Drawings detailing the cross sections at 25m intervals and long sections along the proposed highway alignment are also provided in Appendix H (Drawing Nos. 5099849/TP/XS/101 to 112 and 5099849/TP/LS/101 to 102).
- 4.5 Swept path analysis has been undertaken for key movements within the proposed network. Drawings illustrating this analysis are provided in Appendix H (Drawing Nos. 5099849/TP/SP/101 to 103). At this stage no swept paths are presented for the access road to individual plots on the development since the location and dimensions of these accesses may be revised at the detailed design stage. It is intended that once the access road locations are confirmed swept path analysis will be completed.
- 4.6 Below is a summary of the supporting information for the proposed highway design.

Speed Limit

- 4.7 The national speed limit applies on Hulbert Road and it is proposed to retain the existing speed limit. Within the proposed development it is recommended that a 30mph limit would be implemented. The proposals for each section have been designed to the relevant speed.

Design Principles

- 4.8 The proposed design between the A3(M) Junction 3 and the proposed access roundabout on Hulbert Road has been prepared in accordance with the Design Manual for Road and Bridges (DMRB). Within the development, and where the speed limit is proposed to be 30mph, the link road and junctions have been designed to Manual for Streets 2 (MfS2).

Hulbert Road Roundabout

- 4.9 The proposed access to the development is to be via a roundabout on Hulbert Road. The Stage 1 junction modelling indicated that a priority junction did not provide sufficient capacity and HCC has advised that a signal controlled junction would not be favoured.
- 4.10 The proposed four arm standard roundabout has single lane approaches on the southern and eastern arms which flare to two lanes 20m from the give way markings. On the northern arm it is proposed to implement a straight ahead lane plus a dedicated left turn lane approximately 80m

north of the give way markings. The western arm would be one way with access provided onto the roundabout.

- 4.11 The sections of Hulbert Road to the north and south of the proposed access roundabout are retained as a two way single lane carriageway.

Link Road between Hulbert Road Roundabout and the Hotel Roundabout

- 4.12 It is proposed to implement a 7.3m wide two way single lane carriageway, with 2m wide verges on either side of the carriageway, between the Hulbert Road roundabout and the Hotel roundabout. Whilst kerbs (with upstands) are proposed at the two roundabouts it is proposed to implement flush kerbs on the link road and the carriageway would drain into 3.5m wide swales.
- 4.13 The proposed alignment of the link road over this section has been designed to minimise the loss of mature trees and consequently it has not been possible to achieve a straight alignment.
- 4.14 There is currently no dedicated provision for cyclists and pedestrians on Hulbert Road or at the A3(M) Junction 3. It is not proposed to provide a cycle or pedestrian route along the link road between the two proposed roundabouts as there is no connection to a wider network and the cost of providing safe pedestrian and cycle routes would be uneconomical in relation to the expected level of use. Further details are provided in the 'Dunsbury Hill Farm: Pedestrian and Cycle Access' Technical Note.
- 4.15 It is, however, proposed to provide a shared footway / cycleway at the Hotel roundabout.

Link Road between the Hotel Roundabout and Woolston Road roundabout

- 4.16 A 6.5m wide two way single lane carriageway is proposed for the section of the link road between the Hotel roundabout and the Woolston Road roundabout. The carriageway has been designed with a 2.5% central camber to drain surface water across a 3m wide tree verge either side of the carriageway into 3.5m wide swales. There is then a 2m wide verge before the footway/cycleway. It is only proposed to install kerbs (with upstands) at the bus stops along this section of the link road. The remainder of the link road would have flush kerbs.
- 4.17 Priority junctions are proposed along the link road to provide access to the development plots. At this stage these are indicative locations and have been designed to the end of the radii, which has been assumed to be the limit of the adoptable highway. A priority junction has also been included as a connection for an estate loop road.
- 4.18 As noted above the locations of the proposed accesses to individual plots and the proposed bus stops are indicative at this stage. The final junction locations and spacing are likely to be dependent on how the development of the site is progressed. Once the occupiers of the site are determined and the development strategy confirmed it may be necessary to review the location of the accesses and consequently the position of the bus stops.
- 4.19 To the west of the Woolston Road roundabout it is proposed to implement a bus gate on the link road to restrict access to the development from Leigh Park and avoid rat-running to the A3(M) Junction 3. The precise location and form of the bus gate will need to be confirmed at the detailed design stage. Any proposal will need to maintain access for pedestrians and cyclists as well as buses. At this stage it is proposed to extend the existing traffic island on the western arm of the Woolston Road roundabout and to implement rising bollards. In discussion with HCC it has been agreed that items to be included for the bus gate are:
- Appropriate signing;
 - Loop detection with a proximity card in the vehicle;
 - CCTV;
 - A remote monitoring connection to the Traffic Control Outstation;
 - Two land lines for CCTV and another link for out of hours to Havant Town Centre Security; and

- A commuted sum of £50,000 for future maintenance of the bus gate and associated infrastructure.

- 4.20 It is suggested that the bus gate is located close to the Woolston Road roundabout to ensure motorists can clearly see the restriction. This may help avoid vehicles erroneously using the link and needing to complete turning manoeuvres on the link road.
- 4.21 To the north of the link road it is proposed to implement a 3m wide shared footway / cycleway. This will be to the north of the swale and access to the bus stops and crossing points would be via timber bridges across the swale. To the south of the proposed link road it is proposed to implement a 2m wide footway and a 2m wide verge south of the swale.
- 4.22 Crossing points for pedestrians and cycles across the carriageway are proposed at the accesses to the development plots to the south and at either end of the proposed bus stops. The implementation of pedestrian refuges along the link road at potential desire lines was considered. However, as the proposed carriageway is only 6.5m wide it was not deemed necessary.
- 4.23 A crossing point has been provided across the link road between the easternmost plot access and the Woolston Road roundabout. This aligns with the existing footpath that links into the Park Lane bridleway.

Departures from Standards

- 4.24 In the development of the proposed highway design achievement of the standards detailed in the DMRB has not been possible at all locations given the existing site restrictions. A number of departures from the standards have consequently been discussed with HCC and applied in the design. These departures are detailed on the latest HCC template, including comments by the safety audit team and are provided in Appendix I.

Transport Assessment

- 4.25 A Transport Assessment (TA) for the proposed development has been completed following the scoping exercise.
- 4.26 To test the impact of the proposed development on the local network a VISSIM model has been produced, which provides an indication of the operation of the proposed Hulbert Road junction, the A3(M) Junction 3 and Junction 4, and the Asda roundabout when the development flows are added to the network. It has been agreed that the Sub Regional Transport Model (SRTM) will be used to provide the base data and the forecast years' traffic flows.
- 4.27 The TA together with the VISSIM model results are provided under separate cover to be inserted in Appendix J. Traffic flows collected within the proposed VISSIM model network are provided in Appendix K and include TRADS data from the HA network.
- 4.28 Due to the current and predicted congestion at the Asda roundabout it has been agreed that a separate investigation of mitigation measures is undertaken and submitted following the submission of the planning application.

A3(M) Junction 3

- 4.29 The accident data review as part of Section 3 of this report indicates that for the section of Hulbert Road between the proposed access roundabout and the A3(M) Junction 3 there was a cluster of shunt type accidents on the northbound approach to the A3(M) Junction 3.
- 4.30 Based on a visual inspection of this approach to the roundabout the visibility of circulating traffic for drivers approaching the roundabout from Hulbert Road appears adequate when some distance from the give way line. However, due to vegetation in the centre of the roundabout the visibility decreases significantly when close to the give way line. Site observations also indicate that circulating traffic travels at relatively high speed and this together with the restricted visibility may result in drivers hesitating at the give way line.

- 4.31 The proposed scheme will increase traffic flows on this approach and to mitigate against an increase in shunt type accidents at this location the vegetation in the centre of the roundabout should be cleared to improve the visibility of circulating traffic.

Lay Bys

- 4.32 There are currently lay bys on the section of Hulbert Road between the A3(M) Junction 3 and the proposed development access roundabout. The dimensions of the lay bys are:
- Northbound – 37m lay by with a width of 3m, a 28m entry taper and 18m exit taper; and
 - Southbound – 45m lay by with a width of 3m, a 25m entry taper and 18m exit taper
- 4.33 The implementation of the proposed Hulbert Road roundabout would conflict with the existing lay bys. Due to the forward visibility requirements along the new highway alignment for Hulbert Road and the dedicated left turn lane into the development the relocation of the lay bys along this section of Hulbert Road would not be possible. It is also unlikely to be feasible to relocate the lay bys to the south as to the west of Hulbert Road the land is owned by Peter Lewis Bank and to the east is a SINC.
- 4.34 To determine if the lay bys should be retained CCTV surveys of the use of the lay bys were conducted between 08 and 14 August 2011. A short technical note detailing the analysis of the survey is provided in Appendix L.
- 4.35 The main conclusion from the survey is that the lay bys are reasonably well used during the day (although use is random) and are less well used at night. On some occasions the lay bys are fully utilised and on this basis it is recommended that the proposed highway design should include provision for the equivalent length of these lay bys within the local area.
- 4.36 Given the local highway configuration there are limited options available, but they may include:
- Extension to the existing lay bys on Hulbert Road west of the A3(M) Junction 3; or
 - Provision of parking bays between the A3(M) and Hulbert Road with access provided via a fourth arm on the proposed Hulbert Road roundabout.

These options have been discussed with PCC and HCC and it is proposed to provide parking on the land between Hulbert Road and the A3(M) north of the proposed Hulbert Road roundabout. The proposed design involves implementation of a one-way loop with access provided from the northbound carriageway of Hulbert Road. The one-way road would rejoin Hulbert Road as a fourth arm at the proposed Hulbert Road roundabout.

The proposed one-way road would be 6m wide with two 70m long by 3.5m wide lay bys. This would increase the provision compared to the existing situation. The 6m wide carriageway is proposed to allow for HGV's to exit from the lay bys around another vehicle.

Compared to the existing situation the proposed layout should reduce the distance vehicles need to travel when accessing the lay bys. For example, vehicles arriving from the A3(M) Junction 3 would be able to return to Junction 3 without travelling to the Asda roundabout which would be necessary in the existing situation. The flexibility offered by the proposed layout should benefit any emergency vehicles that use the lay bys.

It is recognised that the proposed layout could attract travellers, fly tipping and antisocial behaviour. To mitigate these potential issues it is proposed to replace the existing vegetation between Hulbert Road and the lay bys with low level vegetation to ensure the lay bys are visible from Hulbert Road. It is also proposed to implement a bund to prevent access to the 'green area' between Hulbert Road and the lay bys.

An alternative arrangement for the provision of lay-bys via an access from the proposed Hulbert Road roundabout was considered and discussed with HCC and PCC. This involved implementation of a 'lorry park' accessed via a two-way fourth arm on the proposed Hulbert Road roundabout. However, due to the swept path of HGV's using the facility a large open area would

be required. It was considered that this could increase the likelihood of antisocial behaviour, travellers and fly tipping compared to the proposed scheme.

Existing Structures

- 4.37 There are some existing structures to the south east of the proposed Hulbert Road roundabout. Based on the current design these buildings could be retained. Access to the buildings is currently provided directly from Hulbert Road and in the proposed layout this would be 30m from the exit of the roundabout. The proposed design does not maintain access to the site, but retention of the access could be considered if required.

Bridge

- 4.38 The proposed bridge design is detailed on drawing no. 509849/TP/BR/101 and is provided with Form C in Appendix M. The Approval in Principle for the proposed bridge structure across Hermitage Stream is provided also in Appendix M.
- 4.39 The Environment Agency (EA) has been consulted on the development and access proposals and the scheme has been developed in line with their requirements. The written notes of a meeting with the EA are provided in Appendix N. Whilst the notes detail the EA recommendations it is only their response to a pre application enquiry and does not represent their final view.

Street Lighting

- 4.40 Following liaison with HCC's street lighting engineers it is proposed not to light the proposed Hulbert Road roundabout or the link road to the Hotel roundabout within the development as these sections are within an E2 Environmental zone.
- 4.41 The Hotel roundabout and link road within the development between the Hotel roundabout and the Woolston Road roundabout will be lit. The proposed lighting design was discussed and agreed with HCC's street lighting engineer. Further details are provided in Appendix O.

Drainage

- 4.42 A summary of the key highway drainage issues is provided in Appendix P.

Public Transport

- 4.43 The proposed highway design includes provision for public transport. As part of the Core Strategy it is required that access from Leigh Park to the development is restricted to buses, cycles and pedestrians. As a result a bus gate is to be implemented on the proposed link road to the west of the Woolston Road roundabout. The design of the bus gate (detailed in paragraph 4.19) will be confirmed at the detailed design stage following the planning application submission / approval.
- 4.44 It is anticipated that local bus services will enter the development from the east and will turn around at the proposed Hotel roundabout within the development. Further details of the proposed bus service provision are provided in the TA.
- 4.45 Following discussions with Andrew Wilson at HCC the proposed link road design includes provision of a bus stop in each direction. These are located between the Hotel roundabout and the Woolston Road roundabout and at the request of HCC the stops are to be within lay bys. For routes which terminate within the development the lay bys will provide a bus stand facility and buses will not impede the flow of traffic along the link road. The proposed bus stop lays bys are 3m by 40m (10m entry and 10m exit tapers).
- 4.46 There are proposals to route the South East Hampshire Bus Rapid Transit (BRT) through Dunsbury Hill Farm and therefore the bus stop facilities should meet the required BRT standards. In particular, shelters, Real Time Passenger Information (RTPI) and bus kerbs should be provided. These will need to be detailed during the subsequent design stages.

- 4.47 As noted in paragraph 4.18, the accesses to the development plots are indicative at this stage. Following confirmation of the access locations at the detailed design stage it may be necessary to revise the location of the bus stop lay bys.

Arboriculture Report

- 4.48 The arboriculture report is provided under separate cover for insertion into Appendix Q.

Statutory Undertakers' Equipment

- 4.49 A C2 statutory undertakers' enquiry has been completed and indicated that the following utilities may be affected by the proposed highway works associated with the access junction and link road:

- GTC Pipeline / ENC apparatus – may be affected in the vicinity of the Woolston Road roundabout;
- Scottish and Southern Energy – HV main and possibly LV mains in the vicinity of the Woolston Road roundabout;
- Southern Water – sewer across the south of the site; and
- Transco – High pressure and Medium pressure mains across the site.

- 4.50 Trial pits were dug at four locations along the line of the high pressure gas main, within the proposed site boundary, in order to determine the depth of the apparatus. The survey indicates that the main is 1.2 to 1.3m below ground level.

- 4.51 A C3 statutory undertaker's enquiry has subsequently been completed and the confirmed utilities affected are:

- Scottish and Southern Energy: The existing 33kV overhead cable will need to be routed underground at a cost of £133,275. There is also a 132kV overhead cable and unless the road level is to be raised above the existing ground level, there is sufficient clearance. The current design would increase the ground level by 1.5m and therefore there could be a substantially higher cost. This is currently being discussed with Scottish and Southern Energy; and
- Southern Water: It is noted that the depth of the foul sewer is 1.2m and is not anticipated to be affected, although this depth is only approximate. If the construction depth above the sewer reduces the cover over the apparatus to 500mm then at that depth and position a protective slab of reinforced concrete should be installed. The slab should be 200mm thick and extend for 1m on their side of the apparatus. The cover over the apparatus should at no time be reduced to less than 500mm and generally along the run of the apparatus, the finished cover depth should not be less than 900mm.

Construction Cost Estimate

- 4.52 The construction cost estimate (see Table 0.1) for the proposed design has been calculated and includes risk allowances to reflect the level of design carried out at this stage. It is based on an all encompassing rate for the carriageway area which is sufficiently robust to include all ancillaries such as street lighting, drainage, footways etc. The rates used in the estimate are based on recent similar schemes.

Table 0.1 – Construction Cost Estimate

Item	Unit Cost	Total Cost
Proposed carriageway area	18400m ² @ £350	£6,440,000
Additional earthworks cut/fill	20700m ³ @ £50	£1,035,000
Bridge	150m ² @ £2500	£375,000
Bus Gate and associated infrastructure	£100,000	£100,000
Statutory Undertakers' Diversion	Scottish and Southern Energy	£133,275
Total		£8,083,275

This excludes:

- Design and supervision fees;
- Environmental mitigation;
- Optimism bias;
- Client costs;
- Contractor Price Fluctuation;
- Risk; and
- VAT.

Road Safety Audit and Designers Response

- 4.53 A Stage 1 Road Safety Audit has been completed for the proposed design and a designer's response to the audit has also been undertaken. Copies of these documents are provided in Appendix R.

Highways Agency

- 4.54 Discussions have been held with the HA regarding the proposed design. These were initiated during the Stage 1 feasibility study and the proposed designs were submitted to Cherrie Mendoza and Anthony Powell at the HA. Atkins have requested an Agreement in Principle to the proposals subject to the final modelling work, but at this stage the HA were unwilling to commit to this.
- 4.55 On 29th February 2012 the HA advised that Helen Batty would be responsible for assessing the Dunsbury Hill Farm scheme.

Construction Period

- 4.56 As detailed in paragraph 2.5 it is estimated that the construction of the link road and access junction would commence in 2013 and it has been estimated that the construction period would be twelve months.

5. Conclusion

- 5.1 The proposed highway design for the Dunsbury Hill Farm development has been prepared in liaison with HCC and this report provides the supporting design information.
- 5.2 Full traffic modelling of the proposed scheme has been completed using VISSIM and this has been developed using data supplied from the SRTM.
- 5.3 This highway design package is submitted for approval by HCC.

Appendix A

Project Brief

Appendix B

Location Plan

(Drawing No. 5099849/TP/LP/101)

Appendix C

Masterplan

Appendix D

Land Ownership Plans

(Drawing Nos. 5099849/TP/LO/101 – 104)

Appendix E

Environmental Statement

(See separate document)

Appendix F

Accident Review

Appendix G

Non Motorised User (NMU) Context Report and Preliminary NMU Audit

Appendix H

Highway Design Drawings

(Drawing Nos. 5099849/TP/GA/101 – 104,
5099849/TP/XS/101 – 112,
5099849/TP/LS/101 – 102,
5099849/TP/SP/101 – 103)

Appendix I

Departures from Standard

Appendix J

Transport Assessment (including VISSIM Models)

(See separate document)

Appendix K

Traffic Counts

Appendix L

Lay By Usage

Appendix M

Bridge Design

(Drawing No. 5099849/TP/BR/101)

Appendix N

Environment Agency Response

Appendix O

Street Lighting

Appendix P

Highway Drainage Issues

Appendix Q

Arboriculture Report

(See separate document)

Appendix R

Stage 1 Road Safety Audit and Designers Response