4.6. Impact Assessment

4.6.1. No traffic data for the proposed route options is available at the Study of Options stage so no calculations of the levels of local air pollutants or greenhouse gases can be made at this stage. The potential air quality effects on residential properties within 200m of the route options will therefore require further assessment as the project progresses. Given the low background levels of pollution along the route options it is considered unlikely that exceedance of National Objectives will occur along any of the proposed routes and there is likely to be a reduction of levels of pollution within the city centre. However, until a traffic model is available for the scheme this is not certain at this stage.

4.6.2. Qualitative assessment has been undertaken at this stage using property counts within 200m of each route option (Table 4.2) and proposed length for each route. Extra distance travelled could cause a marginal deterioration as a result of the extra emissions.

Table 4.2: Property Counts within Distance Bands for SC1 to SC6

Distance bands	Number of receptors by route option					
	SC1	SC2	SC3	SC4	SC5	SC6
0 – 50	0	0	0	0	0	0
50 – 100	2	4	9	3	7	0
100 - 200	26	5	18	20	11	16
Total	**28**	**9**	**27**	**23**	**18**	**16**

4.7. Route option SC1 is the longest route at a proposed length of 3,124m, thereby resulting in slightly greater volume of emissions than the other options. Route options SC2, SC5 and SC6 are similar with proposed lengths of 3,093m, 3,071m and 3,021m respectively. The shortest routes are SC3 and SC4 with the same proposed length of 2,775m resulting in the least emissions.

4.7.1. The effects of construction activities and related traffic on air quality cannot be accurately assessed in the Study of Options stage as the detailed route options for assessment have not yet been put forward, or construction methods proposed. Air quality will be adversely affected during construction due to dust created by earthworks and emissions caused by vehicle movements. This may be reduced through dust prevention measures and designated construction traffic routes which avoid residential areas. It is envisaged that during construction there will be an adverse effect on air quality near to the construction sites, particularly within 200m of the construction sites. This can be reduced through dust prevention measures and designated construction traffic routes which avoid residential areas.

4.8. Conclusion

4.8.1. The properties within 200 m of the proposed route would experience an increase in levels of air pollution but concentrations are expected to remain well below Air Quality Objective levels. The proposed route options are unlikely to adversely affect air quality in the AQMA due to their distance from the designated area. They are instead, likely to improve air quality in the AQMA due to the diversion of a proportion of the traffic from the City Centre. This will improve air quality in Hereford City Centre through reduced traffic emissions in areas of high population density, which in turn will contribute to improved health of the population, from a reduction of the area of exceedance and the number of people living within the area of exceedance.

4.8.2. Air quality is likely to be adversely affected locally due to vehicle emissions for all route options. Some adverse impacts on air quality from construction dust and disruption are envisaged during the construction phase. At this stage, there is not enough information to determine any significant difference in impact for the route options. Route option SC1 is located within 200m of the highest number of receptors and is the longest route, therefore this will potentially results in slightly greater air quality impact than the other route options.

5. The Greenhouse Gases Sub-Objective

5.1. Introduction

5.1.1. This chapter assesses the potential impacts of the route options on air quality. DMRB HA207/07 Air Quality and TAG unit 3.3.5 The Greenhouse Gases Sub-Objective sets out the procedure for assessing greenhouse gas impact from highway schemes.

5.2. Legislative Background

Climate Change Act (2008)

5.3. The Climate Change Act 2008 creates a new approach to managing and responding to climate change in the UK. At the heart of the Act is a legally binding target to reduce the UK's greenhouse gas emissions to at least 80 per cent below 1990 levels by 2050, to be achieved through action at home and abroad. To drive progress towards this target, the Act introduces five year "carbon budgets", which define the emissions pathway to the 2050 target by limiting the total greenhouse gas emissions allowed in each five year period, beginning in 2008. The first three carbon budgets were announced in April 2009, covering the periods 2008–12, 2013–17 and 2018–22. They require emissions reductions of just over 22 per cent, 28 per cent and 34 per cent respectively below 1990 levels, and are in line with the recommendations of the Committee on Climate Change.

5.4. Local authorities will now be able to legally impose obligations for energy use and efficiency in local plans with the approval of the Planning and Energy Act (2008), and this means that local authorities can set requirements in development plan documents for a quota of energy used in their area to be renewably sourced or low carbon.

Local Government White Paper - Strong and Prosperous Communities

5.5. The White Paper highlights the important role of local authorities in coordinating reductions in CO_2 emissions in their communities, and calls for Local Area Agreements to set out climate change targets - supported by Sustainable Community Strategies. In 2008, a set of 198 national performance indicators were included, which for the first time included several on climate change:

- NI 185 - CO2 reduction from local authority operations
- NI 186 - Per capita CO2 reduction in the local authority area
- NI 187 - Tackling fuel poverty
- NI 188 - Adaptation to climate change
- NI 189 - Flood and coastal erosion risk management
- NI 194 - Level of air quality: reduction in NOx and primary PM10 emissions in local authority estate and operations
- NI 197 - Improved Biodiversity - active management of local sites

- NI 186 is included as a priority in Herefordshire's Local Area Agreement, where a target to reduce CO2 emissions in the county by 13.1% per capita by 2010/11, has been set.

Planning and Climate Change: Planning Policy Statement 1 Supplement Planning and Climate Change

5.6. Planning and Climate Change (ODPM 2008) sets out how spatial planning should contribute to reducing emissions and stabilising climate change (mitigation) and take into account the unavoidable consequences (adaptation).

Herefordshire Local Area Agreement

5.7. Herefordshire and Worcestershire Councils include in their current Local Area Agreements a reduction in climate change gas emissions, however, there are no targets relating to air quality directly. In Worcestershire, the target is to reduce Climate Change gas emissions across the County by a minimum of 10% from 2005 levels by 2011 and 20% by 2020. In Herefordshire, the Change Strategy includes a target to reduce greenhouse gas emissions in line with the Government's Energy White Paper: a 60% reduction in CO2 emissions from 1990 levels by 2050. These are also used as indicators for this strategy in the two counties.

Herefordshire Council Carbon Management Action Plan 2005/6 to 2011/12

5.8. The aim of this document is to define the steps that Herefordshire Council will take to secure its contribution to the carbon dioxide reduction targets as part of the Herefordshire Partnership Climate Change Strategy. This document commits Herefordshire Council to achieve a 12.5% reduction in the 2002 carbon dioxide equivalent emissions by 2012, with a commitment to reduce emissions by 20% by 2020.

Climate Change Background Paper

5.9. This background paper was developed to assist the consideration of climate change in the Core Strategy of the LDF.

Herefordshire Community Strategy

5.10. The Herefordshire Community Strategy sets out aspirations for the County for 2020 and how they might be achieved. The Herefordshire Community Strategy also acts as Herefordshire's Local Agenda 21 Plan and Regeneration Strategy and is closely integrated with the emerging LDF. Guiding principles include "integrate sustainability into all actions" and "Protect and improve Herefordshire's distinct environment". Actions relevant to both the air quality and climate change objectives include actions to "Reduce traffic congestion through access to better integrated transport provision" and "protecting the environment".

5.11. Methodology

5.11.1. With the absence of a traffic model for the route options an alternative approach was taken to this assessment. Previous studies for the Southern Core and the wider study area around Hereford used information obtained from the Multi Modal Model, which was developed to assess broadly defined transport and development strategies and identify the need for a relief

road around Hereford. The Hereford Multi Modal Model was used to inform the Core Strategy. The Core Strategy has been the subject of three formal rounds of public participation; an "Issues Paper" in 2007 and the "Developing Options" Paper in 2008 indicated broad public support for transport infrastructure improvements; a "Place Shaping Paper" consultation was completed in March 2010 to establish the preferred options for the Core Strategy.

5.11.2. The Multi Modal Model looked at different scenarios for a proposed relief road for Hereford, such as Do-Minimum, Do-Something for a western relief road and Do-Something for eastern relief road. The model did not assess the Southern Core in isolation; it was assessed in conjunction with either the eastern or western sections of the proposed relief road.

5.11.3. Therefore the approach taken in this greenhouse gas assessment consisted of a desktop, qualitative review of the route options and analysis of relevant local and national policy and guidance on climate change.

5.12. Impact Assessment

5.13. Greenhouse gases are a transboundary pollutant. The magnitude of the greenhouse gas impact of each route option will be broadly similar as vehicular demand is expected to be relatively consistent for all the options under consideration. Volume of greenhouse gas produced is dependent on the length of the route as the greenhouse gas emissions are dependent on vehicle kilometres travelled and therefore the greater the length of a route the greater the greenhouse gas emissions.

5.14. Route option SC1 is the longest route at a proposed length of 3,124m, thereby resulting in slightly greater volume of greenhouse gas emissions than the other options. Route options SC2, SC5 and SC6 are similar with proposed lengths of 3,093m, 3,071m and 3,021m respectively. The shortest routes are SC3 and SC4 with the same proposed length of 2,775m resulting in the least volume of greenhouse gas emissions.

5.15. It is also possible that there could be a reduction in greenhouse gas emissions as a result of the scheme proposals, due to vehicles travelling at optimum speeds and reduced congestion elsewhere on the road network. However, further detail on this will be gained at a later stage in the assessment on the development of a traffic model for the Southern Core.

5.16. The location of developments satisfying Herefordshire housing allocation requirements will have an impact on the levels of greenhouse gas emitted by the proposed routes. Further detail on this should be available at a later stage.

5.17. Conclusion

5.18. The greenhouse gas assessment is limited due to lack of available traffic modelling data for the Southern Core at this stage. Therefore, quantification of greenhouse gas emissions in TAG cannot be undertaken and will be determined at a later stage in the assessment process. The impact of the Southern Core scheme needs to be incorporated within the cost benefit analysis of the greenhouse gas emissions in a consistent and transparent way, through the TAG assessment.

5.19. Generally the longer the route the greater the carbon emissions will be because of the extra distance travelled. This means the route option SC1 will have slightly greater greenhouse impact than the other routes, with route options SC3 and SC4 having the least impact. The remainder three route options have similar impact.

6. The Landscape Sub-Objective

6.1. Introduction

6.1.1. This section of the report is to determine the potential impacts that each option of the route will have on the landscape and the visual receptors within the scheme extents.

6.1.2. For the purpose of this report the landscape and visual receptors have been assessed to take account of the extent the proposed route options will have on these and the landscape character.

6.2. Legislative Background

6.2.1. The assessment was carried out in accordance with the guidance given in the Design Manual for Roads and Bridges (DMRB) as introduced in 1993.

Landscape Character

6.2.2. The key landscape characteristics of Herefordshire Lowlands are assessed as being;

- Wide river valleys.
- Intensive arable farming with low hedges.
- Undulating valley sides.
- Steep wooded hills.
- Frequent orchards and hop yards.
- Historic parks.
- Old Red Sandstone and timber-framed buildings.
- Large farmsteads and frequent hamlets.

6.2.3. The key characteristics of South Herefordshire and Over Severn are assessed as:

- Fertile, undulating farmland with extensive arable farming.
- Substantial red sandstone farmsteads.
- Large to medium fields with variable, commonly low hedges.
- Ageing hedgerow trees.
- Numerous churches and manor houses in small hamlets.
- Clusters of parkland trees.
- Narrow, meandering floodplain with low hedges, ditches, scattered mature trees and pollarded willows.
- Contrasting steep wooded slopes and gentle riverside slip-off slopes.

6.3. Methodology

6.3.1. A walkover survey was carried out on the 5th March 2012 by an experienced landscape architect and was completed as per DMRB guidelines. As this is a Study of Options it gives guidance of the sensitivity of the components of the landscape and of the receptors.

6.3.2. The visual receptors are listed below and the impacts are included for each individual receptor.

6.4. Baseline Environment

Landscape

Photograph 1 shows the typical landscape character.

Landscape Designations

6.4.1. The study area lies within the South Herefordshire Lowlands and South Herefordshire and Over Severn areas.

Landscape Character of the Study Area

6.4.2. The landscape within the study area is mainly farm land used for both grazing and crops (Photo 1). The field boundaries are lined with mixed species hedgerow consisting of mainly dogwood (Cornus sanguinea) and hawthorn (Crateagus monogyna), however species such as elder (Sambucus spp), blackthorn (Prunus spinosa), ash (Fraxinus excelsior) and field maple (Acer campestre) were found within the different areas of the proposed routes.

6.4.3. There are several woodland areas which host mature trees mainly oak but there were also mixed species of mature trees such as ash, yew (Taxus baccata), beech (Fagus sylvatica) and elm (Ulmus glabra) within the scheme extents.

6.4.4. Several properties benefited from screening within their own boundaries of such species and many have hedgerows delineating their boundary.

6.4.5. There are several public rights of way which pass through the site and a cycle and bridle path. The properties are mainly residential however there are several farms with out buildings, a hotel and a flying club located at Broad Meadow Farm.

Landform, Geology and Soil

6.4.6. The site is located within a plateau which gives rise to all sides.

6.4.7. The soil mainly consisted of a clay loam but was free draining. There were several specimen trees scattered throughout the study area which were mainly oak (Quercus spp) and ash.

6.4.8. Good open views are experienced from the surrounding edges of the site which look downwards to the bottom of the incline.

Vegetation

6.4.9. There are a number of mature specimen trees within the scheme extents which are mainly oak; however these were located within both private land and farmland.

6.4.10. The land is generally used for grazing and for crops and is bordered by mixed species hedgerows which are well maintained to approximately 1.5m.

6.4.11. The woodlands consist of mainly oak but support other species and are of mature in nature. The oak woodland within the plateau has spear thistle (Crisium vulgare) which is classed as an invasive weed (photo 2).

6.4.12. Newton Coppice at Belmont Country Park is located within a TPO site.

Photograph 2 oak woodland with invasive spear thistle

Built Environment

6.4.13. Within the study area there are 52 receptors with some of the properties being commercial and some residential, as illustrated in Figure 4.1, Appendix B. Some receptors are public amenity areas, rights of way and bridle paths. The main Railway line is has also been included as a receptor.

6.4.14. The buildings are generally constructed of red brick and slate roof which is traditional for this area (photo 3).

6.4.15. There are several rights of way which pass through the site and a cycle and bridle track. The main railway line from Leominster to Newport also passes through the site and the B4349, C1226, C1227 access roads.

Photograph 3 traditional buildings

6.4.16. Residential property The Green is a cottage made with red brick and a white pebble dash wall with stone wall entrance. It is surrounded by mixed species hedgerows and a mature ash specimen tree.

6.4.17. Commercial property Veddoes Farm is constructed from red brick and has commercial out buildings white roofs. The estate is also surrounded with mixes species hedgerows.

6.4.18. Residential property New House Farm Barn is also constructed of red brick with a white pebble dash gable end and is surrounded by mixed species hedgerows.

6.4.19. Residential properties Merry Cottage and Graftonbury Cottage are set within adjacent fields are constructed of red brick and have an avenue of mature oak trees which run parallel with the field boundary. They are surrounded with mixed species hedgerows.

6.4.20. Residential properties Ashley Cottage and Garlands Cottage are set within surrounding mixed species hedgerows and are white in colour.

6.4.21. Residential property Cedar Folly is a block of small terraced cottages constructed of brick and set back from the road with a grass lawn at the front.

6.4.22. Commercial property Graftonbury Garden Hotel is constructed of red brick and is set within extensive grounds. There are mature specimen trees and mixed species hedgerows surrounding the property.

6.4.23. Commercial property Ashley Farm is constructed of red brick and has several out buildings which are constructed of a mixture of materials. The property is surrounded by mixed species hedgerow and timber fencing with a stone wall entrance.

6.4.24. Residential properties of Graftonbury Rise are constructed of red brick and are within a cull de sack. They are bordered by mixed species hedgerows and timber fencing.

6.4.25. Residential property Woodlands is located adjacent to Graftonbury Hotel and is set within secluded grounds with mature specimen trees and mixed species hedgerows.

6.4.26. Residential property of Grafton Court is constructed of red brick and is set within extensive grounds of mature shrubs and trees and timber fencing.

6.4.27. Grafton Lane Road runs through the properties mentioned above and set within the wall boundary is a post box and Parish Council notice board.

6.4.28. Commercial Railway line which runs from Leominster to Newport.

6.4.29. Residential property Glendale is set back from the access road and set within secluded grounds.

6.4.30. Residential property Vine Cottage is constructed of buff coloured stone and is surrounded by beech hedges approximately 2m high.

6.4.31. Residential property Merryhill Cottage is also set back from the existing access road and is set within secluded grounds.

6.4.32. Residential property Beechwood is painted white in colour and is surrounded by a stone wall approximately 0.5m high and a Leylandii hedge which screens the property from all views.

6.4.33. Commercial Property Merryhill Farm is constructed of stone and is located adjacent to Haywood Lane Road. It has mature shrubs and is accesses from the main Road.

6.4.34. Commercial and residential properties of Merryhill Park are constructed of red brick and are mainly single storey. They are accessed from Haywood Lane Road and have a court yard which is used for parking.

6.4.35. Residential Property, The Uplands, is a 2 storey building cream in colour and is surrounded by Leylandii hedging on 1 side and timber fencing to the right. The property is located with mature gardens with specimen trees.

6.4.36. Residential property Merryhill Villa is set within secluded grounds and is accessed from Haywood Lane Road.

6.4.37. Residential properties Merryhill Terrace No 1-8 are constructed of red brick and are mainly 2 storeys. They are accessed from Haywood Lane Road and have small front gardens.

6.4.38. Residential property Merryhill House is located within extensive mature gardens with specimen trees and boundary hedging. The building is constructed of stone and has red brick pillars at the start of the drive.

6.4.39. Residential property St Michael Court is constructed of red brick and range from 2 to 3 storeys high. They are set within extensive gardens and are bordered by amenity sports pitches.

6.4.40. Residential properties Woodside Gardens are constructed of red brick and are 2 storeys high. They are secluded by back and front gardens which contain resident's garages.

6.4.41. Residential property Mayfield is located at the junction of the A465 and B4349 it is a single storey building with a privet hedge that delineates the boundary.

6.4.42. Belmont Abbey is set within extensive secluded ground with mature gardens and specimen trees. It is of stone construction and houses a bell tower with flag pole.

6.4.43. Residential property Golden Post is a single storey building with white pebble dash walls. It is set within a contained garden set back from the road.

6.4.44. Residential property Golden Post House is constructed of red brick and is a 2 story building. It is set behind a tall Leylandii hedge which totally secludes the building from the road.

6.4.45. Belmont Country Park at Newton Coppice has woodland walks set within an area of mature woodland.

6.4.46. Residential property Haywood Lodge is a 2 storey building set within extensive mature gardens with specimen trees. It is of red brick construction with a metal railing set on top of a low wall which delineates the boundary.

6.4.47. Residential property Roman Byre is a 2 storey building set within extensive mature garden grounds and is constructed of red brick.

6.4.48. Residential property The Granary is constructed of red brick and is a 2 storey building. It is set within extensive mature gardens and has a stone wall to the front which delineates the boundary.

6.4.49. Commercial property Haywood Lodge Farm consists of farm buildings set behind an ivy covered stone wall with specimen trees towards the front of the building.

6.4.50. Residential property Haywood Lodge Farm House is set back from the road behind Haywood Lodge Farm.

6.4.51. Residential property No 2 Haywood Lane is a 2 storey building built of red brick with a mature ash tree within the garden grounds.

6.4.52. Residential property No 1 Haywood Lane is also a red brick property of 2 stories high and has a wooden fence with mature hedging that delineates the boundary.

6.4.53. Commercial property Broad Meadow Farm is located at the top of the lane which runs from Haywood Lane. It is set within extensive grounds with mature shrubs and specimen trees.

6.4.54. Broad Meadow Flying Club is located adjacent to Broad Meadow Farm and is accessed from the lane running from Haywood Lane Road. There are several storage buildings which are set within an area of farmland.

Cultural Components

6.4.55. The scheme is located in the vicinity of several landscape designation areas;

- River Wye is a Special Site of Scientific Interest (SSSI)
- Special Area of Conservation (SAC)
- Tree Preservation Orders (TPO) exist for Belmont Country Park at Newton Coppice
- Local Nature Reserve (LNR) exists at Grafton Meadows
- Newton Farm is a Nature Conservation Area (NCA)
- Landscape Character Areas (LCA) at Belmont Park and Newton Farm
- Belmont Country Park, soon to be designated as a 'Fields in Trust' site named Jubilee Park.

6.5. Impact Assessment

Visual Receptors Affected by SC1

6.5.1. Mayfield Cottage will have a clear view of this route as it is proposed to start the route at adjacent to this property. The uninterrupted views of the landscape the property currently has will be replaced by the new road. Veddoes Farm, The Green Cottage, New House Farm Barn and the users of Grafton Lane shall all have altered views of this proposed route. These properties will have the uninterrupted views of the existing landscape changed due to the close proximity of this proposed route. Haywood Lodge Farm, Haywood Lodge Farm House, Oak View, The Granary, Roman Byre, Haywood Lodge and No 1 and No 2 Haywood Lane Road will all be directly affected by this route. These properties will all have direct views of the route and experience a change in their uninterrupted view of the landscape at present. The loss of natural habitat through the removal of existing mature mixed species hedgerow and possible specimen trees will affect biodiversity and impact on the landscape character. Possible visual intrusion of vehicles may occur to receptors through the required cut and fill of this route.

Visual Receptors Affected by SC2

In addition to those mentioned in SC1, Golden Post House, Golden Post, Broad Meadow Farm, Broad Meadow Flying Club and users of the bridleway HA6, footpath HA3 and GF3 shall all be directly affected and have altered views with this proposal. Existing hedgerows and possible specimen trees will be removed which will impact on the landscape character and affect biodiversity through the loss of natural habitat.

Visual Receptors Affected by SC3

6.5.2. Mayfield Cottage, Woodside Gardens, St Michael Court, Merryhill House, The Uplands, Merryhill Villa, Merryhill Terrace No 1-8, Merryhill Farm, Merryhill Park, Vine Cottage, Merryhill Cottage, Beechwood, users of Belmont Country Park Newton Coppice, users of footpath HA5, users of the public right of way, Ashley Cottage, Merry Cottage, Graftonbury Cottage, Garlands Cottage, Cedar Folly, Ashley Farm, Grafton Court, Graftonbury Rise, Woodlands, Graftonbury Garden Hotel, Glendale, users of Grafton Lane will all be affected by this route and properties situated to the edge of the proposed route shall, be impacted the most through the change in the landscape and the cut and fill that would be required to take the road under the railway. The loss of natural habitat will have an impact on biodiversity through the removal of existing mixed species hedgerows and possible requirement to remove specimen trees. Possible visual intrusion will occur to receptors through the requirement to cut and fill the existing landscape to accommodate this route.

Visual Receptors Affected by SC4

6.5.3. Mayfield Cottage, Woodside Gardens, St Michael Court, Merryhill House, Merryhill Villa, The Uplands, Merryhill Farm, Beechwood, Merryhill Cottage, Vine Cottage, users of footpath HA5, Ashley Cottage, Merry Cottage, Graftonbury Cottage, Garlands Cottage, Cedar Folly, Ashley Farm, Grafton Court, Graftonbury Rise, Woodlands, Graftonbury Garden Hotel, The Green, users of the byway, the users of Haywood Lane and footpath GF3. These properties will all be directly affected by the change in the views that will occur due to the close proximity of this proposed route. The changes in the landscape required for the alignment will alter these properties views as the requirement for this route to cross the railway (photo 4) will alter the landscape in such a way that mitigation may not be possible. Properties directly adjacent will be impacted more than the properties set back from the route. There will be a requirement to remove existing mixed species hedgerow and possible specimen trees. Possible visual intrusion will occur to receptors through the requirement to cut and fill the existing landscape to accommodate this route.

Photograph 4 railway line.

Visual Receptors Affected by SC5

6.5.4. Broad Meadow Farm, Broad Meadow Flying Club, bridleway HA6, Golden Post House, Golden Post, users of footpath HA3, Merryhill Farm, Beechwood, Merryhill Cottage, Vine Cottage, users of footpath HA5, Ashley Cottage, Merry Cottage, Graftonbury Cottage, Garlands Cottage, Cedar Folly, Ashley Farm, Grafton Court, Graftonbury Rise, Woodlands, Graftonbury Garden Hotel, The Green, users of the byway footpath GF3, No 1 and No 2 Haywood Lane, Haywood Lodge Farm, Haywood Lodge Farm House, Oak View, The Grannary, Roman Byre, Haywood Lodge, the users of Haywood Lane and The Green. These properties will be directly affected by this proposed route due to the change in the views experienced by these receptors. The loss of natural habitat by the removal of existing mixed species hedgerow and possible removal of specimen trees will affect biodiversity and change the landscape character. The requirement to cut and fill the landscape will result in permanent changes to their views where possible visual intrusion may occur to receptors.

Visual Receptors Affected by SC6

6.5.5. The users of footpath GF3 and byway, users of footpath HA5, Vine Cottage, Merryhill Cottage, Beechwood, Merryhill Farm, The Uplands, Merryhill Villa, Merryhill House, St Michael Court, Mayfield and Golden Post House. These properties will see a change in the views they experience at the moment through the loss of existing mixed species hedgerow and possible specimen trees. The loss of hedgerow will affect biodiversity as it is a natural habitat and contributes to the landscape character. The possible occurrence of visual intrusion to the receptors is greatly reduced as although these properties will be affected

they are over 100m away from this proposed route. The increase in intrusion is less dramatic as the receptors are located at a further distance away than the other proposed routes.

6.5.6. This route affects fewer properties and is the preferred option in terms of landscape and visual. The ability to contour the landscape in such a way that the route is less intrusive to the existing landscape character and to screen the route with additional planting would assist in mitigating against the removal of existing hedgerow and specimen trees and increase biodiversity.

Construction Impacts

6.5.7. Disruption due to the construction period should be temporary and will involve the following;

- Visual intrusion of the works, security fencing and construction machinery.
- Removal of areas of hedgerow from the boundary of existing farmland.
- Reforming of slopes and earth work which will remove the ground cover of existing soils.
- Stockpiling of material such as soils, stone and other construction materials.
- Removal of some mature specimen trees.
- Visual intrusion of site compound and welfare facilities.

6.5.8. Potential landscape impacts after construction include:

- Change in the landscape character through cut and fill and changes the landform.
- Removal of existing hedgerow.
- Removal of specimen trees and areas of mature woodland.
- Changes in noise and air pollution to properties adjacent to the proposed route.
- Changes in views and landscape character for all receptors affected by the chosen route.

6.6. Conclusion

6.6.1. All route options will result in change to the landscape character of the study area. In terms of visual impacts for local receptors, route option SC6 affects fewer properties and is the preferred option.

7. The Townscape Sub-Objective

7.1. Introduction

7.1.1. Townscape is the physical and social characteristics of the built and unbuilt urban environment and the way in which those characteristics are perceived. The physical characteristics of a townscape are expressed by the development form of buildings, structures and places, influencing the pattern of use and activity in a place. The social characteristics of a townscape are determined by how the physical characteristics are used and managed.

7.1.2. This section assesses the impacts the Southern Core corridors will have on the townscape of Hereford.

7.2. Relevant Policy

7.2.1. The Planning (Listed Building and Conservation Areas) Act 1990 allows for the preservation and enhancement of the historic built environment. The historic core of Hereford is a designated Conservation Area and is contained within the inner ring road (the A49 as it crosses the River Wye and the loop around to the north of the cathedral), which follows the line of the city walls.

7.2.2. Planning Policy Statement 5: Planning for the Historic Environment 2010, provides guidelines for considering historic environments for new development.

7.2.3. As part of the evidence base for the development of Herefordshire Council's Local Development Framework, Hereford Council produced and published '*Hereford Rapid Townscape Assessment*' in March 2010. This document identifies a number of Townscape Types and Conservation Areas within Hereford.

7.3. Methodology

7.3.1. The assessment for this SOEAR follows guidelines within DMRB Volume 11, Landscape section as well as the Department for Transport TAG Unit 3.3.8, The Townscape Sub-Objective.

7.3.2. A desk top review was undertaken of publically available information and the documents produced by Hereford Council.

7.4. Townscape Character

7.4.1. Hereford City Centre has a number of designations to preserve important character features. The city walls are a Scheduled Ancient Monument (SAM), the entire city centre is a Conservation Area and there are numerous listed buildings. Many of the more attractive and historic elements of the city centre tend be away from main roads, with some of them pedestrian zones. The quality of the townscape within the city centre is high value and highly sensitive to change.

7.4.2. A review of the '*Hereford Rapid Townscape Assessment (Herefordshire Council, March 2010)'* indicates that there are two local Townscape Character Areas located in the vicinity of the Southern Core corridors. These are Newton Farm and Belmont Character Areas.

7.4.3. Newton Farm Character Area is located south of the A465 Belmont Road and includes the residential developments around Waterfield Road and Brampton Road. This area is located approximately 500m north east of the Southern Core corridor option SC6. The '*Hereford Rapid Townscape Assessment*' describes this area as characterised by post WWII public sector residential housing. In the eastern part of the area houses are generally well spaced with ample gardens bordered by hedges and brick walls. The central part is a mixture of two storey, semi-detached housing and groups of houses. Dwellings are closer together and gardens small. Throughout the area streets are lined by footpaths with kerbs. There are a number of large green spaces for recreation; the Great Western way runs through the area and Newton Brook functions as a green corridor with trees. There are no particular features of value or sensitivity in this Character Area although the green spaces would be more vulnerable to change than the built up residential environment. Overall the townscape quality of the area is considered to be low to medium.

7.4.4. Belmont Character Area is located between the River Wye south bank and the A465 Belmont Road and extends south of the A4665 to border the Newton Farm Character Area. This area is located approximately 670m northwest of where the southern core corridors intersect with the A465. The area is characterised by intensive post 1950s private sector residential development which consists largely of two storey, family homes on small plots with open landscaped gardens including parking areas. Open green spaces and corridors provide important public amenities in an area of high density residential development. The townscape is semi-rural in character as the south western areas include the woodland around Belmont Pool. Withy Brook and Newton Brook flow through the character area and provide green corridors in the residential area. There are three Grade II Listed Buildings and several Tree Preservation Orders on groups of trees in the area. As with the Newton Farm Character Area, the townscape quality overall is considered to be low to medium.

7.5. Impact Assessment

7.5.1. At this stage of the assessment impacts cannot be fully quantified due to lack of information on predicted traffic flows and how the scheme will impact on traffic. The overall impact of the Southern Core scheme would be to divert traffic away from Hereford City Centre. This would reduce existing congestion within the town centre and allow the road network around Hereford cope with future growth.

Route Option SC1

7.5.2. This route option is located approximately 1km south west of the Newton Farm Character Area. The intervening landscape of woodland and fields means the route will not be visually intrusive to the Character Area. It is assessed that the impact on the Character Area will be neutral.

7.5.3. The intersection point of the SC1 with the A465 is approximately 690m west of the boundary of the Belmont Townscape Character Type along the A465. At this distance, the proposed junction is not considered to intrude into the townscape character of the area. It is assessed that the impact of SC1 will be neutral.

Route Option SC2

7.5.4. This route option follows the same alignment as SC1 to Chainage 2100, from where it follows a more southerly alignment. Consequently it is further away from the Newton Farm Townscape Character Area and it is assessed that it will have a neutral impact.

7.5.5. The intersection point of this route option with the A465 is located approximately 1.2km from the western boundary of the Belmont Townscape Character Area. Due to the screening effect of the woodland along the A465 in this section and the road geometry it is assessed that this route option will have a neutral impact on the Character Area.

Route Option SC3

7.5.6. This route option is approximately 500m south west of the southern boundary of Newton Farm Townscape Character Area. As with route options SC1 and SC2 the intervening topography and vegetation means that the route will not intrude visually to the Character Area. It is assessed that the impact of the route will be neutral.

7.5.7. The intersection point of this route option is located approximately 870m south west of the Belmont Townscape Character Area. It is assessed that the impact of the route will be neutral.

Route Option SC4

7.5.8. This option follows the same alignment as SC3 and differs only in the location of the intersection point on the A465. Impacts of this route option on Newton Farm and Belmont Townscape Character Areas are the same as for SC3.

Route Option SC5

7.5.9. This route option is located approximately 630m south west of the Newton Farm Townscape Character Area and it is assessed that it will have a neutral impact on the Character Area.

7.5.10. The intersection point of SC5 with the A465 is located approximately 1.2km from Belmont Townscape Character Area and it is assessed that impacts will be neutral.

Route Option SC6

7.5.11. The closest of the southern core route options to the Townscape Character Area of Newton Farm is SC6. This passes within 500m of the south western edge of the Character Area. It is assessed that the impact on it will be neutral.

7.5.12. At the intersection point on the A465, this route is approximately 970m south west of the Belmont Townscape and it is assessed that impacts will be neutral.

7.6. Conclusions

7.6.1. The Southern Core route options will have a beneficial impact on the townscape in Hereford by diverting traffic away from the historic city centre.

7.6.2. Impacts will be neutral from all route options on the local Townscape Character Areas of Newton Farm and Belmont. Therefore there is no preferred route in terms of impacts on Townscape.

8. The Heritage of Historic Resources Sub-Objective

8.1. Introduction

8.1.1. This section includes an overview of the following areas: known and suspected heritage sites and features potentially affected by the route options, the archaeological potential of the route options and the effects of those options on the wider historic landscape. In particular, it will concentrate of the route options presented for the Southern Corridor.

8.1.2. It has taken account of the various relevant statutory instruments, guidelines and reports, including:

- Design Manual for Roads and Bridges, Vol.11;
- Planning Policy Statement 5: Planning for the Historic Environment;
- Herefordshire Unitary Development Plan (2007);
- Study of Options Environmental Assessment Report (SOEAR), Amey Consulting (2010);
- SOEAR addendum, Amey Consulting (2011).

8.2. Historic Sites and Landscapes

8.2.1. In 1990, Planning Policy Guidance 16: Archaeology and Planning (PPG16) was issued to incorporate protection of archaeological resources into the planning process. The 1991 Government White paper, This Common Inheritance, tasked English Heritage with developing a register of historic landscapes. The following year the Historic Landscape Project proposed a methodology for assessing landscape character and identified the need for a broad, integrated and holistic approach to landscape issues.

8.2.2. An appreciation of the significance of the historic landscape was also incorporated into the planning process through Planning Policy Guidance 15: Planning and the Historic Environment (PPG15), which were combined with PPG16 to create Planning Policy Statement 5: Planning for the Historic Environment in 2010. It is in keeping with the European Landscape Convention (Florence Convention) 2000 which came into force in 2007.

8.2.3. Herefordshire Council's Archaeology & Development Supplementary Planning Document (2010) states:

1.3 …it is not always possible to indicate where important archaeological deposits or features may be encountered. Consequently a heavy emphasis has to be placed upon investigating whether any archaeological remains (above or below ground) might be present when development is proposed. The pre-application stage is often crucial to determining whether both the principle and detail of any proposal will be acceptable.

8.2.4. In reviewing archaeological sites within the Study Area, it is important to note that the passage of time has ensured that often only fragmentary evidence survives for human settlement, economic activity and ritual practice. None the less, continuity can be seen from earliest times, reflecting phases of occupation and land use over a period of 6,000 years or more.

8.2.5. Whilst many of the archaeological sites referred to in this report have visible above-ground elements, some have left barely discernible traces, and it is possible that the remains of other, previously unknown sites wait to be revealed below the ground surface. These are usually discovered only after development commences and can be investigated, recorded and interpreted only through careful archaeological excavation.

8.3. Heritage Sites in the Study Area

8.3.1. The Study Area for heritage resources on this Scheme is a corridor measuring 2km to each side from each corridor, to provide a dataset to facilitate the analysis of the historic landscape (i.e. the types, ages, locations and numbers of individual sites) in an attempt to identify those known sites which could be directly or indirectly impacted by the Scheme, and to anticipate the potential presence of unknown sites along each route option.

8.3.2. From this information, a picture of the overall historic landscape can be generated and the wider impacts of the route options upon the historic landscape considered. To further assess the potential impacts of the scheme route options upon the historic landscape, the Study Area for Scheduled Ancient Monuments has been extended to 4km.

8.3.3. The heritage resources associated with the Southern Corridor are presented in cartographic form (see Figures 5.1 to5.3), based on information supplied by Herefordshire County Archaeological Services, the on-line Herefordshire Sites and Monuments Record (HSMR) and EH's National Heritage Lists on-line, as available in September 2011.

8.4. Consultation

8.4.1. Consultation responses have been received from English Heritage and the County Archaeologist for Herefordshire Council (Appendix A).

8.4.2. English Heritage comments can be generally attributed to the format of drawing used in the consultation, which has been amended for this report (See Figures 5.1 to 5.3).

8.4.3. The HC County Archaeologist raised a couple of points which have been addressed in this section. The field boundary between SC5 Chainage 900 and 1200 is the site of Grafton medieval complex (HSMR 10467), a known archaeological site comprising a motte-and-bailey and possible castle remains. There is also a segmented circular field boundary between Chainage 1700- 1900, 500m to the west. Whilst this is a potentially significant feature, it is not included in the SMR and, as such, usually would be considered at a later stage through a site walkover.

8.5. Importance Criteria and Grading of Sites

8.5.1. The potential impact of the proposed development would be assessed by comparing the land-take needed for the development against the location and importance of the known heritage resources. The grading of the value of sites is based on the criteria of quality and rarity of the remains and on their legal protection, though this is often subjective and, therefore, potentially problematic. The magnitude of impact of the scheme on the known heritage resources has been graded depending upon the degree of destruction to the known, suspected or potential remains.

8.5.2. The significance of the impact of the scheme on the known, suspected or potential heritage resources depends upon the degree of destruction to and the importance of the resources, as set out in Table 1.1 (based on the DMRB).

8.5.3. It should also be borne in mind that, where the nature or even existence of a site within the development area is unknown, the magnitude of impact will be uncertain. This cannot be represented graphically but needs to be taken into consideration, especially during ground clearance.

8.6. Baseline Conditions

Scheduled Ancient Monuments

8.6.1. There are no Scheduled Ancient Monuments in this area which would be adversely impacted by any of the route options.

Listed Buildings

8.6.2. On its website, English Heritage states that:

"Listing helps us acknowledge and understand our shared history. It marks and celebrates a building's special architectural and historic interest, and also brings it under the consideration of the planning system so that some thought will be taken about its future. The older a building is, the more likely it is to be listed. All buildings built before 1700 which survive in anything like their original condition are listed, as are most of those built between 1700 and 1840. The criteria become tighter with time, so that post-1945 buildings have to be exceptionally important to be listed. A building has normally to be over 30 years old to be eligible for listing."

8.6.3. Grade I buildings are of exceptional interest, sometimes considered to be internationally important; only 2.5% of listed buildings are Grade I.

8.6.4. Grade II* buildings are particularly important buildings of more than special interest; 5.5% of listed buildings are Grade II*.

8.6.5. Grade II buildings are nationally important and of special interest; 92% of all listed buildings are in this class and it is the most likely grade of listing for a home owner.

8.6.6. In the western part of this corridor are two clusters of listed buildings, c.750m apart. They are: in the north, Merryhill Farmhouse (county listed building number 4035) and the adjacent stables (4036), both listed Grade II; and in the south is the Grade II* Haywood Lodge (4031), as well as the gates, railings and garden wall east of the Lodge (4030), the cider house, stable and hop kiln west of the Lodge (4033) and the pig sties to the north-west of the Lodge (4034), all Grade II. Figure 5.1, Appendix B provides an overview of cultural heritage constraints.

8.6.7. Option SC1 would pass between the two clusters, approximately 200m from Merryhill and 350m from Haywood. Option SC2 would pass between the two clusters, approximately 370m from Merryhill and 270m from Haywood. Options SC3, SC4 and SC6 would pass approximately 150m north of Merryhill. Option SC5 would pass between the two clusters, approximately 200m from Merryhill and 400m from Haywood. Natural slopes, other buildings and stands of trees would lessen the visual impact which would be minor.

8.6.8. At the west of the corridor is Belmont Abbey – here the Abbey Church of St Michael and All Angels is a Grade II* listed building (3996), and in addition the monastery buildings are listed as a single Grade II unit (3999), as are the school, chapel and house (4000). The gates and gate piers at the church (3997) and a statue of St Michael (3998) represent two other Grade II listed structures. Options SC1 and SC4 would 'terminate' 180m from this complex, and options SC3 and SC6 within 300m.The views would be partly obscured by formal gardens and stands of mature trees, and the overall impact would be minor.

8.6.9. At the same end of the corridor, options SC2 and SC5 would pass within 140m of a Grade II milestone (4037), with a negligible impact.

8.6.10. SC2 and SC5 would 'terminate' approximately 480m from the Grade II barn (3992) and granary (3993) at Clehonger Court. The views from the buildings would be obscured by other buildings and stands of mature trees, and the impact would be negligible.

Historic Park and Gardens

8.6.11. There are no registered Parks or Gardens which would be adversely impacted by any of the route options. Options SC1, SC3, SC4 and SC6 would pass through the southern end of the Unregistered Historic Park/Garden of Belmont House, which is of low heritage value; the impact would be minor (Figure 5.3, Appendix B).

Non-Designated Cultural Heritage Features

8.6.12. Fieldwalking identified pieces of worked flint at six locations within or adjacent to the options corridors, and all options would pass close to two sites (HSMR 8614, 25957) where they have a shared junction with the B4399. In addition, SC1 would pass close to two sites (HSMR 6281, 8612); SC2 would pass close to one site (HSMR 6281); SC3, SC4 and SC6 would pass close to or across three sites (HSMR 8611, 8612, 9100); and SC5 would pass close to one site (HSSMR 8612). Figure 5.1 and 5.2, Appendix B provides an illustration of these features.

8.6.13. These limited findings may indicate a general low level of prehistoric activity in this area, but it could also be the result of the lack of any more detailed archaeological survey here. Additionally, a large enclosure of possible prehistoric date (HSMR 30257) has been identified at Portway, not very far to the south of the corridor. As a result, an overall unknown value and impact should be applied to known and potential remains of prehistoric date.

8.6.14. Fieldwalking identified single sherds of Roman pottery within the area, and all options would pass close to one site (HSMR 9132) where they have a shared junction with the B4399. In addition, SC1 would pass close to one site (HSMR 8621); SC3, SC4 and SC6 would pass close to or across three sites (HSMR 8621, 9102, 9445) and SC5 would pass close to one site (HSMR 9445).

8.6.15. As with the prehistoric material described above, the paucity of evidence for activity along this corridor during the Roman period may reflect a genuine absence of any remains from this period, but it could also be the result of the lack of detailed archaeological survey here. An overall unknown value and impact should be applied to known and potential remains of Roman date.

8.6.16. Single sherds of medieval pottery was also found in the same locations as the prehistoric and Roman material during the fieldwalking, and all options would pass close to one site (HSMR 9133) where they have a shared junction with the B4399. In addition, SC1 would pass close to one site (HSMR 9101); SC3 and SC4 would pass close to or across five sites (HSMR 9101, 9103, 9131, 10467, 26823) and SC5 would pass close to three sites (HSMR 9131, 10467, 26823).

8.6.17. The medieval village of Grafton (HSMR 26823) lies to the south of the current settlement, and adjacent to it is a motte-and-bailey within a potentially earlier enclosure and possible castle remains (HSMR 10467); the latter complex would be directly impacted by SC3, SC4 and SC5. As a result, an overall high value should be assigned to known and potential remains of the medieval period, with a major impact from those options.

8.6.18. There is a significant possibility that previously unknown activities took place in Prehistoric, Roman and Medieval times, with the associated potential that more substantial remains survive within the area. Those options with the more northerly routes, namely SC3, SC4, SC5 and SC6 would have the greatest potential impact upon this area, with the resulting potential for disturbing and uncovering significant archaeological features.

8.6.19. Other HSMR entries relate to Post-medieval agricultural and industrial features recorded on earlier mapping of the area. In addition to those structures, such as Haywood Lodge, Merryhill Farm and the Haywood milepost, which are protected as listed buildings, sites include the location of former brickworks (HSMR 32436) on the routes of SC1 and SC2, and a section of the former Hereford to Abergavenny tramway (HSMR 24075-6), completed in 1829 but subsequently replaced by the Newport, Abergavenny and Hereford railway (HSMR 9413); the tramway features would be impacted by SC3, SC4, SC5 and SC6. There is a documentary reference to a landscape park at Merry Hill (HSMR 24543) adjacent to SC1 and SC5, but its exact location and extent are not known.

8.6.20. Overall, archaeological remains of the Post-medieval period have been assigned a low heritage value.

Historic Landscape Character

8.6.21. A short part of the eastern section of this corridor is in HHE531, which is designated as historic landscape type H1.3 – a landscape where the historic character has been eroded by recent total boundary loss. The corridor passes into HHE553, designated D2.2 – former common fields that were subsequently enclosed and are characterised by the presence of small regular broad closes. The whole of the western part of the corridor is within HHE488, designated G2.3 – small compass enclosure of the landscape involving multiple entity planned areas established through the reconfiguration of former common arable fields.

8.6.22. Overall, historic landscape characteristics have been assigned a low heritage value.

8.7. Options

8.7.1. The various options for the Southern Corridor route have the following overall impacts upon the cultural heritage.

- SC1: minor impact upon settings of 3 listed building clusters, minor impact upon an unregistered park/garden, moderate impact upon undesignated sites.
- SC2: minor impact upon settings of 2 listed building clusters, no impact upon unregistered parks/gardens, minor impact upon undesignated sites.
- SC3: moderate impact upon settings of 2 listed building clusters, minor impact upon an unregistered park/garden, large impact upon undesignated sites.
- SC4: moderate impact upon settings of 2 listed building clusters, minor impact upon an unregistered park/garden, large impact upon undesignated sites.
- SC5: minor impact upon settings of 2 listed building clusters, no impact upon unregistered parks/gardens, large impact upon undesignated sites.
- SC6: moderate impact upon settings of 2 listed building clusters, minor impact upon an unregistered park/garden, major impact upon undesignated sites.

8.8. Conclusion

8.8.1. Of all the options presented for routing the Southern Corridor, SC3, SC4, SC5 and SC6 would have large direct adverse impacts upon cultural heritage sites, and they would not be recommended in terms of cultural heritage constraints. Of the remaining two options, SC1 would appear to have a moderate adverse impact upon the cultural heritage resources compared to SC2.

8.8.2. Therefore, SC2 would be the route recommended in terms of potential impact upon sites of cultural heritage importance.

9. The Biodiversity Sub-Objective

9.1. Introduction

9.1.1. This section includes an overview of the following areas: known and suspected designated biodiversity sites and their associated features, together with other biological records that indicate presence of protected species and habitats. In particular, it will weigh up relative impacts of route options presented for the Southern Core Corridor.

9.1.2. It has taken account of the various relevant statutory instruments, guidelines and reports, including:

- Design Manual for Roads and Bridges, Vol.11;
- Planning Policy Statement 9: Biodiversity and Geological Conservation;
- Herefordshire Unitary Development Plan (UDP);
- Herefordshire Biodiversity Action Plan;
- Building Biodiversity into the Local Development Framework;
- Study of Options Environmental Assessment Report, Amey Consulting 2010; and
- Consultation responses.

9.2. Planning Background

Herefordshire Unitary Development Plan

9.2.1. Guiding principle P7 of the UDP recognises the need to protect and restore environmental assets and the need to protect resources including biodiversity by ensuring that activities such as development are carefully carried out. It seeks to "*ensure no net loss of either the quality or quantity of biodiversity in the County*" and "*encourage the provision of features of value to wildlife in all development schemes*".

9.2.2. Policy NC1, 'Biodiversity and Development', states that "*In determining all development proposals, the effects upon biodiversity and features of geological interest will be taken fully into consideration…*"

9.2.3. Policy NC2, 'Sites of International Importance', states that "*Development which may affect a European Site, a proposed or candidate European Site or a Ramsar site will be subject to the most rigorous examination…*"

9.2.4. Policy NC3, 'Sites of National importance', states that "*Development in or likely to affect Sites of Special Scientific Interest or National Nature Reserves will be subject to special scrutiny…*"

9.2.5. Policy NC4 'Sites of Local Importance', states that "*Development proposals which could directly or indirectly affect a Special Wildlife Site, Site of Importance to Nature Conservation, Local Nature Reserve, a Regionally Important Geological/ Geomorphological Site or a site subject to an agreement under section 39 of the Wildlife and Countryside Act will not be permitted unless it can be demonstrated that there would be no harm to the substantive nature conservation value of the site*".

9.2.6. Policy NC5, 'European and Nationally Protected Species', states that "*Development proposals which would have an adverse impact on badgers or species protected by Schedules 1, 5 or 8 of the Wildlife and Countryside Act as amended, will not be permitted. Where an over-riding need for the development is demonstrated, conditions on the planning permission will be imposed or a planning obligation entered into to:*

- *facilitate the survival of individual members of the species;*
- *reduce disturbance to a minimum; and*
- *provide adequate alternative habitats to sustain at least the current levels of population of the species*."

9.2.7. Policy NC6, 'Biodiversity Action Plan priority habitats and species', states that "*Developments should have regard to those habitats and species listed in the UK and Herefordshire Biodiversity Action Plans in order to protect, manage and enhance priority species and habitats. Proposals that might result in a threat to such priority species or habitats will not be permitted unless the reasons for the development clearly outweigh the need to safeguard the habitat or species*".

9.2.8. Policy NC7, 'Compensation for loss of biodiversity', states that "*Where development is permitted, the use of conditions and/or planning obligations will be considered in order to provide appropriate mitigation and compensatory measures to avoid, minimise or offset the loss of or damage to any biodiversity feature covered by policies NC2 to NC6. Such measures will be at least proportionate to the scale of the loss or impact*."

9.2.9. Policy NC8, 'Habitat creation, restoration and enhancement', states that "*The design of new development and the restoration and reclamation of derelict and degraded sites and landscapes, should wherever possible, enhance existing wildlife habitats and provide new habitats for wildlife as opportunities arise*".

Herefordshire Green Infrastructure Strategy (2010)

9.2.10. The Herefordshire GI Strategy seeks to identify GI assets within Herefordshire, and to identify targets for the sustainable management and use of GI within the county. It identifies key areas for enhancement of GI within Herefordshire, including a number of defined zones around Hereford.

Herefordshire Biodiversity Action Plan

9.2.11. A target of the Herefordshire BAP is to restore 22% of plantation forestry on Ancient Woodland sites by 2015. A number of other habitats of importance for nature conservation are present throughout the study area, including habitats listed on the UK and/or Herefordshire

Biodiversity Action Plans or in the Building Biodiversity into the LDF document, for example ponds and other standing waterbodies, smaller rivers and streams, other areas of woodland, semi-improved grassland and orchards. These will be investigated and reported upon further, with more detailed information gathered on their distribution, as part of the full Stage 2 assessment.

9.3. Designated Biodiversity Sites in the Study Area

9.3.1. The Study Area for biodiversity for this Scheme is a corridor measuring 200m to each side of each route option, to provide a dataset to facilitate the analysis of records to identify those known sites which could be directly or indirectly impacted by the scheme, and to anticipate the potential presence of unknown sites along each route option.

9.3.2. From this information, a picture of the overall ecology can be generated and the wider impacts of the route options considered.

9.4. Importance Criteria and Grading of Sites

9.4.1. The potential impact of the scheme would be assessed by comparing the land-take needed for the development against the location and importance of known biodiversity. The grading of the value of sites is based on their legal protection or degree of designation. The magnitude of impact of the scheme has been graded depending upon the degree of destruction, displacement or disturbance to the species or habitat.

9.4.2. The significance of the impact of the scheme on biodiversity resources depends upon the degree of destruction to and the importance of the resources, as set out in Table 1.1 (based on DMRB).

9.5. Baseline Conditions

9.5.1. GIS mapping was used to identify ecological sites and features of interest within a 10km buffer zone and within 200m of the route options shown in Figures 6.1 and 6.2, Appendix B, respectively.

Special Areas of Conservation (SACs)

9.5.2. River Wye SAC is located approximately 1km north of the intersection point of the Southern Core route options with the A465. This site is designated for its Annex I habitat of Watercourses of plain to montane levels with *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation. It is also designated for the following Annex II species - white-clawed crayfish (*Austropotamobius pallipes*), sea lamprey (*Petromyzon marinus*), brook lamprey (*Lampetra planeri*), river lamprey (*Lampetra fluviatilis*), Twaite shad (*Alosa fallax*), Allis shad (*Alosa alosa*), Atlantic salmon (*Salmo salar*), bullhead (*Cottus gobio*) and otter (*Lutra lutra*).

Sites of Special Scientific Interest

9.5.3. The River Wye is also designated as an SSSI and the area of the SSSI overlaps with the SAC designation.

9.5.4. Other SSSIs within 10km of the route include:

- Littlemarsh SSSI;
- Cage Brook Valley SSSI;
- Cherry Hill Woods SSSI;
- Haugh Wood SSSI;
- River Lugg SSSI; and
- Lugg Meadows SSSI.

Local Nature Reserves (LNRs)

9.5.5. Belmont Meadows Local Nature Reserve (LNR) lies on the southern margins of Hereford, south of Blackmarstone. Its southern tip lies about 500m from SC4 and SC5, the northernmost route options and is partly buffered by the Newton Farm Sites of Importance to Nature Conservation (SINC).

Special Wildlife Sites (SWS)

9.5.6. There is an area of ancient and semi-natural woodland consisting of Hayleasow Wood, Newton Coppice and Spring Grove SWS to the south of and adjacent to the A465. This woodland is subject to an English Woodland Grant Scheme (EWGS) under the Forestry Commission, which aims to sustain and increase the public benefits derived from woodlands. Information provided by the Countryside Officer in Herefordshire Council also indicates that Newton Coppice is covered by Tree Preservation Orders (TPOs). Newton Brook flows through the woodland and enters into the River Wye, hence Newton Coppice is regarded as part of the River Wye SAC catchment.

9.5.7. Newton Coppice also forms part of Belmont Haywood Country Park, which includes woodland, Belmont Meadows LNR and Belmont Pools as well as the land to the south of Belmont Pools. Herefordshire Council has nominated Belmont Haywood Country Park as a Queen Elizabeth II Field; this aims to protect outdoor recreational spaces in communities as part of the Diamond Jubilee celebrations. This site is 56ha in size and provides woodland and meadow walks, fishing, a ball court and open space.

9.5.8. Belmont Wood and Hunderton Rough SWS is located less than 1km to the north of the Southern Core route options where they intersect with the A465.

Sites of Importance to Nature Conservation (SINCs)

9.5.9. In the western part of the Southern Core is the Belmont Pool and Environs SINC which extends west to almost meet the north-east tip of the Hayleasow, Newton Coppice and Spring Wood SWS.

9.5.10. In the eastern part of the southern corridor there are a number of SINCs around Newton Farm. These are the Newton Farm Wet Woodland, Newton Farm Open Space, Pond north of

Newton Farm Open Space, Newton Farm Wet Woodland stream and Woodland to the south of Newton Farm SINCs.

9.5.11. Where options SC3, SC4, SC5 and SC6 intersect with the railway line they pass about 700m south west of Grafton House Orchard SINC. There is a reptile record near the railway line by this SINC site. The railway line will be a safe corridor for reptiles to move along and there is potential for works to impact on them.

The Land north of Withy Brook SINC lies 300m to the north east of the northernmost route option. The brook flows from the railway line south west of the SINC and continues beyond the SINC boundary, flowing north into the River Wye.

Non-Designated Biodiversity Features

9.5.12. Grafton Wood is located within the study area of the Southern Core route options; this is a 3.5ha area of broadleaved woodland, which is recorded in the National Inventory of Woodland and Trees. There is also a small area of woodland adjacent to Grafton Lane, south of Grafton Hotel.

9.5.13. There are records of several European Protected Species (EPS) within the study area. Otter (*Lutra lutra*) has been recorded along Newton Brook in the Newton Coppice. There are records of the hazel dormouse (*Muscardinus avellanarius*) along the railway line in the Woodland to the south of Newton Farm SINC. There is also a record of a bat roost in this SINC as well as a bat roost recorded along Grafton Lane. Great crested newts (*Triturus cristatus*) have been recorded in ponds in Newton Coppice. Although not an EPS, the native white-clawed crayfish is protected under Schedule 5 of the Wildlife and Countryside Act 1981 and has been recorded in ponds in Newton Coppice.

9.5.14. There is a cluster of dormouse records along the railway line to the north of the Southern Core route options. Dormice do not cross large gaps in vegetation cover so assuming they can only move along the railway line the effective proximity of the nearest dormouse record to the northernmost route option is about 400m. It will be important to establish the exact distribution of this population and the potential for them to spread further.

9.5.15. Birds listed in Schedule 1 of the Wildlife and Countryside Act 1981 are protected at all times and include barn owl, corncrake and fieldfares. There are two records for Schedule 1 birds within the study area, one in Newton Coppice and one near Haywood Lodge. These may be nest records but further information as to the species or nature of the record is not available.

9.5.16. Information from the Countryside Officer in Herefordshire Council indicates that there are badgers (*Meles meles*), white-clawed crayfish, bats, and commuting otters within Newton Coppice. All these species are specially protected, either through the Wildlife and Countryside Act or the Conservation of Habitats and Species Regulations.

9.5.17. Near Grafton Villa there is a small piece of Ancient Woodland to the south west, known as Veddoes Coppice.

Geodiversity Sites

9.5.18. Under TAG guidance sites of geological importance should also be considered. Local Geological Sites are non-statutory sites that have been identified by geoconservation groups as being of importance. A review of the Herefordshire and Worcestershire Earth Heritage Trust website indicates that there are no Local Geological Sites located within 1km of the Southern Core route options.

9.6. Impact Assessment

9.6.1. At this stage of assessment, there is no information available from field surveys to allow a full impact assessment to be undertaken. Therefore an overview of potential impacts will be considered.

Route Option SC1

9.6.2. This option would cut through Grafton Wood, resulting in loss of habitat and severance. There is potential for this site to be used by badgers and bats. The alignment travels mainly through agricultural land and would result in loss and severance of hedgerows. It has potential to result in severance of territory for badgers where it cuts across fields.

9.6.3. Between Chainage 2700 and ch 2900 the route travels through Newton Coppice. It is proposed that severance of the woodland be mitigated by building a raised structure over the woodland canopy. This woodland contains habitats suitable for roosting and foraging bats, dormice and a number of pools suitable for use by great crested newts. As there will be some land-take involved to support the structure and disturbance to the surrounding woodland during construction works, the impact is rated as large adverse.

9.6.4. This route also passes very close to the edge of a small area of woodland at Chainage 1300. Construction works are likely to impact on this site through loss of some of the trees. The site also has potential for nesting birds and works can result in disturbance. The route may also impact on the watercourse (Withy Brook) which flows through the woodland through sediment runoff and pollution.

9.6.5. Impacts on other designated sites such as Belmont Meadows or Newton Farm are assessed to be slight. Route option SC1 passes about 650m to the south-west of Belmont Pool and Environs SINC at its nearest point. There may be an increased impact from pollution depending on speed and volume of traffic but overall it should be slight adverse at this distance.

9.6.6. There is a record of a Schedule 1 bird at Haywood Lodge, although there are no details on the species or if it is a nest site. Route option SCI passes within 100m of the record site and would have a moderate to large adverse impact depending on whether it would result in the loss of a nest site.

Route Option SC2

9.6.7. This route follows the same alignment as SC1 until Chainage 2100 where the route crosses the railway line. From here it diverges and skirts along the western edge of Hayleasow Wood. The alignment cuts through Grafton Wood and skirts the edge of woodland at Chainage 1300

and will result in habitat loss and severance. The route cuts across agricultural land and has potential to result in severance of badger territory.

9.6.8. SC2 passes about 50m south of Hayleasow Wood and could have impacts in terms of disturbance, pollution and roadkill amongst others. The impact of this is rated as moderate adverse. There is also mention of the native white-clawed crayfish being present in Newton Brook which runs south through the wood. Crayfish are very susceptible to pollution and river works. This population is free of 'plague-fungus' and there is a risk of cross contamination from other sites that may be near a population that is infected. Any works near this site will have to take appropriate precautions to prevent spread of the fungus. As all the proposed routes cross the brook at some point this impact is rated as moderate adverse.

9.6.9. There is a record of a Schedule 1 bird at Haywood Lodge, although there are no details on the species or if it is a nest site. Route option SC2 passes within 100m of the record site and would have a moderate to large adverse impact as it could well mean loss of the feature if it is a nest site.

Route Option SC3

9.6.10. This option will have an impact on Grafton Wood and the woodland adjacent to the Grafton Lane as it cuts through the wooded area. This will result in loss of habitat and severance. This option also crosses the woodland at Newton Coppice. It is proposed that severance of the woodland be mitigated by building a raised structure over the woodland canopy. This woodland contains habitats suitable for roosting and foraging bats, dormice and a number of pools suitable for use by great crested newts. As there will be some land-take involved to support the structure and disturbance to the surrounding woodland during construction works the impact is rated as large adverse.

9.6.11. As with the other route options this alignment crosses agricultural land and there is potential for severance of badger territory, loss and severance of hedgerows.

9.6.12. There are records of dormice along the railway line approximately 370m north east of where this route option intersects with the railway. It is assessed that the impact on dormouse habitat will be slight adverse.

9.6.13. There are records of reptiles from Grafton House Orchard SINC. During construction works, precautions would have to be taken to ensure that these animals are protected from any clearance and construction works with suitable reptile fencing in place and possible trapping prior to commencement of works.

9.6.14. The Woodland to the South of Newton Farm SINC has a record of a bat roost within the site. Route option SC3 passes within 250m of this roost site. Although it is not considered that works will impact directly on the roost, the construction of the road has potential to result in disturbance and severance of bat commuting routes and have a negative impact on the local bat population. This could arise from several factors such as increased road kill with more faster moving traffic or more bats being drawn toward the road if the new road has brighter lighting attracting more prey species. Without knowing the particular species, abundances or

foraging/migrating routes it is difficult to evaluate this risk but given that all bat species have high protection status the impact has been evaluated as large adverse.

Route Option SC4

9.6.15. This option follows the same alignment as SC3 for most of its length, with the only change being the tie-in point on the A465. Impacts for this alignment will be the same as for SC3.

Route Option SC5

9.6.16. As with route options SC3 and SC4, this alignment cuts through Grafton Wood and the woodland at Grafton Lane. Impacts include loss and severance of habitat. The route also has potential to impact on badgers through severance of territories due to loss of agricultural land.

9.6.17. This route passes to the south of Hayleasow Wood in common with SC2. It has potential to have impacts in terms of disturbance, pollution and road-kill amongst others. The impact is rated as moderate adverse. There is also mention of the native white-clawed crayfish being present in Newton Brook which runs south through the wood. Crayfish are very susceptible to pollution and river works. This population is free of 'plague-fungus' and there is a risk of cross contamination from other sites that may be near a population that is infected. Any works near this site will have to appropriate precautions to prevent spread of the fungus. As all the proposed routes cross the brook at some point this impact is rated as moderate adverse.

9.6.18. This alignment also passes close to the site of the record of the Schedule 1 bird. Although it is not considered likely to impact directly on potential nest sites, the new route has potential to cause disturbance which can prevent successful breeding. The impacts are assessed to be moderate adverse. Where the route intersects with the railway, it passes within 400m of the site of the dormice records, although impacts are assessed to be slight adverse.

9.6.19. There are records of reptiles from Grafton House Orchard SINC. During construction works, precautions would have to be taken to ensure that these animals are protected from any clearance and construction works with suitable reptile fencing in place and possible trapping prior to commencement of works.

Route Option SC6

9.6.20. This is the only option of the southern core routes that doesn't cut through Grafton Wood, instead it skirts the northern edge and also skirts the southern edge of the woodland at Grafton Lane. Impacts on these wooded areas will be slight adverse as works have potential to result in a small loss of habitat at the edges of the woodland.

9.6.21. In common with the other options, this alignment will result in loss and severance of field boundary hedgerows and has potential to result in loss of habitat and severance of badger territories.

9.6.22. Option SC6 would pass closest to the Newton Farm SINC sites at a distance of approximately 220m. There is a bat roost record for the woodland SINC and there could be an impact on any bat foraging routes. This could arise from several factors such as increased road kill with more faster moving traffic or more bats being drawn toward the road if the new road has brighter lighting attracting more prey species. Without knowing the particular species,

abundances or foraging/migrating routes it is difficult to evaluate this risk but given that all bat species have high protection status the impact has been evaluated as large adverse.

9.6.23. Like SC3, SC4 and SC5, this option crosses the railway line close to the site of the dormice records, although impacts are assessed to be slight adverse.

9.6.24. This option will also cross Newton Coppice. It is proposed that severance of the woodland be mitigated by building a raised structure over the woodland canopy. This woodland contains habitats suitable for roosting and foraging bats, dormice and a number of pools suitable for use by great crested newts. As there will be some land-take involved to support the structure and disturbance to the surrounding woodland during construction works the impact is rated as large adverse from this route option.

9.6.25. There are records of reptiles from Grafton House Orchard SINC. During construction works, precautions would have to be taken to ensure that these animals are protected from any clearance and construction works with suitable reptile fencing in place and possible trapping prior to commencement of works.

Summary of Options

9.6.26. At this stage there is not enough information on the biodiversity of all the sites, designated or otherwise to arrive at fully comprehensive impact assessment for all the features. All route options have potential to adversely impact on Newton Brook where it flows through Newton Coppice through sediment runoff and pollution. As the brook flows into the River Wye SAC, the scheme has potential to indirectly impact on the SAC. This will be subject to more detailed assessment as this scheme progresses.

9.6.27. However the overriding impact of concern for biodiversity is the direct impact of routes SC1, SC3, SC4 and SC6 on the Hayleasow Wood, Newton Coppice and Spring Grove SWS. Given that fragmentation of habitats is a major cause for loss of biodiversity this should be avoided at all costs. There are also two major wildlife corridors, the railway and the brook sections which require closer scrutiny to evaluate the relative impact of the proposed routes on them. The various options for the Southern Corridor route have the following overall biodiversity implications;

- SC1: aims to prevent severance by allowing the woodland habitat to continue beneath a structure. Regardless of how successful this might be after recovery there will be considerable disruption and disturbance during preparatory works, construction and restitution. It will have large adverse impact upon Hayleasow Wood SWS, as it removes part of it with a moderate to large adverse impact upon undesignated sites. There is a potential impact on a bat roost and Schedule 1 bird but no information on what the precise nature of the bird record is. This option will have moderate to large adverse impacts on protected species.
- SC2: will have moderate adverse impact upon Hayleasow Wood SWS depending on the buffer zone of works and a moderate to large impact upon undesignated sites and protected species.

- SC3: will have large adverse impact upon Hayleasow Wood SWS and a moderate to large impact upon some undesignated sites and protected species.
- SC4: will have large adverse impact upon Hayleasow Wood SWS and a moderate to large adverse impact upon some undesignated sites and protected species.
- SC5: will have moderate impact upon Hayleasow Wood and moderate to large adverse impact upon undesignated sites.
- SC6: will have a large adverse impact on Hayleasow Wood and a moderate to large impact on undesignated sites and protected species.

9.6.28. All options have potential to adversely impact on local populations of dormice, bats, great crested newts, badgers, birds and otters.

9.7. Conclusion

9.7.1. Of all the options presented for routing the Southern Core Corridor, SC1, SC3 and SC4 would have large direct adverse impacts upon biodiversity and they would not be recommended. Of the remaining options, SC2 and SC5 are equally preferred. Although SC2 avoids the woodland at Grafton Lane, it would impact on a small section of woodland in the vicinity of Chainage 1300 and passes close to Withy Brook flowing though the woodland. SC5 would impact on the woodland at Grafton Lane. Route SC6 would have the least impact on woodland sites as it avoids Grafton Wood.

9.7.2. In terms of impacts on biodiversity, route option SC6 is preferred overall, as it has the potential for the least adverse impacts. However, it is considered that all the route options under consideration will have adverse impacts on biodiversity and extensive mitigation will be required to minimise impacts or compensation/enhancement measures used to replace lost habitat.

10. The Water Environment Sub-Objective

10.1. Introduction

10.1.1. This chapter assesses the potential impacts of the route options on the water environment, including consideration of surface water, groundwater and flood risk.

10.1.2. Publicly available information from Herefordshire Council and the Environment Agency website were used to identify any surface water features, areas of flood plain and groundwater vulnerability.

10.1.3. Water constraints mapping is available in Figures 7.1 and 7.2, Appendix B.

10.2. Legislative Background

European Planning Policy

10.2.1. In terms of the water environment the Water Framework Directive (WFD) is the over-riding piece of legislation in place. The WFD is transposed to English law through the implementation of The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003.

National Planning Policy

10.2.2. At a national level, the central government strategy document 'A Better Quality of Life – A Strategy for Sustainable Development for the United Kingdom' recognises the fundamental importance of good water quality to health and the environment. It identifies the major challenges to water quality which it states are; growing demand for water supplies, pollution pressures from new development, diffuse pollution inputs, changed weather patterns and loss of habitats.

10.2.3. In addition to the national planning policy the route options are liable for consideration by the Environment Agency (EA) under the Land Drainage Act (1991) and the Water Resources Act (1991). Consent from the EA is required for any proposed discharges to controlled waters. Consent would also be required for any development within 8m of a watercourse under the Land Drainage Act. A Flood Defence Consent is also required from the EA for any permanent or temporary works within the flood plain, such as temporary/ permanent culverting.

10.2.4. Other important legislation this chapter refers to includes the Water Act 2003 and the Groundwater (England and Wales) Regulations 2009 and relevant planning policy documents include Planning Policy Statement (PPS) 25 (Development and Flood Risk, 2010), and PPS23 (Planning and Pollution Control, 2004).

10.2.5. PPS25 Development and Flood Risk (2010), explains how flood risk should be considered at all stages of the planning and development process in order to reduce future damage to property and loss of life. It states the importance the Government attaches to the management and reduction of flood risk in the land-use planning process, acting on a precautionary basis and taking account of climate change.

10.2.6. The overall aim of PPS23 (Planning and Pollution Control, 2004) is to ensure the sustainable and beneficial use of land, in particular encouraging use of previously developed land over greenfield.

Regional Planning Policy

10.2.7. Regional policies relating to hydrology include:

- Regional Spatial Strategy for the West Midlands, 2004 (Ref 10.1); and
- Herefordshire Unitary Development Plan, 2007 – Policies S1, DR4, DR6, DR7 (Ref 10.2);
- Local Development Framework – Draft Water Cycle Study (Ref 10.3); and
- Herefordshire Council's Core Strategy Place Shaping (Ref 10.4).

10.3. Methodology

10.3.1. A site walkover was not undertaken as part of this assessment and all information gathered was through desk-based study. A Study Area of approximately 500m outside of the footprint of each route option has been assessed. A review of publicly available information was undertaken in addition to a review of the following sources:

- Stage 1 Study of Options Environmental Assessment Report, Amey Consulting (2010);
- Study of Options Environmental Assessment Report (SOEAR), Amey Consulting (2010); and
- SOEAR Addendum, Amey Consulting (2011).

10.4. Baseline Conditions

Surface Watercourses

10.4.1. The Study Area falls within the Wye catchment located within the Severn River Basin District, the third largest river basin district in England and Wales which covers an area of 21,590 km2. As well as the River Severn and its main tributaries, the Avon and the Teme, this district includes rivers in southeast Wales, including the Wye, the Usk and the Taff and others which discharge to the Severn Estuary.

10.4.2. The principal water courses within the Study Area are illustrated in Figure 7.1, Appendix B and include Newton Brook and Withy Brook, a tributary of Norton Brook. Both are tributaries of the River Wye, a European designated Special Area of Conservation (SAC) and a Site of Special Scientific Interest (SSSI). The River Wye is important for its riverine habitats and the species they support. The headwaters of the River Wye (Afon Gwy) originate in the Cambrian Mountains, Wales and discharges to the River Severn to the south.

10.4.3. None of the rivers within the Study Area are designated Main Rivers as designated by the Environment Agency.

10.4.4. OS maps show Newton Brook starting in Hayleasow Wood, southwest of Hereford. It flows in a general northerly direction before joining the River Wye on the western outskirts of Hereford, some 2Km downstream of the Study Area. Newton Brook feeds several ponds within woodland in the northern portion of the Study Area before flowing overland through suburbs of Hereford to discharge to the River Wye.

10.4.5. Withy Brook appears to commence south of Hereford and to the east of The Granary. It flows in a generally easterly direction before being culverted under Grafton Lane, then flows overland in a general north easterly direction until it joins Norton Brook south of the outskirts of Hereford. Norton Brook discharges to the River Wye upstream of the sewage works at Lower Bullingham some 2Km northeast of the Study Area.

Water Quality

10.4.6. As part of the General Quality Assessment scheme (GQA), the Environment Agency undertook water quality sampling at regular intervals to monitor chemistry, biology and nutrient levels. Chemistry and biology samples are classified between the range of Class A 'Very Good' to Class F 'Bad' on the GQA scheme which ran up until 2010.

10.4.7. A new tougher and more robust methodology for water quality sampling was developed under the Water Framework Directive (WFD) 2000/60/EC, which commenced in 2008 and ran simultaneously with the GQA scheme until 2010. Under the WFD a new risk-based classification is used which is based on over 30 measures, grouped into ecological status and chemical status.

10.4.8. None of the surface waterbodies within the Study Area were monitored as part of the GQA scheme, however there are two monitoring points on the River Wye; confluence of Cage Brook/ Maddle Brook, and at the confluence of Eign Brook/ Cage Brook. As illustrated in Figure 7.2 Appendix B, the Cage Brook/ Maddle Brook monitoring point is upstream of the Study Area and the Eign Brook/ Cage Brook monitoring brook is downstream. Water quality monitoring data under the GQA scheme was reviewed for both monitoring points for 2009 as more recent water quality data was not available for public review on the Environment Agency website. Water quality was classed as 'Very Good' for both upstream and downstream monitoring localities.

10.4.9. Under the WFD, the status of water is assessed using a range of parameters including chemical, ecological, physical, morphological and hydrological measures, to give a holistic assessment of aquatic ecological health. In terms of the WFD, Table 10.1 summarises the current status and predicted 2015 level of achievement for ecological and chemical water quality for waterbodies within or downstream of the Study Area.

Table 10.1: Water Quality Classification for Significant Watercourses in the Study Area under WFD				
Watercourse	**Current WFD Ecological Quality**	**Current WFD Chemical Quality**	**2015 Predicted Ecological Quality**	**2015 Predicted Chemical Quality**
River Wye	Good	Good	Good	Good
Norton Brook	Moderate	Does not require assessment	Moderate	Does not require assessment

Fisheries

10.4.10. Records from the Department for Environment, Food and Rural Affairs indicate that none of the water courses within the Study Area are classed as Cyprinid Waters under the EC Freshwater Fisheries Directive. The River Wye, downstream of the Study Area, is designated as Salmonid Waters under this Directive, which means these waters are identified as having water quality suitable for sustaining fish populations and therefore requiring protection.

10.4.11. There are no known fisheries within the Study Area. The River Wye fishery is located approximately 20km downstream of the Study Area, between Ross-on-Wye and Monmouth.

Groundwater

10.4.12. The Groundwater Body in the Hereford area is classed as Wye Minor and currently has Good status under the WFD monitoring regime. The Hereford area is designated as a drinking water protected area, water abstraction management area and is also protected under the Nitrates Directive.

10.4.13. A review of the Hydrogeological Map of England and Wales, scale 1:625 000, indicates that the Raglan Mudstone Formation underlying all of the route options is a minor aquifer of limited potential where the bedrock is generally impermeable and without groundwater except at shallow depth.

10.4.14. The recent deposits located along the course of the banks of the River Wye are classed as a concealed aquifer with limited or local potential.

10.4.15. The Groundwater Vulnerability Map of Worcestershire (Sheet 29, 1:100 000) and Groundwater Vulnerability Map of Powys (Sheet 28, 1:100 000) were reviewed to ascertain the groundwater vulnerability below the route options. These indicate that the drift deposits which overlie the Raglan Mudstone Formation are either of high or intermediate leaching potential.

10.4.16. The recent deposits located along the course of the banks of the River Wye have a high leaching potential.

10.4.17. All of the route options lye within a Nitrate Vulnerable Zone (NVZ). These are areas which have been designated to protect drinking water supplies from nitrate pollution where water is being polluted or is at risk of being polluted by nitrates.

Abstractions and Discharge Consents

10.4.18. Reference to the Groundsure EnviroInsight Report (Reference HMD-404-826563, dated May 2010) indicates there are a number of groundwater and surface water abstractions and discharge consents recorded within the Study Area, as shown on Figure 7.1, Appendix B.

Strategic Flood Risk Assessment

10.4.19. Reference is made to the Herefordshire Council's Strategic Flood Risk Assessment and the Outline Water Cycle Study. The SFRA is based on the principle that floods do not originate from rivers, and rivers present a pathway for flooding. It addresses fluvial risk, but focuses on catchment dynamics and the importance of catchment hydrology in an appreciation of flood risk management.

10.4.20. The widespread flooding of July 2007 in Herefordshire confirmed that up to 40% of flooding within Herefordshire arises from sources other than major fluvial floodplains. The sub-catchment with the greatest fluvial flood risk (determined by hazard × consequence) is the Lower Wye sub-catchment extending along the River Wye between Belmont and Monmouth including Hereford. It has been determined that within this sub-catchment 1253 properties are at risk in a 1% Annual Equivalent Probability (AEP) flood event. According to the SFRA, the greatest development pressures fall within the Hereford and Leominster environs.

10.4.21. Hereford has a significant history of flooding, therefore any future development proposals need to take particular reference with regard to avoidance of increased flood risk. In 2007, Herefordshire Council prepared a major database of potential development sites and the SFRA concludes that there is significant scope to allocate housing outside Flood Zone 2 and 3 in compliance with PPS 25: Development and Flood Risk.

10.4.22. The SFRA developed a set of catchment flood hazard and risk indexes. As a general guide only, a single composite index known as the Catchment Flood Hazard Index has been derived for each sub-catchment, based on the average ranking of the following parameters:

- Proportion of time that Soil Moisture Deficit (SMD) was less than 6mm;
- Standard Percentage Runoff (SPR);
- Time to Peak (Tp(t)) of the FEH Unit Hydrograph; and
- Number of Recorded Flood Reports / Divided by Catchment Area.

The catchments within the Study Area ranked according to the Catchment Flood Hazard Index are listed:

- Little Lugg ranked 6th;
- Yazor Brook ranked 9th;
- Cage Brook ranked 15th;
- Lower Lugg ranked 30th;
- Middle Wye ranked 33rd; and
- Lower Wye ranked 44th.

10.4.23. The SFRA identified three categories of catchment scale flood risk, namely general surface water flooding, fluvial flooding by floodplains and historical flooding. Fluvial flooding from adjacent floodplains is prevalent for properties adjacent to the Wye, Red Brook, Yazor Brook and Withy Brook in Hereford, Pinsley Brook and River Lugg in Leominster, Eardisland on the River Arrow, and the River Lugg at Bodenham, Mordiford and Hampton Bishop. In terms of the fluvial flood risk, the SFRA ranked the River Wye and Yazor Brook as the top two highest fluvial flood risk catchments with both affecting Hereford.

10.4.24. Historically, Hereford, Lower Bullingham and Hampton Bishop report the greater number of repeatedly flooded properties.

10.4.25. In summary, the SFRA has recommended Herefordshire Council prepare a Surface Water Management Plan for areas where the risk from surface water drainage is significant, for example in Hereford. The Study Area is located in a catchment at risk of flooding downstream.

Outline Water Cycle Study

10.4.26. The Outline Water Cycle Study should be regarded as a sister document to the SFRA. The Study outlines the requirements of a sustainable water environment for Herefordshire by assessing the county's capacity for water resources and supply, sewage disposal and treatment, and surface water drainage and flood risk management.

10.4.27. The Study highlights the Lugg as being principally adversely affected by current discharges from mainly wastewater treatment works. It also states that the Lower Lugg and Lower Wye catchments are principally affected by adverse water resource impacts.

10.4.28. There are five EA defined Water Resource Management Units (WRMUs) in Herefordshire; four in the Wye and one in the Teme. Under the Catchment Abstraction Management Strategy (CAMS) process, each of the five WRMUs is assessed as at 'No Water Available' status. This would mean that at the fully licensed uptake scenario, the ecological river flow objective would be compromised. It also implies that any increases to licensed flows are unlikely to be available in the future and new abstraction licenses are unlikely to be granted in any WRMU according to EA.

10.4.29. The Regional Spatial Strategy 'Spatial Options' requires Herefordshire Council to provide in the order of 16,600 dwellings from 2006-2026, and of these 8,300 dwellings will be in and around Hereford. In view of the intense housing pressure in and around Hereford, combined with the extensive historical flood risk, the Study has also recommended that a Surface Water Management Plan is urgently required for northwest and southeast Hereford.

Flood Risk

10.4.30. The Environment Agency Flood Zone Map illustrates the worst-case scenario as it does not include the effect of any flood defence structures. The Study Area contains no areas at risk of flooding.

10.4.31. Review of the FloodInsight Report (Reference HMD-404-828218, dated May 2010) indicates the extent of flood events recorded by the Environment Agency and previous bodies. This data does not take into account of flood management schemes or improved flood defences, such

as Belmont and Hampton Bishop. No historic flooding has been recorded within the Study Area.

10.5. Impact Assessment

Route Option SC1

10.5.1. Route Option SC1 will require of culverting Withy Brook and construction of a bridge over Newton Brook. In addition, a section of this route option between Grafton Lane and the railway line will be constructed in proximity to Withy Brook therefore resulting in potential water quality impacts during construction.

10.5.2. Norton Brook is located 1km downstream of route option SC1 and is designated under the Water Framework Directive. Both Norton Brook and Newton Brook discharge to the River Wye, which is designated also under the Water Framework Directive. It is imperative that the ecological potential of water courses designated under the WFD are not detrimentally affected by the scheme.

10.5.3. It is proposed that a bridge will be constructed over Newton Brook and the Special Wildlife Site at the end of route option SC1. Design details are not known at this stage on the bridge however it is assumed that no piers or abutments will encroach the bank or bed of the water course. There is potential for sediment and pollution from surface water runoff from the carriageway to enter the brook.

10.5.4. A site walkover was not undertaken as part of this assessment therefore the potential exists for other local drainage ditches and watercourses to be present within the Study Area of each route option.

10.5.5. With reference to the Groundsure EnvironInsight report (May 2010) route option SC1 is within 500m of one potable water abstraction and five groundwater abstractions. OS mapping indicates there is a spring and three pumps within the Study Area of SC1, however without a site walkover the existence and usage of the pumps is not known.

10.5.6. An assessment using Highways Agency Water Risk Assessment Tool (HAWRAT) was not undertaken at this stage as traffic flow data was not available. HAWRAT assesses the potential ecological impacts of routine runoff on surface waters in order to determine if an environmental risk exists and if pollution mitigation measures are needed. Therefore, the assessment of the existing surface water environment and the potential impact from route option SC1 is qualitative and concludes that SC1 will potentially result in slight/moderate adverse impact.

10.5.7. There is no loss of flood plain or increased flood risk resulting from route option SC1. Potential impact from SC1 in terms of flood risk is neutral. All of the route options have neutral impact on flood risk.

10.5.8. Drift deposits which underlie all of the route options and which overlie the Raglan Mudstone Formation are either of high or intermediate leaching potential. Potential impact to groundwater resources is of slight adverse significance during the construction process for all the route options.

10.5.9. There is no significant difference between the six route options in terms of flood risk or impact to groundwater resources.

Route Option SC2

10.5.10. Route option SC2 does not cross Newton Brook; however it does require Withy Brook to be culverted. The alignment of this route option is similar to SC1 and is located in proximity to a length of Withy Brook. Potential impact to the surface water environment is slight/moderate adverse.

10.5.11. With reference to the Groundsure EnvironInsight report (May 2010) route option SC2 is within 500m of one potable water abstraction and six groundwater abstractions. OS mapping indicates there is a spring and four pumps within the Study Area of SC2, however without a site walkover the existence and usage of the pumps is not known.

Route Option SC3

10.5.12. Potential impacts in terms of surface water from route option SC3 include culverting Withy Brook and the bridge over Newton Brook. An assessment of the existing surface water environment concludes that route option SC3 will potentially result in slight adverse impact.

10.5.13. With reference to the Groundsure EnvironInsight report (May 2010) route option SC3 is within 500m of one potable water abstraction and two groundwater abstractions. OS mapping indicates there is three pumps within the Study Area of SC3, however without a site walkover the existence and usage of the pumps is not known.

Route Option SC4

10.5.14. Potential impacts to the surface water environment for route option SC4 are similar to route option SC3. An assessment of the existing surface water environment concludes that route option SC4 will potentially result in slight adverse impact.

10.5.15. With reference to the Groundsure EnvironInsight report (May 2010) route option SC4 is within 500m of one potable water abstraction and two groundwater abstractions. OS mapping indicates there is three pumps with the Study Area of SC4, however without a site walkover the existence and usage of the pumps is not known.

Route Option SC5

10.5.16. Route option SC5 will require the culverting Withy Brook. Potential impact on the surface water environment is neutral.

10.5.17. With reference to the Groundsure EnvironInsight report (May 2010) route option SC5 is within 500m of one potable water abstraction and five groundwater abstractions. OS mapping indicates there is three pumps within the Study Area of SC5, however without a site walkover the existence and usage of the pumps is not known.

Route Option SC6

10.5.18. Potential impacts in terms of surface water from route option SC6 include culverting Withy Brook and the bridge over Newton Brook. An assessment of the existing surface water environment concludes that route option SC6 will potentially result in slight adverse impact.

10.5.19. With reference to the Groundsure EnvironInsight report (May 2010) route option SC6 is within 500m of four groundwater abstractions. OS mapping indicates there is a spring and four pumps within the Study Area of SC6, however without a site walkover the existence and usage of the pumps is not known.

10.6. Conclusion

10.6.1. An assessment of the potential ecological impact from surface water runoff from the scheme has not been determined from HAWRAT at this stage, due to lack of traffic model data. Therefore, the assessment was based on a desk-top review of available information on groundwater resources, surface water quality and flood risk.

10.6.2. All six route options have the potential to have adverse impacts on the water environment. All six route options require Withy Brook to be culverted. Route option SC1 and SC2 have the potential for slight/moderate adverse impacts, mainly due to the proximity of a section of the route to Withy Brook and a spring, and potential surface water runoff from the carriageway into Newton Brook. All other route options are assessed as having slight adverse impacts apart from route option SC5.

11. The Physical Fitness Sub-Objective

11.1. Introduction

11.1.1. This chapter identifies the impacts of the proposed route alignments of the Southern Core Corridor on the journeys made by pedestrians, cyclists and equestrians (non-motorised users – NMU's). In addition, this chapter assesses whether communities in the vicinity are likely to experience increased severance from community facilities and services as a result of the propose route alignments. A high-level estimate of the impact on journey times of NMU's will be undertaken, where possible.

11.1.2. Physical fitness can be improved through encouraging NMU's to walk and cycle more frequently and reducing reliance on cars. All the key indicators in relation to transport and health are addressed under different sub-objectives, except for physical fitness.

11.1.3. In assessing community severance this chapter will also determine if the amenity value of public rights of way (PROW) within the vicinity of the new routes will be diminished as a result of the proposals. PROW comprise minor public routes primarily for NMU's and in England are paths on which the public have a legally protected right to pass and re-pass. They provide a transport network to the benefit of the community and consist of the following:

- Footpaths;
- Bridleways;
- Byways open to all traffic (BOATs);
- Restricted byways; and
- Cycleways.

11.2. Relevant Policy

11.2.1. A review of relevant Policies and Plans has been undertaken in order to ascertain central and local government's intentions for non-vehicular transport in Hereford. A hierarchy has been established as listed below ranging from National policy through to local policy:

- National Planning Policy Framework (NPPF)
- Herefordshire Unitary Development Plan (UDP)
- Herefordshire Local Transport Plan (LTP)
- Herefordshire Rights of Way Improvement Plan (RoWIP)

11.2.2. The Herefordshire Unitary Development Plan (UDP) was adopted on 23rd March 2007 and guides development within the county ensuring consistency with national and regional policy. However, the UDP is nearing expiry and is to be replaced in stages by the Core Strategy of the Local Development Framework (LDF). Until such time as the Local Development Framework takes over, the policies in the UDP which have been "Saved" by the direction of the Secretary of State will remain in effect. A review of these policies has found the following to be of primary importance to the scheme:

- S6 Transport
- T6 Walking
- T7 Cycling
- T8 Road hierarchy: promotion of sustainable and integrated transport, including access to development by means other than the private car
- RST6 Countryside access: good connections are made to the local public rights of way network and any promoted recreational routes, and that access is promoted by other means than private car.
- E8 Design standards for employment sites: should provide include measures for improving access by employees by alternative means of transport including travel plans;
- H13 Sustainable residential design: should give priority to pedestrians and cyclists in accordance with the transport user hierarchy;
- S11 Community facilities and services: provision for the retention of existing community facilities
- CF5 New community facilities: incorporate safe and convenient pedestrian access together with appropriate provision of car and cycle parking and operational space

11.2.3. In addition to the policies saved for the pending LDF, Herefordshire Council has also published a Rights of Way Improvement Plan for the period 2007-2011. The plan assesses the current level of demand and the current extent of the PROW network in Herefordshire and sets out an improvement plan with the following principle headings:

- Ensure the Definitive map and statement is an accurate record of all Public Rights of Way;
- Maintain the Public Rights of Way network so it is easy to use and clear of obstructions;
- Seek to improve access to the network wherever possible; and
- Encourage the responsible use of the Public Rights of Way network through proactive promotion.

11.3. Methodology

11.3.1. The assessment comprised a desk-based study of readily available information including:

- Ordnance Survey mapping;
- MAGIC (Multi-Agency Geographic Information for the Countryside) website;
- Consultation responses;
- Aerial and street view photography;

- Previous reporting; and
- Herefordshire Council website.

11.3.2. At the time of writing a total of six potential routes are under consideration. A methodology based on the Pedestrians, Cyclists, Equestrians and Community Effects chapter in the Design Manual for Roads and Bridges Volume 11 has been used.

11.3.3. As traffic data is not available for the route options at this stage full Appraisal Summary Tables (AST's) will not be completed. Instead, where possible, the assessment will allow an order of preference of route options to be made with regards to NMU's and for determining the extent of community severance and increased journey times.

11.4. Consultation

11.4.1. Consultation with the Transportation Department of Herefordshire Council was undertaken as part of this assessment (Appendix A for all consultation responses). The Department states that National Cycle Network 46, which runs through the Study Area, is well used and suitable to cyclists of all abilities. It states that '*severing this link for walkers and cyclists would severely affect the routes attractiveness and undermine its ability to take traffic off the city's roads'*.

11.4.2. The consultation response highlighted the use of the car park of Grafton Travel Lodge as Park and Share/Cycle space on the A49 South. Herefordshire Council provide this facility for commuters wishing to travel by car for part of their daily journey before parking and cycling the remainder of their journey to work.

11.5. Impact Assessment

11.5.1. The six route options along with the Public Rights of Way are illustrated in Figure 8.1, Appendix B. All six route options are in a rural environment predominantly at grade with very few settlements in the surrounding area. Occasional residential properties are present although these are mainly isolated farmsteads. The predicted impact of each route option is outlined below.

Route Option SC1

11.5.2. Both route options SC1 and SC2 share the same footprint for approximately two thirds of their route, between Chainage 0 and chainage 1800. The two divide shortly after crossing the Hereford and Abergavenny railway line south west of Grafton using a proposed new bridge. Both begin at the new roundabout on the A49 where the B4399 Rotherwas Access Road also meets the A49.

11.5.3. Access for NMU's in the Southern Core Corridor is restricted to rural minor lanes with no dedicated pedestrian provision, such as Grafton Lane which is to be closed up for all six route options. Grafton Lane is part of the National Cycle Network (Figure 8.1, Appendix B). National Route 46 of the National Cycle Network will eventually connect Droitwich Spa to Newport (Gwent) or Neath once it is fully completed. The section that runs through the scheme proposal connects Hereford with Abergavenny.

11.5.4. All six route options will require the National Cycle Network to be severed through the stopping up of Grafton Lane; however an alternative route is available for cyclists along Haywood Lane which is also part of the NCN. It is recommended that further consultation is undertaken with Sustrans and Herefordshire Council Transportation Department regarding any proposals that impact the National Cycle Network.

11.5.5. It is anticipated that with the development of the scheme proposals Grafton Lane will be severed at least once. By stopping up this lane it is envisaged that motorists will frequent this route less, making it more attractive for recreation use by cyclists, pedestrians and equestrians. Anecdotal evidence indicates that Haywood Lane is used as a rat run for commuters travelling in and out of Hereford City Centre. Therefore, the presence of the scheme in this area could therefore improve the safety for these modes by further relieving the minor rural lanes of traffic volumes.

11.5.6. However, stopping up of Grafton Lane may also result in lack of continuity of the National Cycle Network 46 and the route being less attractive to cyclists commuting to Hereford City Centre. Without undertaking any specific surveys at this stage it is envisaged that stopping up of Grafton Lane will result in moderately adverse impact for NMU's.

11.5.7. There is an absence of community features throughout the Southern Core Corridor and as such no significant severance issues are anticipated. However, detail on land ownership is not known at this stage making it difficult to assess the level of severance for local farmers accessing land. Further study will be undertaken at a later stage in the assessment process.

11.5.8. West of the A49 roundabout both SC1 and SC2 pass through a small area of woodland (Grafton Wood), through which runs HC footpath GF3 which is bisected by the both route options. Construction of a footbridge at this point will provide an opportunity for amelioration (Figure 8.1, Appendix B). Both routes then cross the proposed closed Grafton Lane before rising on an embankment and crossing the railway line. Immediately after the railway line both route options then cross HC footpath HA7. Footpath HA7 runs from Haywood Lodge to join with HC footpath HA5 before travelling northwards through fields to follow Newton Brook south of the city. It is anticipated that owing to the elevated alignment, severance of the HA7 footpath may not occur as the earthworks should provide opportunity for the alignment of the route to cross over the footpath.

11.5.9. Slightly further west the SC1 and SC2 routes split at approximately Chainage 1800. The vertical alignment for SC1 decreases as it passes under Haywood Lane in cut avoiding severance of this still open section of the lane. Severance of the National Cycle Network is also avoided at this point through maintaining the connectivity of the lane. SC1 bears north intersecting HC footpath HA3 before passing Merry Hill Farm. HC footpath HA3 provides a lateral non-motorised route between Grafton and Clehonger along the southern boundary of Hayleasow Wood. The sunken alignment at this stage will require a footbridge to maintain this route, thereby mitigating any severance issue.

11.5.10. SC1 terminates at a proposed new roundabout with the A465 northeast of Belmont Abbey, at grade with the existing road network.

Route Option SC2

11.5.11. After departing from the shared chainage of SC1, the route option SC2 passes under Haywood Lane in cut avoiding any severance of this open section of the lane. Route option SC2 then skirts north of the grounds of Haywood Lodge in a more north westerly direction. It travels north of HC bridleway HA6 and to the south of HC footpath HA3.

11.5.12. SC2 terminates at a proposed new roundabout with the A465 to the southwest of Hereford. It has the most southerly termination point of all the route options, along with route option SC5.

Route Option SC3

11.5.13. Route options SC3, SC4 and SC5 share the same footprint for part of their route, up until Chainage 1150. All three route options commence at the new roundabout on the A49 where the B4399 Rotherwas Access Road meets the A49 and continue along the same route until they divide before the proposed new tunnel under the railway line.

11.5.14. Similar to route options SC1 and SC2, all three route options pass through Grafton Woodland to the west of the A49 roundabout and intersect HC footpath GF3 which runs through the woodland, likely resulting in the permanent fragmentation of this footpath. There will be opportunity to realign the footpath and connect with the proposed footpath as part of the new road and construction of a footbridge at this point will alleviate any fragmentation of footpath GF3.

11.5.15. SC3, SC4 and SC5 then cross Grafton Lane at grade, which is due to be stopped up as part of the road proposals. As outlined previously, this has the potential to result in moderately adverse impacts.

11.5.16. Route options SC3 and SC4 continue along the same route until Chainage 2450 near the end of the scheme. At Chainage 1300 both routes cross under the existing railway line through cut, and immediately after this both routes are constructed in cut requiring Grafton Lane (west of railway line) to be stopped up a second time providing opportunity for another footbridge. Grafton Lane at this point is designated as PROW byway (GF7) and National Cycle Route (Figure 8.1, Appendix B). These route options are the only two that require Grafton Lane to be stopped up twice.

11.5.17. Approximately 250m after this proposed railway crossing both routes intersect HC footpath HA5. There is opportunity here to maintain the existing route of HC footpath HA5, from construction of a footbridge.

11.5.18. Moving further west both route options are constructed in cut, with the road being constructed under Haywood Lane and bearing west it is bridged over the Special Wildlife Site for approximately 200m, preventing any fragmentation of this nature conservation site. The route option terminates at a proposed roundabout with A465, east of Belmont Abbey.

Route Option SC4

11.5.19. As outlined, route option SC4 maintains the same alignment as route option SC3 between Chainage 0 – 2400. Route option SC4 bears northwest after cutting under Haywood Lane and is bridged over the Special Wildlife Site for approximately 200m. It terminates at a proposed roundabout with the A465 northeast of Belmont Abbey.

Route Option SC5

11.5.20. Route option SC5 maintains the same alignment as SC3 and SC4 until before the railway line, where it starts to bear in a more south westerly direction. Similar to SC3 and SC4, route option SC5 is constructed underneath the existing railway embankment at Chainage 1300.

11.5.21. Moving west after the railway line, route option SC5 intersects HC footpath HA7 and skirts along Haywood Lane byway and National Cycle Route. There is potential here for construction of a footbridge to alleviate any potential severance of the footpath. Moving further west route option SC5 is constructed in cut, with the road being constructed under Haywood Lane avoiding severance of this existing route and National Cycle Network.

11.5.22. Route option SC5 skirts to the south of HC footpath HA3 and to the north of HC bridleway HA6, before terminating at a proposed roundabout with A465.

Route Option SC6

11.5.23. West of the A49 roundabout route option SC6 passes north of Grafton Wood, before intersecting HC footpath GF3 (Figure 8.1, Appendix B). Construction of a footbridge at this point will provide an opportunity for amelioration. It then crosses the proposed closed Grafton Lane at Chainage 850 before passing underneath the existing railway line at Chainage 1360. Immediately after the railway line the route continues in cut under Grafton Lane (west of railway line), thereby maintaining this route and the HC byway GF7 and National Cycle Route.

11.5.24. Route option SC6 continues mainly in cut in a north westerly direction to cross under HC footpath HA5. It is anticipated that construction of a footbridge would provide opportunity to maintain access on either side of the route to the footpath.

11.5.25. The vertical alignment for SC6 allows it to pass under Haywood Lane at Chainage 2230 avoiding severance of this still open section of the lane. Route option SC6 bears west after cutting under Haywood Lane and is bridged over the Special Wildlife Site for approximately 200m. It terminates at a proposed roundabout with the A465 south of Belmont Abbey.

11.6. Conclusion

11.6.1. In summary, based on the information available at the time of writing all route options will result in potential impact on non-motorised users. It is envisaged that route options SC3 and SC4 will result in moderate/large adverse impact, mainly due to the stopping up of Grafton Lane twice.

12. The Journey Ambience Sub-Objective

12.1. Introduction

12.1.1. This chapter identifies the impacts of the route options of the Southern Core Corridors on vehicle travellers. The assessment has been undertaken in accordance with guidance provided in DMRB Volume 11 and TAG unit 3.3.13.

12.1.2. Journey ambience considers three factors for vehicle travellers:

- traveller care;
- travellers' views; and
- traveller stress.

12.1.3. Traveller care considers the facilities provided along a route such as service stations, lay-bys and welfare facilities such as toilets.

12.1.4. Travellers' views consider the impacts a new route will have on the extent to which travellers can see the surrounding landscape and townscape. Views will depend on the relative level of the route and the surrounding landscape. Views can be categorised as:

- No view – where the route is in a deep cutting, a tunnel or surrounded by environmental barriers;
- Restricted view – where there are frequent cuttings, tunnels or barriers;
- Intermittent view – where there are shallow cuttings or barriers; and
- Open view – where the view extends over many miles.

12.1.5. Traveller stress is defined as the adverse mental and physiological effects experienced by travellers. There are three main factors which influence traveller stress:

- Frustration – such as the driver's inability to drive at a speed consistent with their own wishes, the road layout and geometry, condition of the road and the ability to make good progress;
- Fear of potential accidents – the main factors are presence of other vehicles, inadequate sight distances and possibility of pedestrians stepping onto the road; and
- Route uncertainty – such as the frequency and clarity of road signs.

12.2. Relevant Policy

12.2.1. A review of relevant Policies and Plans has been undertaken in order to ascertain central and local government's intentions for vehicular transport in Hereford. A hierarchy has been established as listed below ranging from National policy through to local policy:

- Planning Policy Guidance / Planning Policy Statements (PPG/PPS);
- Regional Spatial Strategy for the West Midlands (RSS);

- Herefordshire Unitary Development Plan (UDP);
- Herefordshire Local Transport Plan (LTP).

12.2.2. The Herefordshire Unitary Development Plan (UDP) was adopted on 23rd March 2007 and guides development within the county ensuring consistency with national and regional policy. However, the UDP is nearing expiry and is to be replaced in stages by the Core Strategy of the Local Development Framework (LDF). Until such time as the Local Development Framework takes over, the policies in the UDP which have been "Saved" by the direction of the Secretary of State will remain in effect. A review of these policies has found the following to be of primary importance to the scheme:

- S6 Transport;
- T8 Road hierarchy: promotion of sustainable and integrated transport, including access to development by means other than the private car;
- T10 Safeguarding of road schemes: protecting and improving access to services and facilities;
- RST6 Countryside access: good connections are made to the local public rights of way network and any promoted recreational routes, and that access is promoted by other means than private car;
- E8 Design standards for employment sites: should provide include measures for improving access by employees by alternative means of transport including travel plans;
- CF5 New community facilities: incorporate safe and convenient pedestrian access together with appropriate provision of car and cycle parking and operational space.

12.2.3. The Hereford Local Transport Plan includes the local transport policies and strategies with an implementation programme. The Council's existing LTP2 will be rolled forward on an interim basis from April 2011 and the existing plan is currently under review. The plan will be formalised once the key infrastructure requirements for the County have been agreed under the Local Development Framework process. The LDF Consultation document '*Help plan the future of Herefordshire*' includes information on the proposed strategic transport schemes for Hereford. The proposed western relief road, of which the southern core corridors form part, is included in this document alongside measures to increase use of public transport and promote walking and cycling.

12.2.4. The Hereford Relief Road is a key aspiration for Hereford Council to reduce congestion on the existing road network, particularly the A49 which is the main route through the town centre. The provision of a second crossing across the River Wye would also be beneficial in reducing congestion.

12.3. Methodology

12.3.1. The assessment comprised a desk-based study of readily available information including:

- Ordnance Survey mapping;
- Herefordshire Council website;
- Aerial and street view photography;
- Previous reporting.

12.3.2. At the time of writing a total of six potential routes are under consideration. A methodology based on the Vehicle Travellers chapter in the Design Manual for Roads and Bridges Volume 11 and TAG unit 3.3.13 Journey Ambience Sub-Objective has been used.

12.3.3. As traffic data is not available for the route options at this stage full Appraisal Summary Tables (AST's) will not be completed. This would allow an order of preference of route options to be made with regards to vehicle travellers.

12.4. Impact Assessment

12.4.1. The A49 is a major trunk road that runs through the centre of Hereford town. At peak times, the route is heavily congested and journey times can be unreliable. It is also the main crossing point over the River Wye travelling northwards through Hereford. Any route that by-passes the town and provides an additional crossing point over the Wye would have a beneficial impact on reducing traffic volumes in the town centre.

12.4.2. Haywood Lane is currently used as a rat run for commuters travelling to Hereford City Centre. The lane has been widened with time due to the large volume of commuter traffic using it daily. As it is a local road it is not of sufficient width for Heavy Goods Vehicles (HGV's) to pass through it easily and therefore HGV's would use an alternative route, typically the A49.

12.4.3. The six route options are illustrated in Figure 1, Appendix B. The predicted impact of each route option is outlined below.

12.4.4. None of the route options at this stage of the assessment include the provision of traveller care facilities. All routes are assessed to have a neutral impact on traveller care and this will not be considered in any further detail.

12.4.5. All six route options are in a rural environment predominantly at grade with very few settlements in the surrounding area. Occasional residential properties are present along the existing road network, although these are mainly isolated farmsteads. The landscape is generally flat with open views from the A49 to the east towards Dinedor Hill. Prominent features in the landscape to the west of the A49 include woodland at Grafton and Hayleasow woods and Newton Coppice.

Route Option SC1

Travellers' views

12.4.6. From Chainage 0 to chainage 1300 route option SC1 is at grade. The surrounding landscape is relatively flat with Grafton Wood a prominent feature in the landscape. The route is carried on an embankment between Chainage 1300 and chainage 1900 as the road is carried on a

bridge over the Hereford and Abergavenny railway line. Travellers' views in this section would be classed as open with views across the agricultural landscape south of Hereford.

12.4.7. The route is in cut from Chainage 1900 to 2400 and travels under the existing road at Haywood Lane. The cut is approximately 6m in depth and travellers' views would be restricted. The route is then carried on embankment from Chainage 2600 to ch 3100 where it meets the A465. The route will be carried on a bridge over the wood at Newton Coppice to minimise impacts on this wildlife site. The bridge will be approximately 8m above existing ground level. The view in this section will be primarily open across agricultural land and woodland.

Traveller stress

12.4.8. Route option SC1 will diverge from the existing A49 at the roundabout with the B4399 Rotherwas Road. Grafton Lane will be stopped up and the route will continue unimpeded to the junction with the A465 where a roundabout is proposed. Although no traffic volumes are known at this stage, it is assessed that traveller stress will be lower on the new route compared to the existing route through Hereford town centre. SC1 will also impact on traffic through Hereford town centre by reducing congestion through the town and allowing vehicle travellers to choose an alternative route.

Route Option SC2

Travellers' views

12.4.9. This route option follows the same alignment as route option SC1 from Chainage 0 to chainage 1900. Here it diverges and travels on a more southerly alignment from Haywood Lane to the proposed intersection with the A465. As with SC1 the route will be carried in cut under Haywood Lane, although due to the change in alignment the cut will be 4.5m in depth rather than 6m. From Chainage 2400 to its junction with the A465, this route option will be at grade and skirts around the edge of Hayleasow Wood. Travellers' views in this section will be open with views across the farmland with the wood to the east.

Traveller stress

12.4.10. At this route also has only two junctions, it is assessed that the impacts on traveller stress will be the same as that for SC1.

Route Option SC3

Travellers' views

12.4.11. This route has a more northerly alignment that SC1 and SC2. It is the straightest of the six routes and is mostly at grade. From Chainage 0 to chainage 1200 the route is at grade and crosses the flat agricultural landscape. It cuts through blocks of woodland at Grafton Wood and adjacent to Grafton Lane. Unlike SC1 and SC2, this route is carried under the railway line in a cutting, with a depth of approximately 2.8m. The route is also carried in cut under Haywood Lane and from Chainage 1200 to chainage 2200 views across the landscape would be intermittent. The route is then carried on a bridge over Newtown Coppice to the junction with the A465. The embankments for the bridge are between 3m and 4m high. In this short

section views would be more open across the landscape although the density of the woodland would restrict long views.

Traveller stress

12.4.12. This route option is the one of the shortest of the six options under consideration and would reduce journey times slightly more than the other routes. The junction proposals at the A49 and A465 are the same as route options SC1 and SC2. As with these routes, impacts on congestion in Hereford town centre will be similar. The route will decrease traveller stress by providing an alternative route to the existing route through Hereford.

Route Option SC4

Travellers' views

12.4.13. This route option is similar to SC3 and follows the same alignment from Chainage 0 to chainage 2400. Here it diverges from SC3 and intersects with the A465 at a slightly more easterly point, east of the junction with the B4349. It is predominantly at grade between Chainage 0 and chainage 1200 before going into cut to be carried under the railway line. The route is in cut between Chainage 1200 and chainage 2250 and travels under Haywood Lane. Views in this section would be restricted due to the depth of cutting, with the cut under the railway line approximately 2.8m with the underpass at Haywood Lane approximately 6.8m. The route is then carried on embankment with a bridge over Newton Coppice before intersecting with the A465. In this short section long views would be restricted due to the dense canopy of the woodland.

Traveller stress

12.4.14. This route option will have similar impacts to SC3 as it is a relatively straight section of road with junctions located at either end. The improved road geometry and quicker route will reduce driver stress.

Route Option SC5

Travellers' views

12.4.15. This route follows a similar alignment to SC4 from Chainage 0 to chainage 1200 and is predominantly at grade. Views would be open across the flat agricultural landscape. The route diverges from SC4 at Chainage 1200 and is carried in cut under the railway line with a maximum cut depth of 3m. SC5 then travels parallel with Grafton Lane to the intersection with Haywood Lane and continues in cutting from Chainage 1200 to chainage 2400 with a maximum cut depth of around 9.7m at Chainage 1900. Views in this section would be restricted due to the depth of cut. The route then comes back at grade between Chainage 2500 and its termination on the A465 at chainage 3070. This route skirts the southern edge of Hayleasow Wood and the woodland would be the prominent feature in the view to the north for drivers. Views to the south are more open across the agricultural landscape.

Traveller stress

12.4.16. This route will have similar impacts to the other southern core routes in terms of traveller stress. It will provide a quicker and less congested route than travelling through Hereford town centre and will reduce traveller stress.

Route Option SC6

Travellers' views

12.4.17. This route is mostly at grade from Chainage 0 to chainage 1200. Unlike the other southern core routes, this route option skirts along the northern edge of Grafton Wood rather than travelling through it. This results in the route alignment having more bends in this section than the other route options. Views in this section would be open across the agricultural landscape with the woodland at Grafton Wood and the small area of woodland adjacent to Grafton Lane being prominent features. From Chainage 1200 to chainage 2400 the route is mostly in cut with the road being carried under the railway line and Haywood Lane. The maximum depth of cut in this section is approximately 7.8m and views in this section would be restricted. The route is then carried on a bridge over Newton Coppice at a maximum height of 4.4m. Views in this short section from Chainage 2400 to chainage 3000 would be more open, although the density of woodland at Newton Coppice would restrict long views.

Traveller stress

12.4.18. The sight lines of this option between Chainage 0 and chainage 1400 are more restricted than those of route options SC 1 to SC5. This would have a slight negative impact on traveller stress. However, it is assessed that overall this route option would result in a decrease in traveller stress as it diverts traffic away from Hereford town centre and would result in decreased journey times.

12.5. Summary of options

12.5.1. In terms of traveller care all six route options for the Southern Core would have a neutral impact.

12.5.2. All the route options pass through a rural landscape rather than the built up townscape of Hereford City Centre, therefore all route options would have a slight beneficial impact on travellers' views. Route options SC1 and SC2 would have the most open views of the six routes with limited cuttings. Route options SC3 to SC6 all have a mixture of open and restricted views due to the routes being carried in cuttings through the middle sections. Therefore, in terms of travellers' views, route options SC1 and SC2 are slightly more beneficial.

12.5.3. The Southern Core routes divert traffic away from Hereford City Centre, reducing congestion and would result in a beneficial impact by reducing driver stress. Of the six route options SC6 is marginally less preferred than the others due to the proposed alignment. Route options SC3 and SC4 are the shortest, straightest options and are slightly preferred over route options SC1, SC2 and SC5.

12.6. Conclusions

Overall route options SC3 and SC4 are marginally preferred over the other route options, taking into consideration all the factors of journey ambience.

13. Summary and Recommendations

13.1. Introduction

13.1.1. As outlined in this Study of Options Environmental Assessment Report (SOEAR) a complete appraisal in line with Department for Transport (DfT) Transport Analysis Guidance (TAG) has not been undertaken. This is mainly due to the stage the assessment process has reached at the time of writing. No detailed route alignments are available as well as traffic information from an up-to-date traffic model.

13.1.2. This assessment provides an overview of the main environmental constraints for each of the six route options with the aim of providing an order of preference in terms of environmental impact. The impact of each route option has been assessed in terms of land take type impacts due to the lack of traffic information. Traffic type impacts will be assessed later in the assessment process once the traffic model has been updated.

13.2. Key Environmental Impacts

13.2.1. All six route options will result in environmental impacts to some extent. The type, duration and significance of the impacts depend on the alignment of each route option and the existing environmental constraints.

13.2.2. Table 13.1 is a high-level comparison of route options based on land take type impacts, without any detailed mitigation in place. At detailed design measures will be included that will alleviate, control and in some cases remove adverse impacts on the environment. In some instances enhancement measures will be included to result in a beneficial impact on the environment from the scheme, such as landscaping and visual and acoustic screening, compensation for lost vegetation and habitats, pollution prevention measures for surface runoff, consideration of SUDS, tunnels and green bridges for wildlife and non-vehicular traffic amongst other mitigation. In accordance with DMRB, only mitigation measures agreed by the Overseeing Organisation are included in the assessment process.

Guide to symbols

✓ - Slight beneficial
✓✓ - Slight/ Moderate beneficial
✓✓✓ - Moderate beneficial
✓✓✓✓ - Moderate/Large beneficial
✓✓✓✓✓ - Large beneficial

× - Slight adverse
×× - Slight/Moderate adverse
××× - Moderate adverse
×××× - Moderate/Large adverse
××××× - Large adverse

0 - Neutral

Table 13.1: Summary of Environmental Impacts for all Route Options

Environmental Topic	Route Option SC1	Route Option SC2	Route Option SC3	Route Option SC4	Route Option SC5	Route Option SC6
Noise	××	××	×××	×××	××	×××
Air Quality	××	×	×	×	×	×
Greenhouse Gases	×××	××	×	×	××	××
Landscape	××	××	××	××	××	×
Townscape	✓	✓	✓	✓	✓	✓
Heritage of Historic Resources	×××	×	×××××	×××××	×××××	×××××
Biodiversity	×××××	××××	×××××	×××××	××××	×××
Water Environment	××	××	×	×	0	×
Physical Fitness	×××	×××	××××	××××	×××	×××
Journey Ambience	✓	✓	✓✓	✓✓	✓	✓
Overall Order of Preference	4	1	3	3	2	2

13.2.3. From the data collected for the Study of Options, it appears there is an order of preference of route options in terms of land-take type impacts (Table 13.1): Route options SC2, SC5 and SC6 appear to perform similarly and slightly better than the other three options.

13.2.4. The environmental impact of the proposed scheme is generally adverse for all of the Sub-Objectives assessed, except for Townscape and Journey Ambience. However, it is recommended that further assessment is undertaken once a traffic model has been developed for the scheme and traffic flows are available to assess traffic type impacts.

13.2.1. In line with the Natural England's Green Infrastructure Guidance, the proposed Southern Corridor Link needs to be accompanied with a green infrastructure proposal. Further detail on the proposal will be available at a later stage in the process; however at this stage the requirement for a proposal is noted. Considering the existing environment within the Southern Corridor it is proposed that landscape parkland, community gardens, allotments or formal gardens would work well.

13.3. Significance of Environmental Effects

13.3.1. The environmental effects are likely to be High and the sensitivity of the receptors is High so the impact will be Large Adverse for all route options, prior to mitigation.

Appendix A

Consultation Responses

Fitzpatrick, Orla

From: Cotton, Julian <jcotton2@herefordshire.gov.uk>
Sent: 12 March 2012 16:35
To: Palmer, Andrew
Subject: Hereford Relief Road, southern and eastern corridor options

Dear Andrew,

I enclose my initial comments on the above consultation.

My apologies for the slight delay with this, I had some significant I.T. problems at the end of last week.

SOUTHERN CORRIDOR

A brief early-stage assessment has been made of various suggested route options between the junction of the A 49 Ross Road / B4399 Rotherwas Access Road, and the A 465 Abergavenny Road near Hayleasow/Abbey Farm.

General comments Whilst it is acknowledged that the particular assessment undertaken is not intended to be a full assessment, I am concerned about the way the historic environment 'constraint' information has been generated/depicted. The only constraints apparently indicated are the currently known and designated sites (ie the listed buildings and scheduled monuments) directly en-route. This approach neglects other known sites, which, although not designated at present, have sufficient interest and sensitivity to be considered for such. The approach does not take into account the potential for impact on further currently undiscovered sites, nor the possible impact on the 'setting' of sites generally. Issues of this kind were directly raised in the Independent Review of Hereford Relief Road Technical Studies (Parsons Brinckerhoff, July 2011)

SC1 This option commences at a junction on the A465 Abergavenny Road, just to the south west of Belmont Abbey (HSM 9431). After passing by Spring Grove, and crossing the Hereford - Cardiff rail line, near to the find-spot of prehistoric flints (HSM 6281), the option curves round well to the south near to The Green, and through Grafton Wood to the Ross Road.

SC2 This option is similar to SC1 over most of its alignment, but the western third is different. This third commences from a point some 400m further south west on the Abergavenny Road, and follows a more southerly course for about a kilometre. The course curves gently round the south of Hayleasow Wood and Spring Grove, and crosses the Belmont - Haywood road before re-joining the SC1 alignment as above. Little is currently known about the archaeology of the western third here.

SC3 This option bisects the narrow join between Hayleasow Wood and Newton Coppice, before crossing fields to the Belmont - Haywood Road. Prehistoric flints and Romano-British pottery have been found in these fields, which may be indicative of a wider interest. After crossing the former alignment of the historic Hereford – Abergavenny tramway (1829AD), near to the current Cardiff line, the option passes to the south of Grafton village. At this point, the option appears to suggest a direct impact on a peculiar - but significant - archaeological site - the 'Grafton Enclosure' (HSM 10467). Further to the east, the option passes through Grafton Wood and joins the roundabout on the Ross Road, close to an area of prehistoric interest.

SC4 This option is very similar to option 3, the only difference being the junction arrangements at the far eastern end.

SC5 This option differs from SC3 / 4 in respect of its western half, which cuts across to the south of (the listed) Merry Hill Farm, close to Beech Grove and Spring Grove. The route is set comparatively high in the landscape here, and may impact on crop-mark features of likely archaeological origin to the north east of Beech Grove.

SC6 This option follows a more sinuous course than SC3 /4, thus enabling the avoidance of sensitive locations such as Grafton Wood, and the Grafton Enclosure referred to above. However, it is understood that there are a number of engineering and road standards issues relating to this option.

EASTERN CORRIDOR

A brief early-stage assessment has been made of what appears to be a single suggested route option between the junction of the 'straight mile' Holme Lacy Road / B4399 Rotherwas Access Road, and the A 438 Ledbury Road north east of Tupsley Court.

General Comments Additional to the general comments made in relation to the southern corridor - which are also applicable here - I also have a concern that the lack of consideration of alternatives may represent a weakness in the process undertaken for the eastern corridor. This is particularly so south of the River Wye, where an extensive and significant grouping of heritage assets (The scheduled former location of Rotherwas House and gardens, and Rotherwas Chapel and associated features) is present. This grouping is situated in a challenging location as regards the preferred alignment of EL3, and I do wonder whether a variant of EL12 (i.e. a route passing to the *east* of the chapel, within the suggested north west boundary of the Enterprise Zone, before swinging back towards Hampton) might be more appropriate from the historic environment point of view.

EL3 (southern element of option) This part of the option is constrained by the difficulty of accommodating a significant new road in the comparatively narrow gap between the Rotherwas SAM as discussed above, and the sewage works to the west. The option as depicted on available mapping suggests an alignment very close to the western boundary of the SAM. This is far from being ideal. If this option is to be pursued, I would strongly recommend that the actual alignment here be moved as far as possible to the West (ie much closer to the sewage works if possible)

EL2 (northern element of option) This part of the option comes up from the River Wye, close to the *Franchise Stone*, and passes through the proposed Hampton 'rugby club' site. This area has been demonstrated to have some potential for Medieval, Roman and Prehistoric Finds. Further to the north, the route option keeps slightly above the clearly sensitive floodplain. A number of finds have previously been made to the south of Tupsley Court (HSM 6500, 6501 etc).

I hope the above comments are helpful.
Regards,

Julian

Julian Cotton, Archaeological Advisor, Herefordshire Council

Fitzpatrick, Orla

From: Jobson, Paula
Sent: 15 March 2012 15:57
To: Palmer, Andrew
Subject: FW: National Cycle Network route 46 / Park & Share / Park & Cycle
Attachments: NCN_46_-_2011_Map.pdf

Discussion on potential effect of severance of national cycleway

-----Original Message-----
From: Edwards, Mark [mailto:medwards2@herefordshire.gov.uk]
Sent: 15 March 2012 15:41
To: Jobson, Paula
Cc: Tustain, Yvonne; Callard, Jeremy
Subject: National Cycle Network route 46 / Park & Share / Park & Cycle

Hi Paula

Just to confirm the NCN46 route alignment currently the route emerges fro the southern end of the Great Western Way / Shaw's Path and joins Merryhill Lane to pass under the railway line to Grafton Lane. This continues southwards to Callow Marsh (usually shown as Portway on OS maps) where the car showrooms are. Cyclists on the A49 can pick up the route here into town, but route 46 veers away from the A49 and continues along Knockerhill Lane (C1228) on its way to Kilpeck and Kentchurch then on to Abergavenny.

Attached is an outline map showing the route as it is now.

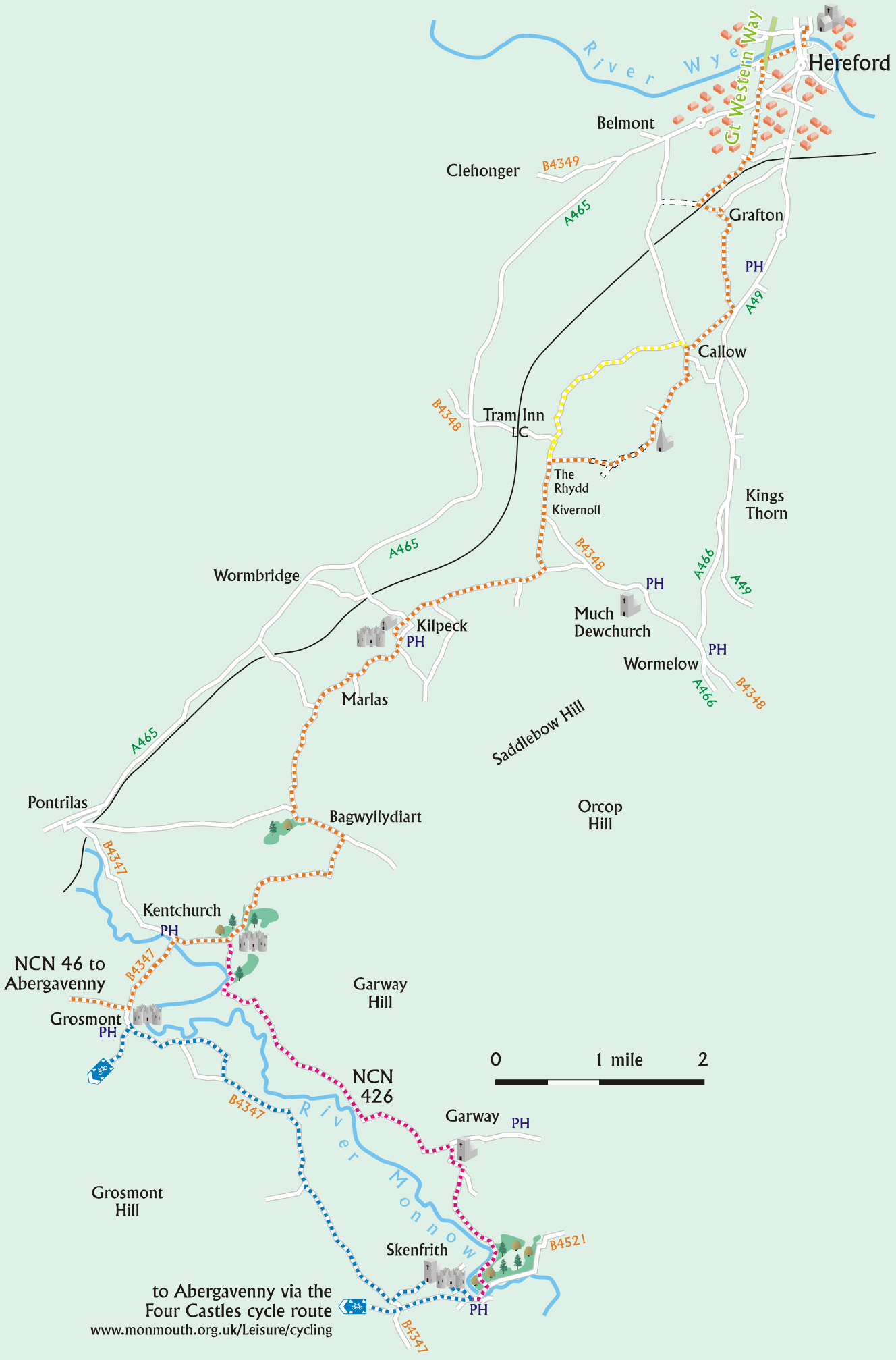
The other projects I mentioned - Park & Share / Park & Ride could also benefit from a walking/cycling link from the Grafton Inn to NCN46. Here's a link to our web pages describing the scheme and how they work:
http://www.herefordshire.gov.uk/transport/50407.asp
http://www.herefordshire.gov.uk/transport/50414.asp

The idea is to identify and reserve spaces in use existing car parks that are usually empty during the day for commuters to either meet up and share their journey into town in one car rather than separately, or for car parks nearer the city, they may prefer to cycle the last bit, thus eliminating the car journey altogether. With route 46 so close, the Grafton is ideally placed, however at present for cyclists it does require them to cycle along a stretch of the A49 to get to NCN46 making it realistically only available to experienced cyclists. A shared walking / cycle route linking near there to NCN46 parallel to the proposed link road would open up this option to cyclists of all abilities, thus helping to reduce the traffic coming into town.

Although we haven't publicised NCN46 extensively yet, we are finding it to be well used and Grafton Lane is well suited to cyclists of all abilities as an alternative to the A49 here, let alone with it linking in to the Great Western Way. Severing this link for walkers and cyclists would severely affect the route's attractiveness and undermine its ability to take traffic off the city's roads. The route has been designed to be as free of interruptions as possible as this severely impairs its ability to attract motorists from their cars. Ideally we should aim to keep route 46 as continuous as we can for walkers and cyclists.

Let me know if you need any further information ....

Mark Edwards
Integrated Transport Assistant
Cycling, Staff Travel Plan, Park & Ride
Transportation, The Herefordshire Council, PO Box 236, Plough Lane (H37), Hereford. HR4 0WZ


River Wye
Hereford
Gt Western Way
Belmont
Clehonger
B4349
A465
Grafton
PH
A49
Callow
B4348
Tram Inn
LC
The
Rhydd
Kivernoll
Kings
Thorn
A465
Wormbridge
B4348
A466
A49
PH
Much
Dewchurch
Kilpeck
PH
PH
Wormelow
A466
B4348
Marlas
Saddlebow Hill
A465
Pontrilas
Bagwyllydiart
Orcop
Hill
B4347
Kentchurch
PH
NCN 46 to
Abergavenny
B4347
Garway
Hill
Grosmont
PH
0
1 mile
2
NCN
426
B4347
River Monnow
Garway
PH
Grosmont
Hill
Skenfrith
B4521
to Abergavenny via the
Four Castles cycle route
www.monmouth.org.uk/Leisure/cycling
PH
B4347

ENGLISH HERITAGE

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Your ref: 551594/AP

Telephone 0121 625 6851
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06 March 2012

Dear Mr Palmer

re: **HEREFORD RELIEF ROAD SOUTHERN CORRIDOR ASSESSMENT**

Thank you for your letter of 10 February and the invitation to comment on the series of initial technical routes in support of options for the Southern Corridor of the proposed Hereford Relief Road. In addition to the technical drawings, we also received the technical notes for each of the five routes giving the identified design constraints and the standards used.

In your letter you explain that the current consultation relates to a review of the routes assessed within the Study of Options Report (2010) and the potential issues likely to be associated with expanding the corridor to include a previously proposed route promoted by the Department of Transport in the 1990s. We acknowledge that the stated aim of the present study is to inform a definitive corridor for inclusion within the next consultation stages of the Local Development Framework and Local Transport Plan. We also acknowledge that the study is not intended to provide a preferred route alignment as these will be assessed in more detail in the next stages of the assessment.

This pre-defined scope of the study serves as the context for our comments at this stage. Although we welcome the opportunity to comment on the information provided for this element of the assessment, it should be noted that English Heritage was not consulted directly in the development of the Study of Options Report (2010), this including assessing the environmental aspects of the route corridor options. We subsequently made comments on the Report and its environmental assessment as part of our response to the Core Strategy Preferred Option (2010) and the Revised Hereford Preferred Option (2011).

A number of our previous comments remain relevant to the current study of the Southern Corridor. As a general comment on the overall process, we continue to have concerns about the complexity of the assessment process and its presentation and communication.

Whilst we recognise the current study was in part initiated following consultation responses to the Local Development Framework, we wish to reiterate the importance of the assessment process being fully transparent; appropriate to the nature and scale of the potential impacts and the stage of the proposal; and consistent across the entire length of the proposed corridor for the Hereford Relief Road. The latter aspect is necessary to ensure that all potential impacts are considered in a balanced, proportionate and robust way, and following from this an integrated approach can be taken to avoid and, where necessary, mitigate potential impacts.

We also previously highlighted a number of issues with respect to the environmental assessment and its treatment of the historic environment and heritage assets and their settings. From the information provided on the initial routes for the Southern Corridor, we have the following comments:

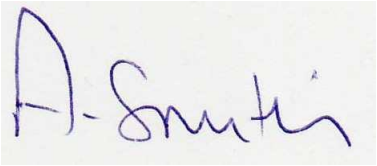
1. Associated with our general comment on the overall assessment process, the focus on a particular section of the corridor for the relief road in isolation creates potential difficulties in considering how it could impact on options for adjoining sections, especially to the west. In particular, near to the A465 is the grouping of listed buildings in the area of Belmont Abbey, and further west Belmont House and grounds and ultimately a river crossing. As such any decisions on the corridor for this Southern section will need to carefully consider any potential implications for the proposed spatial extent of the adjoining corridor.

2. The mapped information on the technical drawings appears to be confined to designated heritage assets (e.g. listed buildings, scheduled monuments, historic parks and gardens, conservation areas). Similarly the supporting technical notes under 'constraints' only include a very broad generalisation on listed buildings. This is linked to the general location of properties rather than any specific analysis of the historic environment and heritage assets. For example, this might include a description of the location, type and grade of the identified building(s) as well as clearly recognising the need to consider potential impacts on their setting in any consideration of significance. In previous responses we have already highlighted that potential impacts on the setting in this area could include the Abbey Church of St Michael (Grade II*), and Haywood Lodge (Grade II*) as well as the other identified listed buildings. English Heritage has published guidance on managing change within the settings of heritage assets [The Setting of Heritage Assets (2011), available at www.english-heritage.org.uk/publications/setting-heritage-assets/]. The guidance offers a framework for the consideration of setting, applicable to designated and undesignated heritage assets, and for assessing the implications of development affecting the setting of a heritage asset.

3. Although the key for the technical drawings indicate more detailed information on the historic environment (e.g. HLC area; post medieval sites; prehistoric, Roman and Medieval sites), the maps do not appear to show any associated data. In our previous responses we have highlighted the need to consider undesignated heritage assets at an appropriate level of detail during the assessment process to accord with PPS 5. To this end it would be helpful to include in the technical notes confirmation that data from the local authority Historic Environment Record has been collated (and where relevant mapped). Depending on the scope of the data, it may also be appropriate to include a broad overview of the records identified, their significance and a general indication of the archaeological potential of the area.

8TH FLOOR, THE AXIS, 10 HOLLIDAY STREET, BIRMINGHAM B1 1TG
Telephone 0121 625 6820 Facsimile 0121 625 6821
www.english-heritage.org.uk

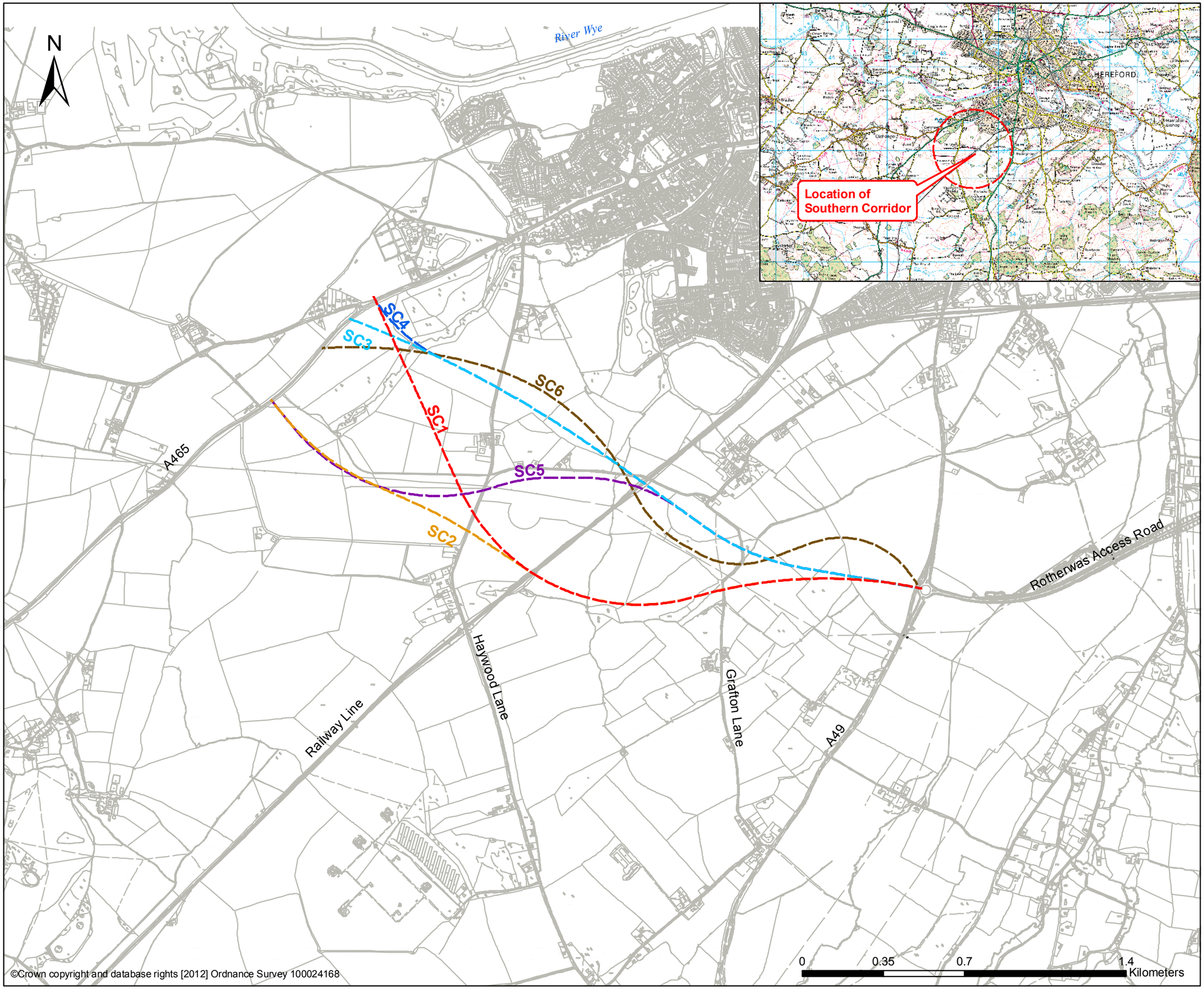
Yours sincerely



Amanda Smith
Planner (West Midlands)
E-mail: amanda.smith@english-heritage.org.uk

Appendix B

Figures



Legend

Alignment

- South Core Route 1
- South Core Route 2
- South Core Route 3
- South Core Route 4
- South Core Route 5
- South Core Route 6

Rev	Revision Details	Chkd	Appd	Date

Drawn : CC	Preliminary *
Design : OF	For Comment
Chkd : OF	For tender
Appd : SMcK	For construction
Date : March 2012	As constructed
	Other

amey

Client :

G. HUGHES B.A.(Hons), M.R.T.P.I., M.I.E.D.
DIRECTOR of SUSTAINABLE COMMUNITIES

Herefordshire Council

Brockington, 35 Hafod Road, Hereford, HR1 1SH Tel: (01432) 260000 Fax: (01432) 260286

Project Name :

Hereford Relief Road
Southern Corridor Study

Drawing Title :

Location Plan

Original Drawing Size :	A3
Scale : 1:15,000	Dimensions :

Drawing No	Map No	Rev
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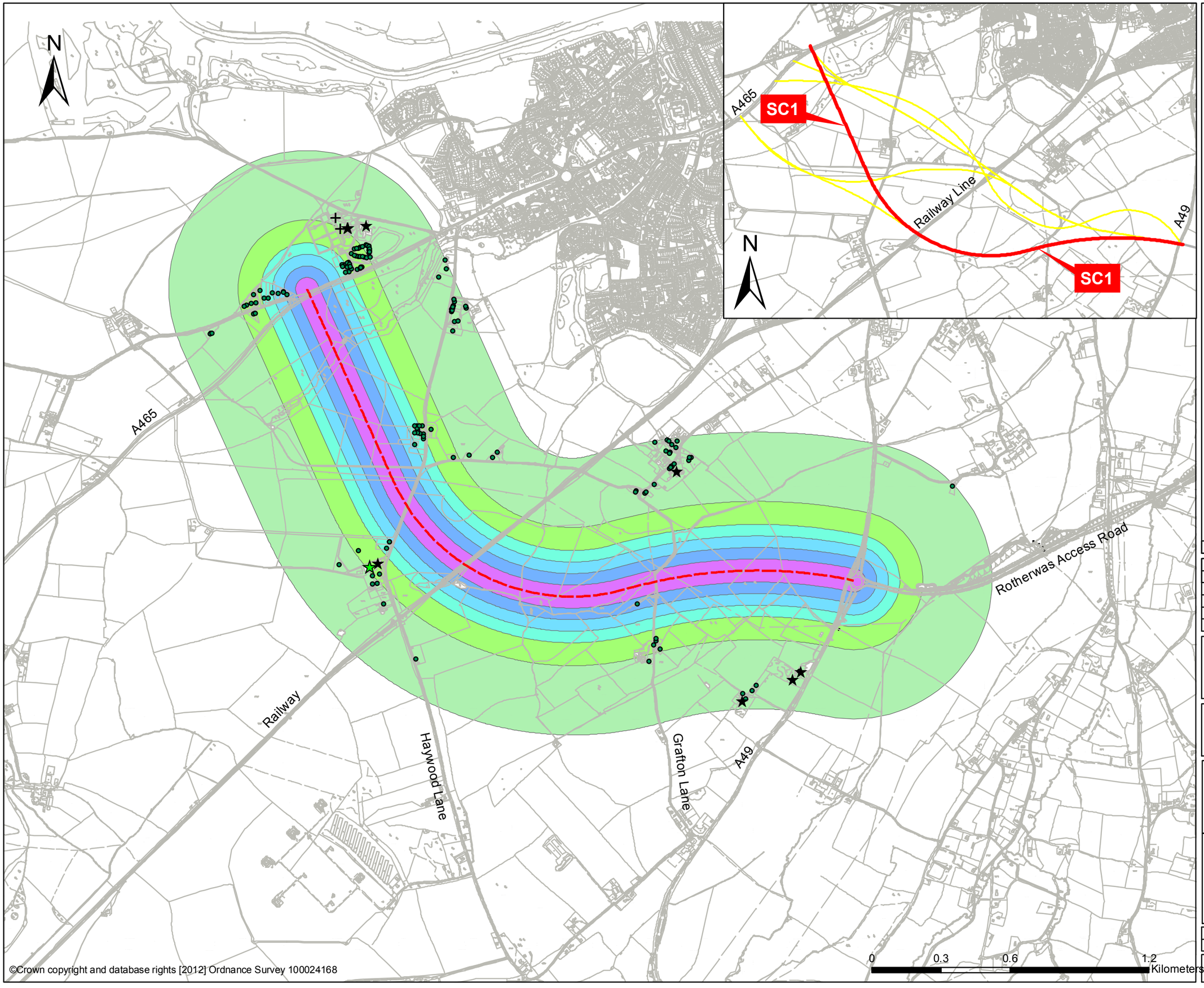

Legend

- Residential Receptors
- Place of Worship
- Commercial Receptor
- Industrial Receptor
- South Core Route 1
- 0-50m Buffer (No Receptors)
- 50m-100m Buffer (2 Residential Receptors)
- 100m-150m Buffer (3 Residential Receptors)
- 150m-200m Buffer (23 Residential Receptors)
- 200m-300m Buffer (43 Residential Receptors 1 Commercial Receptor 1 Industrial Receptor 1 Place of Worship)
- 300m-600m Buffer (76 Residential Receptors 7 Commercial Receptors 1 Place of Worship)

Rev	Revision Details	Chkd	Appd	Date

Drawn : CC	Preliminary *
Design : OF	For Comment
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Appd : SMcK	For construction
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Brockington, 35 Hafod Road, Hereford, HR1 1SH Tel: (01432) 260000 Fax: (01432) 260286

Project Name :

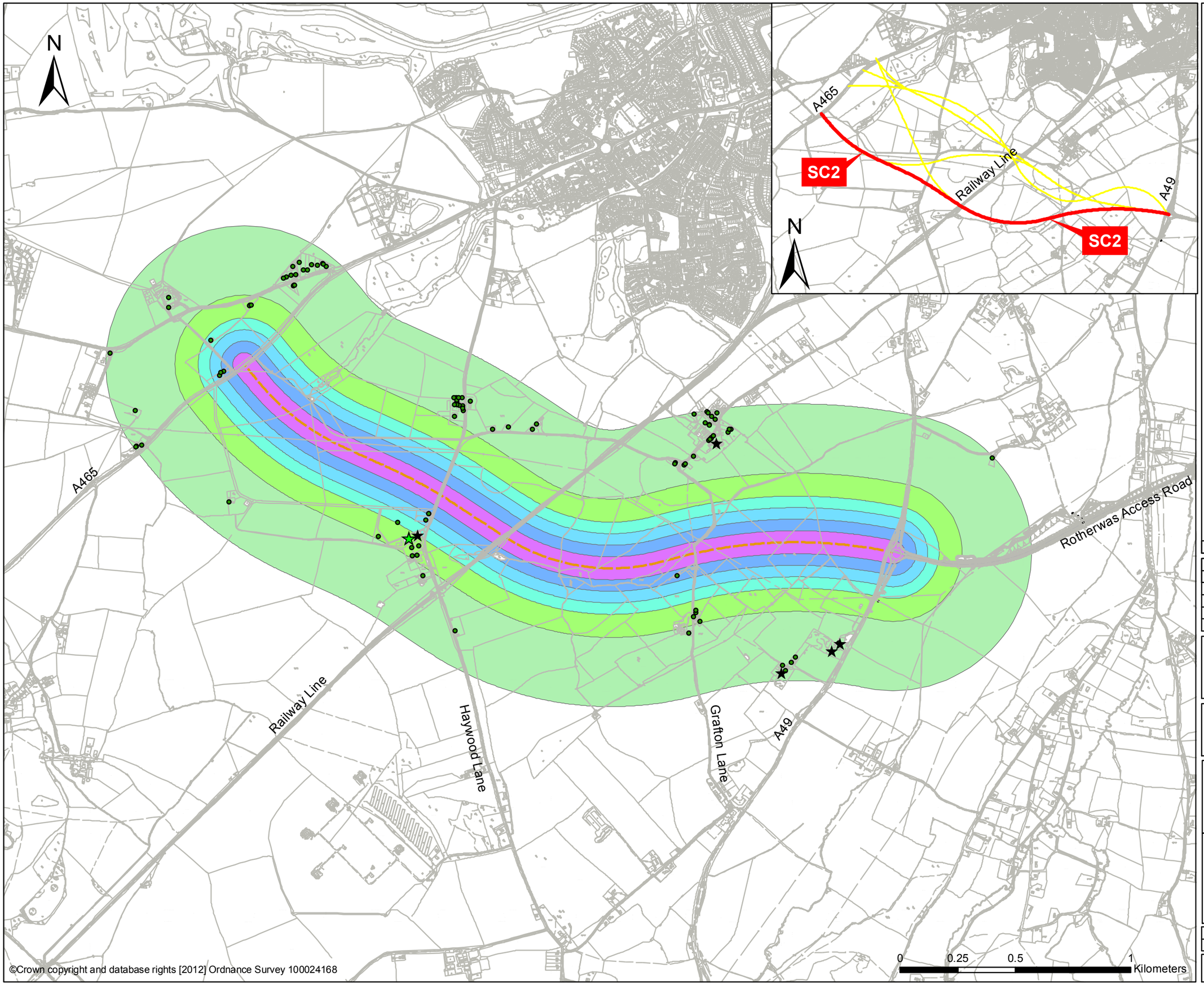
Hereford Relief Road
Southern Corridor Study

Drawing Title :

Receptors Within 600m
South Core Route 1

Original Drawing Size :	A3
Scale : 1:15,000	Dimensions :

Drawing No	Map No	Rev
Figure 2.1		



Legend

- Residential Receptor
- Commercial Receptor
- Industrial Receptor
- South Core Route 2
- 0-50m Buffer (No Receptors)
- 50m-100m Buffer (4 Residential Receptors)
- 100m-150m Buffer (3 Residential Receptors)
- 150m-200m Buffer (2 Residential Receptors)
- 200m-300m Buffer (12 Residential Receptors 1 Commercial Receptor 1 Industrial Receptor)
- 300m-600m Buffer (78 Residential Receptors 4 Commercial Receptors)

Rev	Revision Details	Chkd	Appd	Date

Drawn : CC	Preliminary *
Design : OF	For Comment
Chkd : OF	For tender
Appd : SMcK	For construction
Date : March 2012	As constructed
	Other

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Brockington, 35 Hafod Road, Hereford, HR1 1SH Tel: (01432) 260000 Fax: (01432) 260286

Project Name :

Hereford Relief Road
Southern Corridor Study

Drawing Title :

Receptors Within 600m
South Core Route 2

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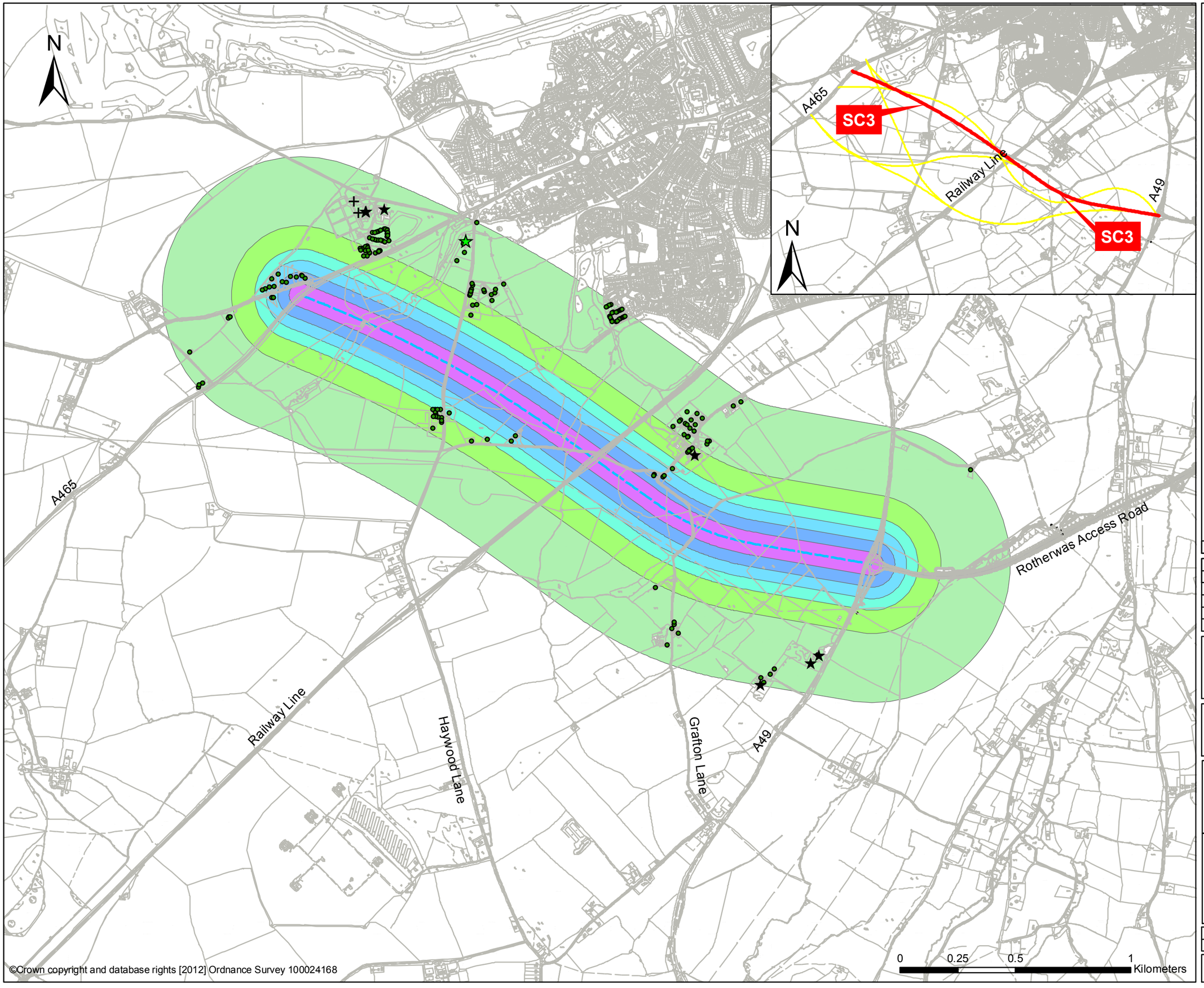
Scale : 1:15,000	Dimensions :

Drawing No	Map No	Rev
Figure 2.2		



Legend

- Residential Receptor
- Place of Worship
- Commercial Receptor
- Industrial Receptor
- South Core Route 3
- 0-50m Buffer (No Receptors)
- 50m-100m Buffer (9 Residential Receptors)
- 100m-150m Buffer (11 Residential Receptors)
- 150m-200m Buffer (7 Residential Receptors)
- 200m-300m Buffer (37 Residential Receptors 1 Commercial Receptor)
- 300m-600m Buffer (113 Residential Receptors 6 Commercial Receptors 1 Industrial Receptor 2 Places of Worship)

Rev	Revision Details	Chkd	Appd	Date

Drawn : CC	Preliminary *
Design : OF	For Comment
Chkd : OF	For tender
Appd : SMcK	For construction
Date : March 2012	As constructed
	Other

amey

Client :

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Herefordshire Council

Brockington, 35 Hafod Road, Hereford, HR1 1SH Tel: (01432) 260000 Fax: (01432) 260286

Project Name :

Hereford Relief Road
Southern Corridor Study

Drawing Title :

Receptors Within 600m
South Core Route 3

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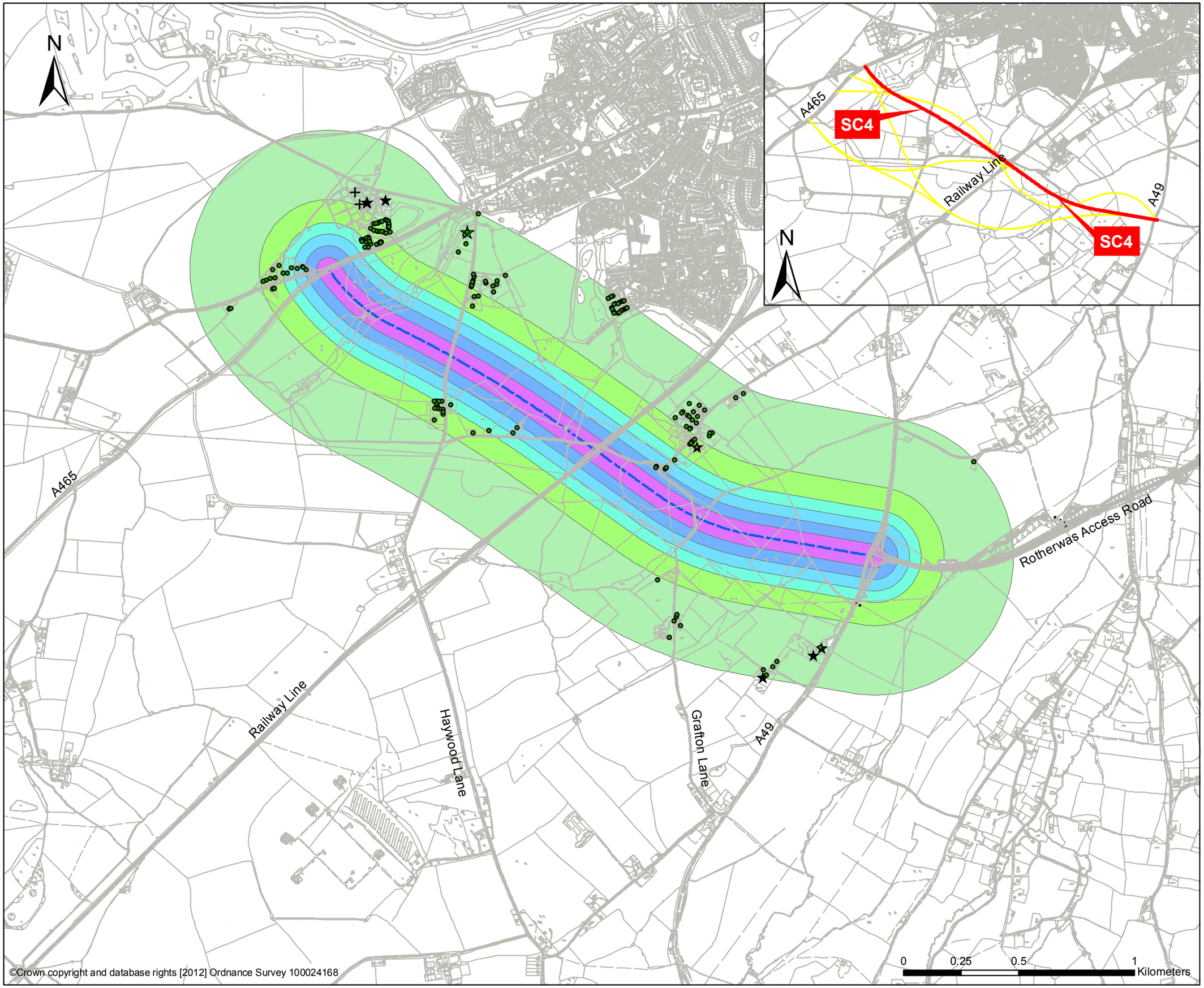
Drawing No	Map No	Rev
Figure 2.3		



Legend

- Residential Receptor
- Place of Worship
- Commercial Receptor
- Industrial Receptor
- South Core Route 4
- 0-50m Buffer (No Receptors)
- 50m-100m Buffer (3 Residential Receptors)
- 100m-150m Buffer (7 Residential Receptors)
- 150m-200m Buffer (13 Residential Receptors)
- 200m-300m Buffer (58 Residential Receptors 1 Commercial Receptor)
- 300m-600m Buffer (92 Residential Receptors 6 Commercial Receptors 1 Industrial Receptor 2 Places of Worship)

Rev	Revision Details	Chkd	Appd	Date

Drawn : CC	Preliminary *
Design : OF	For Comment
Chkd : OF	For tender
Appd : SMcK	For construction
Date : March 2012	As constructed
	Other

amey

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Brockington, 35 Hafod Road, Hereford, HR1 1SH Tel: (01432) 260000 Fax: (01432) 260286

Project Name :

Hereford Relief Road
Southern Corridor Study

Drawing Title :

Receptors Within 600m
South Core Route 4

Original Drawing Size :	A3
Scale : 1:15,000	Dimensions :

Drawing No	Map No	Rev
Figure 2.4		