A61 BIRDWELL JUNCTION IMPROVEMENT

ENVIRONMENTAL ASSESSMENT REPORT

VOLUME 1

NOVEMBER 2014

BARNSLEY
Metropolitan Borough Council

A61 BIRDWELL JUNCTION IMPROVEMENT

ENVIRONMENTAL ASSESSMENT REPORT

CONTENTS

Non-Technical Summary

VOLUME ONE

Section		Page Number
1	Introduction	1 - 2
2	The Need For The Proposed Development	3 – 4
3	The Proposed Development	5 – 7
4	Alternatives Considered	8
5	Environmental Impact Assessment Method	9 – 25
6	Air Quality	24 – 27
7	Cultural Heritage	28 – 31
8	Landscape and Visual Amenity	32 – 98
9	Nature Conservation	99 – 103
10	Materials, Geology and Soils	104 – 106
11	Noise and Vibration	107 – 109
12	Effects on All Travellers	110 – 114
13	Community and Private Assets	115
14	Road Drainage and Water Environment	116 – 118
15	Assessment of Cumulative Effects	119 – 123
16	Outline Environmental Management Plan	124 – 141
17	Conclusions	142
18	Glossary	143 - 144

LIST OF FIGURES

Fig.	Title	Scale
01	Landscape Local Context	1:25,000 @ A3
02	Landscape Aerial Photograph	1:25,000 @ A3
3A	Outline Highway Design	1:25,000 @ A3
04	Topography and Drainage	1:10,000 @A3
05	Landscape and Planning Context	1:25,000 @ A3
06	Landscape Character	1:25,000 @ A3
07	Nature Conservation	1:25,000 @ A3
08A	Visual Assessment	1:10,000 @ A3
08B	Visual Assessment	1:5,000 @ A3
09	Photographic Views Sheets 1 to 3	NTS
10	Landscape Proposals	1:2,500 @ A3
11	Proposed General Arrangement Dwg. No. HD/A61.69.1/PA/1	1:000 @ AO
12	Proposed Drainage Layout Dwg. No. HD/A61.69.1/PA/1	NTS

A61 BIRDWELL JUNCTION IMPROVEMENT

VOLUME 2 - APPENDICES

Appendix 1 Traffic Assessment - AECOM Transportation Consultants.

Appendix 2 Extended Phase 1 Habitat Survey - Wildscapes Environmental Services.

Appendix 3 Archaeological Desk Based Assessment – West Yorkshire Archaeological Services, WYAS.

Appendix 4 Archaeological Geophysical Survey - West Yorkshire Archaeological Services, WYAS.

Appendix 5 South Yorkshire Mining Advisory Service (Mining Report) SYMAS.

Appendix 6 Geotechnical Desk Top Study – Abbeydale Building, Environmental Consultants.

Appendix 7 Geotechnical Report (Technical Report) – Sub Surface North East Ltd.

Appendix 8.1* Landscape & Visual Impact Assessment Methodology – Wainwright Landscape Architecture

Appendix 8.2* Landscape & Visual Impact Tables – Wainwright Landscape Architecture

Appendix 8.3* Landscape Proposals Design Criteria – Wainwright Landscape Architecture.

Appendix 8.4* Tree Survey – Wainwright Landscape Architects.

Appendix 9 Noise & Vibration Survey Report – Enzygo Environmental Consultants.

Appendix 10 Air Quality Survey Report – White, Young, Green Consulting Engineers.

Appendix 12* View from the road – Vehicle Traveller Assessment

* Included in Volume 1

A61 BIRDWELL JUNCTION IMPROVEMENT
NON TECHNICAL SUMMARY

BARNSLEY
Metropolitan Borough Council

A61 BIDWELL JUNCTION IMPROVEMENT

NON TECHNICAL SUMMARY

1.0 INTRODUCTION

The Dearne Valley Parkway at Hoyland was completed in 1998 and forms a strategic link connecting the M1 to the Dearne Towns at Goldthorpe and is an essential part of BMBC's Strategy to regenerate the Dearne Valley. Hoyland contains the section of the road linking to the M1 Motorway.

1.1 Traffic queuing and delays at the A61 Birdwell Roundabout have been a problem for a number of years. High volume traffic associated with the M1 and the Dearne Valley Parkway combines with local traffic, resulting in long queues on the A61 through Birdwell and along the A6135 to Allots Corner at Hoyland Common.

1.2 Congestion relief along the A6195 Dearne Valley Parkway was identified as a key scheme in the Local Transport Plan (South Yorkshire LTP3 Implementation Plan 2011 – 2015).

1.3 An Environmental Impact Assessment (EIA) of the proposed scheme has been completed and an Environmental Statement (ES)
The Statement has been prepared in support of a Planning Application in accordance with Town and Country Planning (Environmental Impacts Assessment) Regulations 2011, to provide information to allow the determining authority to give an opinion on the information supplied etc.

1.4 This short report constitutes the non-technical summary (NTS) of the ES, which summarises the environmental impacts and presents the main findings in an easily understandable form using non-technical language.

2.0 Description of the Proposed Scheme

The proposed scheme will consist of:

- the replacement and upgrade of the A61 Birdwell Roundabout, increasing overall size with additional traffic lanes;
- the realignment and upgrade of links to the A61 Sheffield Road and to Junction 36 of the M1, increasing capacity of the existing approaches;
- the construction of a new balancing pond, forming part of the highway drainage system to store water runoff from the road;
- the creation of a new roundabout junction (Roundabout 1) to the east side of Birdwell Roundabout;
- carriageway re-alignment and tie-in to the A6135 Sheffield Road, improving forward visibility of the existing road to meet current design and safety standards;
- the construction of a new section of carriageway linking northwards, to improve traffic flows and overall capacity;
- the creation of a second new roundabout junction (Roundabout 2), connecting to Rockingham Roundabout;
- the inclusion of new spurs at Roundabout 1 and Roundabout 2 to facilitate links for future development;
- the creation of an additional slip road exit lane off the M1 at Junction 36 for vehicles travelling towards Birdwell / Barnsley.

A new 3.0m wide combined footpath / cycleway would be incorporated into the scheme improving safety for users.

New energy efficient Street lighting is to be provided on the new section of road.

The new junction would be signalised and linked to the Highways Agency signals at Junction 36 of the M1.
The scheme fits into the landscape by following the existing ground level where possible or on minimum embankment.
Most of the scheme would be phased and such is the design constructed off-line to minimise disruption to existing traffic flows during the construction period.

3.0 Environmental Impact Assessment

3.1 Firstly existing environmental conditions within the study area are established using a combination of desk-based research, consultations with appropriate organisations and fieldwork.

3.2 This allows potential environmental constraints and on-site sensitivities to be identified so that the environmental assessment can focus on the issues of particular relevance to the scheme.

3.3 Consultations with organisations are typically a critical part of this. Potential environmental impacts, positive and negative, are then identified and their significance assessed. For impacts that are considered to be adversely (negatively) significant, measures are developed to either avoid, reduce or offset (known as mitigation) the impact using generally well accepted practical techniques that will be implemented as part of the detailed design, construction or operation of the scheme.

3.4 Air Quality

The air quality assessment for the proposed A61 Birdwell Junction Improvement improvement was carried out in accordance with the requirements of the Design Manual for Roads and Bridges (DMRB), Volume 11, Section 3, Part 1.

3.5 Air pollutant concentrations relating to emissions from traffic on the new road were calculated for twenty one receptors that are most likely to be affected by the construction of the proposed scheme.

The results indicate that the scheme would have an insignificant impact on air quality at all receptor locations. All modelled receptor locations are predicted to meet the national AQOs for both NO_2 AND PM_{10} in both the 'do minimum' and 'do something' scenarios.

3.6 The significance of the effects of the proposed junction improvements with respect to annual mean NO2 exposure is determined to be 'negligible' to 'slight beneficial'. With respect to the 99.79%-ile of 1-hour mean NO2, annual mean PM10 and 90.41%-ile of 24-hour PM10 exposure, the significance of the proposed scheme is determined to be 'negligible', based on assumptions of the detailed report.

3.7 During the construction phase site specific measures will be employed to minimise dust generation risk

3.8 Following the adoption of the recommended mitigation measures, the development is not considered to be contrary to any of the national, regional or local planning policies.

3.9 Cultural Heritage

Cultural heritage refers to archaeological remains, Listed Buildings, Conservation Areas, Historic Gardens, Designed Landscapes and other sites noted for their historical heritage.

4.0 The scheme construction is mainly on existing carriageway with new sections on former opencast sites. One potential significant impact was identified and this related to the potential Battle field Site of Tankersley Moor.

4.1 As a result of this a further site survey was carried out in the form of a Geophysical survey and consultation with a Battlefield expert. The conclusion was there was no obvious archaeological potential identified.

4.2 **Land Use**
The site is located between Birdwell, Hoyland and Pilley, within Barnsley MBC planning area to the south of Barnsley.

4.3 The application site is approximately 7ha and comprises land at the existing A61 Birdwell Roundabout and an adjoining grassland area associated with the former Rockingham Opencast Coal Site, to the east of the A6195 Dearne Valley Parkway (DVP).

4.4 The site is located at the edge of the green belt and several footpaths cross or connect close to the site. Highway hedgerows, tree and woodland planting within the area generally screens views to and from the existing highway.

4.5 The application site to the east side of A6195 DVP is owned by Homes and Communities Agency, while land to the south east side of Birdwell Roundabout is owned by Wentworth Estates.

4.6 **Landscape and Visual Amenity**

4.7 The landscape and visual impact of the proposed scheme has been assessed.

4.8 Development Proposals

The proposed scheme occupies approximately 7ha and comprises land at the existing A61 Birdwell Roundabout and an adjoining grassland area to the east of the A6195 Dearne Valley Parkway (DVP). The scheme will include new road structures, earthworks and infrastructure such as lighting. There will be some loss of existing roadside hedgerows which may open up localised views of the road and vehicles for nearby receptors.

4.9 Existing Landscape and Visual Resources

The site is located on a low ridgeline between the settlements of Pilley, Birdwell and Hoyland, to the south of Barnsley. To the west is the M1 Motorway cutting and to the north east the land quickly falls away towards Short Wood.
Generally the land immediately around the site is gently sloping pasture used for horses and cattle grazing. Fields are bounded by post and rail fences, and fragmented hawthorn hedgerows. Small linear woodlands block and filter views between the existing highway and local settlement fringes at Birdwell and Hoyland. There are two public footpaths within the site or connect close to the site application boundary

5.0 Impact Assessment - Landscape Effects

Overall the proposed scheme is unlikely to have a noticeable effect on local landscape or setting, however existing woodland and hedgerows are an important landscape element within the area.

There will be some low adverse effects both during and shortly following the scheme development, mainly due to loss of roadside hedgerows and woodland. These adverse effects are likely to be reduced to negligible within 15 years as replacement planting becomes established.

5.1 Impact Assessment - Visual Effects

Overall, local topography, settlement, woodland, tree and hedgerow cover are all key factors that influence availability of views to the site. This forms a relatively contained visual envelope, limiting and filtering views to the site from beyond the adjacent highway, the first couple of field boundaries, and local settlement fringe at Birdwell and Hoyland.

5.2 Proposed Mitigation Measures

Protecting existing woodland and replacing screen planting as part of the scheme will be important; to protect local landscape character, help integrate the scheme, to reduce intervisibility and protect views from residential properties around Birdwell and Hoyland settlement fringe.

Woodland screen planting would be undertaken using locally occurring native species with the objective, as a minimum, no net loss.
Field boundary fences and hedgerows would be replaced and reinstated and replaced where affected by the scheme.
Existing woodland and hedgerows which are to be retained adjacent to the construction working area, would be protected during the construction period with tree protection fencing.
Shrub planting near junctions and on roundabouts would include semi-ornamental species.

5.3 Nature Conservation

5.4 The proposed road scheme study area takes account of the nature of the proposed scheme and connectivity to adjacent habitats, known protected / notable or key species, including designated sites, within a 2km radius of the site. The site is partly bisected by the Dearne Valley Green Heart Nature Improvement Area – limit of boundary just to the south of Roundabout 2.

5.5 The Ecology and Nature Conservation Assessment was carried out in accordance with DMRB Volume 11.3.4. An extended phase 1 habitat survey and assessment was undertaken in May 2014 (Extended Phase 1 Habitat Survey – A61 Birdwell Junction Improvement Birdwell Barnsley, Wildscapes, May 2014).

5.6 Where appropriate risk assessment is proposed to safeguard small populations of species. No significant residual effects on these receptors were identified, and minor effects are predicted to occur as new habitats are created and become established. Breeding bird and amphibian mitigation schemes are proposed to be drafted for the management of birds and amphibian species through the site clearance and operational phases of the Scheme.

5.7 Mitigation would focus on protecting key features and ensuring that they are not harmed by on-site activities. Subsequent mitigation and enhancement measures will focus on the creation of new and enhanced habitats that offer benefits for various species groups in both the short and longer terms.

5.8 The site is a restored opencast mine which supports limited habitat types and a low species diversity. There were no significant populations of any species recorded and plant species were typical of those found on restored surface mine sites. Of all the species groups birds were the most diverse and the assemblage of birds reflects those habitats present. Some habitat within the extended survey area supported European Protected Species (EPS), although the population was very small and possibly not viable in an isolated state. As each stage of development proceeds then this could present an opportunity to extend the range of EPS within the peripheral habitats in the extended survey area and possibly greatly enhance existing species poor habitats

5.9 The scheme presents limited opportunities for environmental improvement and enhancement. Through effective implementation of the landscape proposals, the project may improve the green corridor function and create new habitats for wildlife.

6.0 Some of the potential benefits after mitigation are :-

- Replacing vegetation lost to construction with areas of mainly native species woodland and scrub.
- Improve green corridor links by supplementary planting.
- Specifically designed street lighting to minimise light pollution.

6.1 Noise & Vibration

6.2 This section of the EIA will assess the likely significant effects of the proposed development on the noise and vibration sensitive receptors.

The assessment will consider the temporary noise and vibration effects during the construction period caused by noise / vibration emitting activities and construction vehicles, including the use of temporary diversion routes.

The assessment will also consider permanent impacts of noise caused by traffic during the operational phase once the scheme is completed, including a night time noise assessment.

6.3 An assessment will be undertaken where there are noise and / or vibration sensitive receptors and there is potential for new road construction, improvements, operation or maintenance to affect the quality of life or the local environment.

The study area will include all residential dwellings and other sensitive receptors within 600m of the proposed route and for roads within 1km on the existing road network that are predicted to receive traffic increase of at least 25% or decrease 20% at the year of opening as a result of the scheme.

6.4 The assessment will follow DMRB Volume 11.3.7 Noise and Vibration (HD213/11).

Baseline assessment and definition of the study area will be used to identify sensitive receptors including dwellings, hospitals, schools, community facilities, designated areas and public rights of way.

6.5 The EIA will assess:

- Temporary noise / vibration during construction / maintenance
- Permanent noise / vibration at year of opening
- Permanent noise / vibration at 10th year after opening
- Cumulative effects, other road projects / scenarios eg potential development sites

Where the change of noise or vibration is perceptible and predicted impacts are above recommended levels, such increases will be mitigated where possible, making recommendations for further likely assessment / monitoring work as necessary.

6.6 It is recommended that advanced consent to undertake construction works be sought from the Local Planning Authority in the form of a CoPA Section 61 Agreement or construction operations be controlled within the scope of a Construction Environmental Management Plan (CEMP) for the development.

6.7 These documents would require considering the following measures relating to the construction phase of the junction improvements:

- Details of how the construction works are to be carried out. This is likely to include information regarding the proposed plant and equipment to be used, location of works, proposed hours of operation, duration of works, delivery schedules etc;
- Consideration of the likely levels of noise and vibration associated with the construction works (this is likely to involve a more detailed assessment in accordance with BS5228 once specific construction programmes and plant types have been identified); and,
- Consideration of measures to be taken in order to minimise noise and vibration impacts resulting from the construction works. This is likely to include information regarding any noise control measures, community liaison and monitoring schemes.

6.8 In addition it is also recommended that 'Best Practicable Means' be employed where possible within the construction works to minimise noise and vibration impacts. Operational Phase Mitigation

6.9 Based upon the information provided and the assessments undertaken within this study it has been concluded that there are localised long term operational noise increases which exceed 3dB LA10, specifically at properties to the south of the scheme, in the vicinity of Cross Keys Lane/ Sheffield Rd (A6135).

7.0 As such it is pertinent to consider the implementation of noise mitigation measures as part of the detailed design of the scheme, as a means of attenuating the operational noise levels generated. Possible measures for consideration could include, but are not limited to:

- Low Noise Surfacing – Often referred to as thin surfacing systems which can afford in the region of -3dB attenuation.
- Localised noise barriers – Including acoustic fences and earth bunds. Implementation of barriers could be difficult given the location of the existing carriageway and the proposed scheme.

7.1 In addition to the above, and based on the assessments and assumptions presented within this chapter, it is considered that 79 residential properties may qualify under the noise insulation regulations (NIR). The relevant properties are largely located in the following areas;
Cross Keys Lane;

- Moor Lane;
- A6135 (Sheffield Road); and,
- A61 (Sheffield Road).

7.2 It is considered, that further, more detailed assessment of the properties within these areas be undertaken (including further noise monitoring) as a function of any planning approval for this scheme.

7.3 Construction Phase
The short term effects of the construction activities could result in significant impacts depending upon the works being undertaken at the time and the area in which they occur. With the implementation of the proposed temporary mitigation measures, careful consideration of the construction programme, and adherence to a CEMP or S61 agreement, the resulting impact significance will be reduced to within acceptable levels.

7.4 Operational Phase
The assessments undertaken within this study indicate that operational noise from the proposed scheme could result in noise impacts of a level whereby noise mitigation should be considered.
Further consideration of noise mitigation measures suggested within paragraph within the detailed design process should address the potential noise impacts and as a result, minimise any detrimental effects.

7.5 **Effects on all Travellers**
The Transport Assessment of the proposed scheme clearly shows reductions in congestion which in turn reduces Driver Stress.
Bus journey times will also be reduced in line with car journeys due to the reduction in queue lengths through Birdwell and along the A6135

7.6 No significant adverse impacts with respect to journey length and travel patterns for pedestrians or cyclists users have been identified.
However, the scheme will include pedestrian / cyclist crossing points with widened shared use that will ensure that there is no severance for these users and provide a safer route along and through the scheme proposals.

7.7 A Side Roads Order which deals with alterations to existing Public Rights of Way will be drafted to deal with any severed routes on the Homes and Communities Land.

7.8 The assessment of the scheme in terms of its effects on the quality of driving conditions for vehicle travellers includes the changes to the views from the road and effects of the scheme on driver stress.'View from the road' is defined as the extent to which vehicle travellers, particularly drivers, are exposed to the different types of scenery through which a route passes.'Driver stress' relates to three main components; frustration, fear of potential accidents and uncertainty relating to the route being followed.

7.9 Views from the road will mainly be impacted upon during the construction phase and immediately after construction due to on-site plant and construction activities. This is unavoidable but will be mitigated against with measures such as minimisation of disturbed areas as far as possible, appropriate fencing or lighting and adequate signage. In the long-term, the views will be enhanced. Along with landscaping, the following measures are also likely to benefit views from the new road: Appropriate earthworks - Minimal cut / fill slopes where practicable. Appropriate seeding and landscaping of earthworks to reflect surrounding vegetation. Replacement and additional planting of hedgerows and roadside vegetation and the establishment of tree screens where appropriate. Replacement planting of mature trees lost to the scheme.
Once the landscaping measures have had time to establish they will assist in reducing the impact of the proposed scheme in terms of views from the road. In terms of driver stress, this will be reduced due to the increased opportunity to overtake and lowering of frustration from less encountering of traffic platoons / slow moving vehicles. Improved junctions and

sight lines will also be beneficial.
With respect to potential accidents, the additional carriageway widths provided will provide more space and reduce the risk of accidents or driver stress.

8.0 **Community and Private Assets**

8.1 No significant adverse impacts with respect to community use have been identified.

8.2 However land is to be acquired by Barnsley MBC by negotiation with existing Landowners.
The completed scheme will become adopted highway maintainable at public expense.
The scheme will improve access to potential development land.
Will improve links between communities by safer routes.

8.3 **Road Drainage and Water Environment**

8.4 The existing drainage and groundwater system will be reviewed to identify the likely receptors, their sensitivity effects of the proposed development. The assessment will then determine likely impacts and any mitigation which may be required.
A GPR survey will also be carried out to determine current depth and location of existing pipework and services.

8.5 A spillage pollution risk assessment during construction will be undertaken in accordance with Method D in DMRB Volume 11.3.10. (HD45/09).

8.6 Consultation with the Environment Agencies Flood Map confirms the site is not at risk of flooding and does not lie within a flood plain.
It is proposed to carryout a Flood Risk Assessment in accordance with Planning Policy Statement 25: Development and Flood Risk, to assess the flood risks associated with the development together with any mitigation that may be required.

8.7 Drainage and watercourses exist to the north and north east of the site which may relate to the former Rockingham Colliery and opencast sites

8.8 Anticipated ground conditions mean that soakaways are unlikely to be suitable. A Balancing Pond will be constructed (SUDS) with the highway being drained by Combined Kerb and Drainage Blocks with conventional pipework to the outfalls etc.

8.9 Drainage of the proposed scheme is by SUDs, intention is to provide a SUDs pond within the main gyratory section of the scheme.

9.0 Further investigation has determined no land acquisition for attenuation will be required.

9.1 The proposed scheme outfall is by way of the existing attenuation feature just to the north off Rockingham Roundabout.

9.2 The construction process has the highest risk of significant environmental impact on receiving surface waters as described above. Provided reasonable precautions in line with the EA's recommendations are incorporated from an early stage of the construction, adverse impacts resulting from this aspect of the site development will be negligible. Provision of settling ponds will allow the suspended solids to settle and can remove the majority of silt particles. Carefully planned and controlled de-watering of the site following rain can help to minimise effects on the surrounding areas. Provided these steps are taken to prevent silt laden site run-off water from reaching the receiving watercourses any adverse impact of the construction process in this respect should be negligible.

9.3 Attenuation of flows into existing watercourses will be achieved by use of underground storage facilities.

9.4 Surface waters will receive run-off from the scheme for a long period. Limiting discharges from the completed scheme to the watercourses are to be agreed with the Environment Agency and or the Land Drainage Authority as appropriate. These discharges will be consented and a discharge standard retained. Therefore, the residual impact for surface waters is considered negligible. Similarly, it is not expected that there will be any residual impact on groundwater.

9.5 Proposed scheme drainage is to be dealt with within the site confines with a SUD's attenuation pond and attenuation storage within the roundabouts.

9.6 It is intended to renew pipework to the Dearne Valley Parkway Attenuation pond and re-store its operating capability.

9.7 The main carriageways will be drained by use of combined drainage and kerb blocks and road gullies where required.

9.8 **Materials Geology and Soils**

Road schemes have the potential to impact upon the geology and soils of an area through direct and indirect impacts on sites of importance or scientific interest, loss or sterilisation of mineral deposits or soil resources, disturbance of contaminated land or surcharging of ground which may accelerate erosion and subsidence.

9.9 The proposed scheme will not impact on any sites of geological interest or mineral extraction locations.

10.0 No impact is predicted in relation to surcharging of ground.
The scheme will require the creation of earthwork embankments and cut slopes where needed to be created to form the proposed carriageway.

10.1 Ground investigations have verified that a high proportion of the cut material will be suitable as fill. The proposed earthworks are anticipated to result in a slight import of suitable fill material.
The impact of excavated material generated through cutting activities will be reduced through the re-use of material on site and topsoil will be stripped and reused for landscaping purposes.

10.2 On-site storage of soil will require to be appropriately protected from the weather and should not be stored for prolonged periods. The Contractor on site will undertake best practice to maximise the re-use of materials.
Any imported soil should be from local sources where possible.

10.3 **Conclusion**

The proposed A61 Birdwell Junction Improvement Scheme will reduce journey times and driver stress while increasing traffic safety through the new junction and also improving Pedestrian and Cycle Safety.

The design of the proposed scheme is the culmination of a number of years of development and assessment of alternative options and of refining of the chosen alignment to ensure that all potential adverse impacts on the environment are minimised during design.
Further reduction in impacts will be possible during construction of the scheme through the use of best practice and through mitigation measures.

The key areas raised during the information event and identified as the main issues were:

- Congestion / Queueing Traffic along the A61 at Birdwell, on the A6195, A6135 and the M1 Junction 36 approaches to the A61 Birdwell Roundabout. Although congestion at this location has been an issue for some time.

- Pedestrian & cycle safety crossing the busy A6195 linking Birdwell to Hoyland.

Following the Environmental Impact Assessment it has been concluded that with the implementation of mitigation measures designed to avoid or minimise potential impacts the proposed scheme will not have a permanent significant impact on any of the environmental topics assessed.

BARNSLEY
Metropolitan Borough Council

A61 BIRDWELL JUNCTION IMPROVEMENT

ENVIRONMENTAL ASSESSMENT

1. INTRODUCTION

This Report of an Environmental Assessment accompanies a planning application submitted by The Head of Highways, Engineering & Transportation on behalf of the Barnsley Metropolitan Borough Council, for deemed planning permission for the construction of the A61 Birdwell Junction Improvement.

The Report of an Environmental Assessment has been prepared within the Borough Councils Highways, Engineering & Transportation Service in order to assess the environmental effects of the proposed highway improvement.

The purpose of the Report is to provide a background to submission of the planning application and to give statutory bodies an opportunity to express opinions on the environmental aspects of the project. The statement includes relevant background to the existing situation, its anticipated environmental impact and proposed mitigation measures. The planning application will form the basis of Compulsory Purchase and Side Roads Orders to be submitted separately.

Written comments should be sent to:-

Development Manager
Barnsley Metropolitan Borough Council
Planning & Regulatory Services
PO Box 604
S70 9FE

1.1 Overview and Applicant

Barnsley Metropolitan Borough Council is proposing to submit a planning application for junction and highway improvements on the A61 near Birdwell. The proposed scheme is located between Hoyland and Birdwell community areas and will consist of carriageway realignment and widening at the Birdwell Roundabout, which joins the M1 Motorway at Junction 36. A short section of new road will be constructed connecting the A6135 Sheffield Road to the A6195 Dearne Valley Parkway.

The proposed scheme will:

- reduce existing traffic congestion at the A61 Birdwell Roundabout providing improvements to bus services and reducing journey times.
- improve access and development potential of the Rockingham Employment Site
- accommodate additional traffic generated following development of the Rockingham Employment Site
- prevent queuing traffic backing onto the M1 Junction 36 Roundabout

The proposed carriageway alignment is shown in Fig. 3A Outline Highway Design

1.2 LEGAL BASIS FOR THE ENVIRONMENTAL STATEMENT

1.2.1 In the UK Schedule 1 and Schedule 2 of the Town and Country Planning (Environmental Impacts Assessment) Regulations 2011 sets out criteria for projects that require an Environmental Impact Assessment (EIA).

1.2.2 The proposed scheme would be classed as a Schedule 2 Category 10(f) development under the Regulations as it is for the construction of a road (not included in Schedule 1) where the area of works exceeds 1 hectare. However an EIA is now always required for development which falls within Schedule 2 of the Regulations.

1.2.3 Although a formal screening opinion has not been sought from BMBC it is considered that the proposed scheme has the potential to result in significant environmental effects and it would be in the public interest to submit an EIA with the planning application.

1.2.4 The EIA and planning application will only be for the A61 Birdwell Junction Improvement and not for any other potential future development of the Rockingham Employment Site accessed by the road.

1.3 PURPOSE OF THE ENVIRONMENTAL STATEMENT

1.3.1 This Statement has been prepared in support of a Planning Application in accordance with Town and Country Planning (Environmental Impacts Assessment) Regulations 2011, to provide information to allow the determining authority to give an opinion on the information supplied etc.

A Scoping Report was issued to Barnsley MBC Planning Department (determining authority) for their comments and as a minimum, the following consultation bodies:

- Environment Agency (Yorkshire and North East Region area office)
- Natural England
- English Heritage
- South Yorkshire Archaeological Service
- The Highway Agency
- Emergency Services (Police, Fire, Ambulance)
- SUSTRANS
- British Horse Society
- Yorkshire Wildlife Trust
- Ramblers Association
- BMBC Tree Officer
- BMBC Public Rights of Way

2.0 THE NEED FOR THE PROPOSED SCHEME

2.1 Introduction

2.1.1 The Dearne Valley Parkway at Hoyland was completed in 1998 and forms a strategic link connecting the M1 to the Dearne Towns at Goldthorpe and is an essential part of BMBC's Strategy to regenerate the Dearne Valley. Hoyland contains the section of the road linking to the M1 Motorway.

2.1.2 Traffic queuing and delays at the A61 Birdwell Roundabout have been a problem for a number of years. High volume traffic associated with the M1 and the Dearne Valley Parkway combines with local traffic, resulting in long queues on the A61 through Birdwell and along the A6135 to Allots Corner at Hoyland Common.

2.1.3 Congestion relief along the A6195 Dearne Valley Parkway was identified as a key scheme in the Local Transport Plan (South Yorkshire LTP3 Implementation Plan 2011 – 2015).

2.2 Need, Potential Problems and 'Do Nothing' Scenario.

2.2.1 The Department of Transport has recently undertaken work to try and increase highway capacity and manage traffic flows from the M1 junction 36. This involved increasing the number of lanes and signalising the M1 Junction 36 roundabout and approaches, but the existing junction layout is still unable to cope with the traffic volume generated during peak times.

2.2.2 The A61 Birdwell junction will need to be improved to accommodate the likely increase in traffic volumes resulting from new development along the Dearne Towns corridor. Development of allocated land will only be permitted if the anticipated traffic to be generated can be acceptably accommodated into the highway network.

2.2.3 Due to the delays and long queues forming, coupled with potential development traffic and upgrades to the A61 Westwood New Road & A616(T) roundabout - to 'Do Nothing' would result in the network operating over capacity with extensive delays experienced on the current identified roads experiencing delays.

2.2.4 Therefore Barnsley Metropolitan Borough Council commissioned AECOM Transport Consultants to assess the existing road layout for capacity and future growth years and compared it with the final scheme proposals by means of a Transport Assessment Report. See Appendix 1

2.2.5 The Transport Assessment Report included known highway schemes being taken forward by the Highways Agency to be considered with these proposals along with known committed development.

2.2.6 The summary and conclusion of their report was:
The report has been prepared in order to support a planning application for a new road scheme at the A61 Birdwell Roundabout adjacent to junction 36 of the M1, which has been designed and promoted in order to resolve an existing capacity constraint.

2.2.7 Existing Base Case models have been updated for two operational peaks of the A61 corridor incorporating Westwood Roundabout, M1 Junction 36 and Birdwell roundabout, namely AM and PM. Each peak has been constructed using turning count data taken at M1 Junction 36 in December 2013 and Westwood Roundabout in 2010. The AM and PM models prove to calibrate well against the aforementioned criteria, with all turning counts returning GEH values below 3.

2.2.8 The scheme models have been built based upon the scheme drawings provided for Westwood and Birdwell Roundabouts with an appropriate aspirational dualling scheme added for the stretch of A61 carriageway between Junction 36 and Westwood Roundabout. Signal timings for the Westwood scheme have been taken from the Transyt outputs provided by AOne+ in 2012 and from an updated existing LinSig model for Birdwell roundabout and Junction 36.

2.2.9 The reference "do something" case and scheme matrices were growthed to 2019 and 2024 traffic levels using TEMPRO growth factors to simulate future year testing. The differences on modeled performance between these and the 2014 scenarios has been discussed. All model outputs presented are the average of 10 random seed runs.

2.2.10 The analysis of the modeled journey times indicates that there is good beneficial impact of the Birdwell scheme on traffic in the AM and PM peak periods. The exceptions to this are on the A6135 and A61 approach from the south where some detrimental impact occurs in the AM peak. The detrimental impact of the scheme at these locations is likely caused by the increase in delay resulting from the implementation of signals which provide significant levels of green time to DVP and Sheffield Road to reduce congestion on these arms.

2.2.11 Overall the significant benefits on Sheffield Road, Dearne Valley Parkway and Junction 36 appear to offset any detrimental impact on the A6135 and A61 south. Visual assessment has been carried out in each of the models to support these conclusions.

3.0 THE PROPOSED DEVELOPMENT

3.1 Introduction

3.1.1 The Highway Scheme design is based on the Department for Transport Standards and Advice Notes.

3.1.2 The scheme will increase the size and capacity of the existing A61 Birdwell Roundabout. Links to the A61 Sheffield Road and to Junction 36 of the M1 will also be realigned and upgraded. A new roundabout (Roundabout 1) will connect to Birdwell Roundabout and tie-in to the A6135 Sheffield Road. A new section of carriageway links northwards to a second new roundabout (Roundabout 2), which in turn connects to Rockingham Roundabout.

3.2 Project Objectives

3.2.1 Traffic queuing and delays at the A61 Birdwell Roundabout have been a problem for a number of years. High volume traffic associated with the M1 and the Dearne Valley Parkway combines with local traffic, resulting in long queues on the A61 through Birdwell and along the A6135 to Allots Corner at Hoyland Common.

3.2.2 The proposals aim to increase flow through this busy junction, reduce congestion / delays and build in added capacity should the employment sites in the Dearne Corridor be developed.

3.3 Policy Context

3.3.1 Congestion relief along the A6195 Dearne Valley Parkway was identified as a key scheme in the Local Transport Plan (South Yorkshire LTP3 Implementation Plan 2011 – 2015).

3.3.2 Barnsley's statutory Development Plan consists of several elements. These include the Core Strategy (adopted 2011 and part of the Local Development Framework) and the remaining saved policies of the Unitary Development Plan and the Regional Spatial Strategy.

3.3.3 Rockingham Employment Site was identified as a key development site and is allocated for employment use in the Barnsley Local Plan (Policy NH3/2 Barnsley Unitary Development Plan 2000 and Saved Policy).

3.3.4 Barnsley Core Strategy identified the need for up to 350 hectares of additional employment land and 21,500 new homes over the period 2008 to 2026. The strategy gave focus for new development (employment and housing) on the principal towns which include Hoyland and Goldthorpe.

3.3.5 The corridor from Hoyland / Birdwell to Goldthorpe offers some of the best sites for development and employment potential when considering market demand and other desktop site issues (Market Assessment of LDF Employment Sites – BMBC, March 2013). However, current and future development is inhibited due to existing road capacity.

3.3.6 The Dearne Valley Parkway and the A61 Birdwell Junction will serve the Rockingham Employment Site, providing direct access to the M1 Motorway.

3.4 Description of the Proposed Scheme

3.4.1 Key components of the proposed scheme will consist of:

- the replacement and upgrade of the A61 Birdwell Roundabout, increasing overall size with additional traffic lanes;
- the realignment and upgrade of links to the A61 Sheffield Road and to Junction 36 of the M1, increasing capacity of the existing approaches;
- the construction of a new balancing pond, forming part of the highway drainage system;
- the creation of a new roundabout junction (Roundabout 1) to the east side of Birdwell Roundabout;
- carriageway re-alignment and tie-in to the A6135 Sheffield Road, improving forward visibility of the existing road to meet current design and safety standards;
- the construction of a new section of carriageway linking northwards, to improve traffic flows and overall capacity;
- the creation of a second new roundabout junction (Roundabout 2), connecting to Rockingham Roundabout;
- the inclusion of new spurs at Roundabout 1 and Roundabout 2 to facilitate links for future development;
- the creation of an additional slip road exit lane off the M1 at Junction 36 for vehicles travelling towards Birdwell / Barnsley.

3.4.2 A new 3.0m wide combined footpath / cycleway would be incorporated into the scheme improving safety for users.

3.4.3 Street lighting would be provided in the vicinity of junction interfaces and along key sections of the route.

3.4.4 The new junction would be signalised and linked to the Highways Agency signals at Junction 36 of the M1.

3.4.5 The scheme has been designed to follow the existing ground contours where possible or on minimum embankment. Most of the scheme would be phased and constructed off-line to minimise disruption to existing traffic flows during the construction period.

3.5 Land Use and Land Take

3.5.1 The site is located on an elevated ridge between the settlements of Birdwell, Hoyland and Pilley, within Barnsley MBC planning area to the south of Barnsley. To the west is the M1 Motorway corridor set in cutting at Junction 36. To the east the land rises towards Upper Hoyland as is crosses fields and woodland belts on the former Rockingham Colliery site. To the north east the land falls quickly away towards Short Wood.

3.5.2 To the west at the edge of Birdwell housing area is Rockingham Business Park. To the east at the edge of Hoyland housing area is commercial industrial development at Tankersley Common Side.

3.5.3 The application site is approximately 7ha and comprises land at the existing A61 Birdwell Roundabout and an adjoining grassland area associated with the former Rockingham Opencast Coal Site, to the east of the A6195 Dearne Valley Parkway (DVP).

3.5.4 The site is located at the edge of the green belt and several footpaths cross or connect close to the site. Highway hedgerows, tree and woodland planting within the area generally screens views to and from the existing highway.

3.5.5 The application site to the east side of A6195 DVP is owned by Homes and Communities Agency, while land to the south east side of Birdwell Roundabout is owned by Wentworth Estates.

3.6 Construction, Operation and Long Term Management

3.6.1 Construction activities would include:

- Site establishment, selective vegetation clearance and preparation
- Establishment of Contractor's site compound
- Temporary diversions and temporary access restrictions
- Temporary watercourse diversions
- Site stripping, levelling and earthworks
- Construction of the new carriageway
- Use of generators, machinery and temporary lighting
- Construction vehicle movements for the import / export of material
- Stockpiling of waste and storage of material
- Restoration of landscape and temporary use areas
- Installation of new Traffic Signals
- Installation of new Street Lighting
- Installation of directional & regulatory signing

3.6.2 The Proposed scheme will require publication of a new Side Roads Order (SRO), including determination.

3.6.3 Construction is expected to extend over a 14 - 16 month period.

3.6.4 The A6195 DVP, Birdwell Roundabout, the A61 at Birdwell and the A6135 Sheffield Road, are all local authority roads maintained by BMBC as the Local Highway Authority.

3.6.5 **Public Information Event** - The Proposed scheme was presented to the public on the 4th November 2014 at Birdwell Methodist Church between the hours of 3:00pm and 7:00pm.

The event was promoted by BMBC's Highways, Engineering and Transportation Group and attended by approximately 160 – 200 members of the public.

Scheme Plans on display were:

- Drawing Fig. 3A
- An aerial Photo Montage with the scheme superimposed.
- TA extracts showing existing delays in a 'Do nothing' scenario for 2014, 2019 & 2024. See Appendix 1
- TA extracts showing substantial reductions in queues and delay with the proposed scheme in place 2014, 2019 & 2024. See Appendix 1

Officers from BMBC were able to talk through the scheme, answer questions and listen to concerns.
The residents and public who attended raised the issue of congestion and traffic at the existing roundabout junction and through Birdwell together with safety concerns crossing the busy A6195 towards Hoyland.

The proposed scheme addresses these issues.
The general consensus of opinion of officer's present and local press was a positive reaction to proposals.

4.0 SCHEME ALTERNATIVES CONSIDERED

4.1 Introduction

4.1.1 The Dearne Valley Parkway at Hoyland was completed in 1998 and forms a strategic link connecting the M1 to the Dearne Towns at Goldthorpe and is an essential part of BMBC's Strategy to regenerate the Dearne Valley. Hoyland contains the section of the road linking to the M1 Motorway.

4.1.2 Congestion relief along the A6195 Dearne Valley Parkway was identified as a key scheme in the Local Transport Plan (South Yorkshire LTP3 Implementation Plan 2011 – 2015).

4.1.3 The Department of Transport has recently undertaken work to try and increase highway capacity and manage traffic flows from the M1 junction 36. This involved increasing the number of lanes and signalising the M1 Junction 36 roundabout and approaches, but the existing junction layout (A61 Birdwell Roundabout) is still unable to cope with the traffic volume generated during peak times.

4.1.4 Scheme Options Reviewed.
The Highways Agency promoted a scheme for Pinch Point funding in 2012, the scheme layout was a complex signalised junction contained within the current highway boundary.

4.1.5 The scheme was put forward but was not successful in gaining Pinch Point Funding. BMBC at this point then began to look at alternative options to relieve traffic congestion and promote better economic regeneration access.

4.1.6 Barnsley Metropolitan Borough Council commissioned AECOM Transport Consultants to evaluate the options.

4.1.7 The 3 scheme layout options were:

1. Increasing the size of the existing A61 Birdwell roundabout (basically the existing layout enlarged and signalised)

2. An elliptical signalised layout with additional roundabouts and new link road to Rockingham roundabout. (A medium gyratory)

3. An increased elliptical signalised version of option 2 allowing for more vehicle stacking space at traffic signals and providing controlled pedestrian crossings to improve pedestrian and cycling safety etc. (Large gyratory)

4.1.8 The rational for the above options was to allow easy access from all sources to all destinations and to avoid making traffic take long detours e.g. round J36 roundabout to go east along Dearne Valley Parkway.

4.1.9 All three options were modelled by BMBC's Transport Consultant and success was determined by the capacity of the new junction to accommodate existing and development generated traffic and also on the modelled journey times and delay data for current and future growth years.

4.1.10 Based on these results Option 3 (preferred option) see Fig. 3A was the scheme which met the requirements of the traffic modelling outcomes and forms the basis of this Planning Application.

5.0 ENVIRONMENTAL IMPACT ASSESSMENT METHOD

5.1 Introduction

5.1.1 The Environmental Statement for the proposed A61 Birdwell Junction Improvement has been prepared in accordance with the information as set out in Schedule 4 (Parts 1 and 2) of the EIA Regulations, as is reasonably required to assess the environmental effects of the development and would also include consideration of fauna, flora, soils, water, air, climatic factors, material assets, including archaeological, heritage and landscape features.

5.1.2 As required by the EIA Regulations 2011, the ES contains an outline of the main alternatives considered by the applicant and an indication of the main reasons for his choice taking into account the environmental effects (see Chapter 4).

5.1.3 Guidance for all aspects of highway design and development are set out in the 15 volumes of the Design Manual for Roads and Bridges (DMRB) published by the Highway Agency. DMRB Volume 11 advises on Environmental Impact Assessment and the environmental topics and method to be used in assessment for each of these topics. DMRB Volume 10 advises on Environmental Design and Management. The EIA for the proposed scheme uses the most up to date version of the DMRB and related guidance.

5.1.4 In accordance with DMRB Volume 11, the following 10 specialist topics are considered:

- Air Quality
- Cultural Heritage
- Landscape and Visual Amenity
- Nature Conservation
- Materials, Geology and Soils
- Noise and Vibration
- Effects on All Travellers
- Community and Private Assets
- Road Drainage and Water Environment
- Cumulative Effects

5.1.5 Within each individual topic chapters the assessment criteria for sensitivity, magnitude and significance are defined in relation to terminology as set out in DMRB Volume 11, or where this is not appropriate for the topic under consideration alternative terms are defined.

5.2 Structure of the Environmental Statement

5.2.1 The Environmental Statement comprises two volumes and a stand-alone Non-Technical Summary which provides a description of the existing environment, the characteristics of the proposed scheme, and the likely significant environmental effects of the scheme upon the environment. The Non-Technical Summary is written in non-technical language and summarises the key findings of the Environmental Impact Assessment.

5.2.2 Volume One of the Environmental Statement represents the main statement text and figures. It introduces the scheme, together with an explanation of why the scheme is needed and describes the construction and operation of the proposed scheme together with an explanation of the alternatives considered. The methodology that has been adopted is also described together with a description of the likely scale and significance of the predicted environmental effects documented for each of the environmental topics addressed.

5.2.3 Each chapter also provides details of recommended mitigation measures intended to prevent, reduce or offset any adverse effects.

5.2.4 Volume One also includes the main Figures used to illustrated the key points described in the environmental statement and includes supporting maps, plans and photographs.

5.2.5 Volume Two of the Environmental Statement comprises the Technical Appendices with detailed technical assessment and other supporting information which supplement the individual chapters in Volume One.

5.3 Consultations

5.3.1 **A Scoping Report** was issued to Barnsley MBC Planning Department (determining authority) on 29th July 2014 and the following consultation bodies were contacted for their comments.

Organisations contacted during Scoping Exercise

Organisation	Responded
Environment Agency (Yorkshire and North East Region)	No
Natural England	Yes
English Heritage	Yes
South Yorkshire Archaeological Service	No
The Highway Agency	Yes
Emergency Services (Police, Fire, Ambulance)	No
SUSTRANS	No
British Horse Society	Yes
Yorkshire Wildlife Trust	No
Ramblers Association	No
BMBC Biodiversity Officer	Yes
BMBC Tree Officer	No
BMBC Public Rights of Way	Yes

5.3.2 Copies of the responses can be found at the end of this section.

5.3.3 **Public Information Event** - The Proposed scheme was presented to the public on the 4th November 2014 at Birdwell Methodist Church between the hours of 3:00pm and 7:00pm.

The event was promoted by BMBC's Highways, Engineering and Transportation and attended by approximately 160 – 200 people.

Scheme Plans on display were:

- Drawing Fig. 3A
- An aerial Photo Montage with the scheme superimposed.
- TA extracts showing existing delays in a 'Do nothing' scenario for 2014, 2019 & 2024. See Appendix 1
- TA extracts showing substantial reductions in queues and delay with the proposed scheme in place 2014, 2019 & 2024. See Appendix 1

Officers from BMBC were able to talk through the scheme, answer questions and listen to concerns.
The residents and public who attended raised the issue of congestion and traffic at the existing roundabout junction and through Birdwell together with safety concerns crossing the busy A6195 towards Hoyland.

The proposed scheme addresses these issues.
The general consensus of opinion of officer's present and local press was a positive reaction to proposals.

ENGLISH HERITAGE

YORKSHIRE OFFICE

Mr Steve Kirkham
Barnsley Metropolitan Borough Council
Planning and Transportation Service
P O Box 604
Barnsley
South Yorkshire
S70 9FE

Direct Dial: 01904 601897
Direct Fax: 01904 601999

Our ref: W: PA00352515
Your ref: 2014/ENQ/00754

30 September 2014

Dear Mr Kirkham

Request for Pre-application Advice

A61 SHEFFIELD ROAD, BIRDWELL, BARNSLEY

Thank you for your consultation of 29 September 2014 seeking our pre-application advice on plans for the above site. On the basis of the information provided, detailed below, it appears that the plans are likely to lead to an application for which English Heritage would be a statutory consultee. However, it is not possible or necessary for us to engage with every proposal which may affect the historic environment. On the basis of our understanding of the present scope of the work we do not feel that it is essential for us to participate in pre-application discussions. English Heritage therefore has no comment to make on these proposals. I recommend that you include a copy of this letter with any application made for these works.

It is important that the local planning authority is invited to give pre-application advice. Relevant amenity societies may also be able to assist and we recommend that you approach them. If, as the scheme develops, there are material changes to the proposals and their impact on the historic environment, please consult us again. Meanwhile, please contact me if you would like to discuss any matter further.

Yours sincerely

Neil Redfern
Principal Inspector of Ancient Monuments
E-mail: Neil.Redfern@english-heritage.org.uk

RET DM
NOON
-2 OCT 2014

37 TANNER ROW YORK YO1 6WP
Telephone 01904 601901 Facsimile 01904 601999
www.english-heritage.org.uk

English Heritage is subject to the Freedom of Information Act 2000 (FOIA) and Environmental Information Regulations 2004 (EIR). All information held by the organisation will be accessible in response to an information request, unless one of the exemptions in the FOIA or EIR applies.
English Heritage will use the information provided by you to evaluate any applications you make for statutory or quasi-statutory consent, or for grant or other funding. Information provided by you and any information obtained from other sources will be retained in all cases in hard copy form and/or on computer for administration purposes and future consideration where applicable.

ENGLISH HERITAGE

YORKSHIRE OFFICE

A61 SHEFFIELD ROAD, BIRDWELL, BARNSLEY
Request for Pre-Application Advice

Information Provided

000 A615 Birdwell Junction Scoping Text 29072014.pdf
001 Fig 01 Local Context.pdf
002 Fig 02 Aerial Photograph.pdf
003 Fig 03 Outline Highway Design.pdf
004 Fig 04 Topography.pdf
005 Fig 05 Landscape and Planning Context.pdf
006 Fig 06 Landscape Charactre.pdf
007 Fig 07 Nature Conservation.pdf
008 Phase 1 Habitat Assessment.pdf
009 Archaeological Desk Top Study.pdf
010 Geophysical Study Report.pdf
011 Ground Investigation Desk Study Report.pdf

37 TANNER ROW YORK YO1 6WP
Telephone 01904 601901 Facsimile 01904 601999
www.english-heritage.org.uk

English Heritage is subject to the Freedom of Information Act 2000 (FOIA) and Environmental Information Regulations 2004 (EIR). All information held by the organisation will be accessible in response to an information request, unless one of the exemptions in the FOIA or EIR applies.
English Heritage will use the information provided by you to evaluate any applications you make for statutory or quasi-statutory consent, or for grant or other funding. Information provided by you and any information obtained from other sources will be retained in all cases in hard copy form and/or on computer for administration purposes and future consideration where applicable.

HIGHWAYS AGENCY

Safe roads, reliable journeys, informed travellers

Our ref: SE349003
Your ref: 2014/ENQ/00754

Development Service
Barnsley Metropolitan Borough Council
PO Box 604
Barnsley
S70 9FE

Sarah Watson-Quirk

3rd Floor
Lateral
8 City Walk
Leeds LS11 9AT

Direct Line: 0113 283 6248
17 October 2014

For the attention of Stephen Moralee

Dear Stephen

EIA SCOPING REPORT: JUNCTION AND HIGHWAY IMPROVEMENT WORKS ON THE A61, SHEFFIELD ROAD, BIRDWELL, BARNSLEY

Thank you for your consultation of 23 September 2014 on the EIA Scoping report for the proposed junction improvement at Birdwell on the A61. The Highways Agency has been in discussion with the Council for some time over the proposals to improve the A61 junction at Birdwell and would like to continue this dialogue over the proposals.

The Agency's main area of interest is in the interaction of the revised junction layout with M1 J36 and so is keen to keep working with the Council to understand how the junctions will operate, particularly with the increased traffic expected from development in the area.

With regards to the proposed scope of the Environmental Impact Assessment (EIA) as set out in the consultation, the Agency has no particular comments to make and is keen to work with the Council as work on this is progressed to gain a full understanding of the impact of the scheme and will be happy to share any information that may be useful in the development of the EIA.

I trust the above comments are helpful, but should you require any further clarification or comment please do not hesitate to contact me.

Yours sincerely

Sarah Watson-Quirk
NDD Yrks & NE Asset Development
Email: sarah.watson-quirk@highways.gsi.gov.uk

Cc: Keith Holdroyd, Highways, Engineering and Transportation

POSITIVE ABOUT DISABLED PEOPLE

INVESTORS IN PEOPLE

An executive agency of the Department for Transport

Date: 09 October 2014
Our ref: 133668
Your ref: 2014/ENQ/00754

Steve Kirkham
Barnsley Metropolitan Borough Council
PO Box 604
Barnsley
S70 9FE

Sustainable Development
Hornbeam House
Crewe Business Park
Electra Way
Crewe
Cheshire
CW1 6GJ

T 0300 060 3900

BY EMAIL ONLY

Dear Mr Kirkham

Environmental Impact Assessment Scoping consultation (Regulation 15 (3) (i) of the EIA Regulations 2011): EIA Scoping: Junction and highway improvement works on the A61 Location: A61 Sheffield Road, Birdwell, Barnsley

Thank you for your consultation dated 23 September 2014 and received by Natural England on 02 October 2014.

Natural England is a non-departmental public body. Our statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

The scoping request is for a proposal that does not appear, from the information provided, to affect any nationally designated geological or ecological sites (SAC, Ramsar, SPA, SAC, SSSI, NNR) or landscapes (National Parks, AONB's, Heritage Coasts, National Trails), or have significant impacts on the protection of soils (particularly of sites over 20ha of best or most versatile land), nor is the development for a mineral or waste site of over 5ha.

At present therefore it is not a priority for Natural England to advise on the detail of this EIA. We would, however, like to draw your attention to some key points of advice, presented in annex to this letter, and we would expect the final Environmental Statement (ES) to include all necessary information as outlined in Schedule 4 of the Town & Country Planning (Environmental Impact Assessment) Regulations 2011. If you believe that the development does affect one of the features listed in paragraph 3 above, please contact Natural England at consultations@naturalengland.org.uk, and we may be able to provide further information.

Yours sincerely

Hannah Bottomley
Sustainable Development Consultation Team

Annex A – Advice related to EIA Scoping Requirements

1. **General Principles**

Schedule 4 of the Town & Country Planning (Environmental Impact Assessment) Regulations 2011, sets out the necessary information to assess impacts on the natural environment to be included in an ES, specifically:

- A description of the development – including physical characteristics and the full land use requirements of the site during construction and operational phases.
- Expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation, etc.) resulting from the operation of the proposed development.
- An assessment of alternatives and clear reasoning as to why the preferred option has been chosen.
- A description of the aspects of the environment likely to be significantly affected by the development, including, in particular, population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and the interrelationship between the above factors.
- A description of the likely significant effects of the development on the environment – this should cover direct effects but also any indirect, secondary, cumulative, short, medium and long term, permanent and temporary, positive and negative effects. Effects should relate to the existence of the development, the use of natural resources and the emissions from pollutants. This should also include a description of the forecasting methods to predict the likely effects on the environment
- A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.
- A non-technical summary of the information.
- An indication of any difficulties (technical deficiencies or lack of know-how) encountered by the applicant in compiling the required information.

It will be important for any assessment to consider the potential cumulative effects of this proposal, including all supporting infrastructure, with other similar proposals and a thorough assessment of the 'in combination' effects of the proposed development with any existing developments and current applications. A full consideration of the implications of the whole scheme should be included in the ES. All supporting infrastructure should be included within the assessment.

2. **Biodiversity and Geology**

2.1. Ecological Aspects of an Environmental Statement

Natural England advises that the potential impact of the proposal upon features of nature conservation interest and opportunities for habitat creation/enhancement should be included within this assessment in accordance with appropriate guidance on such matters. Guidelines for Ecological Impact Assessment (EcIA) have been developed by the Institute of Ecology and Environmental Management (IEEM) and are available on their website.

EcIA is the process of identifying, quantifying and evaluating the potential impacts of defined actions on ecosystems or their components. EcIA may be carried out as part of the EIA process or to support other forms of environmental assessment or appraisal.

The National Planning Policy Framework (NPPF) sets out guidance in S.118 on how to take account of biodiversity interests in planning decisions and the framework that local authorities should provide to assist developers.

2.2. Internationally and Nationally Designated Sites

Natural England undertakes an initial assessment of all development consultations, by determining whether the location to which they relate falls within geographical 'buffer' areas within which development is likely to affect designated sites. The proposal is located outside these buffer areas and therefore appears unlikely to affect an Internationally or Nationally designated site. However, it should be recognised that the specific nature of a proposal may have the potential to lead to significant impacts arising at a greater distance than is encompassed by Natural England's buffers for designated

sites. The ES should therefore thoroughly assess the potential for the proposal to affect designated sites, including Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites and Sites of Special Scientific Interest (SSSI). Should the proposal result in an emission to air or discharge to the ground or surface water catchment of a designated site then the potential effects and impact of this would need to be considered in the Environmental Statement

Local Planning Authorities, as competent authorities under the provisions of the Conservation of Habitats and Species Regulations 2010 (the 'Habitats Regulations), should have regard to the Habitats Regulations Assessment process set out in Regulation 61 of the Habitats Regulations in their determination of a planning application. Should a Likely Significant Effect on a European/Internationally designated site be identified or be uncertain, the competent authority (in this case the Local Planning Authority) may need to prepare an Appropriate Assessment, in addition to consideration of impacts through the EIA process.

Statutory site locations can be found at www.magic.gov.uk. Further information concerning particular statutory sites can be found on the Natural England website.

2.3. Protected Species

The ES should assess the impact of all phases of the proposal on protected species. Records of protected species should be sought from appropriate local biological record centres, nature conservation organisations, groups and individuals; and consideration should be given to the wider context of the site for example in terms of habitat linkages and protected species populations in the wider area, to assist in the impact assessment.

The conservation of species protected by law is explained in Part IV and Annex A of Government Circular 06/2005 *Biodiversity and Geological Conservation: Statutory Obligations and their Impact within the Planning System*. The area likely to be affected by the proposal should be thoroughly surveyed by competent ecologists at appropriate times of year for relevant species and the survey results, impact assessments and appropriate accompanying mitigation strategies included as part of the ES.

Natural England has adopted standing advice for protected species. It provides a consistent level of basic advice which can be applied to any planning application that could affect protected species. It also includes links to guidance on survey and mitigation.

Natural England does not hold comprehensive information regarding the locations of species protected by law, but advises on the procedures and legislation relevant to such species.

2.4. Regionally and Locally Important Sites

The ES should thoroughly assess the impact of the proposals on non-statutory sites, for example Local Wildlife Sites (LoWS), Local Nature Reserves (LNR) and Regionally Important Geological and Geomorphological Sites (RIGS). Natural England does not hold comprehensive information on these sites. We therefore advise that the appropriate local biological record centres, nature conservation organisations, Local Planning Authority and local RIGS group should be contacted with respect to this matter.

2.5. Biodiversity Action Plan Habitats and Species

The ES should thoroughly assess the impact of the proposals on habitats and/or species listed in the UK Biodiversity Action Plan (BAP). These Priority Habitats and Species are listed as 'Habitats and Species of Principal Importance' within the England Biodiversity List, recently published under the requirements of S14 of the Natural Environment and Rural Communities (NERC) Act 2006. Section 40 of the NERC Act 2006 places a general duty on all public authorities, including local planning authorities, to conserve and enhance biodiversity. Further information on this duty is available in the Defra publication 'Guidance for Local Authorities on Implementing the Biodiversity Duty'.

Government Circular 06/2005 states that BAP species and habitats, 'are capable of being a material consideration...in the making of planning decisions'. Natural England therefore advises that survey,

impact assessment and mitigation proposals for Habitats and Species of Principal Importance should be included in the ES. Consideration should also be given to those species and habitats included in the relevant Local BAP.

The record centre for the relevant Local Authorities should be able to provide the relevant information on the location and type of BAP habitat for the area under consideration.

3. Landscape, Access and Recreation

3.1. Landscape and Visual Impacts

The consideration of landscape impacts should reflect the approach set out in the *Guidelines for Landscape and Visual Impact Assessment* (Landscape Institute and the Institute of Environmental Assessment and Management, 2013, 3rd edition), the *Landscape Character Assessment Guidance for England and Scotland* (Scottish Natural Heritage and The Countryside Agency, 2002) and good practice. The assessment should also include the cumulative effect of the development with other relevant existing or proposed developments in the area. In this context Natural England would expect the cumulative impact assessment to include those proposals currently at Scoping stage. Due to the overlapping timescale of their progress through the planning system, cumulative impact of the proposed development with those proposals currently at Scoping stage would be likely to be a material consideration at the time of determination of the planning application.

The assessment should refer to the relevant National Character Areas which can be found on our website. Links for Landscape Character Assessment at a local level are also available on the same page.

3.2. Access and Recreation

The ES should include a thorough assessment of the development's effects upon public rights of way and access to the countryside and its enjoyment through recreation. With this in mind and in addition to consideration of public rights of way, the landscape and visual effects on Open Access land, whether direct or indirect, should be included in the ES.

Natural England would also expect to see consideration of opportunities for improved or new public access provision on the site, to include linking existing public rights of way and/or providing new circular routes and interpretation. We also recommend reference to relevant Right of Way Improvement Plans (ROWIP) to identify public rights of way within or adjacent to the proposed site that should be maintained or enhanced.

4. Land use and soils

Impacts from the development should be considered in light of the Government's policy for the protection of the best and most versatile (BMV) agricultural land as set out in paragraph 112 of the NPPF.We also recommend that soils should be considered under a more general heading of sustainable use of land and the valuing of the ecosystem services they provide as a natural resource in line with paragraph 109 of the NPPF.

Soil is a finite resource that fulfils many important functions and services (ecosystem services) for society; for instance as a growing medium for food, timber and other crops, as a store for carbon and water, as a reservoir of biodiversity and as a buffer against pollution. It is therefore important that the soil resources are protected and used sustainably. The Natural Environment White Paper (NEWP) *'The Natural Choice: securing the value of nature'* (Defra , June 2011), emphasises the importance of natural resource protection, including the conservation and sustainable management of soils and the protection of BMV agricultural land.

Development of buildings and infrastructure prevents alternative uses for those soils that are permanently covered, and also often results in degradation of soils around the development as result of construction activities. This affects their functionality as wildlife habitat, and reduces their ability to

support landscape works and green infrastructure. Sealing and compaction can also contribute to increased surface run-off, ponding of water and localised erosion, flooding and pollution. Defra published a Construction Code of Practice for the sustainable use of soils on construction sites (2009). The purpose of the Code of Practice is to provide a practical guide to assist anyone involved in the construction industry to protect the soil resources with which they work.

As identified in the NPPF new sites or extensions to new sites for Peat extraction should not be granted permission by Local Planning Authorities or proposed in development plans.

General advice on the agricultural aspects of site working and reclamation can be found in the Defra Guidance for successful reclamation of mineral and waste sites.

5. Air Quality

Air quality in the UK has improved over recent decades but air pollution remains a significant issue; for example over 97% of sensitive habitat area in England is predicted to exceed the critical loads for ecosystem protection from atmospheric nitrogen deposition (England Biodiversity Strategy, Defra 2011). A priority action in the England Biodiversity Strategy is to reduce air pollution impacts on biodiversity. The planning system plays a key role in determining the location of developments which may give rise to pollution, either directly or from traffic generation, and hence planning decisions can have a significant impact on the quality of air, water and land. The assessment should take account of the risks of air pollution and how these can be managed or reduced. Further information on air pollution impacts and the sensitivity of different habitats/designated sites can be found on the Air Pollution Information System (www.apis.ac.uk). Further information on air pollution modelling and assessment can be found on the Environment Agency website.

6. Climate Change Adaptation

The England Biodiversity Strategy published by Defra establishes principles for the consideration of biodiversity and the effects of climate change. The ES should reflect these principles and identify how the development's effects on the natural environment will be influenced by climate change, and how ecological networks will be maintained. The NPPF requires that the planning system should contribute to the enhancement of the natural environment "by establishing coherent ecological networks that are more resilient to current and future pressures" (NPPF Para 109), which should be demonstrated through the ES.

From: Georgina Hartley [mailto:georginahartley@talktalk.net]
Sent: 16 October 2014 22:53
To: DevelopmentControl & DevelopmentManagement
Subject: FAO Steve Kirkham - Re: Application No. 2014/ENQ/00754

Dear Steve

Thank you for giving me a few extra days in which to respond to the consultation on the EIA Scoping Report for the proposed junction and highway improvement works on the A61 near Birdwell.

I note that on page 10 of the Scoping Text, 3.2.5 – Potential Impacts, the 'import of aggregates and import and export of soils and overburden' is referred to. This will mean large lorries on the local roads, possibly including roads used by equestrians. I hope that there will be some consultation (or, at least, information) as to the route that these lorries will take. It would also assist rider safety if they had information regarding the days and times that the lorries would be on the roads. Obviously, some sort of construction traffic management scheme will be put in place.

As we discussed, there are no recorded bridleways through the site. However, as we also discussed, riders may be using routes that are not recorded on the definitive map. If this is so, local riders will get the opportunity to make their case known at the public consultation stage of the project. I would appreciate it if you would send me details of the public consultation event as soon as it has been confirmed.

Thank you for your help.

Yours Sincerely

Georgina Hartley
Access Officer – South Yorkshire
The British Horse Society

From: Ford , Sarah
Sent: 21 October 2014 09:17
To: Bladen , Angela
Subject: RE: 2014/ENQ/00754 Pre App Planning Consultation

Hi Angela
I know this is late but I have been feeding directly into design team as well, so just a couple of things that we have raised

1. If we are putting in joint walking/cycling alignments (shown purple) around the new layout, surely the crossings should also be walking and cycling and not just pedestrian?
2. The pedestrian link between the A61 to Dearne Valley Parkway (what used to be part of the old road and not coloured in on the plan) we would appreciate a grass strip for bridleway users alongside the walking/cycling strip. This will form the link to the M1 bridleway bridge and although it means horses would be crossing the A61 just outside the scope of the works, the alternative is for them to be riding down the road layout or trying to cross the multiple roads on the lower status crossing.
3. We have already requested a bridleway link on the Harworth Estates application site off Rockingham roundabout which will leave the link on the triangle shaped Land between Rockingham and Birdwell roundabouts to be discussed at pre – app discussion stages for that development area.
4. The existing footpaths across the site will be addressed under the Side Roads Order and the remaining concern about the central area of land being isolated has been addressed with the new spur off roundabout 2.

Regards
Sarah Ford
Senior Rights of Way Officer

From: Mayne , Trevor
Sent: 13 October 2014 11:18
To: Bladen , Angela; Ward , Elaine
Cc: Holdroyd , Keith; Jones , Andy
Subject: RE: 2014/ENQ/00754 Pre App Planning Consultation A61 Birdwell Highway Improvements

Elaine, Angela

thank you for consulting me on the above new pre-application enquiry. Apologies for the delay in replying

I offer the following comments with respect to biodiversity issues:

- Regarding the EIA Scoping Report (Final 29/7/14), it states at s3.5.4 as part of the extended phase 1 habitat report carried out by Wildscapes in May 2014 that there are no statutory nature conservation sites within 2km of the site. This is incorrect: Potter Holes Plantation is a Local Nature Reserve and LNR's are statutory sites. The report has not looked for nearby non-statutory sites which were requested at an earlier stage in consultation. This needs to be done and the significance evaluated.
- The report fails to note the planning policy context that the site is bisected by the (Dearne Valley Green Heart) Nature Improvement Area boundary – see attached plan. NIA's are new government designations aimed at improving biodiversity on a landscape-scale. The LPA has recognised the NIA in its adopted Core Strategy and is committed to encouraging a higher standard of design with regards to biodiversity for major developments within the NIA. The applicant should reflect this in the biodiversity measures they propose.
- I accept that all habitats found on site are of no more than local importance. It states that there are no great-crested newts in the surrounding area – the non-statutory sites search will prove otherwise and I have recently heard from ecological consultants advising an adjacent development proposal that GCN have been found in a pond 700m away to the north (AES, Personal Communication). The GCN statement needs to be updated in the light of both pieces of information.
- The nature conservation section recommends that habitats remaining after the development are managed to encourage species-diversity is accepted in principle, subject to agreeing the detail. Similarly, the recommendation to only clear site vegetation between October and February inclusive is also accepted.
- The Drainage section states at 3.10.5 a Suds solution is the preferred solution – I would encourage this provided the pond is designed for dual-use including to aid the conservation of amphibians with an appropriate maintenance programme to be agreed.
- Otherwise the Scoping Report is satisfactory from a biodiversity point of view.
- The aerial photo shows a red line boundary which I am unclear whether it will be the same boundary for the future planning application. If it is, then the ecological survey has not covered all the site – for example a) the verge between the M1 roundabout and the first Dearne Valley Parkway (DVPW) roundabout, west side, b) the first roundabout island itself, c) the verge north of the A6135 and south of the layby/ closed road have not been assessed. All the greenspace areas to be affected need to be cross-referenced and assessed.
- The outline highway design plan does not appear to be cross-referenced to the ecological assessment – in particular, with reference to which grenspaces are to be retained and which are to be created. Both of the reports need to be updated so as to allow this comparison.
- The extended phase 1 habitat survey (Wildscapes, May 2014) has been written and reviewed by ecologists for whom relevant qualifications and experience are not provided as was requested at an earlier stage in consultation. This needs to be provided in an updated report to the LPA's satisfaction.
- The desk study has only used Barnsley Biological Records Centre (hosted by Sheffield Ecology Unit) – again, the gaining of data from South Yorkshire Badger Group and South Yorkshire Bat Group were also required by an earlier stage of consultation and the report will need updating.
- It is not clear to me why other priority and protected species surveys were no carried out, such as birds, other amphibians, reptiles and invertebrates – the ecologists need to justify their decisions and the presumption is that these surveys still need to be carried out.

- As stated above with respect to the Scoping Report, non-statutory nature sites need to be interpreted in an updated report.
- At section 4 of the report -- ecological assessment and mitigation it notes 50% of the grassland would be lost. The recommendation to manage the remaining grassland for species-diversity is accepted in principle subject to a satisfactory maintenance programme being proposed. Similarly, with regards to hedgerow mitigation – it is accepted in principle that new planting needs to be detailed and a maintenance programme agreed. Both grassland and hedges need to appear on the design plan, in terms of retained habitat and created (separately). The controlled removal of the invasive Japanese knotweed can be conditioned.
- The following issues which were discussed with the applicant at an earlier stage of consultation have not been addressed by the ecology report:
    - It had been accepted that a 'green corridor' through the site to aid movement of the more mobile species would be identified and recommended. The Highway Authority are required to put a 5m green buffer along the new roads and it was implicit that these buffers could also form part of the ecological mitigation if they are grassland strips seeded up with a native wildflower and grass mix of native provenance and subject to an agreed maintenance programme. They could also form part of Public Rights Of Way provided they are not surfaced – but that is for the applicant to propose. The wildlife corridor needs to link to the neighbouring development sites (draft Local Plan allocations H1 and H3) to the south of the A6135 and to the north-east of the application site
    - Underpasses for species such as badgers, reptiles and amphibians were discussed – these need to be proposed together with a maintenance programme.
    - A SUDS pond is likely to be created but there is no reference to this in the ecology report as biodiversity enhancement – it does need to appear in the ecology report together with a maintenance programme sympathetic to amphibians.
- The applicant is advised that the biodiversity information/ecological assessment provided as part of the application will be made available to Barnsley Biological Records Centre. This will assist in a key principle of the National Planning Policy Framework that planning policies and decisions should be based on up-to date information about the natural environment and other characteristics of the area by building up the data base of up-to-date ecological information and this will help in future decision making.

Regards

Trevor Mayne
Biodiversity Officer
Barnsley Metropolitan Borough Council
Parks Services
Westgate Plaza One
PO Box 605
Barnsley
S70 9FF

(01226) 772646

Dearne Valley
Green Heart
Partnership
Nature Improvement Area

6.0 AIR QUALITY

6.1 Introduction

6.1.1 Barnsley Metropolitan Borough Council commissioned White Young Green to undertake an Air Quality Assessment of the proposed site. This was carried out in November 2014. (See Appendix 10)

6.1.2 The site location is to the east of junction 36 of the M1. The approximate United Kingdom National Grid Reference is 434970; 400350.

6.2 Regulatory and Policy Framework

The following documents were consulted during the undertaking of this assessment:
Legislation and Best Practice Guidance
National Planning Policy Framework, Department for Communities and Local Government, March 2012;
Planning Practice Guidance: Air Quality, March 2014;
The Air Quality Standards Regulations, 2010
The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, 2007
The Environment Act, 1995
Local Air Quality Management Technical Guidance LAQM.TG(09), DEFRA, 2009
Design Manual for Roads and Bridges, Volume 11, Section 3, Part 1, HA 207/07 - Air Quality, Highways Agency, 2007
Development Control: Planning for Air Quality, National Society for Clean Air and Environmental Protection, 2010
The Control of Dust and Emissions from Construction and Demolition – Best Practice Guide, Greater London Authority and London Councils, 2006
Guidance on the Assessment of Dust from Demolition and Construction (Institute of Air Quality Management, 2014)
Defra Local Air Quality Management Note on Projecting NO_2 concentrations (April 2012)

Websites Consulted
Google maps (maps.google.co.uk)
The UK National Air Quality Archive (www.airquality.co.uk)
Department for Transport Matrix (www.dft.go.uk/matrix)
emapsite.com
MAGIC (http://magic.defra.gov.uk/)
Planning Practice Guidance (http://planningguidance.planningportal.gov.uk/)
Barnsley Metropolitan Borough Council (https://www.barnsley.gov.uk/)

6.2.1 European Legislation
European air quality legislation is consolidated under Directive 2008/50/EC, which came into force on 11th June 2008. This Directive consolidates previous legislation which was designed to deal with specific pollutants in a consistent manner and provides new air quality objectives for fine particulates.

6.2.2 The Air Quality Standards Regulations (2010)

6.2.3 **Planning and Policy Guidance**

6.2.4 **National Policy**

The National Planning Policy Framework (NPPF) principally brings together and summarises the suite of Planning Policy Statements (PPS) and Planning Policy Guidance (PPG) which previously guided planning policy making. The NPPF broadly retains the principles of PPS 2
The Planning Practice Guidance (PPG) web-based resource was launched by the

Department for Communities and Local Government (DCLG) on 6 March 2014 to support the National Planning Policy Framework and make it more accessible.

6.2.5 Local Policy

Barnsley Metropolitan Borough Council (BMBC) is currently developing a Local Development Framework (LDF) to replace the current Regional Spatial Strategy, Unitary Development Plan and related Supplementary Planning Guidance. However, the LDF is still under consultation. Current policies consist of the Core Strategy, the Barnsley Education Sites Development Plan Document (DPD) (both of which form part of the LPD), the remaining saved policies of the Unitary Development Plan and the Regional Spatial Strategy.

6.3 Methodology

6.3.1 The potential environmental effects of the operational phase of the proposed development are identified, in so far as current knowledge of the site and development allows. The significance of potential environmental effects is assessed according to their scale (magnitude) and the sensitivity of the receptors.
The methodology used to determine the potential environmental effects of the construction phase of the proposed development has been derived from the IAQM 'Guidance on the Assessment of the Impacts of Dust from Demolition and Construction' document and is summarised in Appendix 10, Section 5.

6.4 Baseline Conditions

6.4.1 Air Quality review and Assessment

This section provides a review of the existing air quality in the vicinity of the proposed development site in order to provide a benchmark against which to assess potential air quality impacts of the proposed facility.
Baseline air quality in the vicinity of the proposed development site has been defined from a number of sources, as described in the following sections.

Air Quality Review

As required under section 82 of the Environment Act 1995, BMBC has conducted an ongoing exercise to review and assess air quality within its area of jurisdiction. The assessments have indicated that concentrations of NO2 are above the relevant AQOs at a number of locations of relevant public exposure within the Borough. BMBC has therefore designated 7 Air Quality Management Areas (AQMAs), which are described as:
AQMA No.1 – M1 Motorway, 100m either side of the central reservation within the Barnsley Borough;
AQMA No.2a – A628 Dodworth Road;
AQMA No.3 – Junction of A61 Wakefield Road and Burton Road;
AQMA No.4 – A61 Harborough Hill Road;
AQMA No.5 – Junction of A633 Rotherham Road and Burton Road;
AQMA No.6 – A616 passing through Langsett; and,
AQMA No.7 – Junction of A61 Sheffield and A6133 Cemetery Road.

Birdwell roundabout is located approximately 100m from AQMA No.1. Given the proximity between this AQMA and the proposed site, the assessment has considered impacts on nitrogen dioxide concentrations within the AQMA. However, it is not predicted that traffic associated with the proposed development will significantly influence the existing flows along the M1.

6.4.2 Likely Significant Effects

6.4.3 Construction Phase

Other than negligible emissions from construction vehicles and equipment the main emissions during construction are likely to be dust and particulate matter generated during earth moving (particularly during dry months), or from construction materials. In respect of fires on site it should be noted that suitable management strategies will be in place to prevent burning of any material during the construction phase.
The main potential effects of particulates/dust are:

- Visual – dust plume, reduced visibility, coating and soiling of surfaces leading to annoyance, loss of amenity, the need to clean surfaces;
- Physical and /or chemical contamination and corrosion of artefacts;
- Coating of vegetation and soil contamination;
- Health effects due to inhalation e.g. asthma or irritation of the eyes.

A number of other factors such as the amount of precipitation and other meteorological conditions will also greatly influence the amount of particulate matter generated.
Construction activities can give rise to short-term elevated dust/PM10 concentrations in neighbouring areas.
This may arise from vehicle movements, soiling of the public highway, demolition or windblown stockpiles. (See Appendix 10, Section 5)

6.4.4 Operational Phase

In the context of the proposed development, transportation is identified as the dominant emission source that is likely to cause potential risk of exposure of air pollutants at receptors.
The operational phase assessment therefore consists of the quantified predictions of the change in nitrogen dioxide and particulate matter for the operational phase of the development due to changes in traffic movement. Predictions of air quality at the site have been undertaken for the operational phase of the development using ADMS Roads.
In accordance with the provided traffic data, as contained within the supporting Traffic Assessment (TA), the operational phase assessment has been undertaken with an assumed operational opening year of 2019. The assessment scenarios are therefore:
2019 'Do Minimum' = Baseline + committed development
2019 'Do Something' Scenario = Baseline + committed development + Proposed Development
See Appendix 10, Section 6

6.5 Mitigation and Enhancement

6.5.1 Construction Phase

Mitigation measures for the proposed development during the Construction Phase are identified in Appendix 10, Section 7, Table 23 and Appendix A of the same document which categorises measures as Highly Recommended and Desirable.

6.5.2 Operational Phase

The assessment of road traffic exhaust emissions has not predicted any exceedances of the AQOs in the surrounding area and the impact of the revised junction layout is not considered to be significant. As such, no mitigation measures are proposed from an air quality perspective.
The revised junction layout is designed to reduce traffic congestion at the A61 Birdwell Roundabout and M1 Junction 36 roundabout. This will contribute towards reducing stop-start driving behaviour in the study area and in turn will reduce the air quality effects of

increased tailpipe emissions from stationary vehicles and as traffic accelerates away from the roundabouts and junctions.

A short section of new road will be constructed connecting the A6135 Sheffield Road to the A6195 Dearne Valley Parkway. This new section of road will move traffic closer to sensitive residential receptors along Cross Keys Lane. However, the air quality assessment shows that the stand-off distance between these properties and the new road is sufficient that the impact significance of road traffic emissions is considered to be negligible.

6.6 Conclusion

WYG have undertaken an Air Quality Assessment (AQA) for the proposed A61 Birdwell junction Improvements, in accordance with the methodology and parameters previously described within this report.
Prior to the implementation of appropriate mitigation measures, the potential impact significance of dust emissions associated with the construction phase of the proposed development has been assessed as 'medium risk' at the worst affected receptors. Site specific mitigation measures have been recommended based on Section 8.2 of the IAQM Guidance on the Assessment of Dust from Demolition and Construction.

It is anticipated that with these mitigation measures in place, the risk of adverse effects due to emissions from the construction phase will be low.

The 2019 assessment of the effects of emissions associated with the revised junction layout, has determined that the maximum predicted increase in the annual average exposure to NO2 at any existing residential receptor is likely to be 1.00ug/m3, at 19 Cross Keys Lane (R15). The maximum predicted decrease in annual average NO_2 exposure, due to reduced congestion at Birdwell junction, is -1.60ug/m3, at 245 Sheffield Road.

The maximum predicted increase in the 99.79%-ile of the 1-hour mean exposure to NO_2 is likely to be 5.87ug/m3, at 3 Cross Keys Lane (R12). The maximum predicted decrease is -4.42 ug/m3, at 245 Sheffield Road (R7).

The maximum predicted increase in the annual average exposure to PM_{10} at any existing residential receptor due to changes in traffic movements associated with the scheme is 0.23ug/m3, at 33 Wood View, Sheffield Road (R5). The maximum predicted decrease in annual average PM_{10} exposure, due to reduced congestion at Birdwell junction, is -0.26ug/m3, at Rockingham Community Hall (R9*).

The maximum predicted increase in the 90.41%-ile of the 24-hour mean exposure to PM_{10} is likely to be 0.36ug/m3, at 33 Wood View, Sheffield Road (R5). The maximum predicted decrease is -0.37ug/m3 at Rockingham Community Hall (R9*).

All modelled receptor locations are predicted to meet the national AQOs for both NO_2 and PM_{10} in both the 'do minimum' and 'do something' scenarios.

The significance of the effects of the proposed junction improvements with respect to annual mean NO_2 exposure is determined to be 'negligible' to 'slight beneficial'. With respect to the 99.79%-ile of 1-hour mean NO_2, annual mean PM_{10} and 90.41%-ile of 24-hour PM_{10} exposure, the significance of the proposed scheme is determined to be 'negligible', based on assumptions detailed throughout the report.

Following the adoption of the recommended mitigation measures, the development is not considered to be contrary to any of the national, regional or local planning policies.

7.0 CULTURAL HERITAGE

7.1 Introduction

7.1.1 Barnsley Metropolitan Borough Council commissioned West Yorkshire Archaeological Services to undertake a Desk Top Study of the area shown in Appendix 3, Fig. 2 of the report of the proposed site. This was carried out in April 2014.

7.1.2 The Study considered potential impacts of the proposed scheme on cultural heritage, which includes Archaeological Remains, Historic Buildings and Historic Landscapes.

7.1.3 The study area comprised of the footprint of the scheme and any recorded heritage assets within a 2-3km radius from the centre of the proposed scheme.

7.2 Methodology

7.2.1 The nature, scope and scale of the archaeological evaluation was agreed with West Yorkshire Archaeological Service.

7.2.2 An assessment of the significance of any recorded heritage assets within the study area was undertaken together with an assessment of any potential impacts, in line with the requirements of National Planning Policy Framework (NPPF; Chapter 12: 'Conserving and enhancing the historic environment', paragraph 128).

7.2.3 Based on the findings of the Desk Top Study a Geophysical Survey (Geophysical Survey- A61 Birdwell Junction, WYAS, July 2014) was undertaken covering the southern part of the site, which was thought may contain remains of the Battlefield Site of Tankersley Moor.

7.3 Baseline Conditions

7.3.1 A total of 22 recorded heritage assets and archaeological investigations have been identified within the study area.

7.3.2 There are seven Listed Buildings in the study area, but no Conservation Areas, Scheduled Monuments, Registered Battlefields, Registered Parks or Gardens or World Heritage Sites.

7.3.3 The PDA is likely to have been used during the medieval and post-medieval periods for agricultural land as indicated by the available mapping, before the northern area of the PDA was disturbed by opencast mining.

7.3.4 The 17th-century battle of Tankersley Moor is thought to have occurred in the area, although the exact site of the battle is unknown.

7.4 Likely Significant Effects

7.4.1 Direct Impacts

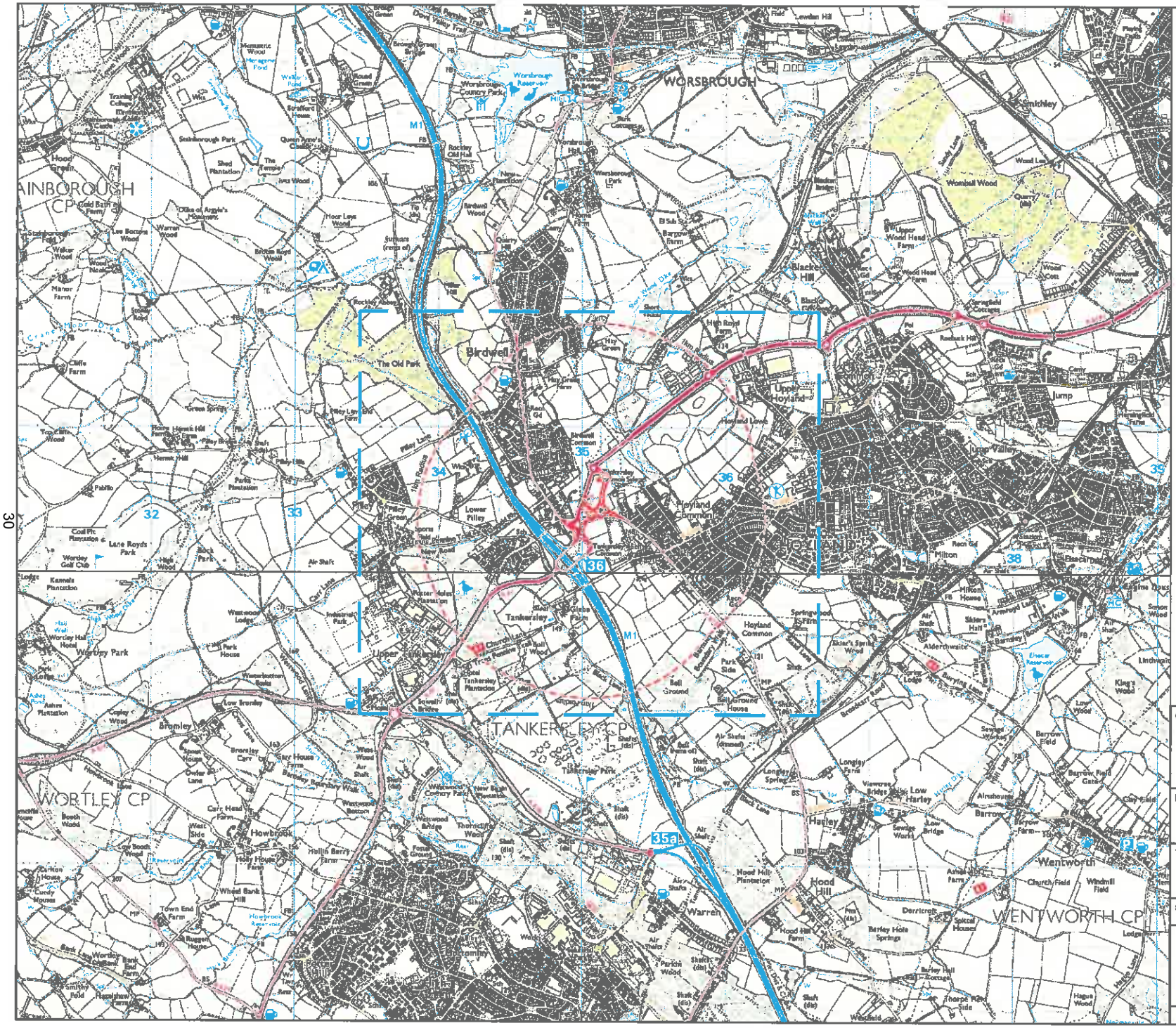
7.4.2 The Conclusion of the Archaeological Desk Top Study and Geophysical Survey (See Appendix 4) was that the proposed development will not have a direct impact on any of the heritage assets identified. No anomalies of obvious archaeological potential have been identified by the geophysical survey.

7.4.3 The survey has identified anomalies which are consistent with geological outcropping and the industrial use of the land for mineral extraction.

Therefore, based upon the results of the geophysical survey, the archaeological potential of the PDA is assessed as being low.

7.4.4 Impacts on Setting:
A total of seven Listed Buildings lie within the study area, but the proposed works are unlikely to have an adverse impact on the settings or the views to and from these heritage assets.

7.4.5 No mitigation or further assessment is proposed.



This map is reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Licence no. 100022264 (2009)

Client
BARNSLEY
Metropolitan Borough Council

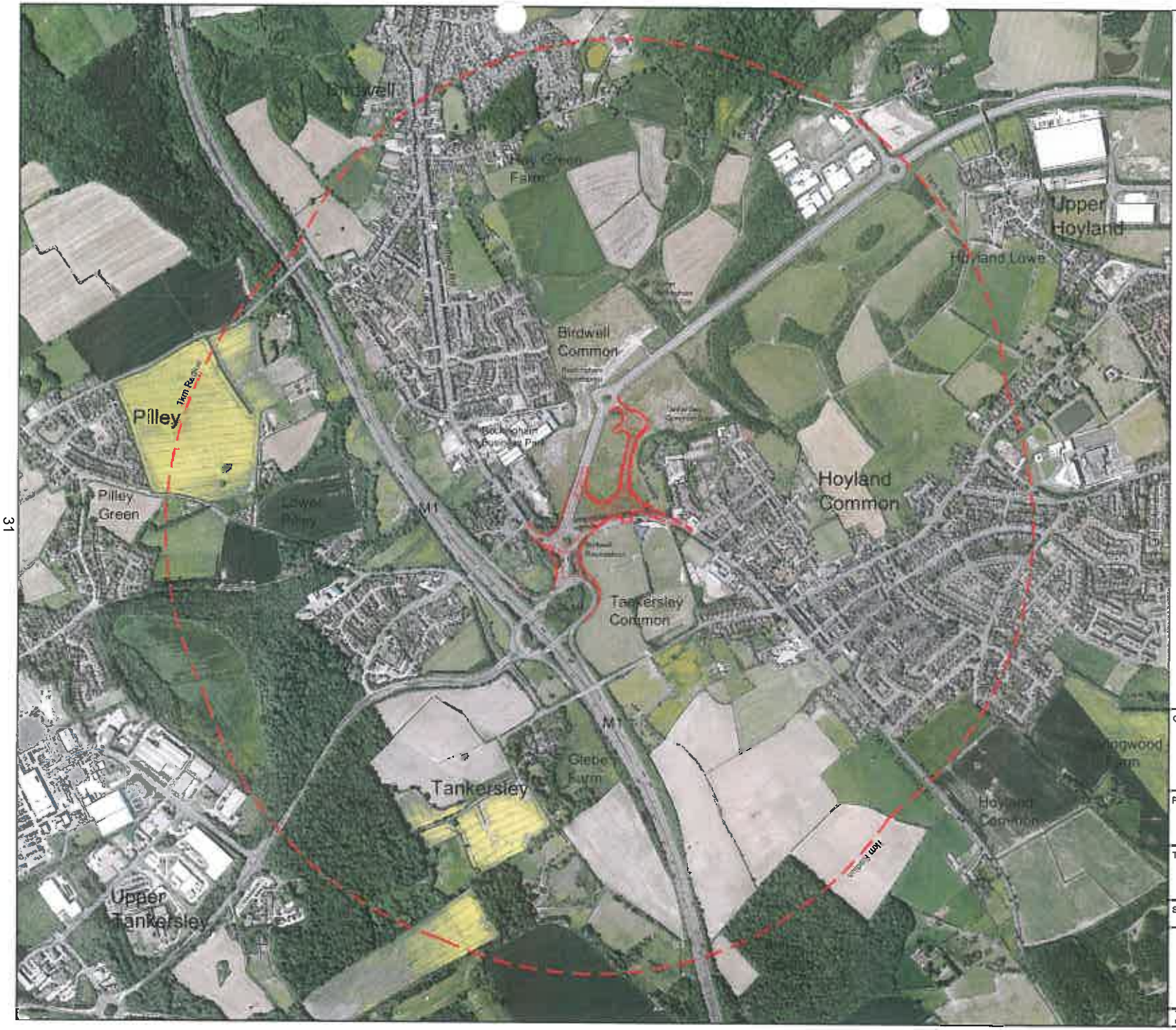
Project
BIRDWELL A61
JUNCTION IMPROVEMENT

Title
LOCAL
CONTEXT

Scale	Paper	Fig No.
1:25,000	A3	01

Wainwright
Landscape Architecture
6 Lindale Lane, Wrenthorpe, Wakefield, WF2 0PN
T. +44 (0)1924 381268 E. info@wainwrightla.co.uk

This drawing is not to be used in whole or part other than for the intended purpose and project as defined on the drawing.



Legend

Proposed Route

Aerial photography from Cities Revealed® copyright by The GeoInformation® Group, 2013

Client

BARNSLEY Metropolitan Borough Council

Project BIRDWELL A61 JUNCTION IMPROVEMENT

Title AERIAL PHOTOGRAPH

Scale 1:25,000 | Paper A3 | Fig No. 02

Wainwright
Landscape Architecture
6 Lindale Lane, Wrenthorpe, Wakefield, WF2 0PN
T. +44 (0)1924 381256 E. info@wainwrights.co.uk

This drawing is not to be used in whole or part other than for the intended purpose and project as defined on the drawing.

8.0 LANDSCAPE AND VISUAL AMENITY

(Refer to Figure 01 - Local Context and Figure 02 Aerial Photograph)

8.1.1 Scope of the Report

This section of the EIA will assess the likely significant effects of the proposed development on the landscape and visual amenity. It aims to provide a sufficiently detailed assessment of the landscape and visual issues in order to determine the impacts of the development and to propose suitable mitigation measures where appropriate.

The assessment will consider the physical landscape, the character of the landscape, and the visual amenity of identified receptors within the study area. This assessment will also be informed by a BS5837:2012 Tree Survey.

8.1.2 Brief Description of the Site

The proposed junction improvement scheme occupies approximately 7ha and comprises land at the existing A61 Birdwell Roundabout and an adjoining grassland area associated with the former Rockingham Opencast Coal Site, to the east of the A6195 Dearne Valley Parkway (DVP).

8.1.3 The Project Proposal

The scheme will include new road structures, earthworks and infrastructure such as lighting. There will be some loss of existing roadside hedgerows which may open up localised views of the road and vehicles for nearby receptors. Other changes to the elements in the landscape include the addition of new sections of road and two roundabouts.

8.2 Methodology

8.2.2 Guidance and Assumptions

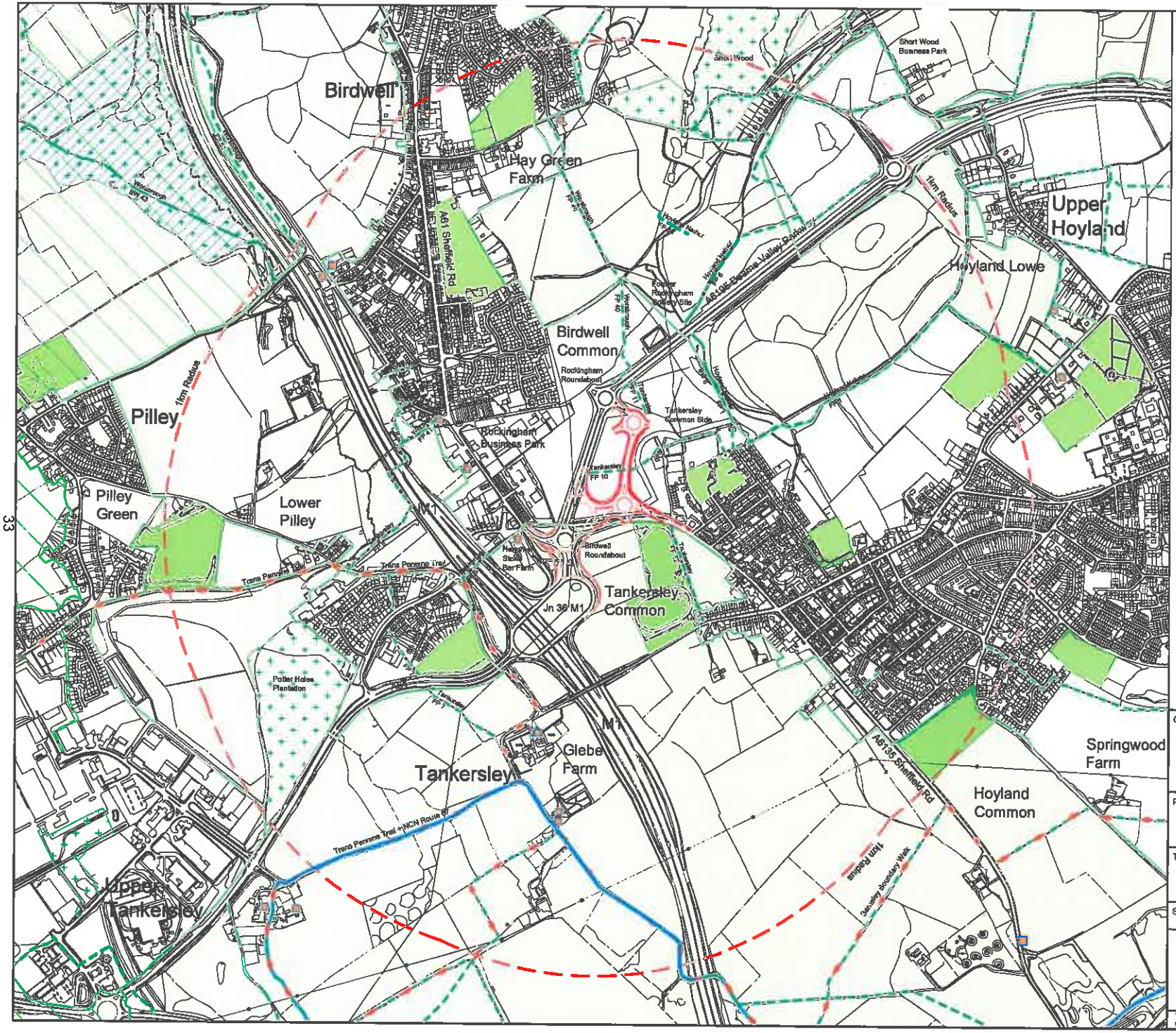
The assessment of landscape and visual effects was undertaken using methodology developed from current published best practice. This Includes:

- Design Manual for Roads and Bridges, Volume 11, Section 3 Part 5 Landscape Effects, Highways Agency, 1993 (as amended);
- Guidelines for Landscape and Visual Impact Assessment 3rd Edition, Landscape Institute and Institute of Environmental Management and Assessment, 2013;
- Landscape Character Assessment – Guidance for England and Scotland, Countryside Agency and Scottish Natural Heritage, 2002.

A baseline assessment was then undertaken to establish existing conditions. The desk based assessment reviewed currently available information on the landscape, designated areas and identified potential visual receptors. The regulatory framework and current landscape policy at a national and local level was also reviewed.

Using the above guidance and information gathered in the baseline assessment, the sensitivity and value of the landscape, its character and visual receptors is judged on a scale of *High; Medium; Low.*

Potential effects of the proposed development on landscape and visual receptors are then identified and the magnitude of effects are judged on a scale of *High; Medium; Low; Negligible.*



National Cycle Network Route data supplied by Sustrans and Contains Ordnance Survey data © Crown copyright and database right (2012).

© English Heritage 2014. Contains Ordnance Survey data © Crown copyright and database right 2014. The English Heritage GIS Data contained in this material was obtained on 12/06/2014. The most publicly available up to date English Heritage GIS Data can be obtained from http://www.english-heritage.org.uk/.

This map is reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Licence no. 100022264 (2009)

Client: BARNSLEY Metropolitan Borough Council

Project: BIRDWELL A61 JUNCTION IMPROVEMENT

Title: LANDSCAPE AND PLANNING CONTEXT

Scale: 1:25,000 | Paper: A3 | Fig No.: 05

Wainwright Landscape Architecture
9 Lindale Lane, Wrenthorpe, Wakefield, WF2 0PN
T. +44 (0)1924 381258 E. info@wainwrightla.co.uk

This drawing is not to be used in whole or part other than for the intended purpose and project as defined on the drawing.

Sensitivity of the landscape and magnitude of effect on the landscape is used to determine the significance of the impact on a scale of *High; Medium; Low; Negligible.*

The assessment considers impacts during the construction period, operation in the Opening Year and the Design Year 15 years after opening when landscape mitigation and planting can be expected to be established and performing any character or screening function. Potential impacts during the construction period are also highlighted in the assessment text where relevant

Appendix 8.1 – Landscape and Visual Impact Assessment Methodology provides further details the landscape and visual impact assessment methodology and provides the threshold criteria for determining the sensitivity of landscape and visual receptors, the magnitude of change brought about by the development and the significance of any resulting landscape and visual impacts,

8.2.3 The Study Area

The study area will be based on an initial extent of 1km from the centre line of the road. This distance is considered sufficient to account for the likely landscape and visual effects of the proposed scheme. This initial extent was then further reduced once the extent of visibility (ZVI - Zone of Visual Influence) had been checked during the baseline assessment and on-site observations.

8.3 Regulatory / Policy Framework

(Refer to Figure 05 - Landscape and Planning Context)

8.3.1 Relevant Legislation

The planning policy framework protecting individual elements of the landscape such as trees, hedgerows, landscape character and visual quality is set defined several sources. Policy guidance relevant to the scheme is set out below and illustrated on Figure 05

8.3.2 The Hedgerow Regulations

The Hedgerow Regulations 1997 (as amended) provide protection of 'important' hedgerows which are of historical and nature conservation value. It is against the law to remove or destroy certain hedgerows without permission from the local planning authority. The local planning authority are also the enforcement body for offences created by the Regulations. Local planning authority permission is normally required before removing hedges that are at least 20 metres in length, more than 30 years old and contain certain plant species. Where a former hedgerow has not been actively managed and has grown into a line of trees, it is not covered by the Regulations. The Regulations do not apply to garden hedges.

The Wildlife & Countryside Act 1981 (as amended) protects all wild birds. This includes their nests (whilst in use or being built) as well as any eggs the nest may contain. Although the Act does not state dates when hedgerows can be trimmed or cut, the main bird breeding season is recognised as being between 1 March and 31 July. Therefore the risk of committing any of the above offences is increased between these dates

8.3.3 Tree Preservation Orders

Town and Country Planning (Trees) Regulations 1999 (as amended) provide protection of trees and woodland with significant amenity value by Tree Preservation Orders (TPO).

8.3.4 Listed Buildings and Conservation Areas

Listed Buildings and Conservation Areas are designated under the Planning (Listed Buildings and Conservation Areas) Act 1990. No Listed Buildings or Conservation Areas are directly affected by the scheme (See Chapter 7.3 – Cultural Heritage). Where relevant the visual assessment will consider views and setting of Listed Buildings and Conservation Areas.

8.3.5 Public Rights of Way

Public Footpaths and Bridleways are designated as rights of way (PROW) under The Countryside Rights of Way Act 2000. Several footpaths are directly affected by the scheme (See Chapter 2 – The Proposed Development). Where relevant the visual assessment will consider views and setting of PROW.

8.3.6 The European Landscape Convention

The European Landscape Convention (ELC, Council of Europe, 2000) became binding in March 2007. The ELC aims to promote landscape protection, management and planning. The use of landscape character assessment supports the Convention's principles and Natural England have the responsibility of promoting the Convention at a regional and local level through EIA of development proposals (Framework for Implementation, 2007).

8.4 Existing Landscape and Visual Resources

(See Figures 01 – 07 and Appendix 9.4 - Tree Survey)

8.4.1 Landscape Baseline

This section aims to provide a review of the existing landscape by collecting factual information on landscape designations, describing the landscape's character and views, and collecting information on the landscape as a capital resource. In particular this baseline study aims to explore:
- patterns and scale of landform, land cover and built development
- any special landscape values (e.g. national park designation, listed buildings, Sites of Scientific Interest)
- potential receptors of landscape and visual impact

Establishment of this 'baseline data' in turn allows the significance of the predicted landscape and visual impacts to be assessed.

8.4.2 Method of Date Collection

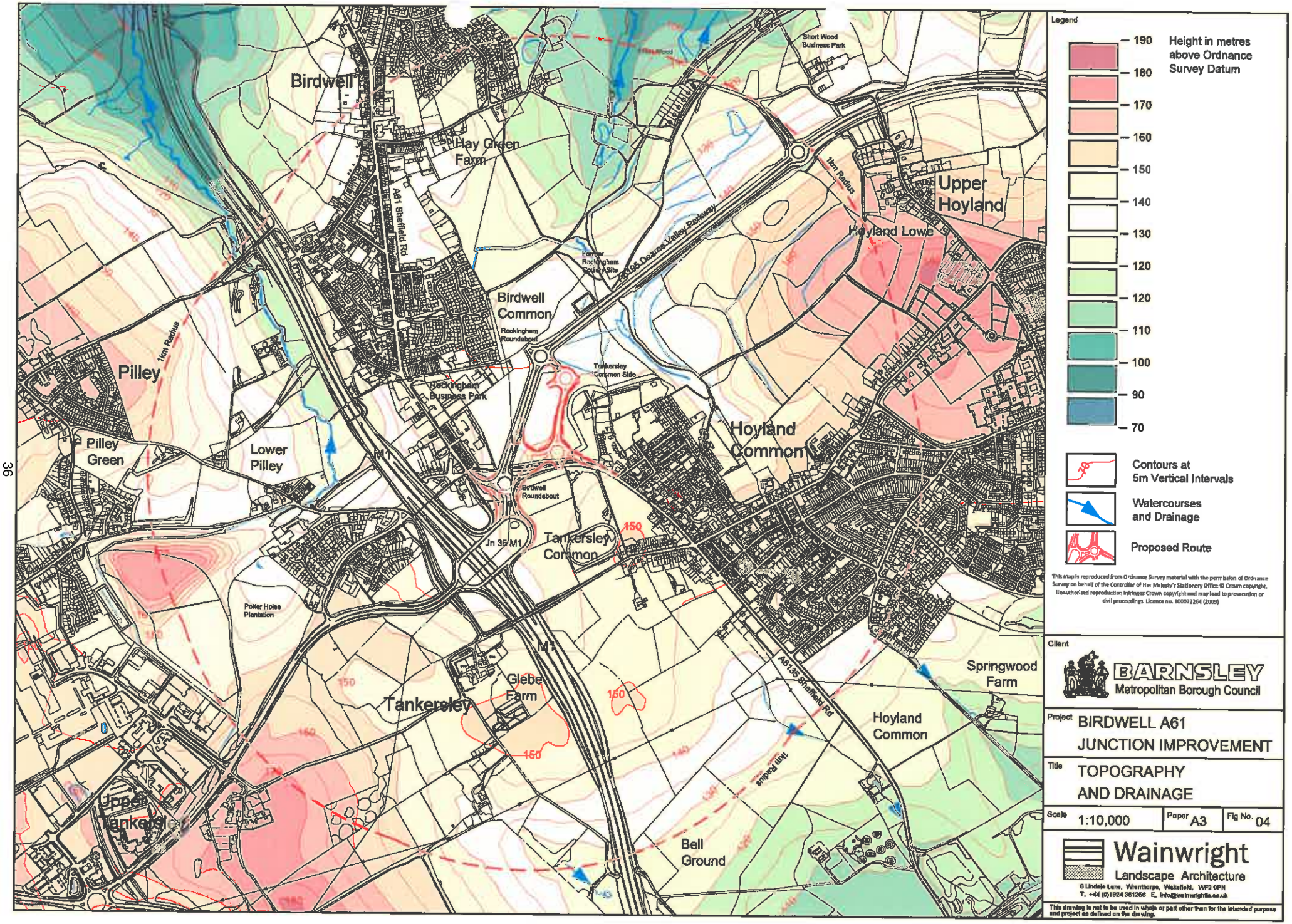
A desk study collecting information on the physical, ecological, historical and cultural elements contributing to the landscape character was undertaken. The method of data collection is set out in Appendix 8.1 – Landscape and Visual Impact Assessment Methodology

8.4.3 Topography and Drainage

(Refer to Figure 04 - Topography and Drainage)

The site is located on a low ridgeline between the settlements of Pilley, Birdwell and Hoyland, to the south of Barnsley. To the west is the M1 Motorway cutting and to the north east the land quickly falls away towards Short Wood. The landform rises to 180m AOD with distant skyline views of the Upper Hoyland to the east of the site.

The local ridgeline generally drains to the north and to the south. Several land drains are located to the north east, associated with workings at the former Rockingham Colliery



This map is reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Licence no. 100022264 (2008)

Client
BARNSLEY
Metropolitan Borough Council

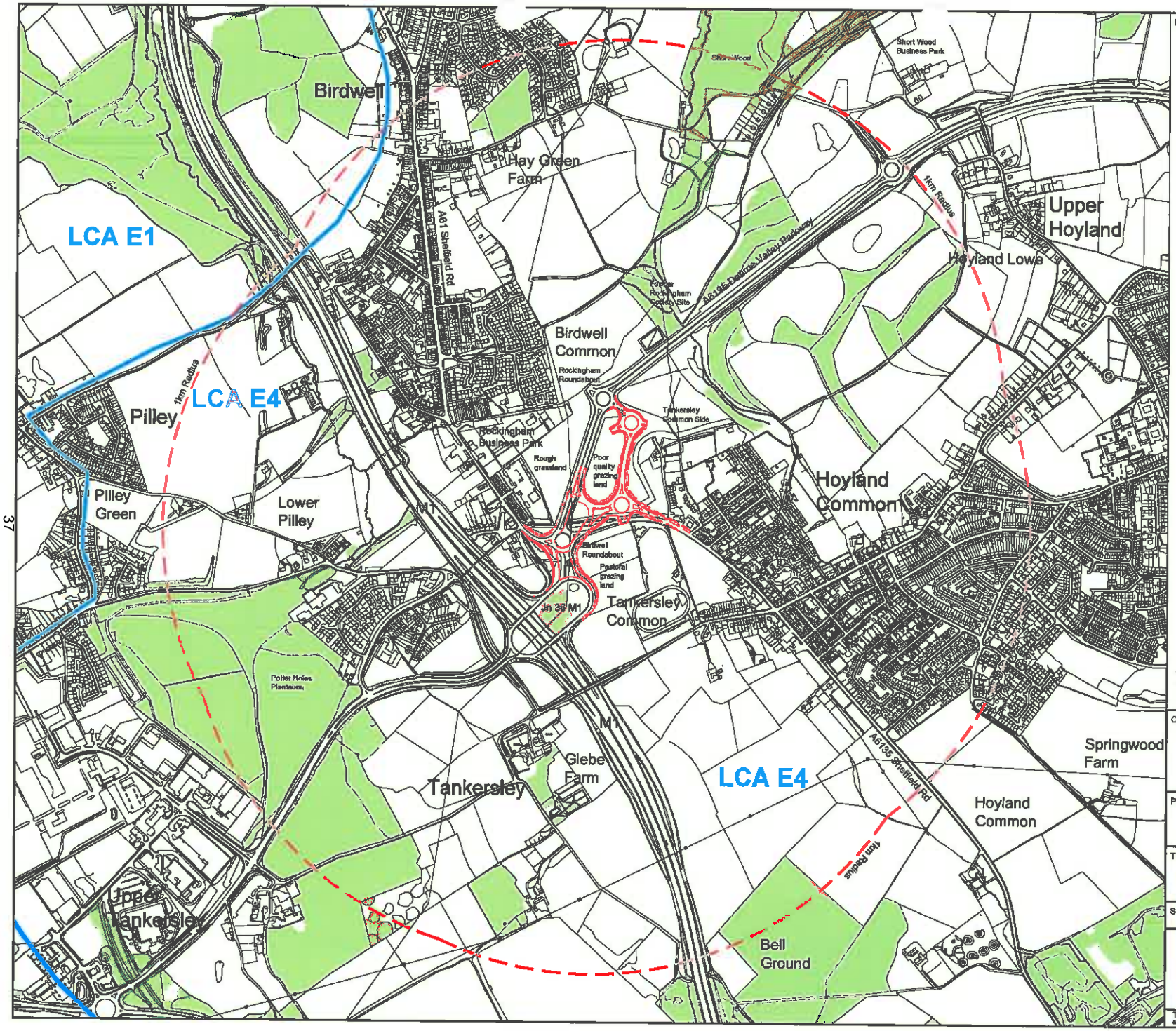
Project
BIRDWELL A61
JUNCTION IMPROVEMENT

Title
TOPOGRAPHY
AND DRAINAGE

Scale	Paper	Fig No.
1:10,000	A3	04

Wainwright
Landscape Architecture
6 Lindale Lane, Wrenthorpe, Wakefield, WF2 0PN
T. +44 (0)1924 381258 E. info@wainwrightla.co.uk

This drawing is not to be used in whole or part other than for the intended purpose and project as defined on the drawing.



Legend

National Landsape Character Areas

Whole Study Area — Nottinghamshire, Derbyshire & Yorkshire Coalfield NCA 38

BMBC Landscape Character Areas

LCA E1 — E1 West Barnsley Settled Wooded Farmland

LCA E4 — E4 Hoyland Settled Wooded Farmland

National Woodland Inventory

Proposed Route

Contains, or is based on, information supplied by the Forestry Commission. © Crown copyright and database right 2014 Ordnance Survey [100021242].

This map is reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Licence no. 100022264 (2009)

Client: BARNSLEY Metropolitan Borough Council

Project: BIRDWELL A61 JUNCTION IMPROVEMENT

Title: LANDSCAPE CHARACTER

Scale: 1:25,000 | Paper: A3 | Fig No.: 06

Wainwright
Landscape Architecture
6 Lindale Lane, Wrenthorpe, Wakefield, WF2 0PN
T. +44 (0)1924 381255 E. info@wainwrights.co.uk

This drawing is not to be used in whole or part other than for the intended purpose and project as defined on the drawing.

Site.

8.4.4 Landcover

Generally the land immediately around the site is gently sloping pasture used for horses and cattle grazing. Fields are bounded by post and rail fences, and fragmented hawthorn hedgerows. Sections of linear woodland and outgrown hedgerow are associated with the existing highway, around the A61 Birdwell Roundabout and along it's approaches. Other woodland strips and hedgerows are located within fields to the east and south of the site, planted as opencast restoration on former colliery land (see Figure 02 – Aerial Photograph).

8.4.5 Landscape Character

(Refer to Figure 06 – Landscape Character)

The site is located on the edge of green belt within National Character Area 30 – Nottingham, Derbyshire and Yorkshire Coalfield.

"A generally low-lying area, with hills and escarpments above wide valleys, the landscape embraces major industrial towns and cities as well as villages and countryside. Over half of the NCA (64 per cent) is currently designated as greenbelt land; this maintains some distinction between settlements and represents areas that are often under pressure for development and changes in land use"

In terms of the local landscape the Barnsley Borough Landscape Character Assessment describes the landscape character and sets out some guidelines for Landscape Management Issues and Opportunities.

Key local landscape characteristics include:

- Urban settlement fringes at Pilley Birdwell and Hoyland;
- M1 Motorway corridor and roundabout at Junction 36;
- Road infrastructure at Birdwell Roundabout and the A6195 Dearne Valley Parkway;
- Permanent grazing and woodland belts on the former Rockingham Colliery and Opencast site;
- Industrial commercial development at Rockingham Business Park and Tankersley Common Side;
- Deciduous woodland blocks of varying sizes, unmanaged hedgerows, trees and field boundaries.

8.4.6 Historical Context and Statutory Designations

(Refer to Figure 05 – Landscape and Planning Context)

There are no nationally or regionally protected landscapes within the study area.

Several locally designated conservation sites are within the wider study area. The nearest is Potter Holes Plantation (BMBC Nature Conservation Site) is located 500m west of Junction 36 M1.

There are several listed buildings located close to the site and within the wider study area including Hangman Stone Bar Farmhouse (Grade II Listed) 100m to the west of Birdwell Roundabout, three listed buildings and one scheduled monument at Glebe Farm, to the south of the site.

There are no Tree Preservation Order (TPO) protected trees within close proximity to the site. Several sections of highway and field boundary hedgerows lie within the line of the proposed development.

8.4.7 Communications and Footpaths

(Refer to Figure 05 – Landscape and Planning Context)

There are two public footpaths within the site or connect close to the site application boundary with relatively open views due to the open nature of the site. The Trans-Pennine Trail, Barnsley Boundary Walk, and a National Cycle Network Route 67 are long distance recreation routes which pass within 250m to the west and south of the site. However these footpaths are largely set within dense hedgerows and vegetation screening views.

In terms of vehicle travellers, Junction 36 M1, A61, A6195 Dearne Valley Parkway and the A6135 Sheffield Road are all major roads with a number of local roads connecting the business parks and residential areas.

8.4.8 Settlement Pattern

(Refer to Figure 05 – Landscape and Planning Context)

The residential areas of Birdwell, Hoyland, Upper Hoyland and Lower Pilley all have housing fringes within 1km of the proposed development site. There are also a few individual farms and properties near Short Wood to the north and Taknersley to the South.

The sports ground at Tankersley Common (The Rockingham Centre) is the main recreation site within the area. There are allotments near Tankersley Common Side but these are within the urban fringe and generally screened by residential and commercial properties.

Rockingham Business Park, Tankersley Common Side and Shortwood Business Park are the main business receptors within the area.

8.4.9 Tree Survey

(Refer to Appendix 8.4 – Tree Survey)

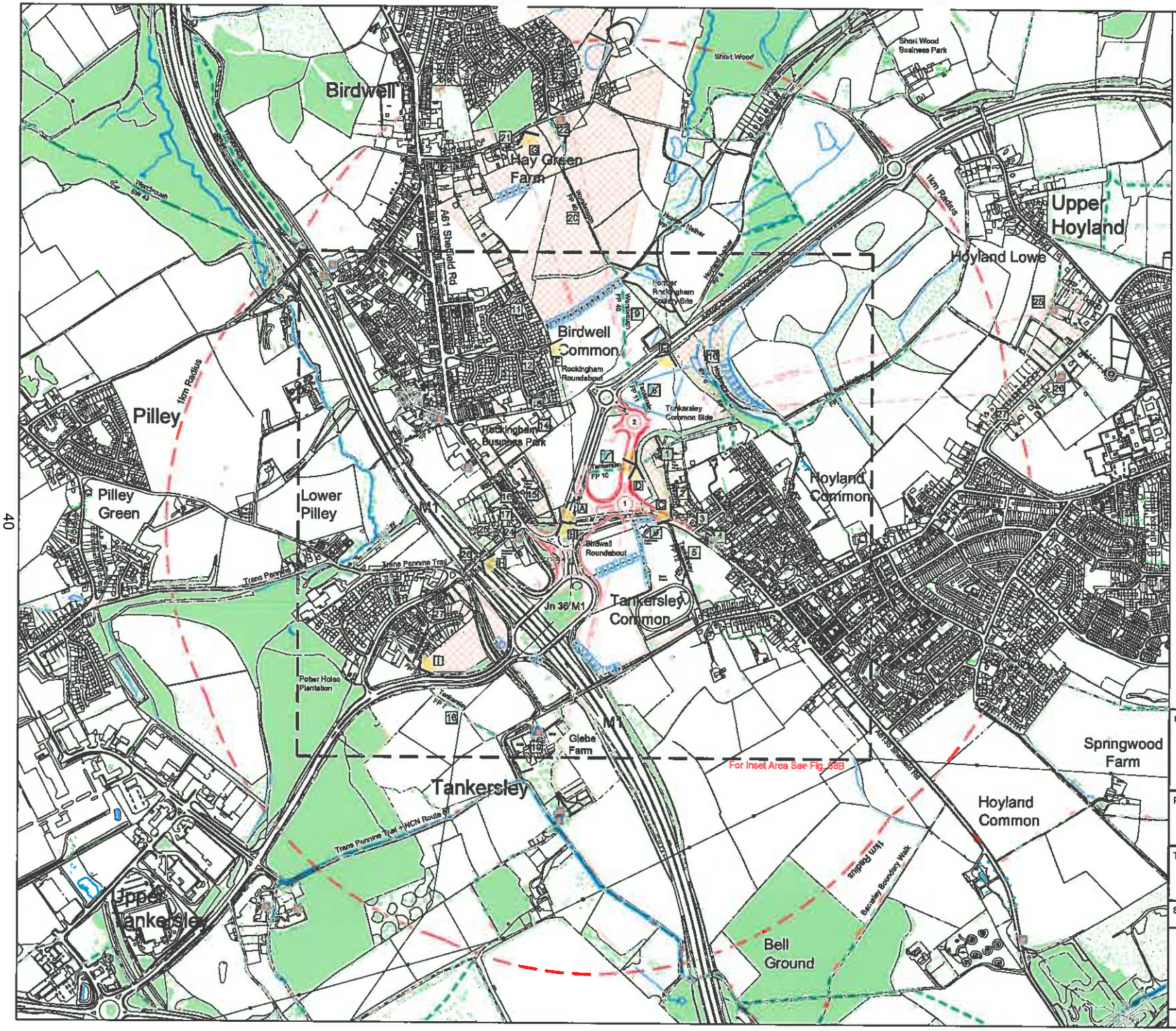
The Tree Survey was undertaken in September 2014 in accordance with the guidance provided in BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations' and results are presented in Appendix 8.4. Significant sections of relatively young hedgerow and woodland will be removed as part of the proposed road scheme. Some sections of older hedgerow will also be removed. These have been left to grow unmanaged and are now incorporated within other planting.

8.4.10 Views and the Visual Envelope

(Refer to Figures 08A & 08B – Visual Assessment)

The Visual Envelope outlines the area of land from which there is a view from any part of the proposed development. In establishing the visual envelope the following assumptions have been made:

- The observer height is 1.8m;
- The assumed eye level is from a person on foot;
- Traffic using the road will cause visual intrusion, as well as the associated structures; and
- A height of 4m above road height is taken to represent the top of a commercial vehicle.



Legend

- Proposed Route
- Woodland and Vegetation
- Public Rights of Way Footpath / Bridleway
- Sceduled Monument
- Listed Building
- Visual Envelope (winter extent)
- Intermittent Views (winter extent)
- Topographical Horizon (Ridgeline)
- Receptor Reference (see tables)
- Photograph View Location

Visual Impact Assessment
(at time of scheme completion)

- High Adverse Intrusion
- Moderate Adverse Intrusion
- Low Adverse Intrusion
- Negligible / No Effect

This map is reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Licence no. 100022264 (2009)

Client: BARNSLEY Metropolitan Borough Council

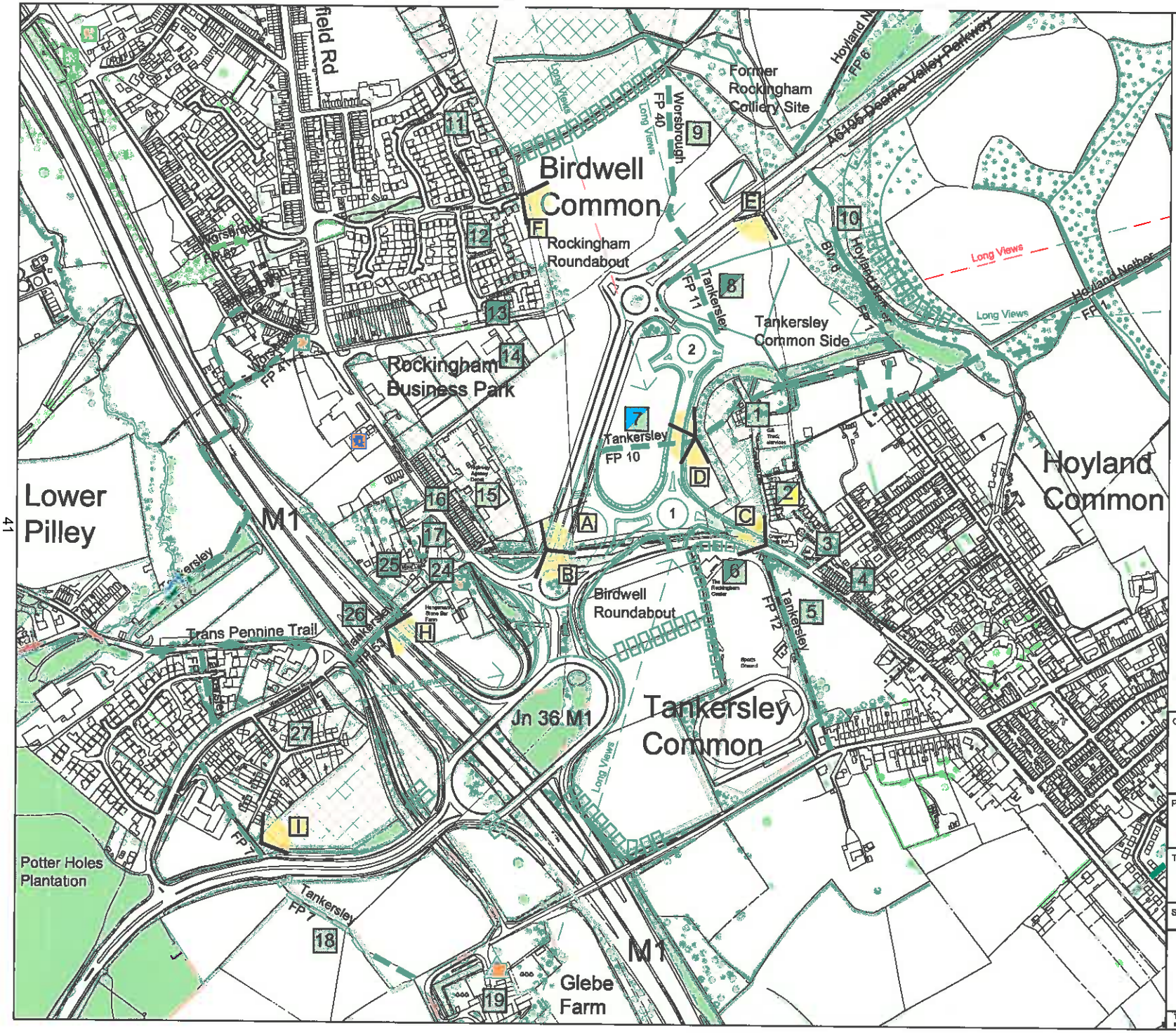
Project: BIRDWELL A61 JUNCTION IMPROVEMENT

Title: VISUAL ASSESSMENT

Scale: 1:10,000 | Paper: A3 | Fig No.: 08A

Wainwright Landscape Architecture
6 Lindale Lane, Wrenthorpe, Wakefield, WF2 0PN
T. +44 (0)1924 381256 E. info@wainwrights.co.uk

This drawing is not to be used in whole or part other than for the intended purpose and project as defined on the drawing.



Legend

- Proposed Route
- Woodland and Vegetation
- Public Rights of Way Footpath / Bridleway
- Sceduled Monument
- Listed Building
- Visual Envelope (winter extent)
- Intermittent Views (winter extent)
- Topographical Horizon (Ridgeline)
- Receptor Reference (see tables)
- Photograph View Location

Visual Impact Assessment
(at time of scheme completion)

- High Adverse Intrusion
- Moderate Adverse Intrusion
- Low Adverse Intrusion
- Negligible / No Effect

This map is reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Licence no. 100022264 (2009)

Client: BARNSLEY Metropolitan Borough Council

Project: BIRDWELL A61 JUNCTION IMPROVEMENT

Title: VISUAL ASSESSMENT

Scale: 1:5,000 | Paper: A3 | Fig No.: 08B

Wainwright
Landscape Architecture
8 Lindale Lane, Wrenthorpe, Wakefield, WF2 0PN
T. +44 (0)1924 361258 E. info@wainwrightla.co.uk

This drawing is not to be used in whole or part other than for the intended purpose and project as defined on the drawing.

Producing a visual envelope is an approximation, as inaccuracy may lie in practically assessing visibility from every point along the visual envelope boundary. The initial visual boundary was set by using GIS ground modelling to produce a Zone of Theoretical Visibility (ZTV). This was then further refined and assessed by visiting receptors and points along the visual boundary, and looking out from and back towards the site. An accurate visual boundary was established taking account of buildings, landform and vegetation, which forms the visual horizon or barrier.
The initial assessment was carried out during March 2014 when the trees were out of leaf, then repeated in September 2014. It can be expected that visibility will be significantly less during summer months and this is taken into account during the assessment. A summary of the visual assessment can be seen in Appendix 8.2 'Visual Intrusion - Schedule of Sites and Properties'. The extent of the visual envelope (winter) can be seen on Figures 08A & 08B Visual Assessment'
The visual envelope for the proposed scheme is influences by a combination of landform, vegetation cover and built development along the settlement fringes. Views to the site are from residential properties are generally quite limited and those that do exist currently include either the M1 Motorway, Birdwell Roundabout or the A6195 Dearne Valley Parkway.
Existing vegetation associated with the existing highway near Birdwell Roundabout currently forms a significant woodland screen limiting views and intervisibility across the area.

8.4.11 Key Views

(Refer to Figures 08A & 08B – Visual Assessment)

Twenty Seven key viewpoints have been selected to represent the main view and types of visual receptor within the study area. The key viewpoints are listed within Appendix 8.2 - Visual Intrusion Schedule of Sites and Properties, and illustrated on Figures 08A & 08B Visual Assessment. Seven of these viewpoints are also illustrated on Figures 09 Photographic Views, Viewpoint locations A- G.

The key viewpoints include:

- Residential settlement and property around the fringes of Birdwell, Tankersley and Hoyland
- Highway and public rights of way
- Recreation areas
- Representative commercial properties

Views from residential settlement and property are generally limited to those located around the urban fringe and facing the site. The majority of these properties also have existing highway views of the A6165 Dearne Valley Parkway, Birdwell Roundabout of the M1 Junction 36 Roundabout. Many views from residential properties are rear views and at oblique angles, or partly filtered by other neighbouring residential or commercial properties.

The only footpaths with notable views of the proposed development are those immediately adjoining the site. These include Tankerlsey Footpath no.s10 and 11, and Worsbrough Footpath no. 40.

Views from the public highway are generally limited to those immediately adjoining or overlooking the site. Removal of roadside vegetation near Birdwell Roundabout will further open up views across the site, particularly from the A6135 Sheffield Road to Tankersley

The Rockingham Centre and sports ground is located immediately to the south of the site off Sheffield Road. The Centre has existing close proximity views of Sheffield Road which are partly screened by the site boundary wall and the boundary hedgerow to the west

side.

Many of the existing views of the site are further filtered and screened by trees and vegetation located around the site, particularly during the summer months. The larger woodland blocks also provide significant screening during the winter months.

8.4.12 Night-time and Visual Amenity

The urban nature of the scheme means that the nightscape is currently lit by highway lighting with close proximity to the proposed scheme. The A6195 Dearne Valley Parkway, A6138 Sheffield Road, A61 Sheffield Road / Birdwell Roundabout and the M1 Junction 36 are all currently lit using high-pressure (white) sodium lights which will.

Most of this existing lighting (parallel to the scheme up to housing limits of Birdwell and Hoyland) will be replaced and upgraded to new LED lighting (high energy efficiency and tight optical control).

Other background lighting is produced from the settlement areas at both Birdwell and Hoyland and noticeably commercial property at Rockingham Business Park.

Additional lighting of the proposed scheme will also include new LED lighting with tight optical control. This will typically be at 40m centres on 12m columns.

8.4.13 Night-time and Visual Amenity

The urban nature of the scheme means that the nightscape is currently lit by highway lighting with close proximity to the proposed scheme. The A6195 Dearne Valley Parkway, A6138 Sheffield Road, A61 Sheffield Road / Birdwell Roundabout and the M1 Junction 36 are all currently lit using high-pressure (white) sodium lights which will.

Most of this existing lighting (parallel to the scheme up to housing limits of Birdwell and Hoyland) will be replaced and upgraded to new LED lighting (high energy efficiency and tight optical control).

Other background lighting is produced from the settlement areas at both Birdwell and Hoyland and noticeably commercial property at Rockingham Business Park.

Additional lighting of the proposed scheme will also include new LED lighting with tight optical control. This will typically be at 40m centres on 12m columns.

8.4.14 Mitigation and Enhancement

The Landscape proposals have been designed as an integral part of the design pf the proposed scheme and often combine improvements to the visual amenity, landscape character and structure. A detailed list of design criteria used for the landscape proposals and mitigation can be found in Appendix 8.3 – Landscape Proposals Design Criteria

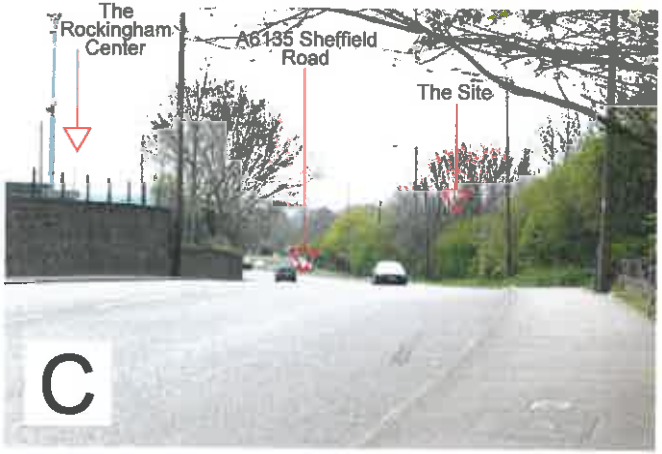
8.5 Impact Assessment

8.5.1 Landscape and Visual Impact Definition

Landscape and visual impact assessment seeks to identify the changes in landscape character or views within the landscape which would arise as a result of the development. A description of the method and criteria used is set out in Appendix 8.1 – Landscape and Visual Assessment Methodology.







View A - Looking North-eastwards towards the site from the junction of Dearne Valley Parkway and Birdwell Roundabout

View B - Looking South-eastwards towards Birdwell Roundabout

View C - Looking North-westwards towards the site and along A6135 Sheffield Road

View D1 to D4 - Looking Westwards across the site towards Birdwell and Rockingham Business Park

Client: BARNSLEY Metropolitan Borough Council

Project: BIRDWELL A61 JUNCTION IMPROVEMENT

Title: PHOTOGRAPHIC VIEWS SHEET 1 OF 3

Scale: NTS | Paper: A3 | Fig No.: 09

Wainwright Landscape Architecture
6 Lindale Lane, Wrenthorpe, Wakefield, WF2 0PN
T. +44 (0)1924 381268 E. info@wainwrights.co.uk

This drawing is not to be used in whole or part other than for the intended purpose and project as defined on the drawing.







View D1 to D4 – Looking Westwards across the site towards Birdwell and Rockingham Business Park

Client
BARNSLEY
Metropolitan Borough Council

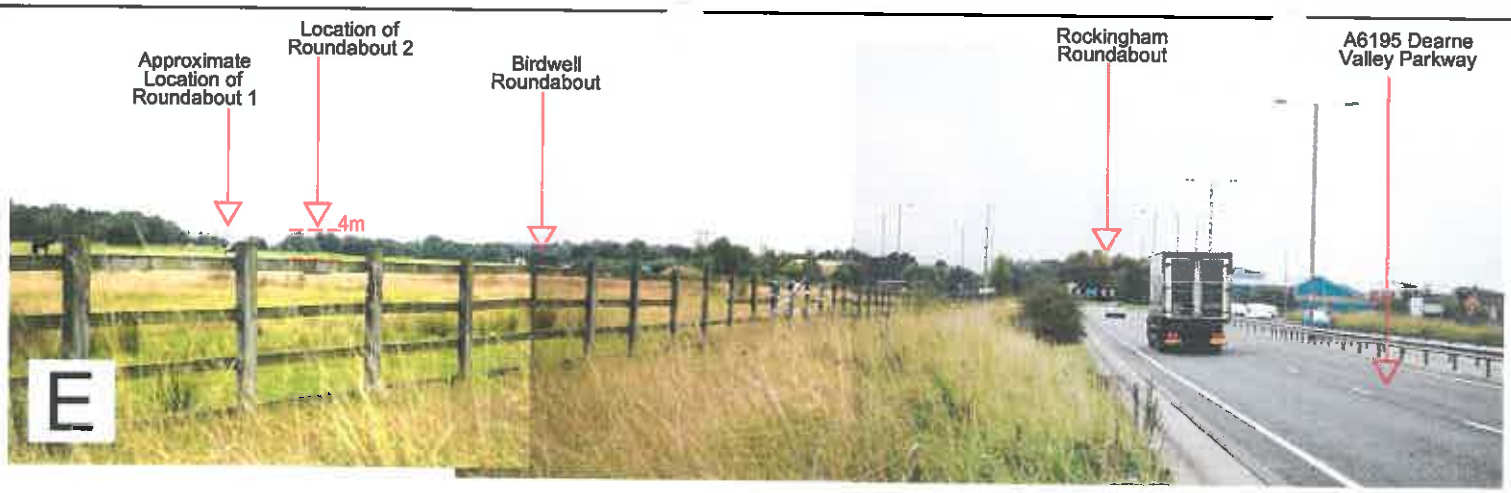
Project
BIRDWELL A61
JUNCTION IMPROVEMENT

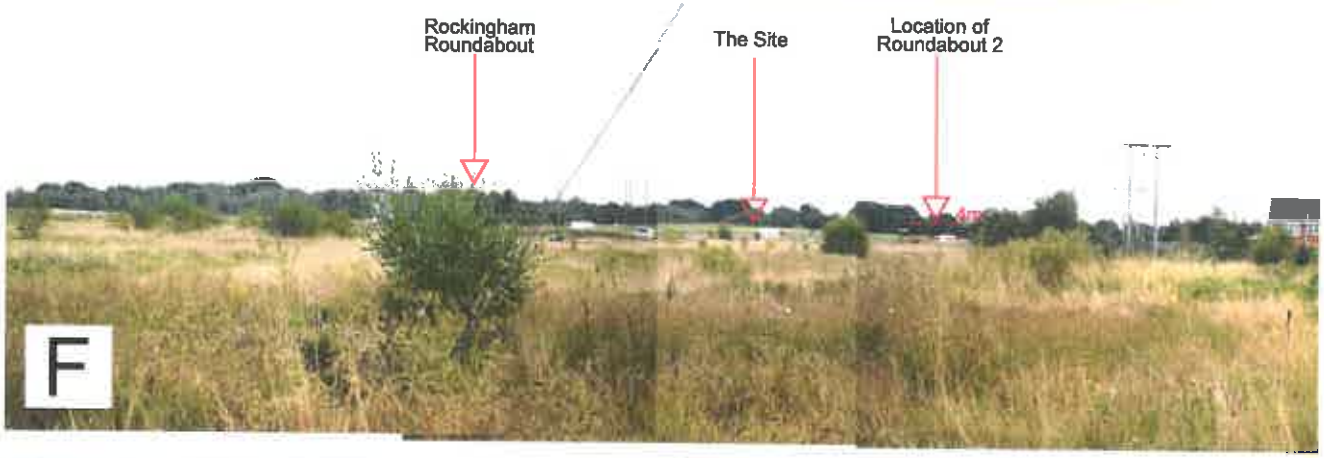
Title
PHOTOGRAPHIC VIEWS
SHEET 2 OF 3

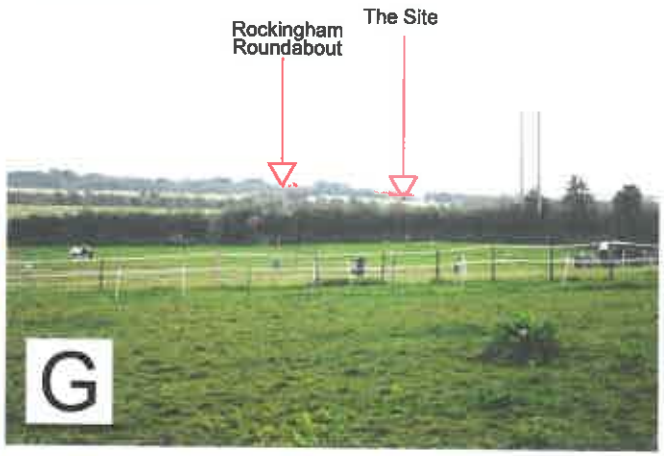
Scale NTS | Paper A3 | Fig No. 09

Wainwright
Landscape Architecture
6 Lindale Lane, Wrenthorpe, Wakefield, WF2 0PN
T. +44 (0)1924 381256 E. info@wainwrightla.co.uk

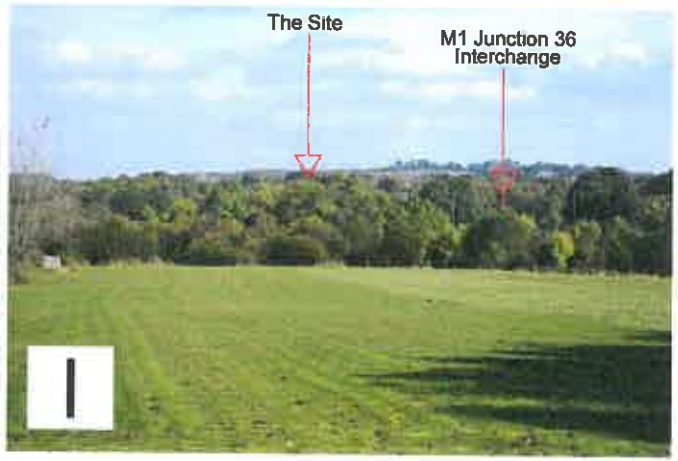
This drawing is not to be used in whole or part other than for the intended purpose and project as defined on the drawing.











View E - Looking South towards the site from Dearne Valley Parkway

View F - Looking South-west towards the site from the edge of Birdwell near Averley Avenue

View G - Looking South towards the site from Hay Green Lane

View H - Looking South-west towards Junction 36

View I - Looking North-east towards Junction 36

Client: BARNSLEY Metropolitan Borough Council

Project: BIRDWELL A61 JUNCTION IMPROVEMENT

Title: PHOTOGRAPHIC VIEWS SHEET 3 OF 3

Scale: NTS | Paper: A3 | Fig No.: 09

Wainwright Landscape Architecture
6 Lindale Lane, Wrenthorpe, Wakefield, WF2 0PN
T. +44 (0)1924 381258 E. info@wainwrightla.co.uk

This drawing is not to be used in whole or part other than for the intended purpose and project as defined on the drawing.

8.5.2 Landscape Assessment

(Refer to Figures 01 - 07)

Assessment notes for each landscape receptor are listed in Appendix 8.2 - Landscape and Visual Impact Tables.

The following summary lists direct effects on existing landscape and land where they are changed from existing pastoral farming use to enable the development:

- Topography and Drainage – Local topography and drainage is unlikely to be affected by the proposed scheme. **Negligible Landscape Impact** (Moderate Landscape Sensitivity + Negligible Magnitude).
- Land Cover: Trees and Woodland – It may be possible to retain individual notable trees (depending on ground conditions and contractors working method. Approximately 0.8ha of relatively young woodland will be removed to allow the proposed scheme. **Moderate Adverse Landscape Impact** (Moderate Landscape Sensitivity + Moderate Magnitude). This is likely to be reduced to Low Adverse after 15 years as planting becomes established.
- Land Cover Hedgerows – Approximately 212 lin.m of fragmented hawthorn field boundary hedgerow are likely to be removed but unlikely to be significant if replacement planting is undertaken. **Low Adverse Landscape Impact** (Low Landscape Sensitivity + Low Magnitude). This is likely to be reduced to Low Adverse after 15 years as planting becomes established.
- Land Cover: Marginal Grazing Land – Approximately 1.9ha of poor quality grazing land will be removed. **Low Adverse Landscape Impact** (Low Landscape Sensitivity + Moderate Magnitude). Field boundaries and access gates will be reinstated.
- Land Cover: Agricultural Pasture – Approximately 0.08ha of good quality pastoral grazing land will be removed. **Negligible Landscape Impact** (Moderate Landscape Sensitivity + Negligible Magnitude). Field boundaries and access gates will be reinstated.
- Highways – Highway setting temporarily affected following removal of roadside hedgerows. These will be replanted and reinstated. **Low Adverse Landscape Impact** (Moderate Landscape Sensitivity + Low Magnitude). This is likely to be reduced to Negligible Adverse after 15 years as planting becomes established.
- PROW – Public Rights of Way are unlikely to be significantly affected by the scheme. There is one footpath adjacent to the scheme and one footpath crossed by the scheme. Both footpaths will be retained and connected to new highway footpaths and cyclepaths. **Negligible Landscape Impact** (Low Landscape Sensitivity + Negligible Magnitude).
- Landscape Character – Landscape character local to the site is typical of both the national character area and local character area. The local landscape is typically under pressure for development and changes in land use, mixed with land restoration following opencast workings. Woodland planting is important for screening between settlements and should be protected and retained where possible. **Low Adverse Landscape Impact** (Low Landscape Sensitivity + Low Magnitude). This is likely to be reduced to Negligible Adverse after 15 years as planting becomes established.
- The Rockingham Centre and Sports Ground – Landscape and setting of the Centre is unlikely to be affected. **Negligible Landscape Impact** (Moderate Landscape Sensitivity + Negligible

Magnitude).

- Listed Buildings and Scheduled Monuments – Landscape and setting of the Centre is unlikely to be affected. **Negligible Landscape Impact** (High Landscape Sensitivity + Negligible Magnitude).

8.5.3 Visual Assessment

(Refer to Figures 08A & 08B – Visual Assessment)

Assessment notes for each visual receptor are listed in Appendix 8.2 - Landscape and Visual Impact Tables.

The following summary lists direct effects on existing views where they are changed from existing to enable the development:

- PROW - The closest visual receptors are two PROW, Tankersley FP 11 (receptor ref. 7 & Tankersley FP 10 (receptor ref. 8), since these are directly adjacent to the proposed scheme or bisected by it. However existing views are of the Dearne Valley Parkway nearby and the proposed scheme is unlikely to make a significant change. The impact on views from these footpaths is assessed as :
  Negligible Visual Impact
  (Low Visual Sensitivity + Low - Negligible Magnitude)

- Residential and Commercial Properties at Hoyland (receptor ref.s 1-4) – Views are generally heavily filtered by woodland screen planting. Some existing tree planting will be removed near the junction of Cross Keys Lane and Sheffield Road, opening up views which may have some short term Moderate Adverse effects particularly during the construction period and until replacement planting becomes established. The impact on views from these properties is assessed as :
  Moderate & Negligible Visual Impact
  (High - Low Visual Sensitivity + Moderate - Negligible Magnitude)

- The Rockingham Centre and Sports Ground (receptor ref. 6) – views are unlikely to be significantly affected due to the alignment of the scheme and close proximity to the existing Sheffield Road. This is likely to be further reduced as replacement screen planting becomes more established. The impact on views from these footpaths is assessed as :
  Low - Negligible Visual Impact
  (Moderate Visual Sensitivity + Low - Negligible Magnitude)

- Residential properties at Birdwell (receptor ref. 13) – Includes approximately 11no. properties at the fringe of Birdwell 195 – 205m distant, generally with rear, oblique views, filtered by vegetation. These properties have existing views of the Dearne Valley Parkway. The proposed scheme is unlikely to make a significant change in view. The impact on views from these footpaths is assessed as :
  Low - Negligible Visual Impact
  (High Visual Sensitivity + Low - Negligible Magnitude)

- Night Time and Visual Amenity (see Appendix 9.2 – Landscape Effects Schedule – The area local to the site is currently lit with lighting from the nearby highway. The proposed scheme will use energy efficient lighting to minimise light pollution and overspill. No appreciative change:
  Low - Moderate Beneficial Visual Impact

(Low -High Visual Sensitivity +Low Magnitude)

8.6 Summary

8.6.1 Development Proposals

The proposed scheme occupies approximately 7ha and comprises land at the existing A61 Birdwell Roundabout and an adjoining grassland area to the east of the A6195 Dearne Valley Parkway (DVP). The scheme will include new road structures, earthworks and infrastructure such as lighting. There will be some loss of existing roadside hedgerows which may open up localised views of the road and vehicles for nearby receptors.

8.6.2 Existing Landscape and Visual Resources

The site is located on a low ridgeline between the settlements of Pilley, Birdwell and Hoyland, to the south of Barnsley. To the west is the M1 Motorway cutting and to the north east the land quickly falls away towards Short Wood.
Generally the land immediately around the site is gently sloping pasture used for horses and cattle grazing. Fields are bounded by post and rail fences, and fragmented hawthorn hedgerows. Small linear woodlands block and filter views between the existing highway and local settlement fringes at Birdwell and Hoyland. There are two public footpaths within the site or connect close to the site application boundary

8.6.3 Impact Assessment - Landscape Effects

Overall the proposed scheme is unlikely to have a noticeable effect on local landscape or setting, however existing woodland and hedgerows are an important landscape element within the area.

There will be some low adverse effects both during and shortly following the scheme development, mainly due to loss of roadside hedgerows and woodland. These adverse effects are likely to be reduced to negligible within 15 years as replacement planting becomes established.

8.6.4 Impact Assessment - Visual Effects

Overall, local topography, settlement, woodland, tree and hedgerow cover are all key factors that influence availability of views to the site. This forms a relatively contained visual envelope, limiting and filtering views to the site from beyond the adjacent highway, the first couple of field boundaries, and local settlement fringe at Birdwell and Hoyland.

8.6.5 Proposed Mitigation Measures

Protecting existing woodland and replacing screen planting as part of the scheme will be important; to protect local landscape character, help integrate the scheme, to reduce intervisibility and protect views from residential properties around Birdwell and Hoyland settlement fringe.

Woodland screen planting would be undertaken using locally occurring native species with the objective, as a minimum, no net loss.

Field boundary fences and hedgerows would be replaced and reinstated and replaced where affected by the scheme.

Existing woodland and hedgerows which are to be retained adjacent to the construction working area, would be protected during the construction period with tree protection fencing. Shrub planting near junctions and on roundabouts would include semi-ornamental species.

Technical Appendices

Appendix 8.1 – Landscape and Visual Impact Assessment Methodology

Introduction

The Landscape and Visual Impact \Assessment (LVIA) considers the potential effects of the proposed development on:

- Individual landscape elements and features;
- Landscape character;
- Visual amenity and people who view the landscape.

developed from current published best practice. This Includes:

- Design Manual for Roads and Bridges, Volume 11, Section 3 Part 5 Landscape Effects, Highways Agency, 1993 (as amended);
- Guidelines for Landscape and Visual Impact Assessment 3rd Edition, Landscape Institute and Institute of Environmental Management and Assessment, 2013;
- Landscape Character Assessment – Guidance for England and Scotland, Countryside Agency and Scottish Natural Heritage, 2002.

Assessment Process

Briefly the assessment process comprises:

- establishment of the *landscape* baseline conditions through identification of physical components, landscape designations, assessment of landscape character type and value
- establishment of the *visual* baseline condition through identification of visual receptors, extent and nature of views to the site
- assessment of occurrence, magnitude, sensitivity and significance of the landscape and visual effects of the development on baseline conditions
- mitigation measures proposed to offset or reduce impacts
- reassessment of impacts after mitigation

A timescale of 7 - 15 years is generally accepted as the time taken for trees and other vegetation to reach a reasonable level of maturity. Within the assessment and proposed mitigation, 15 years has been used when considering the beneficial effect for new tree planting, and 7 years has been used when considering the beneficial effect for new hedgerow planting.

Desktop Study

A desktop survey was undertaken to gather information and to inform the baseline studies and assessment criteria using the following sources:

- Relevant legislation and planning policy
- Data on local designations such as listed buildings and Tree Preservation Orders
- National Character Area Profiles, Natural England - NCA Profile: 38. Nottinghamshire, Derbyshire and Yorkshire Coalfield (NE402)
- BMBC Landscape Character Areas, ECUS & LUC, 2002
- Ordnance Survey 1:25,000 mapping
- Aerial photography

Site Visit

Site visits were undertaken during March, September and October 2014 to confirm information from the desktop survey, check site features such as existing vegetation and localised screening, and the extent of night-time lighting.
Surveys were undertaken from public highway, PROW, public open space and other public locations. Views were considered during both winter and summer conditions. Photographs were taken using digital camera with a 50mm lens.

Landscape Sensitivity and Magnitude

The sensitivity of a landscape receptor is its ability to accommodate the proposed development without undue consequence for maintenance of the baseline situation. The sensitivity and value of these receptors will to some degree reflect landscape designations and level of importance they signify. Landscapes which are nationally designated (National Parks and AONB's) are accorded the highest value in the assessment. Indistinct landscapes fall into an intermediate category. Industrial or degraded landscapes fall into a low category.
Visual receptor relate to people. Each person or group of people is assessed in terms of their susceptibility to change in views and visual amenity and also the value attached to a particular view. Visual receptors most susceptible to change include: residents at home; people engaged in outdoor recreation; visitors to heritage sites; landscape setting enjoyed by the community of an area. Travellers on road fall into an intermediate category. People engaged in work or an outdoor activity not dependent on an appreciation of the view, fall into a low category.

For ***landscape receptors*** the criteria for classification of sensitivity and magnitude of impacts are:

Sensitivity of Landscape Receptors:

High Sensitivity – e.g. a rare landscape with important elements or landscape of a particular distinctive character susceptible to relatively small changes.

Medium Sensitivity – e.g. a moderately rare landscape with medium valued characteristics, perhaps of local significance and reasonably tolerant of changes.

Low Sensitivity – e.g. a common and relatively unimportant or degraded landscape tolerant of substantial change.

Magnitude of Landscape Impact:

High Magnitude – e.g. notable change in landscape characteristics over a wide area or a very intensive change over a small area, or over a long duration, or not easily reversed.

Medium Magnitude – e.g. moderate changes in localised area, or over a medium term duration, or can be reversed.

Low Magnitude – e.g. no significant changes in landscape characteristics, or over a short duration, can be easily reversed.

Visual Sensitivity and Magnitude
For ***visual receptors*** the criteria for classification of sensitivity and magnitude of impacts are:

Sensitivity of Visual Receptors:

High Sensitivity – e.g. a residential property or public right of way experiencing a direct view of a high quality, susceptible to relatively small changes.
Medium Sensitivity – e.g. a property or right of way experiencing an indirect view of moderate quality, reasonably tolerant of changes.

Low Sensitivity – e.g. a property of public right of way experiencing an indirect view of low quality, tolerant of substantial change.

Magnitude of Visual Impact:

High Magnitude – e.g. the majority of views are affected or major changes in the view, or over a long duration, or not easily reversed.

Medium Magnitude – e.g. many views affected or moderate change in the view, or over a medium term duration, or can be reversed.

Low Magnitude – e.g. few views affected or minor change in the view, or over a short duration, can be easily reversed.

Significance of Landscape or Visual Impact
An assessment of the ***significance of an impact*** considers the relative sensitivity of the landscape or visual receptor, and the magnitude of the impact. As a general guide this can be interpreted as follows:

Sensitivity		**Magnitude**		**Significance**
High	+	High	=	High or Adverse Beneficial Impact
High	+	Moderate	=	Moderate Adverse or Beneficial Impact
High	+	Low	=	Moderate Adverse or Beneficial Impact
Moderate	+	High	=	Moderate Adverse or Beneficial Impact
Moderate	+	Moderate	=	Moderate Adverse or Beneficial Impact
Low	+	High	=	Moderate Adverse or Beneficial Impact
Moderate	+	Low	=	Low Adverse or Beneficial Impact
Low	+	Moderate	=	Low Adverse or Beneficial Impact
Low	+	Low	=	Low Adverse or Beneficial Impact

Negligible impact results from high, medium or low sensitivity combined with negligible magnitude where there is no perceptible gain or loss of landscape character or view.

In assessing the significance of landscape and visual impacts, reliance should be placed upon reasoned judgement. Numerical scoring and weighting has been avoided. Numbers are used in the Visual Intrusion summary tables in Appendix A as a means of reference to the word scale above, which is adjusted as appropriate and noted according to judgement.

Appendix 8.2 – Landscape and Visual Impact Tables

APPENDIX 8.2

LANDSCAPE EFFECTS SCHEDULE OF RECEPTORS

DATE OF SURVEY: September 2014 (Landscape impact with mitigation at completion of the scheme)

Landscape Receptor	**Description**	**Sensitivity to Change (Value)** (High / Moderate/ Low / Negligible	**Magnitude of Change** (High / Moderate/ Low / Negligible	**Impact (Opening Year)** (High / Moderate/ Low / Negligible – Adverse / Beneficial)	**Notes** (Existing / Proposed)	**Proposed Mitigation** (All mitigation on-site except where stated as off-site)	**Residual Impact after 15 years** (average)
Topography and Drainage	Low ridgeline between the settlements of Pilley, Birdwell and Hoyland	Moderate	Negligible	Negligible	No noticeable change to elevation and levels resulting from the scheme. Highway surface water controlled by highway design.	None	None
Land Cover: Trees and Woodland (see tree survey)	Individual trees and woodland groups	Moderate	Moderate	Moderate Adverse	4no. individual grade B2 trees may be removed. 8,214.5m2 woodland to be removed, of this 95% is grade B2 and 5% is C2. The majority is recent highway planting <45 yrs, valued for collective screening and nature conservation.	Depending on site conditions and contractor's working method it may be possible to retain individual trees. The woodland planting should be replanted using native species to ensure no net loss.	Low Adverse
Land Cover: Hedgerows (see tree survey)	Roadside and field boundary hedgerows, potentially regarded as 'important' under the Hedgerow Regulations	Low	Low	Low Adverse	212 lin.m of hedgerow likely to be removed. This is generally recently planted and fragmented hawthorn.	Replant to ensure no net loss, Gap-up and replant missing sections associated with the scheme.	Negligible
Land Cover: Marginal Grazing Land	Horse grazing land within main area of the site, between A6195 Deane Valley Parkway and A6135 Sheffield Road	Low	Moderate	Low Adverse	Approximately 1.9ha of poor quality grazing land removed to accommodate the scheme.	Fence and provide alternative field access.	Low Adverse
Land Cover: Agricultural Pasture	Pastoral grazing land to the south side of A6135 Sheffield Road.	Moderate	Negligible	Negligible	Approximately 0.08ha of good quality grazing land removed to accommodate the scheme.	Fence and provide alternative field access.	Negligible

Sensitivity

Magnitude		L	M	H
N		1	2	3
L	1	2	3	4
M	2	3	4	5
H	3	4	5	6

Landscape Impact

High =	6
Moderate =	4 / 5
Low =	2 / 3
Negligible =	High, Medium or Low Sensitivity combined with Negligible Magnitude.

APPENDIX 8.2

LANDSCAPE EFFECTS SCHEDULE OF RECEPTORS

DATE OF SURVEY: September 2014 (Landscape impact with mitigation at completion of the scheme)

Landscape Receptor	**Description**	**Sensitivity to Change (Value)** (High / Moderate/ Low / Negligible	**Magnitude of Change** (High / Moderate/ Low / Negligible	**Impact (Opening Year)** (High / Moderate/ Low / Negligible – Adverse / Beneficial)	**Notes** (Existing / Proposed)	**Proposed Mitigation** (All mitigation on-site except where stated as off-site)	**Residual Impact after 15 years** (average)
Highways	Busy main roads at urban fringe A61, A6195 Deane Valley Parkway,A6135 Sheffield Rd, Jn 36 Roundabout + Sliproad	Moderate	Low	Low Adverse	Landscape treatment form important contribution to screen views and improve local landscape character.	Where possible protect and retain existing screen planting. Replacement planting and landscape treatment to new sections of road to help integrate the scheme.	Negligible
PROW	One PROW adjoins the scheme Tankersley FP11 and one PROW is bisected by the scheme Tankersley FP10.	Low	Negligible	Negligible	Existing footpaths infrequently used and currently crossing A6159 Dearne Valley Parkway.	Provide crossing and connection to scheme footpaths and cycle links	Negligible
NCA 38 Nottingham, Derbyshire & Yorkshire Coalfield	Greenbelt land set between settlements, typically under pressure for development and changes in land use.	Low	Low	Low Adverse	Local landscape typically under pressure for development and changes in land use, mixed with land restoration following opencast workings.	Where possible protect and retain existing screen planting. Replacement planting and landscape treatment to new sections of road to help integrate the scheme.	Negligible
BMBC LCA E4 Hoyland Settled Wooded Farmland	Permanent grazing and woodland belts on the former Rockingham Colliery and Opencast site	Low	Low	Low Adverse	Local woodland blocks and field boundary hedgerows are important to provide visual separation between settlements and existing roads and as a transition into countryside.	Where possible protect and retain existing screen planting. Replacement planting and landscape treatment to new sections of road to help integrate the scheme.	Negligible
The Rockingham Centre and Sports Ground	Leisure, social and sport facilities	Moderate	Negligible	Negligible	Site located in close proximity to existing A6135 Sheffield Road. Scheme unlikely to cause any noticeable change.	None	Negligible

		Sensitivity		
		L	M	H
	N	1	2	3
	L 1	2	3	4
Magnitude	M 2	3	4	5
	H 3	4	5	6

Landscape Impact

High =	6
Moderate =	4 / 5
Low =	2 / 3
Negligible =	High, Medium or Low Sensitivity combined with Negligible Magnitude.

APPENDIX 8.2

LANDSCAPE EFFECTS SCHEDULE OF RECEPTORS

DATE OF SURVEY: September 2014 (Landscape impact with mitigation at completion of the scheme)

Landscape Receptor	**Description**	**Sensitivity to Change (Value)** (High / Moderate/ Low / Negligible	**Magnitude of Change** (High / Moderate/ Low / Negligible	**Impact (Opening Year)** (High / Moderate/ Low / Negligible – Adverse / Beneficial)	**Notes** (Existing / Proposed)	**Proposed Mitigation** (All mitigation on-site except where stated as off-site)	**Residual Impact after 15 years** (average)
Glebe Farm Grade II LBs Scheduled Monument	Dovecote at Glebe Farm Grade II LB and Scheduled Monument	High	Negligible	Negligible	Views heavily filtered by distance and woodland screen planting. Scheme unlikely to affect setting.	None	None
Hangman Stone Bar Farm Grade II LB	Hangman Stone Bar Farmhouse with attached stable and barn	High	Negligible	Negligible	Limited views of scheme. M1 slip-road widening may be visible from external farm areas but setting in context of existing motorway.	Protect and retain existing slip-road screen planting where possible. Replant using native species.	None
Night Time and Visual Amenity	Within visual envelope, with particular reference to residential urban fringe at Birdwell and Hoyland.	Low - High	Low	Low – Moderate Beneficial	The area is currently lit by highway lighting with lighting along A6195 Dearne Valley Parkway, A6138 Sheffield Road and A61 / M1 Jn 36 in close proximity to the site.	Use High-pressure sodium or LED lighting with light control to minimise light pollution and overspill	Low – Moderate Beneficial

			Sensitivity		
			L	M	H
		N	1	2	3
Magnitude		L	1	2	3
		M	2	3	4
		H	3	4	5

Landscape Impact	
High =	6
Moderate =	4 / 5
Low =	2 / 3
Negligible =	High, Medium or Low Sensitivity combined with Negligible Magnitude.

APPENDIX 8.2

VISUAL EFFECTS - SCHEDULE OF SITES AND PROPERTIES

DATE OF SURVEY: March and September 2014 (Visual impact with mitigation at completion of the scheme)

Ref. No	Location of property, road or footpath	Closest visible distance to site (or range)	Sensitivity to Change of View (High / Moderate/ Low / Negligible	Magnitude of Change of View (High / Moderate/ Low / Negligible	Impact (Opening Year) (High / Moderate/ Low / Negligible – Adverse / Beneficial)	Notes (Existing / New views)	Proposed Mitigation (All mitigation on-site except where stated as off-site)	Visual Impact after 15 years (average)
1	2,3 Cross Keys Lane	65 – 85m	High	Negligible	Negligible	Views heavily filtered by woodland screen planting. Rear winter views may be possible but v. limited and will further reduce as woodland develops.	Protect and retain existing screen planting.	None
1	GB Truck Services, Cross Keys Lane	108m	Negligible	Negligible	Negligible	Views heavily filtered by woodland screen planting. Boundary winter views may be possible but v. limited.	Protect and retain existing screen planting.	None
3	33 - 19 (odd) Cross Keys Lane	40 – 85m	High	Negligible - Moderate	Negligible - Moderate	Existing views either heavily filtered by existing woodland screen planting to be retained, or to be removed thereby opening up views. Potential for medium adverse temporary construction impacts due to close proximity.	Protect and retain existing screen planting. New hedgerow planting to road boundary. Mitigate construction impacts by controlled working distances and working hours.	Negligible None
4	2-12 (even), 9, 11 Regents Court	75 – 125m	High	Negligible	Negligible	Existing views directly onto Sheffield Road. Oblique views possible but characteristics of view remain similar.	Protect and retain existing screen planting. New hedgerow planting to road boundary.	None
	Convenience Store, Cross Keys Inn, Jet Garage, Sheffield Rd	25 – 85m	Low	Negligible	Negligible			None
5	1 – 28 Sheffield Road (includes Jubilee Cottages, Ocean Fishery, Hare and Hounds PH), 1 Regent Street	90 - 245	Moderate – Low (reduced due to proximity of existing road)	Negligible	Negligible	Existing views directly onto Sheffield Road. Bend in road, brow of hill limit views. Oblique views possible but characteristics of view remain similar.	Existing views directly onto Sheffield Road. Oblique views possible but characteristics of view remain similar.	None

Sensitivity

Magnitude		L	M	H
N		1	2	3
L	1	2	3	4
M	2	3	4	5
H	3	4	5	6

Visual Impact

High =	6
Moderate =	4 / 5
Low =	2 / 3
Negligible =	High, Medium or Low Sensitivity combined with Negligible Magnitude.

APPENDIX 8.2

VISUAL EFFECTS - SCHEDULE OF SITES AND PROPERTIES

DATE OF SURVEY: March and September 2014 (Visual impact with mitigation at completion of the scheme)

Ref. No	Location of property, road or footpath	Closest visible distance to site (or range)	Sensitivity to Change of View (High / Moderate/ Low / Negligible	Magnitude of Change of View (High / Moderate/ Low / Negligible	Impact (Opening Year) (High / Moderate/ Low / Negligible – Adverse / Beneficial)	Notes (Existing / New views)	Proposed Mitigation (All mitigation on-site except where stated as off-site)	Visual Impact after 15 years (average)
5	Tankersley CP Footpath No. 12	25 – 130m	High	Negligible	None	Views unlikely as heavily filtered by elevation and existing boundary fence.	None	None
6	The Rockingham Centre and sports ground, Sheffield Road	10 – 330m (Wide range) 35m typical to R. Centre	Moderate	Low – Negligible (Variable by distance)	Low - Negligible	Sport ground set back from existing road and views filtered by boundary wall and elevation. Oblique views possible from boundary, parking, entrance but likely to be similar to existing. Potential for medium adverse temporary construction impacts due to close proximity.	Where possible protect and retain existing roadside planting. New hedgerow planting to road boundary. Mitigate construction impacts by controlled working distances and working hours.	Negligible None
7	Tankersley CP Footpath No. 10	0 – 50m	Low (adjusted low due to location)	Low - Negligible	Low - Negligible	Existing views directly onto existing Dearne Valley Parkway. Existing PROW low use and adverse visual effects.. Potential for rationalisation and re-routing of PROW.	Divert existing PROW to better routing.	Negligible – Low Beneficial (depending on routing)
8	Tankersley CP Footpath No. 11	0 – 110m	Low (adjusted low due to location)	Low - Negligible	Low - Negligible	Existing views directly onto existing Dearne Valley Parkway. Existing PROW low use and adverse visual effects.. Potential for rationalisation and re-routing of PROW.	Divert existing PROW to better routing.	Negligible – Low Beneficial (depending on routing)
9	Worsbrough CP Footpath No. 40	190 - 350m (typical)	Moderate (adjusted low due to location)	Low - Negligible	Negligible	Existing views generally to north side of Dearne Valley Parkway. Views towards new scheme likely to be very similar.	New hedgerow and woodland screen planting along road boundary.	Negligible

		Sensitivity		
		L	M	H
	N	1	2	3
Magnitude	L 1	2	3	4
	M 2	3	4	5
	H 3	4	5	6

Visual Impact

High =	6
Moderate =	4 / 5
Low =	2 / 3
Negligible =	High, Medium or Low Sensitivity combined with Negligible Magnitude.

APPENDIX 8.2

VISUAL EFFECTS - SCHEDULE OF SITES AND PROPERTIES

DATE OF SURVEY: March and September 2014 (Visual impact with mitigation at completion of the scheme)

Ref. No	Location of property, road or footpath	Closest visible distance to site (or range)	Sensitivity to Change of View (High / Moderate/ Low / Negligible	Magnitude of Change of View (High / Moderate/ Low / Negligible	Impact (Opening Year) (High / Moderate/ Low / Negligible – Adverse / Beneficial)	Notes (Existing / New views)	Proposed Mitigation (All mitigation on-site except where stated as off-site)	Visual Impact after 15 years (average)
10	Hoyland Nether UD Footpath No. 1 Hoyland Nether UD Bridleway No. 6	220m (typical)	High	Negligible - None	None	PROW within existing dense woodland planting, views unlikely.	None	None
11	Approx. 14 no. properties off Chilcombe Place and Lynham Avenue	310 – 460m	High	Negligible	Negligible	Properties along housing fringe, mainly distant, oblique and rear views towards existing Dearne Valley Parkway. Change in view likely to be negligible.	Protect and retain existing planting at Rockingham Roundabout. New hedgerow planting to road boundary.	None
12	Approx. 9 no. properties off Averley Way and Locksley Gardens	240 – 295m	High	Negligible	Negligible	Properties along housing fringe, mainly distant, oblique and rear views towards existing Dearne Valley Parkway. Change in view likely to be negligible.	Protect and retain existing planting at Rockingham Roundabout. New hedgerow planting to road boundary.	None
13	Approx. 11 no. properties off Locksley Gardens (SE edge)	195 – 205m	High	Low - Negligible	Low - Negligible	Properties along housing fringe, mainly rear views towards existing Dearne Valley Parkway, filtered by other properties and boundary trees.	Protect and retain existing planting at Rockingham Roundabout. New hedgerow planting to road boundary.	Negligible
14	Industrial Units Rockinham Business Park	190m (typical)	Negligible	Negligible	Negligible	Existing views generally from outside compound and service yard areas. Main foreground view onto Dearne V. Parkway.	New hedgerow and woodland screen planting along road boundary.	None
15	Highway Agency Depot, Wood View	100m (typical)	Negligible	Negligible	Negligible	Existing views generally from outside compound and service yard areas. Main foreground view onto Dearne V. Parkway.	New hedgerow and woodland screen planting along road boundary.	None

Sensitivity

Magnitude		L	M	H
N		1	2	3
L	1	2	3	4
M	2	3	4	5
H	3	4	5	6

Visual Impact

High =	6
Moderate =	4 / 5
Low =	2 / 3
Negligible =	High, Medium or Low Sensitivity combined with Negligible Magnitude.

APPENDIX 8.2

VISUAL EFFECTS - SCHEDULE OF SITES AND PROPERTIES

DATE OF SURVEY: March and September 2014 (Visual impact with mitigation at completion of the scheme)

Ref. No	Location of property, road or footpath	Closest visible distance to site (or range)	Sensitivity to Change of View (High / Moderate/ Low / Negligible	Magnitude of Change of View (High / Moderate/ Low / Negligible	Impact (Opening Year) (High / Moderate/ Low / Negligible – Adverse / Beneficial)	Notes (Existing / New views)	Proposed Mitigation (All mitigation on-site except where stated as off-site)	Visual Impact after 15 years (average)
16	1 – 33 Wood View, Sheffield Road	145 – 225m	Low (reduced rear view)	Low - Negligible	Negligible	Upper rear view possible. Main view onto Highway Agency Depot, longer views towards Dearne valley Parkway, filtered by boundary trees and vegetation.	None	Negligible
17	Aetherius Society, Drill Hall and fishing supplies shop, Sheffield Road	120 – 185m	Low	Negligible	None	Properties along Sheffield Road. Views possible but heavily filtered by existing vegetation and oblique angle.	None	None
18	Tankersley CP Footpath No. 7	465m	High	Negligible	None	Existing views distant, heavily obscured by vegetation.	None	None
19	Tankersley House (Glebe Farm), Tankersley Lane	690m	High	Negligible	None	Upper storey winter views possible but distant, heavily obscured by vegetation. Minimal change in view.	None	None
20	Worsbrough CP Footpath No. 40	465m	High	Negligible	None	Mostly out of view due to low elevation and filtered by vegetation. Minimal change in view.	None	None

		Sensitivity		
		L	M	H
	N	1	2	3
Magnitude	L 1	2	3	4
	M 2	3	4	5
	H 3	4	5	6

Visual Impact

High =	6
Moderate =	4 / 5
Low =	2 / 3
Negligible =	High, Medium or Low Sensitivity combined with Negligible Magnitude.

APPENDIX 8.2

VISUAL EFFECTS - SCHEDULE OF SITES AND PROPERTIES

DATE OF SURVEY: March and September 2014 (Visual impact with mitigation at completion of the scheme)

Ref. No	Location of property, road or footpath	Closest visible distance to site (or range)	Sensitivity to Change of View (High / Moderate/ Low / Negligible	Magnitude of Change of View (High / Moderate/ Low / Negligible	Impact (Opening Year) (High / Moderate/ Low / Negligible – Adverse / Beneficial)	Notes (Existing / New views)	Proposed Mitigation (All mitigation on-site except where stated as off-site)	Visual Impact after 15 years (average)
21	Approx. 45 no. properties on Sheffield off Sheffield Road and Hay Green Lane	820m (typical)	High	Low - Negligible	Negligible	Upper rear view possible, obscured by distance, vegetation and existing Dearne Valley Parkway.	None	Negligible
22	Barn opposite junction with Herrons Way, Grade II Listed (ref. 1315079)	815m	High	None	None	No view due to low elevation and intermediate vegetation.	None	None
23	Birdwell SE fringe near Herrons Way	845 – 1090m	High	Negligible	None	Existing views distant, heavily obscured by vegetation and elevation.	None	None
24	Hangman Stone Bar Farmhouse with attached stable and barn - Grade II Listed Ref. 1191991	100 – 140m	High	Low – Negligible (reduced due to context of M1)	Low	Views from the farmhouse towards the scheme are blocked to the NE by low elevation and dense vegetation. Views from the farmhouse to the SE are blocked by the barn and other outbuildings. Loss of vegetation on the slip-road embankment may affect the wider setting but this is in context of existing views of the motorway.	Depending on working method and ground conditions encountered by the contractor, it may be possible to retain a proportion of the existing woodland on the slip-road embankment. Where possible retain trees to the lower part of the bank as a minimum. Replacement planting should be a priority at completion.	Negligible
25	2 residential properties off Moor Lane, Birdwell	180 – 210m	High	Negligible	Low	Oblique, side and rear views possible towards to the SE slip-road widening works and vegetation removal. Views filtered by hedgerows and in context of motorway views.	Where possible retain embankment vegetation, followed by replanting.	Negligible

		Sensitivity		
		L	M	H
	N	1	2	3
Magnitude	L 1	2	3	4
	M 2	3	4	5
	H 3	4	5	6

Visual Impact

High =	6
Moderate =	4 / 5
Low =	2 / 3
Negligible =	High, Medium or Low Sensitivity combined with Negligible Magnitude.

APPENDIX 8.2

VISUAL EFFECTS - SCHEDULE OF SITES AND PROPERTIES

DATE OF SURVEY: March and September 2014 (Visual impact with mitigation at completion of the scheme)

Ref. No	Location of property, road or footpath	Closest visible distance to site (or range)	Sensitivity to Change of View (High / Moderate/ Low / Negligible	Magnitude of Change of View (High / Moderate/ Low / Negligible	Impact (Opening Year) (High / Moderate/ Low / Negligible – Adverse / Beneficial)	Notes (Existing / New views)	Proposed Mitigation (All mitigation on-site except where stated as off-site)	Visual Impact after 15 years (average)
26	Tankersley CP Footpath No. 53 (Tankersley Footbridge)	180 – 250m	Low	Negligible	Negligible	Existing main view is of the motorway. Change of view of the slip-road will be negligible in context.	None	Negligible
27	Residential properties at the edge of Westwood New Road, Tankersley	170 – 370m	High	Negligible	Negligible	Views may be possible towards slip-road widening works and Junction 36 but these are heavily filtered by intervening vegetation and hedgerows.	None	None

Sensitivity

Magnitude		L	M	H
N		1	2	3
L	1	2	3	4
M	2	3	4	5
H	3	4	5	6

Visual Impact

High =	6
Moderate =	4 / 5
Low =	2 / 3
Negligible =	High, Medium or Low Sensitivity combined with Negligible Magnitude.

Appendix 8.3 - Landscape Proposals Design Criteria

The following design criteria have been based on The Department of Transport 'Design Manual for Road and Bridges Volume 10, Environmental Design and Management'.

Landscape Proposals and Mitigation

The landscape proposals have been designed as an integral part of the design of the proposed scheme, often having combined improvements on both the visual amenity and landscape character and structure.
Retention of existing woodland and new on-site planting are the main mitigation techniques used to offset adverse views of the road, improve visual amenity and character.
Specific landscape and visual mitigation proposals are also described in Appendix 8.2 – Landscape and Visual Impact Tables, and illustrated on Figure 10 Landscape Proposals.
The use of specific mitigation aims to:

- Where possible limit and mitigate visual and landscape impacts
- Where possible grade out embankments and return it to agriculture
- Maximise visual amenity for road users
- Where possible protect and retain existing woodland, hedgerows and trees
- Use planting to screen important adverse views of the road, reduce the impact and scale of earthworks and integrate the road with the existing landscape
- Use locally occurring native species unless the context and landscape character suggest otherwise
- To maintain planting for 5 years following completion of the scheme to ensure successful establishment

No off-site planting or mitigation is proposed.

Redundant Roads

Redundant roads will not be left as eyesores. They will be put to good use for access and parking or broken out and returned to appropriate land use.

Footpaths and Cycle Paths

Footpaths and cycle paths adjacent to the road will be integrated with the landscape to make them as pleasant as possible. Wherever possible existing footpaths and PROW will be maintained and connected to new footpaths within the proposed scheme.

Roadside Fencing

Unnecessary fencing adjacent to the highway will be avoided. Roadside fences adjoining farmland will be negotiated as accommodation works between the landowner and the Local Authority Valuer, and the style of fencing subject to agreement. It may be appropriate to back up the fencing with hedgerow planting which will then be managed and maintained by the landowner.

Roundabouts

Roundabouts will be planted with a combination of grass, low shrubs and tree groups to create visual interest and to reduce headlight glare, with consideration for driver visibility and sightlines.

Planting

The pattern and species of planting will be partly determined by the adjacent landscape in order to successful integrate the scheme. Woodland planting will take account of local amenity, wildlife value and screening, and designed for rapid establishment and easy maintenance.
Where appropriate, planting adjoining rural areas and farmland will incorporate locally occurring native species, and use native and semi-ornamental species for roundabouts and urban junctions.
The stripping, storage, protection and reuse of existing topsoil is a high priority.
All planting will be subject to a high standard of maintenance for an initial 5-year maintenance period to ensure rapid and successful establishment.

Improving Existing Roads and Road Widening

Within the road curtilage, new planting will take account of the existing road vegetation, and the retention and management of existing vegetation is preferred top new planting, but will depend on the impact and value of existing trees and vegetation. Trees in poor structural condition will be pruned or felled.
Establishment of a Green Corridor in line with BMBC's Bio Diversity recommendations will be implemented between Roundabouts 1 & 2.



Legend

- Proposed Route
- Existing Woodland and Vegetation
- Proposed Woodland Screen Planting
- Proposed Shrub Planting
- Woodland Edge Management and Replanting
- Proposed Boundary Hedgwrows
- Grass Verge
- Meadow Grassland
- Proposed Boundary Fence
- Proposed Access Gate
- Footpath Links

This map is reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Licence no. 100022264 (2009)

Client: BARNSLEY Metropolitan Borough Council

Project: BIRDWELL A61 JUNCTION IMPROVEMENT

Title: LANDSCAPE PROPOSALS

Scale: 1:2,500 | Paper: A3 | Fig No.: 10

Wainwright Landscape Architecture
5 Lindale Lane, Wrenthorpe, Wakefield, WF2 0PN
T. +44 (0)1924 381258 E. info@wainwrights.co.uk

This drawing is not to be used in whole or part other than for the intended purpose and project as defined on the drawing.

Appendix 8.4 - Tree Survey



TREE SURVEY

FOR

A61 BIRDWELL JUNCTION IMPROVEMENTS

September 2014
FINAL

Wainwright
Landscape Architecture

Prepared by
Wainwright Landscape Architecture
6 Lindale Lane
Wrenthorpe
Wakefield WF2 0PN
Tel (01924) 381256

E-mail : info@wainwrightla.co.uk

On behalf of
Barnsley Metropolitan Borough Council
Highways, Engineering and Transportation

The copyright of this document remains with Wainwright Landscape Architecture. The contents of this document must not be copied or reproduced in whole or in part for any purpose without the written consent of Wainwright Landscape Architecture.

Contents

1 **Introduction** page 3
- 1.1 Instruction
- 1.2 Scope of Report
- 1.3 Tree Statement and Report Limitations

2 **Site Visit and Methodology** page 4
- 2.1 Site Visit
- 2.2 Brief Description of the Site
- 2.3 Trees Subject to Statutory Controls
- 2.4 Survey Methodology
- 2.5 Tree Classification (Grade)
- 2.6 Assessment of Hedgerows and Tree Groups

3 **Site Observations and Notes on Specific Trees** page 6
- 3.1 Woodland Areas Groups and Hedgerows
- 3.2 Trees Surveyed
- 3.3 Species Diversity
- 3.4 Age Distribution
- 3.5 Grading Classification
- 3.6 Trees and Woodland to be Removed

4 **Tree Constraints and Protection Measures** page 10
- 4.1 Root Protection Area
- 4.2 Root Protection Area Calculation
- 4.3 Protective Fencing

5 **Strategic Overview, Future Management and Recommendations for New Planting** page 11
- 5.1 Tree Constraints During Design and Development
- 5.2 Design Considerations for New Planting

6 **Tree Removal and Surgery of Trees to be Retained** page 12
- 6.1 Tree Works
- 6.2 Bats Protected Species
- 6.3 Birds Protected Species

7 **Summary** page 13

Appendix A Drawings

J189/01 Site Location Plan
J189/02 Tree Survey Sheet 1/2
J189/03 Tree Survey Sheet 2/2

NB. The 'Tree Survey' plans also show tree protection information.
For the purpose of this survey they are also the 'Tree Protection Plan'.

Appendix B Tree Survey Schedule

Appendix C Tree Photographs

1 Introduction

1.1 Instruction

In July 2014 Wainwright Landscape Architecture were requested by Barnsley Metropolitan Borough Council Highways Engineering and Transportation, to undertake a tree survey on the site of the proposed A61 Birdwell Junction Improvements, in accordance with BS 5837:2012 'Trees in Relation to design, demolition and construction – Recommendations', and also to provide a written report (See Site Location Plan attached in Appendix A).

1.2 Scope of Report

The purpose of the tree survey is to provide detailed and accurate information which will enable the planning and successful layout of the scheme and to minimise impact on trees to be retained. The survey will also assist in development of a future maintenance strategy, and the layout of new plantings. Soil Type was not assessed.

Details of the condition of existing trees and maintenance recommendations are given on a tree by tree basis or as tree groups where appropriate. Guidance is provided for the protection of existing trees during demolition and construction processes.

The term 'group' is used to define trees that form a cohesive arboriculture feature either aerodynamically, visually or culturally, including for biodiversity. Assessment of individuals within a group has still been undertaken if there is need to differentiate between them due to variation in attributes.

1.3 Tree Statement and Report Limitations

Trees are living organisms and their health and physical condition can change rapidly due to site and climatic conditions. The tree survey is based on evidence available at the time of the survey. This report is valid for one year from the date of site inspection.

Any changes to physical site conditions subsequent to the date of this survey will have the potential to change the findings and recommendations.

It is beyond the scope of this report to comment on structural damage that may be associated with tree growth or related soil subsidence.

The survey and assessment of the tree groups is intended provide an overall average grading and recommendation for that group. If the group is partly removed the remaining trees will need to be reviewed on a tree by tree basis based on condition, context and association with the remaining trees.

2 Site Visit and Methodology

2.1 Site Visit

Barnsley MBC's Tree Officer was consulted during May 2014 followed by a joint site visit on 16 June 2014 to review the extent of the proposed works and agree the scope of the tree survey. Further site visits for the survey were undertaken by Wainwright Landscape Architecture on 22nd July 2014.

2.2 Brief Description of the Site

The site is adopted highway and approximately 7ha of adjoining agricultural land located at the A61 Birdwell Junction near Barnsley. There are several linear hedgerows and woodland blocks associated with the existing highway, around the A61 Birdwell Roundabout and along it's approaches from Birdwell to the west and Hoyland to the east.

Significant sections of outgrown hedgerow are located along a former section of the A6135 Sheffield Road located to the north east side of Birdwell Roundabout, now used as a layby. Other woodland strips and hedgerows are located within fields to the east and south of the site, planted as opencast restoration on former colliery land.

Several tree and shrub groups are located within the highway roundabouts and central reservations between the M1 Junction 36, along Dearne Valley Parkway, up to Rockingham Roundabout, and along the M1 Junction sliproads.

2.3 Trees Subject to Statutory Controls

Barnsley MBC's Tree Officer was contacted in May 2014, who confirmed that trees on the site are not protected by a Tree Preservation Order and the site is not within a Conservation Area.

2.4 Survey Methodology

The format of the survey follows the guidelines of British Standard BS 5837:2012 'Trees in Relation to design, demolition and construction – Recommendations'

The site survey has been carried out from ground level using principles set out in 'Updated Field Guide for Visual Tree Assessment', *Claus Mattheck, 2007.* Where appropriate further reference made to 'Principles of Tree Hazard Assessment and Managament', *David Lonsdale, DETR, 1999.*

The tree survey is based on a site topographical survey[1] with tree groups, hedgerow and canopy extent adjusted with the assistance of aerial photographs[2] and additional site survey (see Tree Survey plans in Appendix A).

The species and condition of all trees or groups with stems over 75mm diameter @ 1.5 above ground level were surveyed. The survey includes all trees within the site and all trees adjacent to the site boundary which may potentially be affected by the works. All trees and tree groups within the survey have been individually numbered for identification

[1] H&H Survey drawing ref BC/480/SP (4)
[2] BMBC Aerial Photography, Cities Revealed, The Geoinformation Group 2013

purposes in the format T1, T2, T3 (individual trees), G1, G2, G3 (tree groups), H1, H2, H3 (hedgerows) and corresponding numbers have been used both on the Tree Survey Plans and within the Tree Survey Schedule.

Other details have been included in the survey such as: height, stem diameter, branch spread, crown clearance, life stage, and estimated remaining contribution.

Tree heights have been estimated. Crown spreads have been measured with a tape to the nearest 0.5m.

Life Stage has been defined as: Young (self-seeded / stake dependent), Semi-mature (not sexually mature / stem up to 30cm girth capable of being transplanted), Early Mature (up to 75% of expected mature size), Mature (fully developed size), Over Mature (tree beyond mature in natural decline).

Particular attention in the survey has been given to the size and form of each tree or group; physiological condition (Good, Moderate, Poor, Dead); any structural defects where apparent; the location of each tree in relation to existing features.

Preliminary management recommendations have also been given including recommendations for further investigation of suspected defects that require more detailed assessment and potential for wildlife habitat.

2.5 Tree Classification (Grade)

On the basis of this assessment and following guidelines in BS 5837 : 2012, trees have been classified into one of the following categories, differentiated by colour on the attached Tree Survey Plans (see Appendix A):

Category A - Trees of High Quality (light green);
Trees able to make a substantial contribution.

Category B - Trees of Moderate Quality (mid blue);
Trees able to make a significant contribution.

Category C - Trees of Low Quality (grey);
Trees in adequate condition.

Category U - Trees Unsuitable for Retention (dark red);
Trees that are dead, serious structural defects or disease.

The Categories are further qualified under one or more of the following three sub-categories (1, 2, 3). Subcategories 1, 2 and 3 are intended to reflect:

(1) Mainly Arboricultural Qualities
(2) Mainly Landscape Qualities
(3) Mainly Cultural Values,

2.6 Assessment of Hedgerows and Tree Groups

Shrub masses and domestic hedges were surveyed separately and in accordance with BS 5837:2012 4.4.2.7, recording height, species and general descriptive information.

Tree groups, hedgerows and substantial internal or boundary hedgerows have been recorded with lateral spread and average (or maximum and minimum) height and stem diameter ranges, recording all woody species present.

3 Site Observations and Notes on Specific Trees

3.1 Woodland Groups and Hedgerows

Trees within the site are generally part of dense hedgerow groups or linear woodland blocks adjacent to the existing highway. Hedgerows and woodlands within the site boundary have largely been replanted since re-modelling of Birdwell Roundabout and unlikely to be older than 25 years.

Birdwell Roundabout was constructed in 1988, modifying the original highway boundary and Dearne Valley Parkway was completed in 1898. Consequently the hedgerows and woodland are generally recently planted following those works 15-25 years ago, with some occasional older individual trees and hedgerow remnants located on boundaries where parts of the old carriageway remained undisturbed, or on the outer limits of previous work.

Woodland and sections of hedgerow planted following construction of the M1 (completed 1968) and are likely to be 40-46 years old. This includes planting along the M1 slip road / interchange embankments (see survey refs. G31 and G32).

Several sections of the hedgerow along the former A6135 Sheffield Road (now layby) are likely to be much older than the other recent planting. Woodland and hedgerow groups G2, G3, G6 and G8 are established around an older hawthorn hedgerow which has been left to grow unmanaged, then subsequently planted with other mixed woodland following recent highway works. These hawthorn hedgerows within the groups contain individual trees of ash and sycamore which are likely to be self-set, many of which have their leader missing and probably relates to former hedgerow maintenance.

The woodland groups within the site boundary usually consist of a core mix of larger growing species such as: Oak, Ash, Birch, Rowan, Field Maple, Bird Cherry, Plum, Whitebeam and Rowan. These groups generally have lower growing shrubby edge species such as: Blackthorn, Hawthorn, Hazel, Guelder Rose and Willow. These main woodland groups have been left to establish relatively unmanaged and not thinned.

Planting on roundabouts and within the central reservations usually contains a higher proportion of lower growing shrubby or semi-ornamental species with their edges being occasionally cut to maintain sightlines or power line clearances.

Hedgerows along the southern site boundaries vary considerably in their quality and establishment, depending on whether they are being maintained or managed. Hedgerows H9 and H24 are very poorly established fragments set along a post and rail fence boundary. This boundary was probably never planted with individual; trees being self-set.

Hedgerows H27 and H28 are hawthorn hedgerows planted within the field side of the boundary fence. These are regularly cut and maintained hedgerows.

Individually many of the woodland trees within the groups would only be categorised as Low Quality, but the larger woodland groups are likely to be Moderate Quality due to its collective landscape screening and nature conservation value. Removal or management

of individual Low Quality trees within the groups is unlikely to have a significant effect, but removal of whole hedgerows or woodland groups is likely to be detrimental to local ecology and setting.

3.2 Trees Surveyed

A total of 7 individual trees, 18 tree groups and 5 hedgerows were surveyed. Trees are located as shown on the Tree Survey plans (see Appendix A). Survey data is summarised in the Tree Survey Schedule (see Appendix B).

3.3 Species Diversity

There are 4 species represented within the individual trees surveyed. Table 1 shows the number of individuals recorded.

Table 1: Species Diversity Individual Trees

Common Name	Botanical Name	Quantity	Approx. %
Ash (Common)	Fraxinus excelsior	2	29
Birch (Silver)	Betula pendula	2	29
Elm (Common)	Ulmus procera	2	29
Greengage	Prunus domestica	1	14
	Total	7	100

There are 9 species represented within the main trees groups surveyed (core mix). Distribution varies slightly between groups, Table 2 shows the typical %.

Table 2: Species Diversity Tree Groups – Core Mix + Stands

Common Name	Botanical Name	Approx. %
Alder (Common)	Alnus glutinosa	5
Birch (Silver)	Betula pendula	20
Bird Cherry	Prunus padus	10
Oak (English)	Quercus robur	20
Poplar (White)	Populus alba	occasional
Rowan	Sorbus aucuparia	5
Sycamore	Acer pseudoplatanus	5
Alder (Grey)	Alnus incana	5
	Total	100

There are 10 species represented within the trees groups edge mix. Distribution varies slightly between groups, Table 3 shows the typical %.

Table 3: Species Diversity Tree Group – Edge Mix

Common Name	Botanical Name	Approx. %
Blackthorn	Prunus spinosa	17
Broom	Cytisus scoparius	occasional
Crab apple	Malus var.	occasional
Elder	Sambucus nigra	occasional
Firethorn	Pyracantha	occasional
Greengage	Prunus domestica	17
Guelder Rose	Viburnum opulus	17
Hazel	Corylus avellana	17
Hawthorn	Crataegus monogyna	17
Willow (Goat)	Salix caprea	15
	Total	100

There are 10 woody species represented within the hedgerows Distribution varies slightly between groups, Table 3 shows the typical %.

Table 4: Species Diversity Hedgerows

Common Name	Botanical Name	Approx. %
Ash (Common)	Fraxinus excelsior	occasional
Blackthorn	Prunus spinosa	occasional
Elder	Sambucus nigra	occasional
Hazel	Corylus avellana	occasional
Hawthorn	Crataegus monogyna	100
Elm (Common)	Ulmus procera	occasional
	Total	100

3.4 Age Distribution

The majority of tree groups surveyed within the site are likely to have been planted as part of recent highway improvement schemes 15-25 years ago with the core mix generally falling into Early Mature life stage and the edge mix falling into Mature life stage.

Several mature trees along the A6135 Sheffield Road pre-date the recent highway improvement works (T11-T14). The Elms are possibly 60-80 years or older.

Where part of the original highway is retained as layby along the A6135, older sections or hawthorn may also be 60-80+ years old (G2, G3, G6).

Sections of planting on the M1 slip road and interchange embankment are likely to be 40-46yrs old.

3.5 Grading Classification

Distribution of category grading is depicted in The Tree Survey Schedule and shows that no trees or groups within the survey population achieve a grade 'A'.

Many of the woodland tree groups presently contribute to the wider landscape value of the woodland group despite their sometimes slightly impaired condition. However the woodland groups are generally densely planted and would require management and thinning to further develop and reach their potential.

3.6 Trees and Woodland to be removed

The following table lists all trees and woodland proposed to be removed as part of the scheme. This shows the worst case scenario and depending on the contractor's working method and site management, it may be possible to protect and retain further planting.

Table 4: Trees, Hedgerows and Woodland to be removed

Ref.	Description	Grade	Quantity
T17, T18, T19, T34	Individual / notable trees	B2 - 100%	4 no.
G1, G2, G3, G4, G6, G8, G16, G20, G21, G25, G32	Woodland and tree groups	B2 - 95% C2 - 5%	8,214.5 m2
H24, H27, H28, H33	Hedgerows	C2 - 100%	212 lin.m

4 individual grade B2 trees are proposed to be removed. Depending on working method and site conditions encountered by the contractor it may be possible to retain these trees.

Of the woodland and tree groups proposed to be removed, 95% is grade B2 and 5% grade C2. Individually the majority of these trees would be classed as C2, but have a collective B2 amenity value.

Approximately 212 lin.m of hedgerow is proposed to be removed as part of the scheme. This is generally low value and fragmented, classed as grade C2.

4 Tree Constraints and Protection Measures

4.1 Root Protection Area

The protection of existing trees is vital if trees are to be successfully retained within or adjacent to new development. All trees to be retained should be protected by barriers and / or ground protection. Barriers should be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained trees. Special attention should be paid to ensuring that barriers remain rigid and complete.

In order to avoid damage to tree roots or rooting environment, a minimum area or Root Protection Area (RPA) in m2 should be left undisturbed around each tree to be retained.

4.2 Root Protection Area Calculation

The RPA for individual trees has been plotted on the Tree Survey Plans as a circle centred on the base of that stem. The RPA for tree groups is estimated based on the RPA of significant ends, canopy edge of large trees, then linked together.

Protective Fencing

The recommended location of protective fencing is shown on the Tree Survey Plans in Appendix A (also the 'Tree Protection Plan' for the purpose of this survey and BS 5837:2012).

Protective fencing and barriers should be constructed in accordance with Section 6.2 and Figure 2 + 3 of BS 5837:2012 and fit for the purpose of excluding construction activity.

5 Strategic Overview, Future Management and Recommendations for New Planting

5.1 Tree Constraints During Design and Development

It is essential when selecting trees to be retained to make practical provision for protection during the development work. Root Protection Areas and the location for barrier fencing have been indicated on the Tree Survey plans.

Careful consideration should also be taken of the location of services. If possible service layout should be designed to follow common trenches, and leaving suitable space for tree planting and avoiding Root Protection Areas. This will also avoid subsequent disruption of trees during routine maintenance of services.

Future post development maintenance of new and existing trees is vital if new trees are to become successfully established, and the older trees are to be safely retained. Maintenance of new planting is also important during the establishment period.

5.2 Design Considerations for New Planting

All new tree planting should take into consideration the future use, layout and design of a development site, constraints of the soil and climate, the local landscape character and contextual surroundings.

There should be no net loss of trees on the site and character of groups should be retained as far as possible. Native plant species should be used unless the context and landscape character strategy suggest otherwise, sourced locally where possible or in accordance with best practice guidance. Planting proposals should reflect and where possible enhance the existing vegetation pattern.

6 Tree Removal and Surgery of Trees to be Retained

6.1 Tree Works

The tree by tree survey indicates all trees which should be removed, and all work needed to individual trees or groups. Consideration should be given during the tree works operations to balance and form, in association with the adjacent trees to be retained within a group. A system should be adopted where all trees to be felled and all stumps grubbed up should be removed first, so that subsequent crown shaping work may be considered within the context of the remaining space.

Tree removal and surgery work should be made following the recommendations of BS 3998, and a qualified tree works contractor / arboriculturalist should be used to carry out any of the works.

6.2 Bats - Protected Species

All British bat species are protected under Schedule 5 of the Wildlife and Countryside Act 1981, as updated by the Countryside and Rights of Way Act 2000. All British bats are also included on Schedule 2 of the Conservation (Natural Habitats etc) Regulations 1994 as European Protected Species.

It is an offence to intentionally or recklessly kill, injure or capture bats; deliberately or recklessly disturb bats (whether in roots or not); damage, destroy or obstruct access to bat roosts.

6.3 Birds - Protected Species

The main bird nesting season is between March and August inclusive. Contractors have a legal responsibility to comply with current legislation relating to breeding birds.

Under the Wildlife and Countryside Act 1981 and the Countryside and Rights of Way Act 2000, all birds, their nests and eggs are protected and it is an offence to take, damage or destroy the nest of any wild bird; take or destroy the egg of any wild bird; disturb any wild bird on Schedule 1 while it is nest building, at nest containing young, or disturb the dependent young of such a bird.

7 Summary

7.1 The Site

The site is adopted highway and adjoining agricultural land located at the A61 Birdwell Junction near Barnsley. There are several linear hedgerows and woodland blocks.

7.2 Woodland Groups and Hedgerows

Hedgerows and woodlands within the site are generally less than 25 years although several sections of planting adjacent to the M1 junction roundabout and slip road are likely to be 40-46 years old. Some sections of older hedgerow exist adjacent to the Sheffield Road layby but these have been left unmanaged and now incorporated within other planting. Trees within the site are generally part of dense hedgerow groups or linear woodland blocks adjacent to the existing highway.

The woodland groups within the site boundary usually consist of a core mix of larger growing species such as: Oak, Ash, Birch, Rowan, Field Maple, Bird Cherry, Plum, Alder and Rowan. These groups generally have lower growing shrubby edge species such as: Blackthorn, Hawthorn, Hazel, Guelder Rose and Willow. These main woodland groups have been left to establish relatively unmanaged and not thinned.

Woodland and tree groups to be retained would benefit from woodland management and thinning. Woodland which is partly removed will expose new edge trees without an understorey. This can initially be unsightly and can also expose trees which are not adapted to growing in exposed locations on the edge of a group. These new edge groups should be managed, thinned and replanted to develop a new edge structure.

7.3 Specific Tree Observations

There are relatively few individual trees within the site area. These are generally located on the outer limits of the scheme .Trees T11, T12, T13, T14 are Ash and Elm trees located overhanging A6135 Sheffield Road. It should be possible to retain these trees but they would benefit some remedial works to reduce overhanging branches and wind loading on the supporting wall. T34 is an ash tree located at the bottom of the M1 slip road embankment. Efforts should be made to protect and retain this tree.

7.4 Hedgerow Boundary

Several sections of hawthorn hedgerow along field boundaries are fragmented, in poor condition and would benefit from gapping up and re-planting. Most of the boundary hedgerows adjacent to the highway have been left to grow unmanaged.

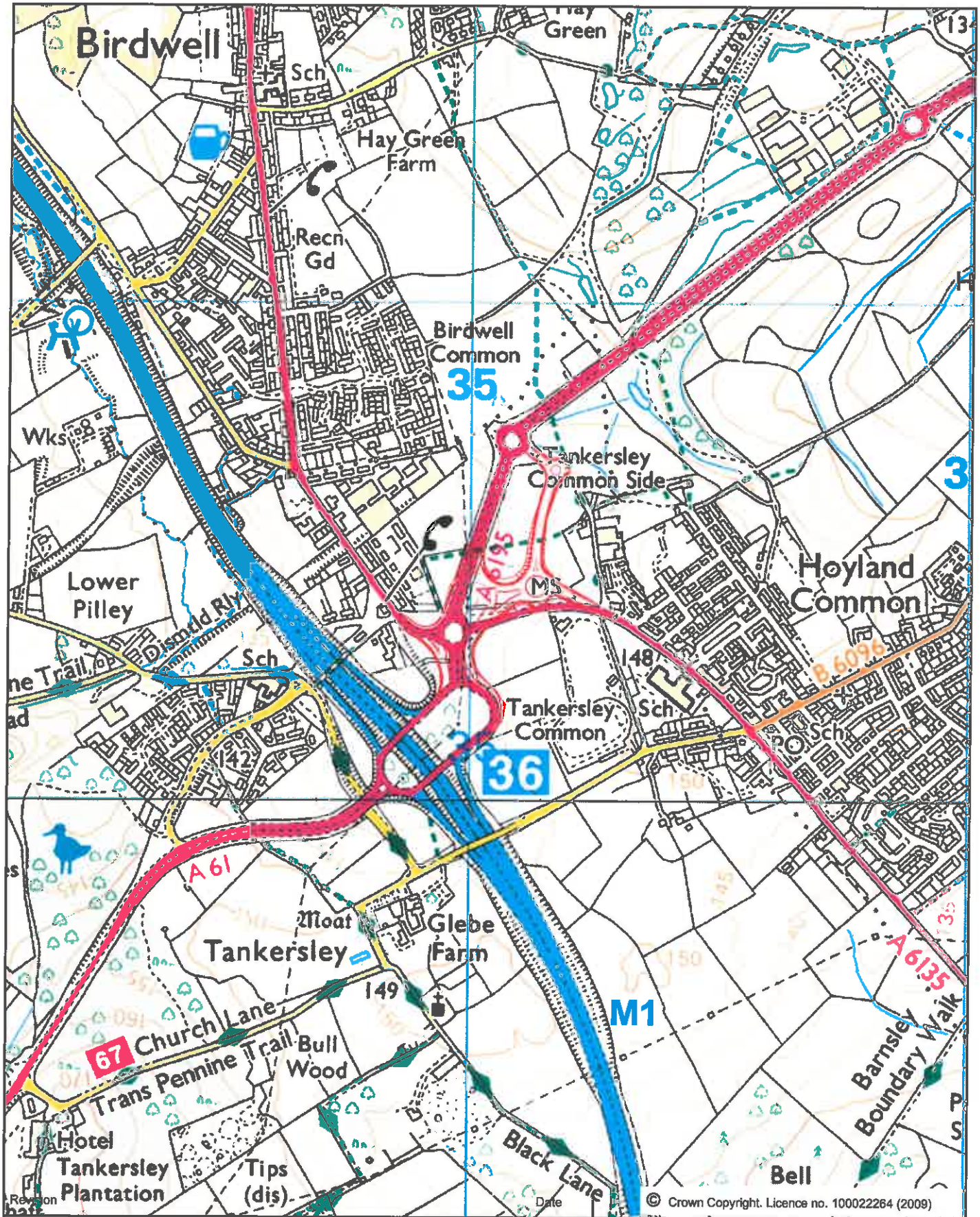
7.5 Overview and Context

Significant sections of relatively young hedgerow and woodland will be removed as part of the proposed road scheme. Individually trees within groups are generally Low Quality. However collectively, many of the tree groups are categorised as Moderate Quality due to their landscape screening and nature conservation value.

Wherever possible woodland should be replaced and there should be no net loss of trees on the site. Native plants species should be used and planted to enhance local ecology landscape character .

Appendix A Drawings

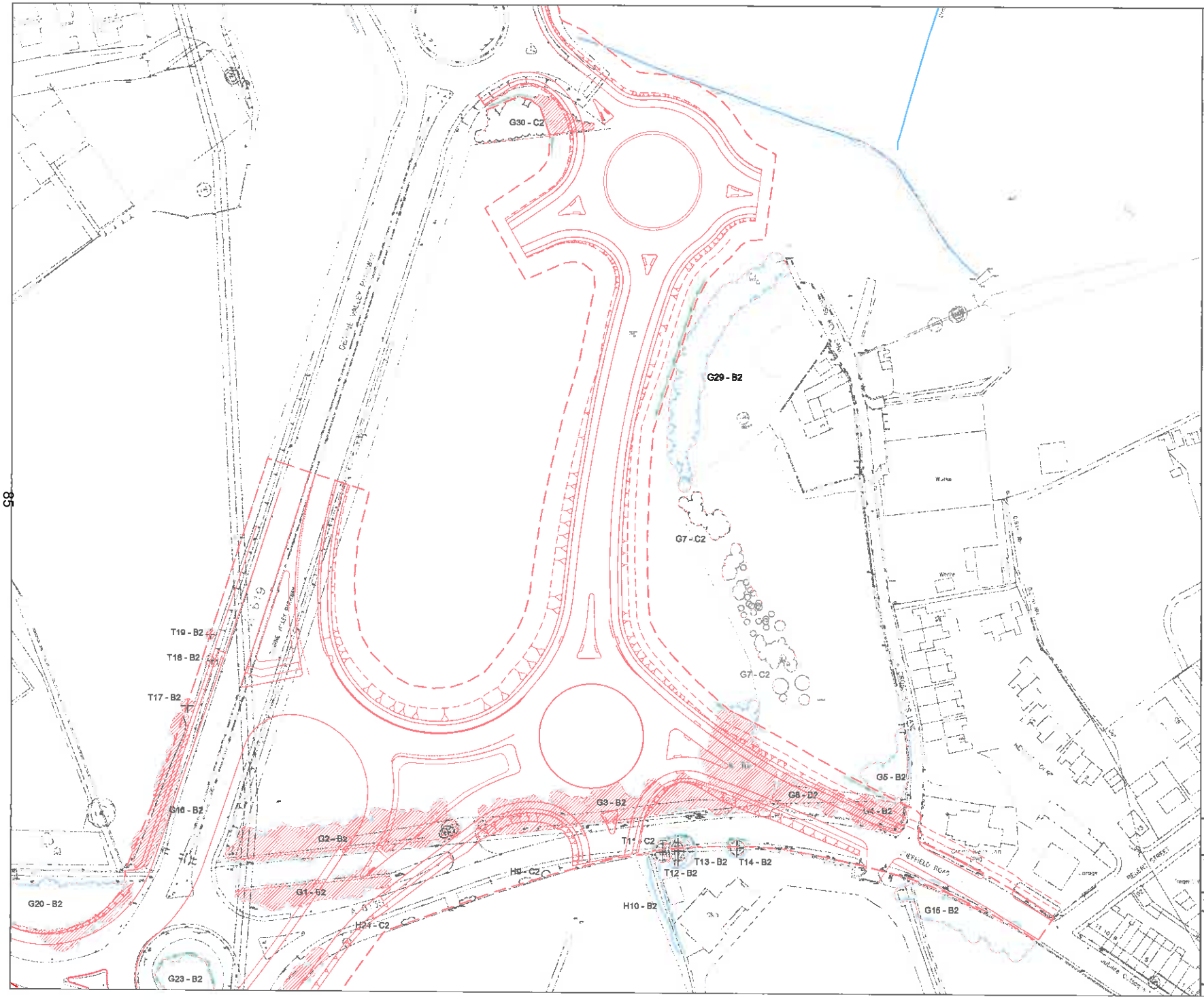
J189/01 Site Location Plan
J189/02 Tree Survey Sheet 1/2
J189/03 Tree Survey Sheet 2/2



Project	Date	Scale	Size
A81 BIRDWELL JUNCTION IMPROVEMENT	JULY 2014	1:1000	A4
Drawing Title	**Drawing no.**	**Drawn by**	**Checked**
SITE LOCATION PLAN	J189/01	JW	JRW

Wainwright
Landscape Architecture
6 Lindale Lane, Wrenthorpe, Wakefield, WF2 0PN
T. +44 (0)1924 381256 E. info@wainwrightla.co.uk

© Wainwright Landscape Architecture Ltd Copyright: Reproduction in whole or part is prohibited without written permission.



Legend

KEY — REFERENCE BS 5837:2012 Category.

- T22 A — A - High quality
- T22 B — B - Moderate quality
- T22 C — C - Low quality
- T22 U — U - Trees Unsuitable for Retention
- Other tree groups and hedgerows
- Trees to be removed due to proposed works
- Tree protection fencing
- Root Protection Areas (RPA)
- Site Clearance Boundary

N

Tree numbers refer to schedule in Tree Survey Report.

The RPA should be created using a robust barrier fence that fully meets the requirements of BS 5837:2012.

Barrier fence to be 2m high 'Heras' type weldmesh fencing panels, well braced to resist impacts, or a framework of vertical and horizontal tubular scaffold poles braced sufficiently to receive weld mesh which should itself be securely fixed with wire or scaffold clamps.

The fencing should be sufficiently strong to withstand impacts likely to be caused during building operations.

All-weather signs should also be affixed to the fencing at regular intervals stating; "CONSTRUCTION EXCLUSION ZONE KEEP OUT."

This map is reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown Copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Licence no. 100033294 [2009]

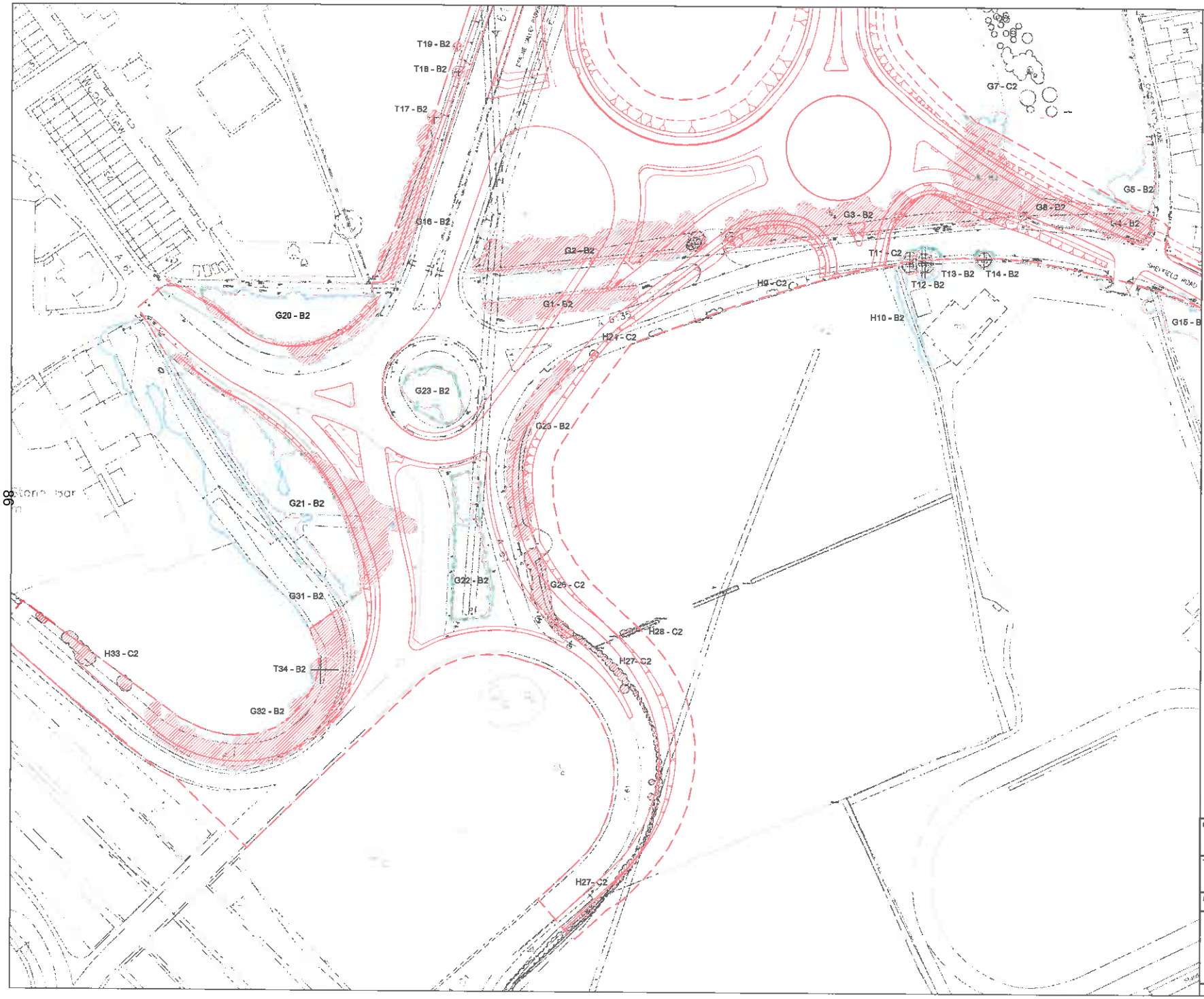
Project: A61 BIRDWELL JUNCTION IMPROVEMENT

Title: TREE SURVEY SHEET 1 / 2

Scale: 1:1,000 | Paper: A2 | Dwg No. J189/2A

Wainwright Landscape Architecture
6 Lindale Lane, Wrenthorpe, Wakefield, WF2 0PN
T. +44 (0)1924 381256 E. info@wainwrights.co.uk

© Copyright Wainwright Landscape Architecture



Legend

KEY — REFERENCE BS 5837:2012 Category.

- T22 A — A - High quality
- T22 B — B - Moderate quality
- T22 C — C - Low quality
- T22 U — U - Trees Unsuitable for Retention
- Other tree groups and hedgerows
- Trees to be removed due to proposed works
- Tree protection fencing
- Root Protection Areas (RPA)
- Site Clearance Bounary

N

Tree numbers refer to schedule in Tree Survey Report .

The RPA should be created using a robust barrier fence that fully meets the requirements of BS 5837:2012.

Barrier fence to be 2m high 'Heras' type weldmesh fencing panels, well braced to resist impacts, or a framework of vertical and horizontal tubular scaffold poles braced sufficiently to receive weld mesh which should itself be securely fixed with wire or scaffold clamps.

The fencing should be sufficiently strong to withstand impacts likely to be caused during building operations.

All-weather signs should also be affixed to the fencing at regular intervals stating; "CONSTRUCTION EXCLUSION ZONE KEEP OUT."

This map is reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Licence no. 100019284 (2008)

Project: A61 BIRDWELL JUNCTION IMPROVEMENT

Title: TREE SURVEY SHEET 2 / 2

Scale: 1:1,000 | Paper: A2 | Dwg No. J189/3A

Wainwright Landscape Architecture
6 Lindale Lane, Wrenthorpe, Wakefield, WF2 0PN
T. +44 (0)1924 381285 E. info@wainwrights.co.uk

© Copyright Wainwright Landscape Architecture

Appendix B Tree Survey Schedule

Ref	Species	Height (m)	Stem Ø (mm)	Branch Spread (m)	Height Crown Clearance (m)	Life Stage	PC	Structural Condition General Observations	Preliminary Management Recommendations	ERC (Yrs)	Grade
G1	Alder (Common) Ash (Common) Birch (Silver) Blackthorn Crab Apple Hazel Hawthorn Oak (English) Rowan	10 – 12 typical	100-250 typical	N E S W n/a	2-3 typical	Early Mature	Good	Linear woodland group 8-10m wide. Structural condition generally good, typical as a mixed woodland group. Good development of understorey. Some small gaps in canopy but self-set trees developing.	None To be removed due to proposed works.	40+	B2
G2	Hedgerow: Hawthorn with Ash and Sycamore Linear woodland group: Ash (Common) Birch (Silver) Bird Cherry Field Maple Hazel Hawthorn Oak (English)	6-8 10-12	100-200 typical	N E S W n/a	1.5-2.0 typical	Early Mature	Moderate	Outgrown hawthorn hedgerow 2-3m wide along roadside with linear woodland group behind 10-14m wide. Hawthorne hedge left to grow as part of the woodland group; overhangs adjoining footpath. Bird Cherry within woodland group struggling / dead (possibly fungus - cherry leaf scorch).	None To be removed due to proposed works.	40+	B2
G3	Ash (Common) Birch (Silver) Bird Cherry Elder Hazel Hawthorn Oak (English) Poplar (White) Rowan Sycamore	8-10	100-200 typical	N E S W n/a	1.5-2.0 typical	Early Mature	Moderate	Outgrown hawthorn hedgerow 2-3m more open than G2 and set back, intermixed with other species such as hazel, cherry. Linear woodland group 10-14m wide. Several dead alders. Bird Cherry within woodland group struggling / dead (possibly fungus - cherry leaf scorch).	None To be removed due to proposed works.	40+	B2
G4	Sycamore (approx.. 14 no. group)	10-12	125-250 typical	N E S W n/a	1.0-3.0 typical	Early Mature	Moderate	Dense tree group. No understorey due to shading. Many multi-stemmed at low level, possibly due to past grazing damage.	None To be removed due to proposed works.	40+	B2
G5	Alder (Common) Whitebeam (approx.. 17 no. group)	10-12	100-150 typical	N E S W n/a	1.5-2.0 typical	Early Mature	Moderate	Mixed tree group, clear stems, field layer no shrubby understorey.	None Protect and retain.	40+	B2

Ref	Species	Height (m)	Stem Ø (mm)	Branch Spread (m)	Height Crown Clearance (m)	Life Stage	PC	Structural Condition General Observations	Preliminary Management Recommendations	ERC (Yrs)	Grade
G6	Alder (Common) Ash (Common) Birch (Silver) Bird Cherry Blackthorn Elder Hazel Hawthorn Oak (English) Rowan Whitebeam Alder (Grey)	6-8	100-150 typical	N E S W n/a	1.5-2.0 typical	Early Mature	Moderate	Extended woodland belt, partly incorporates hawthorn hedgerow field boundary to east side. Several dead trees and resulting gaps. Many trees are multi-stemmed possibly due to past grazing damage.	None To be removed due to proposed works. May be possibly to retain northern area depending on construction access. Thin and manage newly exposed woodland edge.	40+	B2
G7	Alder (Common) Birch (Silver) Hawthorn Whitebeam Willow (Goat)	6-8	100-125 typical	N E S W n/a	0-1.5	Early Mature	Moderate	Planted as part of a woodland screen belt 9-14m wide. Open in parts. Many multi-stemmed, possible former grazing damage. Scrubby hawthorn developing below.	Beginning to establish, protect and retain. May benefit from additional understorey planting if required for visual screening.	40+	C2
G8	Hedgerow: Hawthorn Hazel Tree group: Sycamore Rowan	10-12	125-250 typical	N E S W n/a	1.5-2.0	Early Mature	Moderate	Dense group of sycamore with occasional rowan. Many have leaders missing possibly due to past grazing. No understorey due to shading. Hawthorn and hazel hedge towards roadside.	None To be removed due to proposed works.	40+	B2
H9	Hawthorn (hedgerow remnants)	1.5 H x 1.5 W	n/a	N E S W n/a	n/a	Semi-Mature	Moderate	Boundary hedgerow but structural condition poor as only fragments remaining.	Replant gaps	40+	C2
H10	Hawthorn Ash Dog Rose Elder Elm	2-4 H x 2-4 W	n/a	N E S W n/a	n/a	Early Mature	Moderate	Mixed boundary hedgerow , mainly hawthorn, partly growing on low bank against fence line. Ditch below.	None	40+	B2

Ref	Species	Height (m)	Stem Ø (mm)	Branch Spread (m)	Height Crown Clearance (m)	Life Stage	PC	Structural Condition General Observations	Preliminary Management Recommendations	ERC (Yrs)	Grade
T11	Ash (Common)	10-12	100-200 Multi-stem	N 5 E 3 S 4 W 3	3-4 over road	Mature	Moderate	Tree growing on roadside boundary / fence line behind wall top. Multi-stemmed (3 main + 1 smaller). Old timer stake / post wedged between 2 stems and damage to cambium. One stem growing over road, several crossing stems.	Protect and retain. Reduce / remove branch over road to reduce loading on wall. May become a problem in future years.	10+	C1,2
T12	Elm (English)	10-12	200 325	N 7 E 5 S 7 W 3	1.5 over road	Mature	Good	Two large stems growing at top of wall. May be same root stock dividing at low level. Canopy inter-grown with T13 adjacent.	None Protect and retain	40+	B1,2
T13	Elm (English)	10-12	500	N 7 E 7 S 7 W 3	1.5- 2.0 over road	Mature	Good	Overhanging road. Several lower branches pruned in past.	None Protect and retain	40+	B1,2
T14	Ash (Common)	8-10	1.0	N 4 E 4 S 4 W 4	2.5 over road	Mature	Moderate	Tree growing behind wall top. Several branches trimmed to allow adjacent fence line. Balanced shape / form. Lower stem shows signs on cambium bucking and compensatory growth.	Remove 2 lower side branches over road. Protect and retain	40+	B1,2
G15	Cherry Field Maple Maple (incl. purple var.) Hazel	6-8	125-250 typical	N E n/a S W	1.5-2.0 typical	Early Mature	Moderate	Mixed linear tree group behind roadside fence line. Main roadside species listed. Cherry struggling (may be cherry leaf scorch).	None Protect and retain Adjacent to site boundary	40+	B2
G16	Ash (Common) Blackthorn Broom Green Guage Guelder Rose Hawthorn Willow (Goat)	6-8	60-250 typical	N E n/a S W	to GL	Early Mature	Moderate	Dense linear woodland strip along roadside embankment, ditch at bottom. Dense inter-grown group. Would benefit thinning.	None To be removed due to works.	20+	B2

Ref	Species	Height (m)	Stem Ø (mm)	Branch Spread (m)	Height Crown Clearance (m)	Life Stage	PC	Structural Condition General Observations	Preliminary Management Recommendations	ERC (Yrs)	Grade
T17	Green Guage	6-8	250	N 3 E 3 S 3 W 3	to GL	Early Mature	Good	Tree on edge of woodland group.	None To be removed due to works	40+	B1,2
T18	Birch (Silver)	10	75	N 2 E 2 S 2 W 2	0.4	Early Mature	Good	Within roadside verge. Balanced tree.	None To be removed due to works	40+	B1,2
T19	Birch (Silver) Multi-stemmed	10	3 x 50 1 x 25	N 2.5 E 2.5 S 2.5 W 2.5	to GL	Early Mature	Good	Within roadside verge. Balanced tree.	None. At edge of proposed works. Protect and retain if possible.	40+	B1,2
G20	Ash (Common) Blackthorn Birch (Silver) Hawthorn Hazel Oak (English)	8-10	200-275 typical	N E n/a S W	0-2.0 typical	Mature	Good	Dense woodland group within bend of the roundabout approach. Trees generally planted in groups of 3-5 / species. Good edge shrub layer. Contains many multi-stemmed specimens.	Will be partly removed due to works. Will need some edge thinning and replanting to establish new understorey. Protect and retain remainder.	40+	B2
G21	Ash (Common) Blackthorn Crab apple Green Guage / Plum Guelder Rose Hawthorn Hazel	8-10	125-250	N E n/a S W	0-2.0 typical	Mature	Good	Dense woodland group between footpath and highway, varies 7-32m wide. Former farm access through central area, now overgrown. Good, well established edge understorey.	Will be partly removed due to works. Will need some edge thinning and replanting to establish new understorey. Protect and retain remainder.	40+	B2
G22	Ash (Common) Blackthorn Green Guage / Plum Guelder Rose Hawthorn Hazel	6-8	60-125	N E n/a S W	0-0.5 typical	Mature	Good	Dense woodland group within central highway reservation, below power lines. Generally a shrubby / small tree mix. Former farm access through central area, now overgrown.	None To be removed due to works	40+	B2

Ref	Species	Height (m)	Stem Ø (mm)	Branch Spread (m)	Height Crown Clearance (m)	Life Stage	PC	Structural Condition General Observations	Preliminary Management Recommendations	ERC (Yrs)	Grade
G23	Ash (Common) Blackthorn Green Guage / Plum Guelder Rose Hazel Oak (English) Pyracantha	6-8	60-125	N n/a E S W	0-0.5 typical	Mature	Good	Dense tree / shrub group located on low mound on highway roundabout.	None To be removed due to works	40+	B2
H24	Hawthorn Ash Elder Blackthorn	2H x 2 W	n/a	N n/a E S W	n/a	Semi-Mature	Poor	Hedgerow fragments adjacent boundary fence, may be self-set.	Re-plant as hedgerow	40+	C2
G25	Apple Alder (Common) Ash (Common) Birch (Silver) Blackthorn Green Guage / Plum Guelder Rose Hawthorn Hazel Oak (English)	6-8	100-125 typical	N n/a E S W	0-0.5	Mature	Moderate	Linear tree belt with lower understorey. Partly on ditch embankment. Many trees ate multi-stemmed.	None To be removed due to works	40+	B2
G26	Alder Ash (Common) Birch (Silver) Hawthorn Sycamore	6-8	100-125 typical	N n/a E S W	0-0.5	Mature	Moderate	Linear tree belt with lower understorey. Similar to G25 but generally less dense.	None To be removed due to works	40+	C2
H27	Hawthorn	1 H x 1 W	n/a	N E S n/a W	n/a	Mature	Moderate	Maintained boundary hedgerow adjacent to boundary fence. Occasional self-set apple within roadside verge. Species poor.	None To be removed due to works	40+	C2
H28	Hawthorn	1 H x 1 W	n/a	N E S n/a W	n/a	Mature	Moderate	Maintained boundary hedgerow within adjacent field. Gaps for field access. Species poor.	None To be partly removed due to works. Protect and retain remainder.	40+	C2

Ref	Species	Height (m)	Stem Ø (mm)	Branch Spread (m)	Height Crown Clearance (m)	Life Stage	PC	Structural Condition General Observations	Preliminary Management Recommendations	ERC (Yrs)	Grade
G29	Alder (Common) Birch (Silver) Hawthorn Whitebeam Willow (Goat)	6-8	100-125 typical	N E S W n/a	0-1.5	Early Mature	Moderate	Planted as part of a woodland screen belt 9-14m wide. Similar to G7 but denser and better established.	None Protect and retain.	40+	B2
G30	Ash(Common) Blackthorn Birch (Silver) Hawthorn Rowan Willow (Goat)	6-8	100-125 typical	N E S W n/a	0-0.5	Semi- Mature	Poor	Woodland screen planting adjacent to Rockingham Roundabout. Several dead Ash.	None To be partly removed due to works. Protect and retain remainder.	40+	C2
G31	Hawthorn (95%) Ash (Common) Guelder Rose Laburnum	6-8 10-12	100 – 300 typical	N E S W n/a	0-2.0 typical	Mature	Good	Dense woodland group adjacent Hangsman Stone Bar Farm and M1 slip road. Good, well established edge understorey. Mostly hawthorn on sloping embankment, occasional ash.	Will be retained up to site boundary.	40+	B2
G32	Ash (Common) (95%) Blackthorn Hawthorn Holly	12-14	100 – 300 typical	N E S W n/a	0-2.0 typical	Mature	Good	Dense woodland group adjacent M1 slip road. Mainly drawn Ash growing on embankment. Dense understorey Blackthorn, hawthorn and occasional Holly.	Mostly removed due to lane re-widening.	40+	B2
H33	Hawthorn	6-8	n/a	N E S W n/a	n/a	Semi-Mature	Poor	Hedgerow fragments adjacent boundary fence.	Re-plant as hedgerow	40+	C2
T34	Ash (Common)	10-12	690	N 6 E 8 S 6 W 4.5	4.0	Mature	Good	Notable mature ash within woodland group G32. Located close to field boundary and predates motorway construction and embankment. Some minor deadwood in canopy, some evidence of past branch pruning over field. Some laterals lost through storm damage, minor hollows callused over.	Protect and retain.	40+	B2

Appendix C Tree Photographs 1 / 5



Trees ref. G1 Ash, Oak, Birch - *linear woodland group*



Tree ref. G1 Blackthorn, Hazel - *woodland group understorey*



Trees ref. G2 Hawthorn hedgerow with Ash – *road frontage*



Trees ref. G2 Ash, Oak, Field Maple, Bird Cherry – *rear planting*



Tree ref. T3 Ash, Oak, Field Maple, Bird Cherry – *linear planting*



Tree ref. T4 & T8 Sycamore – *dense tree group*

Appendix C Tree Photographs 2 / 5



Trees ref. G5 **Alder, Whitebeam** – *tree group*



Tree ref. T6 **Alder, Birch** – *extended woodland group*



Trees ref. G7 & G29 Alder, Birch, Willow – *linear screen planting*



Tree ref. H9 Hawthorn – *hedgerow remnants*



Tree ref. T11 Ash – *stake / timber post wedged between stems*



Tree ref. T11 Ash - *multi-stemmed growing adjacent fence*

Appendix C Tree Photographs 3 / 5



Trees ref. T11, T12, T13 Ash and Elm – *road side tree group*



Trees ref. T12, T13 Elm – *road side tree group*



Trees ref. T14 Ash – adjacent boundary fence



Tree ref. T15 Cherry, Maple, Hazel – *linear woodland group*



Tree ref. G16 Blackthorn, Greengage, Guelder Rose, Hawthorn, Willow – *mixed hedgerow*



Tree ref. T17 Greengage – *at end of woodland group*

Appendix C Tree Photographs 4 / 5



Trees ref. T18 & T19 Birch – *road side trees*



Trees ref. G20 Ash, Blackthorn, Birch, Hawthorn, Hazel, Oak – *road side tree group*



Trees ref. G21 Ash, Blackthorn, Birch, Hawthorn, Hazel, Greengage, Willow – *road side tree group*



Tree ref. G22 Ash, Blackthorn, Hawthorn, Hazel, Greengage, Guelder Rose – *central reservation below power lines*



Tree ref. G23 Ash, Blackthorn, Greengage, Guelder Rose, Hazel, Oak, Pyracantha – *dense planting on roundabout*



Tree ref. H24 Hawthorn – *hedgerow remnants*

Appendix C Tree Photographs 5 / 5



Trees ref. G25, G26 Ash, Birch, Alder, Hazel, Greengage, Apple, Oak, Blackthorn, Guelder Rose – *road side linear woodland*



Trees ref. H27 Hawthorn – *boundary hedgerow*



Trees ref. H28 Hawthorn – *field hedgerow*



Tree ref. G30 Ash, Blackthorn, Birch, Hawthorn, Rowan, Willow – *woodland group south side of Rockingham Roundabout*



Trees ref. G32 Ash with Hawthorn and Sloe



Trees ref. T34 Single ash within group G32

9.0 NATURE CONSERVATION

9.1 Introduction

This section of the EIA is to assess the nature conservation impacts of the proposed road scheme and their significance and to identify mitigation measures necessary to avoid or reduce impacts. Ecology is the subject of a wide range of legislation and policy, where some impacts would constitute an offence and would not be acceptable, or without suitable mitigation and / or Natural England licences.

9.1.1 The Study Area

The study area is the zone of influence encompassing all predicted adverse ecological effects of the proposed road scheme. The zone of influence takes account of the nature of the proposed scheme and connectivity to adjacent habitats, known protected / notable or key species, including designated sites, within a 2km radius of the site. The site is partly bisected by the Dearne Valley Green Heart Nature Improvement Area – limit of boundary just to the south of Roundabout 2.

9.2 Methodology

The Ecology and Nature Conservation Assessment was carried out in accordance with DMRB Volume 11.3.4. An extended phase 1 habitat survey and assessment was undertaken in May 2014 (Extended Phase 1 Habitat Survey – A61 Birdwell Junction Improvement Birdwell Barnsley, Wildscapes, May 2014). (See Appendix 2)

9.2.1 The survey and assessment included:

- Desk study; notable species and designated sites within 2km
- Ecological walkover survey; Phase 1 Habitat Survey with observations noting the structure and quality of habitats present, signs of occupation by protected species, animals and flora of conservation interest (in accordance with NJCC guidelines).
- Badger survey.
- Bat roost potential survey.
- Great Crested Newt; Habitat Suitability Index (HIS) undertaken on the two ponds within the site.
- Evaluation; value and sensitivity of ecological features based on 'Guidelines on Ecological Impact Assessment, IEEM, 2006'
- Ecological assessment and recommendations for mitigation.

9.3 Baseline Conditions

9.3.1 Designated sites:
There are no sites with statutory protection within 2 km of the site.

9.3.2 There is a single locally designated site within 1km of the site; Potter Holes Plantation Local Nature Reserve (LNR) 1km southwest of the site.

9.3.3 There are three areas of Ancient Woodland; Short Wood 1km north of the site, The Old Park Wood & Wigfield Wood 1.5km northwest of the site.

9.3.4 Habitats:
Habitats within the site include semi-improved neutral grassland, marsh grassland, broadleaved plantation, hedgerows, dry ditch/wet ditch, open water and tall ruderal.

9.3.5 The majority of the site comprises developing semi-improved neutral grassland, with heavily grazed areas and small pockets of marshy grassland and occasionally wet ditches. However all of the species present are common both locally and throughout the UK.

9.3.6 Two ponds occur within the site. The ponds collectively are considered to be of importance for nature conservation at a local level.

9.3.7 An almost continuous line of young broadleaved plantation at thicket stage (at varying stages of maturity) runs along the periphery of the site along the north eastern, south eastern and southern edge and are considered to be of importance for nature conservation at a local level.

9.3.8 There are several hedgerows within the study area which includes overgrown hedgerows dominated by hawthorn with occasional trees, and a separated row of trees. All the hedgerows are species poor but offer some connectivity and importance for nature conservation at a local level.

9.3.9 A single area of ruderal vegetation exists to the east of the site. The species present are common both locally and throughout the UK.

9.3.10 Notable species:
Several bird species were observed either singing, foraging or in flight, including a skylark, the single Red List bird observed. All habitats within the site provide an optimal foraging resource for all bird species recorded, however there are other similar habitats surrounding the site and in the wider area.

9.3.11 No badger setts or signs of badger activity were observed on site at the time of survey.

9.3.12 The site is not considered to be a receptor for roosting bats, but is considered to be important to foraging and commuting bats at a local level.

9.3.13 There are no records for Great Crested Newt or for water vole within the site or surrounding area and none were recorded at the time of the survey. No signs of other key or protected species were recorded on the day of survey.

9.3.13 There are no records for Great Crested Newt or for water vole within the site or surrounding area and none were recorded at the time of the survey. No signs of other key or protected species were recorded on the day of survey.

9.3.14 A single stand of Japanese knotweed (Fallopia japonica) was identified along the south eastern boundary of the site. (Not located with the highway footprint)

9.4 Likely Significant Effects

9.4.1 Loss of semi-improved grassland as proposed is not considered to represent a significant adverse impact. It is recommended that remaining areas are managed to encourage species diversity and structure.

9.4.2 No land take of the ponds of wet ditches on site will be required to accommodate the junction improvements, as proposed.

9.4.3 Loss of broadleaved plantation as proposed is not considered to represent a significant adverse impact to nature conservation outside the immediate zone of influence.

9.4.4 Loss of two hedgerows and strip of trees is not considered to represent a significant adverse impact. It is recommended that hedgerows and or pockets of scrub should be incorporated within the landscape plan, comprising native species.

9.4.5 All nesting birds are protected under the Wildlife and Countryside Act (1981) (as amended) and it is recommended, as a precautionary measure, that any clearance of trees and hedgerows, and any disturbance to grassland within the site is undertaken between October and February to avoid the bird nesting season (March – August inclusive).

9.4.6 The proposals are not considered to represent a significant adverse impact to bird species. It is recommended that planting scrub and hedgerows and managing the grassland will benefit the bird species present on the site.

9.4.7 Bats will use the site including the broadleaved plantations, hedgerows, grassland and ponds to forage and for navigation. It is therefore recommended that hedgerows and plantations are replaced.

9.4.8 Habitat within site is considered good for grass snakes, water voles and great crested newts and is recommended that further survey work is undertaken to establish their presence or absence.

9.4.9 Japanese knotweed and any contaminated soil is classed as 'controlled waste' under Part II of the Environmental Protection Act (1990). To prevent the further spread of Japanese knotweed on site, a Japanese Knotweed Management Plan should be produced to ensure that the material is dealt with in an appropriate manner.

9.5 Mitigation

9.5.1 Mitigation attempts to reduce and / or negate the small potential effects on species through habitat retention, creation and enhancement.

9.5.2 The site has been an opencast commercial mining operation which the land was restored following coal extraction ceasing.
The study area of the Extended Phase 1 Habitat survey extends beyond the confines of the proposed road footprint and as such the Highway Authority has no influence outside this boundary.

9.5.3 Prior to commencement on site it is proposed to update the Extended Phase 1 Habitat Survey to record any species not currently identified in the 2014 survey.

9.5.4 Discussion on biodiversity has identified providing a 'Green Corridor' from the A6135 alongside the proposed new link road to Rockingham Roundabout utilising the road embankments. It is proposed to install crossing 'Tunnels' where appropriate to enable species identified following an update of the Phase 1 Habitat Survey to travel safely along the road corridor.

9.5.5 The scheme drainage will include a SUDS pond as part of the drainage strategy which will encourage amphibians to use. An agreed maintenance scheme sympathetic to amphibians is to be determined.

9.6 Summary

9.6.1 Where appropriate risk assessment is proposed to safeguard small populations of species. No significant residual effects on these receptors were identified, and minor effects are predicted to occur as new habitats are created and become established. Breeding bird and amphibian mitigation schemes are proposed to be drafted for the

management of birds and amphibian species in the Site through the clearance and operational phases of the Scheme

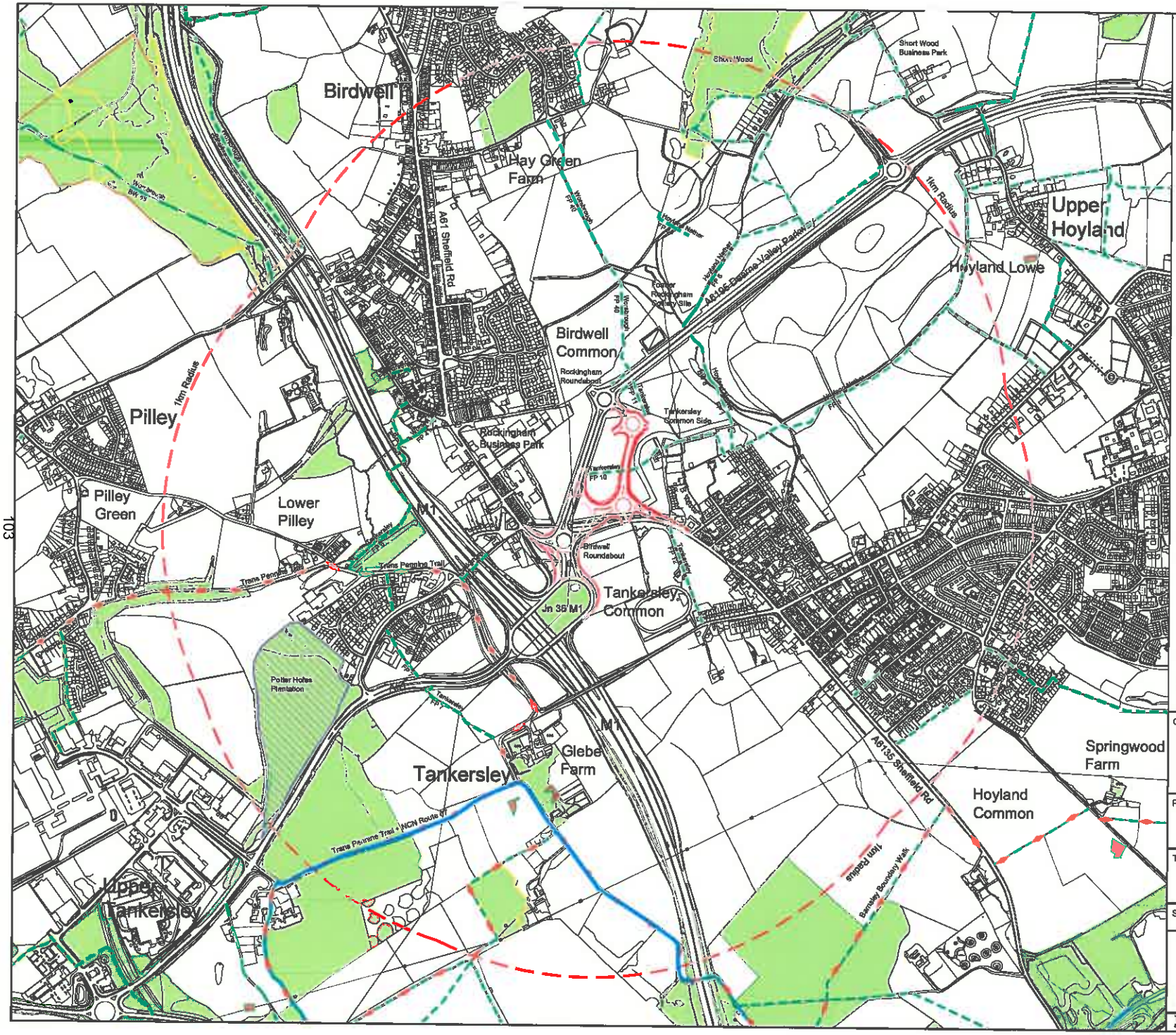
9.6.2 Mitigation would focus on protecting key features and ensuring that they are not harmed by on-site activities. Subsequent mitigation and enhancement measures will focus on the creation of new and enhanced habitats that offer benefits for various species groups in both the short and longer terms.

9.6.3 The site is a restored opencast mine which supports limited habitat types and a low species diversity. There were no significant populations of any species recorded and plant species were typical of those found on restored surface mine sites. Of all the species groups birds were the most diverse and the assemblage of birds reflects those habitats present. Some habitat within the extended survey area supported European Protected Species (EPS), although the population was very small and possibly not viable in an isolated state. As each stage of development proceeds then this could present an opportunity to extend the range of EPS within the peripheral habitats in the extended survey area and possibly greatly enhance existing species poor habitats

9.6.4 The scheme presents limited opportunities for environmental improvement and enhancement. Through effective implementation of the landscape proposals, the project may improve the green corridor function and create new habitats for wildlife.

9.6.5 Some of the potential benefits after mitigation are :-

- Replacing vegetation lost to construction with areas of mainly native species woodland and scrub.
- Improve green corridor links by supplementary planting.
- Specifically designed street lighting to minimise light pollution.



Legend

- Traditional Orchard UK BAP Priority Habitat
- Deciduous Woodland UK BAP Priority Habitat
- Ancient and Semi-Natural Woodland
- Ancient Replanted Woodland
- Local Nature Reserves (England)
- Proposed Route

© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2014.

This map is reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Licence no. 100022264 (2009)

Client: BARNSLEY Metropolitan Borough Council

Project: BIRDWELL A61 JUNCTION IMPROVEMENT

Title: NATURE CONSERVATION

Scale: 1:25,000 | Paper: A3 | Fig No.: 07

Wainwright Landscape Architecture
6 Lindale Lane, Wrenthorpe, Wakefield, WF2 0PN
T. +44 (0)1924 381256 E. info@wainwrights.co.uk

This drawing is not to be used in whole or part other than for the intended purpose and project as defined on the drawing.

10.0 MATERIALS, GEOLOGY AND CONTAMINATED LAND

10.1 Introduction

10.1.1 The purpose of this section of the EIA is to review soil, geology and land contamination issues associated with the construction and operation of the proposed scheme.

10.1.2 Highway construction can have a significant effect on soil and geology of an area. Conversely the soil and geological conditions of a site can impose constraints on a proposed development. In some cases historic land uses have resulted in changes to the natural soils and geology, for example by introducing contaminants, mining activity, quarrying and landfill that leave voids and cause subsidence.

10.1.3 Geological features may also have scientific interest or importance due to rarity. Agricultural soils can be lost or damaged during construction activities due to bad handling, storage and poor weather conditions and are not easily replaced.

10.1.4 The Site Area
The site area comprises the site and land which is considered to have the potential to be impacted by the scheme.

10.2 Methodology

10.2.1 The assessment will conform to DMRB Volume 11.3.11 Geology and soils and will consider:

- Impact on soils; value and loss of agricultural soils
- Impact on Geology; statutory designations, ground characteristics, landform
- Contaminated land; waste and residues, landfill, leachates

10.3 Baseline Conditions

10.3.1 Baseline information will be collected from the relevant statutory body and the local planning authority, British Geological Survey, Soil Survey of England and Wales, MAFF Agricultural Land Classification and the Environment Agency, South Yorkshire Mining Advisory Service.

10.3.2 Three specialist studies and investigations have been undertaken to determine site specific information on ground conditions underlying the site:

- Mineral Report, South Yorkshire Mining Advisory Service (SYMAS); review of mining and geological history and an assessment for potential mining legacy risks
  See Appendix 5

- Desk Study Report, Abbeydale Building Environmental Consultants; evaluation of current and former use of the site or adjacent sites, evaluate impact on identified receptors, determine any potential pollution linkages, evaluate geotechnical constraints, make recommendations for further investigation and / or remediation in relation to the proposed highway and drainage.
  See Appendix 6

- Ground Investigation by Sub Surface Ltd; assessment of existing ground conditions
  See Appendix 7

10.4 Likely Significant Effects

10.4.1 The majority of the site is underlain by historic opencast workings and differential movement may occur along quarry highwalls. Ground investigation information has been used to locate opencast highwalls to finalise the proposed scheme alignment.

10.4.2 Exposed shallow coal seams will require protection. Adits may exist within the area of the existing depot adjacent to Birdwell Roundabout and should be investigated further. (Outside A61 Birdwell Junction Improvements)

10.4.3 The site may contain contamination hotspots that may pose a risk to construction workers or future users of the site. This may require further investigation and assessment when identified during earthworks operations.

10.4.4 Ground Water seepages were recorded in M1A, M2, M3B, M4 & M5 at 1.00, 1.00, 0.45, 0.60 & 0.70 metres depth respectively whilst a moderate ground water inflow was recorded in TP7 at 2.60metres depth.
No ground water was encountered in the remainder of the exploratory holes although they were only left open a short period of time and ground water levels may be subject to a seasonal and / or climatic variations.

10.4.5 Limited Ground Gas monitoring has been undertaken and it can be seen that marginally elevated levels of methane, highly elevated levels of carbon dioxide and depleted levels of associated oxygen have been detected together with negative gas flows.

10.5 Mitigation and Enhancement

10.5.1 The opencast areas (made ground) of the proposed development north of the A6135 will be excavated to a depth of 1.0m below the sub formation of the proposed new carriageway and recompacted. The quarry high walls where the proposed carriageway traverses them will be excavated to determine their location and benched in with suitable material and geogrid to reduce differential settlement.

10.5.2 Any exposed shallow coal seams will be capped off with suitable material or concrete ST4

10.5.3 The contamination hotspots identified by the Geotechnical Investigation would be best left insitu beneath the road corridor where possible or excavated and mixed with inert material to reduce contamination trigger levels.

10.5.4 If ground water is encountered to about 3.0 metres depth and accumulates in open excavations it is considered that it should be able to be removed by pumping from a filtered sump. Care will be taken should ground water levels need to be reduced to protect adjoining structures / and or services etc.

10.5.5 As a result all excavations greater than 1.2 metres depth should be routinely checked for air quality (including methane, carbon dioxide and oxygen) prior to man entry and appropriate precautions taken.

10.5.6 Due to an adjacent site being known for Ground Gas problems and its recording during the Ground Investigation any Manholes, inspection chambers or other void spaces formed beneath the sites ground surface are potential ground gas traps. Precautions, as per the excavations above should be taken.
Further monitoring is to be carried out and findings updated on completion of the ground gas monitoring.
For further information of these findings see the Ground Investigation Appendix 7 Technical Report section 4.7.

10.6 Residual Effects

10.6.1 The proposed scheme is considered stable from deep mining subsidence and is away from the active coalfield and is likely to remain so for the foreseeable future. There are no known challenging engineering / geotechnical concerns regarding the schemes location within the footprint as submitted.

10.6.2 To summarise:

- The Northern section of the proposed highway improvements is not considered to be of national importance and is not designated as a site of scientific interest.
- The Mineral Report identifies past deep mining together with recent opencast mining on the Rockingham opencast site.
- There is one area of Landfill that lies within 250m of the proposal (Demolition waste) and is considered sufficiently remote from the site not to cause concern.
- There is a history of mine gases migrating to the surface and special measures will be required during construction to mitigate effects and risk as mentioned earlier.
- The Southern section of the proposed highway improvements have also undergone opencast mining in the past - Tankersley Common Opencast Site. The proposed scheme however in this location fits between the made ground and existing ground and is therefore not over any former opencast works as determined by the Geotechnical Investigation.
- Japanese Knotweed has been identified nearby but is well away from the scheme proposals and located on adjacent land therefore does not pose a risk to these proposed works. The Landowner will be informed of its presence.

11.0 NOISE & VIBRATION

11.1 Introduction

11.1.1 This section of the EIA will assess the likely significant effects of the proposed development on the noise and vibration sensitive receptors.

The assessment will consider the temporary noise and vibration effects during the construction period caused by noise / vibration emitting activities and construction vehicles, including the use of temporary diversion routes.

The assessment will also consider permanent impacts of noise caused by traffic during the operational phase once the scheme is completed, including a night time noise assessment.

11.1.2 An assessment will be undertaken where there are noise and / or vibration sensitive receptors and there is potential for new road construction, improvements, operation or maintenance to affect the quality of life or the local environment.

The study area will include all residential dwellings and other sensitive receptors within 600m of the proposed route and for roads within 1km on the existing road network that are predicted to receive traffic increase of at least 25% or decrease 20% at the year of opening as a result of the scheme.

11.2 Methodology

11.2.1 The assessment will follow DMRB Volume 11.3.7 Noise and Vibration (HD213/11).

Baseline assessment and definition of the study area will be used to identify sensitive receptors including dwellings, hospitals, schools, community facilities, designated areas and public rights of way.

11.2.2 The EIA will assess:
- Temporary noise / vibration during construction / maintenance
- Permanent noise / vibration at year of opening
- Permanent noise / vibration at 10th year after opening
- Cumulative effects, other road projects / scenarios eg potential development sites

Where the change of noise or vibration is perceptible and predicted impacts are above recommended levels, such increases will be mitigated where possible, making recommendations for further likely assessment / monitoring work as necessary.

11.3 Baseline Conditions

11.3.1 A baseline noise survey has been undertaken to establish the existing noise climate within the defined study area and at sensitive receptors. The baseline noise survey methodology, including monitoring locations, has been determined following consultation with Barnsley MBC. See Appendix 11

11.4 Likely Significant Effects

11.4.1 There are noise and vibration sensitive receptors within the vicinity of the scheme during both construction and operational phases. During operational phases impacts could result from changes in traffic flows, speed and composition on the existing road network. See Appendix 11

11.5 Mitigation and Enhancement

11.5.1 Construction Phase Mitigation

It is recommended that advanced consent to undertake construction works be sought from the Local Planning Authority in the form of a CoPA Section 61 Agreement or construction operations be controlled within the scope of a Construction Environmental Management Plan (CEMP) for the development.

11.5.2 These documents would require considering the following measures relating to the construction phase of the junction improvements:

- Details of how the construction works are to be carried out. This is likely to include information regarding the proposed plant and equipment to be used, location of works, proposed hours of operation, duration of works, delivery schedules etc;
- Consideration of the likely levels of noise and vibration associated with the construction works (this is likely to involve a more detailed assessment in accordance with BS5228 once specific construction programmes and plant types have been identified); and,
- Consideration of measures to be taken in order to minimise noise and vibration impacts resulting from the construction works. This is likely to include information regarding any noise control measures, community liaison and monitoring schemes.

11.5.3 In addition it is also recommended that 'Best Practicable Means' be employed where possible within the construction works to minimise noise and vibration impacts.
Operational Phase Mitigation

11.5.4 Based upon the information provided and the assessments undertaken within this study it has been concluded that there are localised long term operational noise increases which exceed 3dB LA10, specifically at properties to the south of the scheme, in the vicinity of Cross Keys Lane/ Sheffield Rd (A6135).

11.5.5 As such it is pertinent to consider the implementation of noise mitigation measures as part of the detailed design of the scheme, as a means of attenuating the operational noise levels generated. Possible measures for consideration could include, but are not limited to:

- Low Noise Surfacing – Often referred to as thin surfacing systems which can afford in the region of -3dB attenuation.
- Localised noise barriers – Including acoustic fences and earth bunds. Implementation of barriers could be difficult given the location of the existing carriageway and the proposed scheme.

11.5.6 In addition to the above, and based on the assessments and assumptions presented within this chapter, it is considered that 79 residential properties may qualify under the noise insulation regulations (NIR). The relevant properties are largely located in the following areas;
Cross Keys Lane;

- Moor Lane;
- A6135 (Sheffield Road); and,
- A61 (Sheffield Road).

11.5.7 It is considered, that further, more detailed assessment of the properties within these areas be undertaken (including further noise monitoring) as a function of any planning approval for this scheme.

11.6 Summary

11.6.1 Construction Phase

The short term effects of the construction activities could result in significant impacts depending upon the works being undertaken at the time and the area in which they occur. With the implementation of the proposed temporary mitigation measures, careful consideration of the construction programme, and adherence to a CEMP or S61 agreement, the resulting impact significance will be reduced to within acceptable levels.

See Appendix 11

11.6.2 Operational Phase

The assessments undertaken within this study indicate that operational noise from the proposed scheme could result in noise impacts of a level whereby noise mitigation should be considered.

Further consideration of noise mitigation measures suggested within paragraph within the detailed design process should address the potential noise impacts and as a result, minimise any detrimental effects.

See Appendix 11

12.0 EFFECTS ON ALL TRAVELLERS

12.1 Introduction

12.1.1 In 2008, Sections 1 and 2 of DMRB Volume 11 were revised and re-published. Vehicle Travellers and Pedestrians, Cyclists and Equestrians topic sections are now combined as All Travellers

12.1.2 The purpose of this section of the EIA is to assess the impact of the proposed scheme on journeys that are made either as a motorist user or a non-motorist users. The assessment will consider how travellers are separated from community facilities and how the scheme would affect the length and pleasantness of the journey.

12.1.3 The assessment will consider Driver Stress and Views from the Road.

12.1.4 The Study Area
The study area will consider the immediate area of the proposed scheme at A61 Birdwell Roundabout, Junction 35 of the M1, A61 Sheffield Road, A6135 Sheffield Road, A6195 DVP and other parts of the local network where traffic flows and views are likely to change.

12.2 Methodology

12.2.1 The assessment will follow DMRB 11.3.8 Pedestrians, Cyclists, Equestrians and Community Effects, and DMRB 11.3.9 Vehicle Travellers.

12.3 Baseline Conditions

12.3.1 Traffic congestion and queuing traffic is currently a significant problem at A61 Birdwell Roundabout and Junction 36 of the M1, affecting other parts of the local network.

12.3.2 There are several footpaths and PROW that link between Hoyland, Birdwell and Tankersley community areas.

12.4 Likely Significant Effects

12.4.1 The following issues have been identified:-

- Potential beneficial effects to vehicle travellers due to improved traffic flows and reduced congestion
- Potential severance of existing footpaths between the communities of Hoyland and Birdwell

12.5 Mitigation and Enhancement

12.5.1 The scheme aims to provide safe pedestrian and cycling routes through the scheme by way of 3.0m wide dedicated pedestrian crossings. There currently is no safe crossing point from the A6135 towards the A61 Sheffield Road Birdwell See Fig 3A.

12.5.2 Improved through flow of vehicles through the new junction will reduce congestion and improve air quality along the DVP and A61 Sheffield Road Birdwell.

12.5.3 It is also intended to provide 'Gateway' signage on approach to the A61 Sheffield Road Birdwell to reinforce the current speed limit.

12.6 Summary

12.6.1 As mentioned earlier improvements to traffic flow and improved pedestrian & cycling links

between Hoyland and Birdwell will be a benefit to all users providing updated facilities and improving safety.

12.6.2 Buses provide the main public transport link along the A61 / A6135 between Hoyland / Birdwell and Barnsley. Improved journey times will be experienced by travellers by the proposed scheme.

APPENDIX 12

VIEW FROM THE ROAD – VEHICLE TRAVELLER ASSESSMENT

DATE OF SURVEY: March and September 2014 (Visual impact with mitigation at completion of the scheme)

Location of Highway (existing or proposed)	**Categories Assessed** (No View/ Restricted View/ Intermittent View/ Open View)	**Sensitivity to Change of View** (High / Moderate/ Low / Negligible	**Magnitude of Change of View** (High / Moderate/ Low / Negligible	**Impact (Opening Year)** (High / Moderate/ Low / Negligible – Adverse / Beneficial)	**Notes** (Existing / New views)	**Proposed Mitigation** (All mitigation on-site except where stated as off-site)	**Visual Impact after 15 years** (average)
M1 Slip-road (southbound) and M1 Junction 36 roundabout	Restricted View	Moderate	Low - Negligible	Negligible	Existing main view is of the motorway and slip-road, contained by vegetation on the slip-road embankment, M1 Junction 36 roundabout and the motorway cutting. View fields at Hangman Stone Bar Farm. Some vegetation may be removed on the slip-road embankment for lane widening, but change of view from the slip-road will be negligible in context.	Where possible retain trees to the lower part of the bank as a minimum. Replacement planting should be a priority at completion.	Negligible
A61 Sheffield Road (Birdwell) to Birdwell Roundabout	No View - Restricted View	Moderate	Low - Negligible	Negligible	Existing views limited by residential properties along Sheffield Road. Some views extend to Birdwell Roundabout. Negligible change.	Where possible existing planting at Birdwell Roundabout. Replacement planting should be a priority at completion.	Negligible
Birdwell Roundabout to Rockingham Roundabout (existing A6195)	Open View	Moderate	Moderate	Moderate Adverse	Existing views from the road extend to each side of the carriageway across adjoining fields up to the wooded fringe at Birdwell on the west side and Hoyland to the east side. The proposed scheme consisting of a new section of road and Roundabouts 1 & 2 will occupy approximately 40% of the existing view.	Boundary hedgerow and roadside screen planting to be planted along the Dearne Valley Parkway and new road between Roundabouts 1 & 2, including roundabout planting to enclose views and help integrate the scheme into the existing landscape.	Negligible

			Sensitivity		
			L	M	H
		N	1	2	3
Magnitude		L	2	3	4
		M	3	4	5
		H	4	5	6

Visual Impact

High =	6
Moderate =	4 / 5
Low =	2 / 3
Negligible =	High, Medium or Low Sensitivity combined with Negligible Magnitude.

APPENDIX 12

VIEW FROM THE ROAD – VEHICLE TRAVELLER ASSESSMENT

DATE OF SURVEY: March and September 2014 (Visual impact with mitigation at completion of the scheme)

Location of Highway (existing or proposed)	**Categories Assessed** (No View/ Restricted View/ Intermittent View/ Open View)	**Sensitivity to Change of View** (High / Moderate/ Low / Negligible	**Magnitude of Change of View** (High / Moderate/ Low / Negligible	**Impact (Opening Year)** (High / Moderate/ Low / Negligible – Adverse / Beneficial)	**Notes** (Existing / New views)	**Proposed Mitigation** (All mitigation on-site except where stated as off-site)	**Visual Impact after 15 years** (average)
M1 Slip-road (southbound) and M1 Junction 36 roundabout	Restricted View	Moderate	Low - Negligible	Negligible	Existing main view is of the motorway and slip-road, contained by vegetation on the slip-road embankment, M1 Junction 36 roundabout and the motorway cutting. View fields at Hangman Stone Bar Farm. Some vegetation may be removed on the slip-road embankment for lane widening, but change of view from the slip-road will be negligible in context.	Where possible retain trees to the lower part of the bank as a minimum. Replacement planting should be a priority at completion.	Negligible
A61 Sheffield Road (Birdwell) to Birdwell Roundabout	No View - Restricted View	Moderate	Low - Negligible	Negligible	Existing views limited by residential properties along Sheffield Road. Some views extend to Birdwell Roundabout. Negligible change.	Where possible existing planting at Birdwell Roundabout. Replacement planting should be a priority at completion.	Negligible
Birdwell Roundabout to Rockingham Roundabout (existing A6195)	Open View	Moderate	Moderate	Moderate Adverse	Existing views from the road extend to each side of the carriageway across adjoining fields up to the wooded fringe at Birdwell on the west side and Hoyland to the east side. The proposed scheme consisting of a new section of road and Roundabouts 1 & 2 will occupy approximately 40% of the existing view.	Boundary hedgerow and roadside screen planting to be planted along the Dearne Valley Parkway and new road between Roundabouts 1 & 2, including roundabout planting to enclose views and help integrate the scheme into the existing landscape.	Negligible

			Sensitivity		
			L	M	H
	N		1	2	3
	L	1	2	3	4
Magnitude	M	2	3	4	5
	H	3	4	5	6

Visual Impact

High =	6
Moderate =	4 / 5
Low =	2 / 3
Negligible =	High, Medium or Low Sensitivity combined with Negligible Magnitude.

APPENDIX 12

VIEW FROM THE ROAD – VEHICLE TRAVELLER ASSESSMENT

DATE OF SURVEY: March and September 2014 (Visual impact with mitigation at completion of the scheme)

Location of Highway (existing or proposed)	**Categories Assessed** (No View/ Restricted View/ Intermittent View/ Open View)	**Sensitivity to Change of View** (High / Moderate/ Low / Negligible	**Magnitude of Change of View** (High / Moderate/ Low / Negligible	**Impact (Opening Year)** (High / Moderate/ Low / Negligible – Adverse / Beneficial)	**Notes** (Existing / New views)	**Proposed Mitigation** (All mitigation on-site except where stated as off-site)	**Visual Impact after 15 years** (average)
Rockingham Roundabout to Roundabout 1	Restricted View and Intermittent View	Moderate	Moderate	Moderate Adverse	New views from the road extend to each side of the carriageway across adjoining fields up to the wooded fringe at Hoyland on the east side and Birdwell to the west side. The existing Dearne Valley Parkway will occupy approximately 40% of the existing view.	Boundary hedgerow and roadside screen planting to be planted along the Dearne Valley Parkway and new road between Roundabouts 1 & 2, including roundabout planting to enclose views and help integrate the scheme into the existing landscape.	Negligible
Roundabout 1 to A6135 Sheffield Road	No View - Restricted View	Moderate	Low - Negligible	Negligible	Existing views limited by residential properties along Sheffield Road. Some views extend to Birdwell Roundabout. Negligible change.	Where possible existing planting at Birdwell Roundabout. Replacement planting should be a priority at completion.	Negligible

			Sensitivity		
			L	M	H
	N		1	2	3
Magnitude	L	1	2	3	4
	M	2	3	4	5
	H	3	4	5	6

Visual Impact

High =	6
Moderate =	4 / 5
Low =	2 / 3
Negligible =	High, Medium or Low Sensitivity combined with Negligible Magnitude.

13.0 COMMUNITY AND PRIVATE ASSETS

13.1 Introduction

13.1.1 In 2008, Sections 1 and 2 of DMRB Volume 11 were revised and re-published. For the purposes of this assessment, and until detailed new guidance becomes available, the Land Use topic section is now Community and Private Assets.

13.1.2 This section of the EIA will consider: demolition of private property, loss of land used by the community, the effects on agricultural and development land, the effects on ability for residents to access and use community facilities.

13.2 The Study Area

13.2.1 For the purposes of this assessment, properties and land immediately adjacent to or within 1km of the proposed scheme will be considered.

13.3 Methodology

13.3.1 The assessment will follow DMRB 11.3.6 Land Use.

13.4 Baseline Conditions

13.4.1 The proposed scheme is located predominantly within agricultural and low grade grazing land. The proposed scheme is also located centrally between the communities of Hoyland, Birdwell and Tankersley Community areas.

13.5 Likely Significant Effects

13.5.1 The following issues have been identified:

- Additional land is required to facilitate the propose scheme
- The proposed scheme will take place on existing designated Highways land and land owned by a 3rd Party which is to be acquired by negotiation
- The completed road scheme **will** be formally adopted as highway
- The proposed scheme **will** improve access to potential development land
- Links between local community areas and facilities could be affected

13.6 Mitigation and Enhancement

13.6.1 Land acquisition is currently in progress with affected land owners.

13.6.2 The completed scheme will become adopted highway maintained at public expense.

13.6.3 Improved pedestrian and cycle routes between Hoyland and Birdwell will be created by the scheme Providing safe crossing locations.

13.7 Summary

13.7.1 No significant adverse impacts with respect to community use have been identified. Therefore, no specific mitigation measures are required.

14.0 ROAD DRAINAGE AND WATER ENVIRONMENT

14.1 Introduction

14.1.1 This section of the EIA will assess the likely significant effects of the proposed development upon existing water resources and drainage with the aim of avoiding and reducing potential impacts and selecting appropriate means to prevent significant predicted impacts.

Consideration will be given to:
- the construction and operational phases of the scheme:
- Effects of routine runoff on surface water
- Effects of routine runoff on groundwater
- Pollution Impacts from spillages
- Assessing flood impacts

14.2 The Study Area

14.2.1 The study area will extend beyond the site. Extent to be determined by the desk based assessment. This will incorporate local land drainage, water courses and rivers, existing highway drainage including the M1 at Junction 36.

14.3 Methodology

14.3.1 The assessment will comply with DMRB Volume 11.3.10 Road Drainage and the Water Environment (HD45/09). A desk base assessment will be undertaken to review information currently available. The assessment will include collection of existing data and records from regulatory authorities such as the Environment Agency, Yorkshire Water and Barnsley Metropolitan Borough Council.

14.3.2 The regulatory framework will be considered.

14.3.3 Existing drainage and groundwater system will be reviewed to identify the likely receptors, their sensitivity effects of the proposed development. The assessment will then determine likely impacts and any mitigation which may be required.
A GPR survey will also be carried out to determine current depth and location of existing pipework and services.

14.3.4 A spillage pollution risk assessment during construction will be undertaken in accordance with Method D in DMRB Volume 11.3.10. (HD45/09).

14.3.5 Consultation with the Environment Agencies Flood Map confirms the site is not at risk of flooding and does not lie within a flood plain.
However a Flood Risk Assessment will be undertaken in accordance with Planning Policy Statement 25: Development and Flood Risk, to assess the flood risks associated with the development together with any mitigation that may be required.

14.4 Baseline Conditions

14.4.1 A desktop study and field survey has been undertaken to fully determine baseline conditions.

14.4.2 The scheme is located in a relatively elevated location and in close proximity to Junction 36 M1 cutting. Two small ponds and several drainage ditches exist in close proximity to the site which have some nature conservation value.

14.4.3 Drainage and watercourses exist to the north and north east of the site which may relate to the former Rockingham Colliery and opencast sites. Archive records indicate the presence of a drain at the eastern end of Rockingham Row, adjacent to the opencast

area (Abbeydale BEC Ltd, Desk Study Report, Sept 2013) (Appendix 6).

14.4.4 Anticipated ground conditions mean that soakaways are unlikely to be suitable. A Balancing Pond will be constructed (SUDS) with the highway being drained by Combined Kerb and Drainage Blocks with conventional pipework to the outfalls etc.

14.5 Likely Significant Effects

14.5.1 Consideration has been given to potential increased surface water run-off and pollution risk from the proposed junction improvements and potential changes and impacts this may have on local ecology and the existing drainage system.

14.5.2 The following key issues have been identified:

- Options for drainage to be assessed in accordance with the drainage hierarchy with SUDs being the preferred option with disposal to watercourses as an alternative and connection to existing sewers being the final consideration.
- Land acquisition requirements for attenuation facilities have been assessed and can be accommodated within the highway confines.
- Any requirements to enter third party land to improve receiving watercourses will be sought prior to site work commencing.

14.6 Mitigation and Enhancement

14.6.1 Drainage of the proposed scheme is by SUDs, intention is to provide a SUDs pond within the main gyratory section of the scheme.

14.6.2 Further investigation has determined no land acquisition for attenuation will be required.

14.6.3 The proposed scheme outfall is by way of the existing attenuation feature just to the north off Rockingham Roundabout.

14.6.4 The construction process has the highest risk of significant environmental impact on receiving surface waters as described above. Provided reasonable precautions in line with the EA's recommendations are incorporated from an early stage of the construction, adverse impacts resulting from this aspect of the site development will be negligible. Provision of settling ponds will allow the suspended solids to settle and can remove the majority of silt particles. Carefully planned and controlled de-watering of the site following rain can help to minimise effects on the surrounding areas. Provided these steps are taken to prevent silt laden site run-off water from reaching the receiving watercourses any adverse impact of the construction process in this respect should be negligible.

14.6.5 Appropriate storage and security of fuel/oil and construction materials. The requirement to consult with the EA will be included in all contracts relating to the site. Established practice is to locate fuel tanks within a bonded enclosure, providing 110% of the capacity of the tank, at a reasonable distance (min 10m) from any watercourses. The additional volume allows for some rainwater accumulation, which will be removed to a suitable disposal point on a regular basis. The security of filling, delivery and other valves and pipes will be ensured. The duration of storage on site will be kept to a minimum.

14.6.6 Additionally wheel cleaning at the egress from the site should prevent mud being spread onto the existing road and therefore into the existing drainage system.

14.6.7 Provided reasonable steps are taken to prevent site material spreading beyond the existing site limits, any adverse effects from this operation will be slight to negligible and of short duration.

14.6.8 Attenuation of flows into existing watercourses will be achieved by use of underground storage facilities.

14.7 Residual Impacts

14.7.1 Surface waters will receive run-off from the scheme for a long period. Limiting discharges from the completed scheme to the watercourses are to be agreed with the Environment Agency and or the Land Drainage Authority as appropriate. These discharges will be consented and a discharge standard retained. Therefore, the residual impact for surface waters is considered negligible. Similarly, it is not expected that there will be any residual impact on groundwater.

14.8 Summary

14.8.1 Proposed scheme drainage is to be dealt with within the site confines with a SUD's attenuation pond and attenuation storage within the roundabouts.

14.8.2 It is intended to renew pipework to the Dearne Valley Parkway Attenuation pond and re-store its operating capability.

14.8.3 The main carriageways will be drained by use of combined drainage and kerb blocks and road gullies where required.

15.0 ASSESSMENT OF CUMULATIVE EFFECTS

15.1 Introduction

15.1.1 Cumulative Effects comprise the combined effects of reasonably foreseeable changes arising from the proposed scheme and within a specific geographical area. The significance of cumulative effects needs to be assessed in the context of characteristics of the existing environment. This is to ensure that the proposed scheme is

- Mutually compatible
- Remains within the environmental capacity of the area and its environs.

15.1.2 The EIA Regulations (in Schedule 4) require that cumulative effects of development be considered within an ES. Cumulative effects are referred to as "the combined effects of different development activities within the vicinity or those of different aspects of a single development on a particular receptor" (Environmental Impact Assessment: A guide to good practice and procedures, DCLG, 2006).

15.2 Methodology

15.2.1 In general, cumulative assessment will be most successful when the assessment of other environmental effects of the project is complete.

In the context of A61 Birdwell Junction improvement Scheme two main types of cumulative will be considered:

- The effect of the proposed scheme in combination with the effect of other development in the area on receptors
- The combined effects of individual assessment topics within the proposed scheme

The assessment will consider whether receptors with multiple impacts of the same type, different types and whether these impacts could combine to change their significance on an individual receptor or another development project.

15.3 Likely Significant Effects

15.3.1 The overall cumulative impact on local residents is anticipated to be neutral / positive some construction disturbance during the construction works may be experienced but the scheme is some distance away from properties.

15.3.2 It is important to recognise that disturbance from construction works will be temporary and intermittent.

15.3.3 A Construction Environmental +-Management Plan will be adopted to reduce and control any effects during construction.

15.3.4 Mitigation measures where recommended in the operational scheme will be incorporated into the scheme.

15.4 Summary

15.4.1 Determining Significance of Cumulative Effects:

- Severe – Effects that the decision – maker must take into account as the receptor / resource is irretrievably compromised.
- Major – Effects that may become key decision-making issues.

- Moderate – Effects that are unlikely to become issues on whether the project design should be selected, but where future work may be needed to improve on current performance.

- Minor - Effects that are locally significant.

- Not Significant – Effects that are beyond the current forecasting ability or are within the ability of the resource to absorb such change.

15.4.2 The main principal effect of the proposed junction improvements would be to significantly reduce congestion along the A61 Sheffield Road Birdwell, the A6195 Dearne Valley Parkway and the A6135 towards Hoyland.
The M1 junction 36 Signals will be linked to the new junction which will also improves traffic flow reducing congestion.

15.4.3 The scheme would have positive implications for pedestrians and cyclists in widened shared use footways and signalised pedestrian crossings through the site. This will improve safety through the proposed scheme.

15.5 Assessment of Effects

15.5.1 The following Tables set out the predicted impacts on the environmental resources and receptors from the scheme.

15.6 Conclusion

15.6.1 The proposed scheme clearly shows beneficial cumulative effects which include those from traffic, road users, cyclists and pedestrians. Public transport delays due to congestion are also alleviated.

15.6.2 There are decreases in air pollution and all modelled residential receptor locations are predicted to meet the National AQO's for both NO_2 & PM_{10} in both the do minimum & do something scenarios.

15.6.3 The Noise & Vibration Survey has identified the following:

Summary

Construction Phase
The short term effects of the construction activities could result in significant impacts upon the works being undertaken at the time and the area in which they occur.
With the implementation of the proposed temporary mitigation measures, careful co the construction programme, and adherence to a CEMP or S61 agreement, the resu significance will be reduced to within acceptable levels.

See Appendix 11

Operational Phase
The assessments undertaken within this study indicate that operational noise from the proposed scheme could result in noise impacts of a level whereby noise mitigation should be considered.

Further consideration of noise mitigation measures suggested within Appendix 11 within the detailed design process should address the potential noise impacts and a minimise any detrimental effects.

See Appendix 11

Cumulative Effects Summary Table

Effect	Cumulative Effect	Magnitude	Timing / Duration	Mitigation / Enhancement	Uncertainty	Significance of Effect
Air Quality						
Increase in emissions to air arising from traffic impacts on receptors in vicinity of proposed scheme	All modelled residential receptor locations are predicted to meet the National AQO's for both NO_2 & PM_{10} in both the do minimum & do something scenarios.	Low	N/A	N/A	N/A	Not Significant
Cultural Heritage						
No Direct Impact Not Affected	N/A		N/A	N/A	N/A	N/A
Landscape & Visual Amenity						
Loss of some hedgerows and trees.	Opens up views of the new road scheme	Low to Moderate	Permanent	Protect remaining trees and hedgerows, replacement hedgerows to be incorporated. (see 8.6.5)	Low	Low Adverse
Nature Conservation						
Loss of some hedgerows and trees resulting in an overall decrease in suitable habitat for nesting birds.	Removal of additional vegetation in area will reduce the available habitat for nesting birds	Negligible	Permanent	New Planting along the new road will result in no net loss of suitable habitat. Creation of Green Corridor along the route also with connecting tunnels.	Low	Not Significant
Loss of habitat for amphibians	SUDS Pond to be sympathetic to amphibians.	Low	Permanent	Encourage amphibians to use. Update Extended Habitat Survey prior to start on site	Low	Not significant

Effect	Cumulative Effect	Magnitude	Timing / Duration	Mitigation / Enhancement	Uncertainty	Significance of Effect
Materials Geology & Soils						
Ground Water	Migration of aqueous	Low	Operation	Intrusive site	Low	N/A
Contamination	Construction workers coming into contact	Low	Temporary	PPE on site	Low	Not significant
Noise & Vibration						
Residents	Construction Phase The short term effects of the construction activities could result in significant impacts depending upon the works being undertaken at the time and the area in which they occur.	Moderate	Temporary	With the implementation of the proposed temporary mitigation measures, careful consideration of the construction programme, and adherence to a CEMP or S61 agreement, the resulting impact significance will be reduced to within acceptable levels.	Low	Low Adverse
Residents	Operational Phase. The assessments undertaken within this study indicate that operational noise from the proposed scheme could result in noise impacts of a level whereby noise mitigation should be considered.	Moderate	Permanent	Further consideration of noise mitigation measures suggested within Appendix 11 within the detailed design process should address the potential noise impacts and as a result, minimise any detrimental effects.	Low	Low Adverse
Effects on All Travellers						
Traffic Flows	Beneficial effects to vehicle travellers due to improved traffic flows and reduced congestion.	Low	Permanent	Construction of the scheme	N/A	Not significant
Severance of existing footpaths between the communities of Hoyland & Birdwell	Isolate communities	Low	Permanent	Improved pedestrian and cycle routes between Hoyland and Birdwell will be created by the scheme providing safe crossing locations.	Low	Not Significant

Effect	Cumulative Effect	Magnitude	Timing / Duration	Mitigation / Enhancement	Uncertainty	Significance of Effect
Community & Private Assets						
Land required to construct the scheme	Improves access to development land	Low	Permanent	Land acquisition is in progress with affected landowners. The scheme will become adopted highway maintained at public expense.	Low	Not Significant
Road Drainage & Water Environment						
Improvements to existing drainage.	Improve c/way drainage system. No land acquisition required.	Low	Permanent	SUDS to be preferred drainage option. Water storage to be contained within the site confines. Existing system to be renewed	Low	Not Significant

16.0 OUTLINE ENVIRONMENTAL MANAGEMENT PLAN

16.1 Introduction

16.1.1 General

16.1.1.1 This Chapter, the Outline Construction Environmental Management Plan (OCEMP), has been produced to describe how a detailed, site specific, Construction Environmental Management Plan (CEMP) will be developed to avoid, minimise or mitigate any construction effects on the environment and the surrounding community. An Environmental Statement has been produced describing and assessing the effects of the construction and operation of the road on the environment. This OCEMP gives detail on how some of those effects will be managed.

16.1.1.2 This OCEMP has been developed to provide the management framework needed for the planning and implementation of construction activities in accordance with environmental commitments identified in the ES and in legislator requirements

16.1.1.3 The adopted structure stage CEMP should be considered by the Principal Contractor as a living document with reviews being undertaken at predetermined intervals and data added as appropriate. The measures identified in the CEMP should be:

- Viewed as mandatory and common practice on site.
- Embedded within the company's policies and site procedures.

16.1.2 Purpose

16.1.2.1 The purpose of the adopted CEMP is to:
Identify Stakeholder requirements.

- Set out the Environmental Management System requirements (ISO14001)
- Ensure compliance with current legislation.
- Effectively minimise any potential adverse environmental effects during construction.
- Translate committed mitigation, set out in the ES, into committed site procedure.

16.1.3 Structure

16.1.3.1 This OCEMP has been drafted during the planning/ outline design phase to ensure that the necessary measures become incorporated as the scheme progresses.

16.1.3.2 Prior to construction, this OCEMP may be revised to address all construction issues and ensure that any residual effects following the design process are mitigated as far as reasonably practicable. The document is to be reissued by the Contractor as the Construction Environmental Management Plan (CEMP).

16.2 Scope of Work

16.2.1 Location and Site Use

16.2.1.1 The location of the site is approximately 6 miles south of Barnsley Town Centre adjacent M1 J36. The scheme is to be constructed on land situated adjacent the existing Jctn.36 roundabout and east of the A6195 Dearne Valley Parkway on the junction of the A6135 and A61. The area of land formed part of the former Rockingham Colliery and was used for open cast mining until 1995 and is now predominantly grassed land with isolated landscape areas containing trees and shrubs around the perimeter adjacent the existing public highway. A detailed appraisal of ground conditions and mining review has been submitted with this planning application.

16.2.1.2 The site boundary to the west is demarcated by a timber post and rail fence on the A6195 highway boundary. The site is bisected by the A6135 Sheffield Road and the southern boundary extends to encompass the M1 junction 36. To the east the site boundary terminates at an area of trees and shrubs approximately 90m from Cross Keys Lane. The northern boundary extends to a large area of grassed land.

16.2.1.3 Two existing public rights of way traverse the site west to east which shall be attended to in the associated Side Roads Order. The site level rises from Rockingham roundabout, in the north east corner, approximately 11m to a high point at Cross Keys Lane. Overhead power lines enter the site from junction 36 of the M1 and pass through the south west corner of the site before crossing the A6195 Dearne Valley Parkway heading north west.

16.2.2 Description of Works

16.2.2.1 The Dearne Valley Parkway at Hoyland was completed in 1998 and forms a strategic link connecting the M1 to the Dearne Towns at Goldthorpe and is an essential part of BMBC's Strategy to regenerate the Dearne Valley. Hoyland contains the section of the road linking to the M1 Motorway.

16.2.2.2 Congestion relief along the A6195 Dearne Valley Parkway was identified as a key scheme in the Local Transport Plan (South Yorkshire LTP3 Implementation Plan 2011 – 2015).

16.2.2.3 The Department of Transport has recently undertaken work to try and increase highway capacity and manage traffic flows from the M1 junction 36. This involved increasing the number of lanes and signalising the M1 Junction 36 roundabout and approaches, but the existing junction layout (A61 Birdwell Roundabout) is still unable to cope with the traffic volume generated during peak times.

16.2.2.4 The scheme will involve the provision of an elongated signalised gyratory roundabout encompassing the existing Birdwell roundabout. A major priority roundabout will be included to the east adjacent the A6135 which will enable the inclusion of a link road to an additional second major roundabout adjacent the existing Rockingham roundabout. This link to Rockingham roundabout will adopt a balanced cut and fill through Tankersley common between the A6195 Dearne Valley Parkway and the A6135 Sheffield Road. The additional major priority roundabout adjacent Rockingham roundabout is required to enable safe access to existing highway network and provide access to an area allocated for future development. A key consideration during the design process was the need to minimise disruption to the existing highway network during the phased construction.

16.2.2.5 All footways have been designed on the basis of shared usage in order to comply with guidance within Local Transport Note 2/08.

16.2.2.6 The Scheme has been designed in accordance with the D.f.T. Design Manual for Roads and Bridges. It is proposed that the new link road will be constructed to Council standards and will be surfaced with bituminous material. Combined kerb drainage units and road gullies will be incorporated to deal with the surface water run off and will be connected to an attenuated drainage system. New energy efficient street lighting will be provided along with new traffic signals, traffic signs and road markings.

16.2.2.7 These proposals form part of a larger traffic strategy to reduce journey times in the Birdwell area, reduce congestion at M1 junction 36, and to provide additional capacity for the future development in the Dearne Valley corridor.

16.2.3 Construction Programme

16.2.3.1 The current programme is for a submission for planning consent autumn 2014. Subject to consent construction would commence, following any required advance mitigation measures, in spring 2015 with a completion in autumn 2016.

16.2.3.2 Working hours will be determined by agreement with the local authority regulatory services.

16.2.4 Equipment and Plant

16.2.4.1 The Contractor will identify the equipment and plant to be used, including type, size and number. Plant is likely to comprise of conventional earthworks, and highways construction plant.

16.3 Environmental Management Framework

16.3.1 Environmental Policy

16.3.1.1 The project will be carried out in accordance with the policies / objectives listed below:

- Barnsley Metropolitan Borough Council's Environmental Policy and Procedures
- During the pre-construction and construction phases, management of the project will also need to comply with the Principal Contractor's Environmental Policy and procedures.

16.3.2 Environmental Aspects and Impacts

16.3.2.1 A schedule of potential significant environmental effects relating to each activity will be developed by the Contractor and included within the CEMP. This information should be drawn on by the Contractor when developing the schedule of significant effects prior to construction.

16.3.2.2 The schedule should be reviewed and updated at each project phase or where changes are made to the project scope, changes should be reflected in the CEMP and Impacts and Aspects register.

16.3.3 Objectives and Targets

16.3.3.1 Environmental objectives for the construction phase will be developed and should refer to legal compliance and environmental good practice, these may include:

- Zero pollution incidents.
- Minimise waste sent to landfill.
- Minimise disruption to residents (and therefore complaints).
- Protect and where possible enhance biodiversity.

16.3.3.2 Procedures for monitoring construction processes against the project environmental objectives will be proposed by the Contractor and agreed with the Client Project Manager.

16.3.4 Structure and Responsibilities

16.3.4.1 A management structure that includes an organisational chart encompassing all staff responsible for environmental work is to be included within the CEMP. This will set out the respective roles and responsibilities with regard to the environment and identify the nominated Construction Environmental Manager. Illustrative key roles and responsibilities are set out in Table 1 below.

Table1 – Roles and Responsibilities

Role	Responsibility
Construction Manager	Responsible for management of the construction phase of the project. Has overall responsibility for the environmental performance of the project
Site Materials & Waste Manager	Responsible for implementing the Site Waste Management Plan during the construction phase to ensure that waste is disposed of legally, economically and safely
Construction Environmental Manger	Compliance with environmental legislation, consents, objectives, targets and other environmental commitments, including those arising from the Environmental Statement.
Site Staff	To receive general environmental awareness training, and undertake work in accordance with Method Statement Briefings and toolbox talks. Trained personnel to manage particular tasks such as refuelling plant and equipment, managing the stores, water quality monitoring and supervising the segregation and collection of waste.
Client Project Manager	To ensure that the Contractor complies with all the relevant legal requirements, commitments and targets agreed for the scheme.
Designer	To provide information relevant to construction that may assist the Contractor to manage environmental aspects of the scheme.
Community Liaison Officer	Communications with the public and interested parties, outreach and education, where appropriate.

16.3.5 Training Awareness and Competence

16.3.5.1 Site staff shall be competent to perform tasks that have the potential to cause a significant environmental impact. Competence is defined in terms of appropriate education, training and experience. Project specific training is required.

16.3.5.2 Environmental awareness and training shall be achieved by:

- Site induction, including relevant environmental issues.
- Environmental posters and site notices.
- Method statement and risk assessment briefings.
- Toolbox talks, including instruction on incident response procedures.
- Key project specific environmental issues briefings.

All managers and supervisors will be briefed on the CEMP.

16.3.5.3 Method Statements will be prepared for specific activities prior to the works commencing and will include environmental protection and mitigation measures and emergency preparedness appropriate to the activity covered. The Construction Environmental Manager will review key Method Statements prior to their issue.

16.3.5.4 Method Statement briefings will be given before personnel carry out key activities for the first time.

16.3.6 Communication

16.3.6.1 The CEMP will be distributed to the project team, including sub-contractors, to ensure that the environmental requirements are communicated effectively. Key activities and environmentally sensitive operations will also be briefed to staff and Contractors. Project, client and company environmental policies, where available, should be displayed on site.

16.3.6.2 The Contractor will define procedures for internal and external communication. The client may require that any communication with external parties such as environmental regulators or the public is undertaken through a nominated client representative.

16.3.6.3 The agreed CEMP will be published on the project website.

16.3.6.4 During the construction phase, internal communication will include regular progress meetings, which should cover:

- Training undertaken
- Progress reports
- Inspections, audits and non-conformance
- Complaints received
- Visits by external bodies and the outcome or feedback from such visits
- Objective / target achievement, including reporting on environmental performance.

External communication, including letter drops or meetings, and liaison with statutory authorities will be overseen by the Client Project Manager.

16.3.7 Complaints, Compliments and Inquiries

16.3.7.1 A Community Liaison Officer will be available on site and a telephone number will be published for use by members of the public wishing to complain, provide other feedback, or make enquiries.

16.3.7.2 All complaints or information requests will be made aware to the Client Project Manager and will be logged promptly.

16.3.7.3 Noise may be a key subject of complaint where construction works take place close to residential areas. Working hours, plant types, construction methods and noise mitigation measures are likely to be subject to Section 61 consent, under the Control of Pollution Act which is granted by the local authority. Close liaison with the local authority environmental health team is likely to be necessary to develop mitigation measures.

16.3.7.4 Liaison will also be undertaken with local councillors and town/parish councils as representatives of the local community to discuss and address any issues

16.3.7.5 The local authority environmental heath team may also be the first to be contacted by residents affected by noise and will require to be kept appraised of progress, programme and upcoming phases of works that may give rise to disturbance in order that they can respond to complainants.

16.3.7.6 Careful monitoring of complaints received, including recording details of the location of the affected party, time of the disturbance and nature of the noise can assist with managing the works to reduce the likelihood of further complaint.

16.3.8 Checking

16.3.8.1 Environmental monitoring will be undertaken in order to provide information to be taken into account during construction and to feed back into the CEMP and method statements, and to evaluate the environmental effects of the construction process.

16.3.8.2 The Contractor's Environmental Advisor is responsible for establishing a programme of environmental monitoring. This will include monitoring against any consent requirements and objectives and targets.

16.3.8.3 Pre-construction monitoring should be considered, in order to set a baseline against which construction effects can be assessed. The ES should be referred to in establishing baseline conditions.

16.3.9 Evaluation of Compliance

16.3.9.1 The Contractor will define procedures for regular site surveillance to evaluate performance against legal requirements and the requirements of the CEMP.

16.3.10 Non-conformance and Corrective / Preventative Action

16.3.10.1 Procedures for addressing non-conformance and corrective actions are to be provided. These may include, for example:

- A Non Conformance Report (NCR) that will be raised to record any environmental incident and work that has not been carried out in accordance with the CEMP or Method Statement.
- A Corrective Action Report (CAR) that will be raised where a deficiency is identified as a result of monitoring, inspection, surveillance and valid complaints.
- Any actions identified shall nominate an owner to follow through the action to be taken, along with a specified timescale for it to be closed out.

16.3.11 Control of Records

16.3.11.1 Environmental records, including waste management records, will be maintained in accordance with the respective company procedure and legal requirements. The records are to be maintained, in either hard copy or electronic format as required by the individual procedure that the records relate to, in such a way that they are readily identifiable, retrievable and protected against damage, deterioration or loss. The procedure that the records relate to also specifies the retention time for the records and who has the authority to dispose of them.

16.3.12 Management Review

16.3.12.1 The outputs from section 3.8 Checking will be reviewed on an on-going basis at progress meetings to ensure continual improvement in accordance with the BS EN ISO 14001 model.

16.3.12.2 Review of the CEMP will be carried out at each project phase and where changes are made that affect the scope of the works to ensure its continuing relevance and accuracy.

16.4 Legal and Other Requirements

16.4.1 Legislation

16.4.1.1 A schedule of appropriate environmental legislation and good practice that will be adhered to is to be included within the CEMP.

16.4.2 Consents and Licenses

6.4.2.1 A register of permissions and consents that may be required, with responsibilities allocated and a programme for obtaining them is to be developed by the Contractor. Environmental consents and licenses that may be required to enable the construction works are given in Table 2.

Table 2 - Environmental Consents & Licences

Legislation	License / permission requirement
Planning Act 2008	Consent for the scheme. Any requirements attached to the consent will need to be adhered to.
Control of Pollution Act 1974	Prior consent to carry out construction works from the Local Authority under Section 61.
Badgers Act 1992	A license is required from Natural England for works within 30 m of a badger sett.
Conservation (Natural Habitats & c.) Regulations 1994	A license may be required if protected species are disturbed by a development e.g. bats
Environmental Permitting Regulations 2007	It is not anticipated that a waste management permit will be required as part of the works. However certain activities are exempt from waste management licensing and must be notified to the Environment Agency in advance.

16.5 Operational Control Procedures

16.5.1 General

16.5.1.1 Specific management proposals to be included in the CEMP are to be developed relating to the following topics:

Site establishment

- Boundary fencing
- Protection of existing environmental features
- Access routes/points
- Site housekeeping
- Water quality and drainage
- Nature conservation
- Compensation & enhancement
- Landscape design
- Noise and vibration
- Air quality
- Archaeology and cultural heritage
- Soils
- Contaminated land
- Waste
- Energy
- Materials
- Transport

16.5.1.2 Outline management proposals for each of these topics are described in sections 5.2 to 5.19 below.

16.5.2 Site Establishment

16.5.2.1 Facilities will be established to minimise risk to the environment and promote efficient use of resources. This will include:

- Temporary protective fencing will be erected to delineate the working areas, site boundaries and protect sensitive features from disturbance.
- Temporary offices, welfare facilities and secure storage of equipment.
- Any necessary fuel and oil will be stored in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001. Refuelling will only be undertaken in a designated area, designed to contain contaminated runoff, and by trained personnel. Emergency spill kits are to be readily available.
- Materials storage areas will be set up and managed.
- Waste segregation areas will be established utilising containers of an appropriate design to ensure that no waste can escape.
- Sewerage effluent from the site office and welfare facilities will be removed from site using a vacuum tanker, if no sewer connection is available.
- Temporary lighting will be designed to minimise spillage of light, and oriented away from residential properties.
- The temporary site compound will be reinstated to its former condition, suitable for agricultural use, following completion of the project.

16.5.3 Boundary Fencing

16.5.3.1 The site boundary will be fenced as necessary for security, to prevent windblown litter or waste from polluting the wider environment and to exclude species such as badgers that may be trapped or harmed in excavations or around plant or materials.

16.5.4 Protection of Existing Environmental Features

16.5.4.1 Temporary fencing will be provided to protect existing environmental features to be retained, including existing trees which will be protected in accordance with BS5837 2012 - 'Trees in relation to design, demolition and construction - Recommendations'. The fencing will be established prior to the start of the construction works. The location will be agreed on site with the Construction Environmental Manager and client. The fencing will be of sufficient durability to be in place for the duration of the works.

16.5.5 Access Routes / Points

16.5.5.1 The Contractor shall obtain approval from the Local Highway Authority for the method of delivery / removal of materials and plant from the site, including the identification of access routes for deliveries and personnel.

16.5.6 Site Housekeeping

16.5.6.1 A 'good housekeeping' policy will be adopted across the site. This will include the following requirements:
No fires on site

- Considerate behaviour of all site staff, including on the highways
- Maintenance of staff welfare facilities
- Removal of food waste and other rubbish at frequent intervals
- Maintenance of road cleanliness surrounding the site

16.5.7 Water Quality and Drainage

16.5.7.1 The Contractor shall adopt good construction management practices that will reduce the risks of accidental discharge of pollutants into streams, rivers or ponds, or contamination of groundwater. Such practices shall be incorporated into the CEMP and adhered to (see also section 6 below and Chapter 14 of the ES).

16.5.7.2 A pollution control and contingency plan will be prepared to set out the requirements for pollution prevention during the works. See Section 6 for the outline plan.

16.5.7.3 As work is being undertaken above an aquifer, environmentally sensitive lubricants, such as synthetic non-toxic biodegradable hydraulic fluids, will be used. Biodegradable oils must be stored, handled and disposed of as any other oil and must not be disposed to surface water or foul drains.

16.5.7.4 Drainage during the construction phase will use the permanent drainage system where possible.

16.5.7.5 The Contractor is required to give consideration to minimisation of water use during the construction phase.

16.5.7.6 The Contractor shall identify or verify the extent and status of all ground waters below land used for the works, including any temporary works and land used for the extraction of materials or tipping. The Contractor shall identify or verify the extent and categories of any source protection zones for abstraction sources for public potable water supplies within this land.

16.5.7.7 The works shall comply with the "Policy and Practice for the Protection of Groundwater. Environment Agency; TSO 1998 ISBN 0-11-310145-7".

16.5.7.8 Authorisations for the use in earthworks of borrowed or waste materials may be required under The Groundwater Regulations 1998, or under other relevant legislation. The Contractor shall consult the Environment Agency and shall apply for and comply with such authorisations as they advise are necessary.

16.5.7.9 The Contractor shall consult the Environment Agency and agree with them any special measures to be taken within source protection zones (if present) in respect of the excavation and tipping of materials, the siting of Contractor's facilities and measures to prevent the spillage of potential pollutants.

16.5.8 Nature Conservation

16.5.8.1 Plans for managing any protected species are to be finalised, implemented and monitored. The Construction Environmental Manager is required to monitor ecological measures and ensure protected species are safeguarded. Ecological surveys have been undertaken to establish whether protected species use the habitat types found within the site such as:

- Semi-improved grassland

There are potentially protected species using the site, these include:

- Nesting birds

Specific mitigation measures to prevent adverse impacts on protected species and high quality habitats are set out below.

16.5.8.2 Site clearance will in general take place outside the bird breeding season (late February to early August). If any clearance is necessary within the bird breeding season then it will only take place if the areas concerned have been checked by a competent ecologist and found not to contain any breeding birds.

16.5.9 Compensation & Enhancement

16.5.9.1 Some habitat will be lost due to the construction of the road. To mitigate loss and disturbance, drainage design and landscape measures have been developed to enhance habitats. Mitigation measures aim:

- To compensate for any adverse effects of the scheme.
- By the use of locally appropriate species, to create semi-natural habitats that reflect and complement those existing in the surrounding area.
- To provide habitat linkages between areas of the scheme and between adjoining areas, reducing habitat fragmentation.
- To contribute to appropriate local Biodiversity Action Plan (BAP) targets.

16.5.10 Landscape Design

16.5.10.1 The design has aimed to retain as much existing vegetation as possible given the location of the works.

16.5.10.2 A scheme of landscaping will be included with the project proposals in order to mitigate land take, limit habitat loss and to reduce visual intrusion.

16.5.11 Noise and Vibration

16.5.11.1 The Contractor shall prepare a Management Plan for the control and monitoring of noise and vibration (see also Chapter 13 of the ES).

16.5.11.2 The Contractor shall make any necessary separate application(s) to all relevant Local Authorities, under Section 61 of the Control of Pollution Act 1974, and obtain consent(s) to undertake the works. Application(s) shall be made at least 28 days before commencement of any activity or works, which may cause noise and vibration disturbance. The application(s) shall include the Contractor's proposals for minimising noise from the construction works to the level(s) agreed with the Local Authority. The Contractor shall comply with the terms of the consent(s) so obtained. Notwithstanding the terms of any consent obtained under Section 61 of the Control of Pollution Act 1974, the Contractor is required to comply with the provisions of the statutory code of practice BS5228: Noise Control on Open and Construction Sites. The Contractor shall provide a draft copy of the Section 61 Agreement to the Client Project Manager for comments and a copy of the final agreement.

16.5.11.3 Noise and vibration will be controlled and limited so far as reasonably practicable so that sensitive receptors are protected from excessive noise and vibration arising from construction.

16.5.11.4 Certain activities may extend outside normal working hours to enable safe working or as a result of unforeseen events. The Environmental Health Team will be contacted to agree the activities required.

16.5.11.5 The principles of Best Practicable Means will be employed to minimise noise levels during construction. Recommendations for the control of noise and vibration on construction sites are set out in BS 5228. The following measures will be used where appropriate:

- Hydraulic plant will be used in preference to pneumatic plant where possible.
- Plant and equipment will be maintained in good working order and fitted with silencers and acoustic panels where appropriate.
- All plant will be shut down or throttled back between periods of use.
- Methods used for concrete breaking and demolition should be carefully

considered, non-percussive means should be used where possible.
- In sensitive locations, acoustic enclosures may be required for fixed plant such as generators.
- 'White noise' type reversing warnings should be used on mobile plant in preference to 'bleepers', in order to minimise intrusion.

16.5.12 Air Quality

16.5.12.1 The Contractor shall prepare a Management Plan for the control and monitoring of dust, smoke and any other airborne pollutants (see also Chapter 6 of the ES).

16.5.12.2 The Contractor shall, prior to the commencement of the works on site, make any necessary application(s) for authorisation to the relevant Pollution Control Authority (Local Authorities and the Environment Agency) under the terms of the Environmental Protection Act 1990 and the Pollution Prevention and Control Act 1999.

16.5.12.3 Emissions to the air including dust and exhaust fumes can be caused from certain construction activities, including:

- Earthworks / excavation / demolition
- Use of diesel powered plant and equipment

16.5.12.4 The site is close to residential properties. Best Practicable Means shall be employed where appropriate.

16.5.12.5 All necessary and practicable measures to control dust emissions through good housekeeping and site operational practices shall be carried out including:

- Sheeting of vehicles: all HGVs carrying loose material capable of spillage or which has the potential to give rise to dusty emissions from the vehicles during transit shall be sheeted. This requirement shall be enforced by the Contractor and any transgressions shall be recorded in a log book by the Contractor with details of measures to be taken to prevent further occurrences. The log book shall be available for inspection by the Client Project Manager and local authority at any time during working hours.
- Compound: an area of hard standing of reasonable size shall be provided by the Contractor around site offices and over vehicle management areas, so that dust will be kept to a minimum by appropriate control methods. Drainage arrangements will be included where necessary. The area will be swept at least once every two days or more frequently as the Client Project Manager considers appropriate.
- Water bowsers/sprays: Water sprays shall be applied to all demolition operations as the Client Project Manager considers appropriate.
- Prevention of wind-blown dust arising from storage mounds: storage mounds shall be profiled to reduce erosion where the nature of the material could lead to it being rain washed or windblown. Mound surfaces shall be kept sufficiently damp to prevent wind blow unless and until the surface is sprayed, sealed or stabilised by means of vegetation. Materials that have the potential to give rise to dust emissions shall be stored as far away from the site boundaries as is reasonably practicable.
- Dust collection during cutting and grinding works: if this is not carried out in an enclosure, tools shall be used that are fitted

with dust collection devices (excluding small tools which require a continuously wet working surface).
- Fires: these will be prohibited on site.
- Compliance by construction vehicles with emissions legislation, servicing and MOT requirements: all vehicles regularly used on site shall comply with the relevant emissions standards and shall be serviced in accordance with the manufacturer's recommendations. MOT and service documentation shall be produced for the local authority's inspection. The Contractor is encouraged to use vehicles and plant that meet the latest emissions regulations.
- Engine idling time: No construction plant or vehicle shall leave its engine running when not directly in use, except where the Client Project Manager considers that there are operational or other reasons to justify an exception.

16.5.12.6 The Contractor shall keep a log book available for inspection by the local authorities, in order to record the following matters:

- Any complaint relating to emissions alleged to be due to construction activity received from a local resident or business, including date and nature of the complaint and any measures taken as a result of that complaint;
- The date and location of cleaning of paved areas and off-site roads; and
- The date and vehicle registration number of any construction vehicle that is observed carrying material that has the potential to release dust during transit and is not covered. Details of measures taken to prevent further occurrence shall be included.

16.5.13 Archaeology and Cultural Heritage

16.5.13.1 No designated sites of archaeological sensitivity have been identified on the route, however the Contractor will be required to have measures in place to manage the risk of adversely affecting historic resources, including reporting any potential finds and how potential archaeological investigations or recording would be accommodated in the programme.

16.5.14 Soils

16.5.14.1 Soil resources will (by volume) constitute the dominant material used in the construction of the scheme and in order to maximise the potential resource available on site and minimise waste needing to be disposed, careful handling of soils is critical.

16.5.14.2 A Soil Resource Plan, based on Defra guidance 'Construction Code of Practice for the Sustainable Use of Soils on Construction Sites' will be developed for agreement prior to construction. The Soil Resource Plan will describe the measures to be taken to prevent loss of soils or deterioration in their quality resulting from soil handling or other construction activities such as traffic movement. Measures may include:

- Comprehensive survey, prior to works of the soils and soil types present on site, in order to quantify material types and plan their use and handling.
- Only stripping, stockpiling or placing soil in the driest condition possible and using tracked equipment where possible to reduce compaction.

- Confining traffic movement to designated routes.
- Keeping soil storage periods as short as possible.
- Clearly defining stockpiles of different soil materials and minimising mixing.

16.5.15 Contaminated Land

16.5.15.1 Contamination risk assessments should be undertaken and areas of suspected contamination identified.

16.5.15.2 Proposals are required for dealing with areas of contamination, and these proposals are to include validation of the effectiveness of any remediation.

16.5.15.3 A comprehensive programme of materials testing will be required to demonstrate that earthworks materials are to highways standards and this testing programme should be extended to cover contamination testing of materials where appropriate.

16.5.16 Waste

16.5.16.1 The Clean Neighbourhoods & Environment Act 2005 established powers to create Regulations to require the mandatory production of Site Waste Management Plans (SWMP) for construction projects. SWMPs are mandatory for all construction projects over £300,000.

16.5.16.2 An outline SWMP will be drafted at the detailed design/construction stage to comply with the requirements of the Regulations.

16.5.16.3 The Contractor shall, in order to reduce the need for waste disposal, minimise the generation and environmental impacts of wastes arising during the works and shall maximise opportunities for the re-use and recovery of wastes. The Contractor shall include within the CEMP proposals for the identification, segregation, handling and storage, with necessary protection to prevent contamination of surrounding stockpiles and underlying ground, of the different types of wastes identified as arising from the works.

16.5.16.4 The Contractor shall make any necessary applications to the Local Authority and/or the Environment Agency, under the terms of the Environmental Permitting Regulations 2007, and the Town and Country Planning Act (1990) for the storage, treatment or disposal of wastes.

16.5.17 Energy

16.5.17.1 In line with the UK Energy Efficiency Action Plan, energy efficiency measures and greener energy sources should be considered and implemented where possible. Using energy more efficiently assists with cutting carbon dioxide emissions:

- Energy consumption is to be minimised and energy use during construction monitored.
- Construction plant and equipment is to be maintained to maximise fuel efficiency.
- Utilise energy from renewable sources where practicable.
- Ensure efficient materials handling / husbandry.
- Minimise workforce travel.
- Incorporate and source local materials to minimise associated transportation.

16.5.17.2 The completed scheme will have minimal energy requirements in operation, but electricity for lighting should be procured according to a measure of the sustainability of the supply.

16.5.18 Materials

16.5.18.1 Timber used in permanent and temporary works, such as for noise fencing is to be from sustainably managed sources with recognised timber labelling or from re-use.

16.5.18.2 Local materials will be sourced to minimise associated transportation, where possible.

16.5.18.3 Material procurement procedures are to be employed that involves purchasing materials based on their environmental impact.

16.5.18.4 A materials register is to be provided to the Client Project Manager at hand-over that identifies the main material types to facilitate recycling on demolition.

16.5.19 Transport

16.5.19.1 Road transport is a major source of local air and noise pollution and contributes to carbon dioxide emissions. Opportunities to minimise construction traffic are to be considered, measures may include for example, reducing the transport impacts of materials and construction staff.

16.5.19.2 Consent requirements may stipulate public routes that must, or must not, be used by construction traffic and this information will be publicised to site staff, suppliers and hauliers required to access the site.

16.6 Outline Pollution Control and Contingency Plan

16.6.1 General

16.6.1.1 A pollution control and contingency plan will be developed by the Contractor and included within the CEMP to provide details of the measures to be implemented to prevent pollution of the aquifer and the actions to be taken in the event of an environmental incident or emergency.

16.6.1.2 A pollution control and contingency plan will be developed by the Contractor and included within the CEMP to provide details of the measures to be implemented to prevent pollution of the aquifer and the actions to be taken in the event of an environmental incident or emergency.

16.6.1.3 An 'environmental incident' is defined as any event, activity or condition that causes, or has the potential to cause harm to people, or damage to property or the environment. 'Pollution' is defined as any harmful impact on the local atmospheric, aquatic or land environment caused by release of hazardous or nuisance-causing substances or excessive noise and vibration.

16.6.2 Pollution Prevention

16.6.2.1 Works will be taking place over a principal aquifer. The Houghton Brook runs through the site and will be significantly affected by the works. Potential pollutants from the works include:

- Silt
- Cement and concrete
- Oils and fuels
- Waste materials

- Effluent/waste water from site accommodation

16.6.2.2 Concrete and cement are very alkaline and can cause serious pollution. To minimise the risk of run-off entering any watercourse, concrete and cement mixing will be sited at least 10m away from any watercourse and plant cleaned within designated washout areas. Wash water from concrete and cement works must never be discharged into a watercourse.

16.6.2.3 To minimise the risk of pollution from oils on site, measures are required in relation to their storage, use and disposal. Environmentally considerate lubricants, such as synthetic, non-toxic biodegradable hydraulic fluids are available and may be used at sensitive locations.

16.6.2.4 Measures will be developed to control site runoff and prevent contamination. Account will be taken of the Environment Agency Pollution Prevention Guidelines:

- PPG 1 'General guide to the prevention of pollution'
- PPG 5 'Works and maintenance in or near water'
- PPG 6 'Working at construction and demolition sites'
- PPG 18 'Managing fire-water and major spillages'
- PPG 21 'Pollution Incident Response Planning'
- PPG 22 'Dealing with spillages on highways'

16.6.2.5 Appropriate pollution prevention measures will be proposed by the principal Contractor and will be detailed in the CEMP.

16.6.3 **Fuel and Oil Handling**

16.6.3.1 All fuel and oil will be stored in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001 and they will be handled in such a way that risk of pollution is minimised, this will include:

- Fuel and oil storage tanks will comply with the Control of Pollution (Oil Storage) (England) Regulations 2001 and will be locked when not in use.
- Storage areas will not be located within 10m of the watercourse or highway gully.
- Bowsers will be bunded and will comply with the Control of Pollution (Oil Storage) (England) Regulations 2001 and will be locked when not in use.
- Drums will be stored in bunded areas with a minimum capacity of 25% of the total volume contained within the bund, or 110% of the largest container, whichever is greater.
- Drums will be maintained in good condition, fitted with lids and labelled to indicate the contents.
- Trained operatives only will carry out refuelling of plant and equipment.
- Static combustion engine plant (e.g. compressors, lighting sets) will be integrally bunded or placed on drip trays.
- Plant will be regularly checked for leaks and will be regularly maintained.
- Spill kits will be provided within close proximity to fuel and oil storage areas and operatives will be trained in their use.

16.6.4 **Maintenance of Plant**

16.6.4.1 Any maintenance of plant and equipment will be carried out at least 10m away from any watercourse or drain. Spill kits will be available during all plant maintenance operations and drip trays used to contain any leakage of oil.

16.6.4.2 Any plant or equipment considered to be a pollution risk will either be repaired or removed from site.

16.6.5 Concrete Washout

16.6.5.1 A designated concrete washout area will be provided for washing out concrete delivery lorries, concrete pumps and grout lines. This will consist of a small skip lined with an impermeable membrane or similar arrangement.

16.6.6 Control of Sedimentation

16.6.6.1 Natural, local materials can present a pollution risk in some contexts. Disturbance and handling of soils, particularly in wet weather, can lead to particles being carried by running water into watercourses. Measures to minimise the risk may include good soils management (see 5.14) as well as:

- Locating activities likely to give rise to sediment away from watercourses.
- Ensuring vegetated areas are set aside to act as buffer zones along the top of each bank of a watercourse.
- The provision of silt fencing to remove suspended particles from running water.
- Settlement tanks or lagoons or the use of flocculants to treat water containing suspended particles prior to its release to any water body.

16.6.7 Notification Procedure

16.6.7.1 Procedures for reporting any spillages or pollution incidents are to be set out.

16.6.7.2 The procedure will include recording all incidents in the project progress report and providing details to the Client Project Manager.

16.6.7.3 Contact details for key site and emergency response personnel with responsibilities relating to the protection of the environment will be kept and publicised in key locations on site. Key contacts will include:

- Contractor's Project Manager
- Construction Manager
- Construction Environmental Manager
- Client Project Manager
- Community Liaison Officer
- Fire, Police, Ambulance
- Environment Agency 0800 80 70 60

16.7 Handover Environmental Management Plan

16.7.1 Requirements

16.7.1.1 The CEMP is a live document that will consider maintenance implications of the design and construction phase of the project. Maintenance requirements will be recorded in the relevant section of the CEMP and will be updated to provide a Handover Environmental Management Plan (HEMP) at the end of the construction phase. The HEMP will set out the proposed strategy for the future maintenance and management of all environmental areas and will include the following:

- Strategies for the regular maintenance of all Environmental Areas.

- A timetable for the implementation of each regular maintenance operation.
- A timetable showing the anticipated date at which the 'Environmental Function' attributed to each Environmental Area will be achieved.
- A timetable showing the regular monitoring requirements for each Environmental Area, including those in relation to protected species and/or water quality, as agreed with the relevant Statutory and Non-Statutory bodies.
- Any supporting information e.g. agreements made with third parties.

17.0 CONCLUSION

17.1 The key areas raised during the information event and identified as the main issues were:

- Congestion / Queueing Traffic along the A61 at Birdwell, on the A6195, A6135 and the M1 Junction 36 approaches to the A61 Birdwell Roundabout. Although congestion at this location has been an issue for some time.
- Pedestrian & cycle safety crossing the busy A6195 linking Birdwell to Hoyland.

17.2 The proposed A61 Birdwell Junction Improvement Scheme will ease the severe congestion reducing journey times, improving Pedestrian and Cycle connectivity and increasing traffic safety while reducing driver stress.

17.3 The design of the proposed scheme is the culmination of a number of years of development and assessment of alternative options and refining of the chosen alignment to ensure that all potential adverse impacts on the environment are minimised during design.

17.4 The environmental impact of the construction phase will be minimised through the use of best practice and through mitigation measures set out in the Construction Environmental Management Plan.

17.5 The significance of the proposed junction improvements, with respect to air quality, are determined to be 'negligible' to 'slight beneficial' and following the adoption of the recommended mitigation measures, the development is not considered to be contrary to any of the national, regional or local planning policies.

17.6 The long term noise impacts without the scheme indicate negligible increases in noise. It is assumed that these increases would be as a result of general traffic growth between the assessment years.
The long term noise impacts of the scheme are largely negligible with minor noise impacts occurring at two assessment locations.

17.7 Following the Environmental Impact Assessment it has been concluded that with the implementation of mitigation measures designed to avoid or minimise potential impacts the proposed scheme will not have a permanent significant impact on any of the environmental topics assessed.

18.0 GLOSSARY OF TERMS

Baseline Studies	Work done to determine the existing environmental conditions against which any future changes can be measured, predicted or assessed
Cultural Landscape	This describes the landscape elements of a historic or traditional nature (for example built forms and architectural styles, archaeological remains, and notable and cherished views) that contribute to the landscape character.
Importance	Meaning how important the feature/attribute is and at what scale. It may be a recognised feature with a designation or it will be based on professional judgement (for example quality, survival and diversity) and public perception (for example local views and walks with cultural connotations and
Landscape Receptors.	Defined aspects of the landscape that have the potential to be affected by the proposed scheme.
Landscape Character	A distinct recognisable and consistent pattern of elements in the landscape that makes one landscape different from one another.
Landscape Impact	This describes the potential impacts of the scheme proposals on the landscape fabric, character and quality. The impact can be positive or negative.
Mitigation	Measures designed to avoid, reduce, remedy or compensate for landscape and visual impact.
Rarity	Is interpreted as to whether the landscape features being evaluated are commonplace to the locality or scarce. Rarity often relates directly to importance, although retention of landscape character is as much about safeguarding and keeping the commonplace as conserving and protecting the rare.
Study Area	Defined by the Visual Envelope with extended information for context.
Sensitivity	Importance/Rarity of the receptor and its vulnerability to change. The receptor can be a landscape or visual receptor.
Visual Envelope	Outlines the area of land from which there is a view from any part of the proposed road, its structures, or the traffic that will use it

Visual Impact	This describes the potential impacts of the scheme proposals on the landscape views and the effects of those changes on people. The impact can be positive or negative.
Visual Receptors	Individuals and / or defined groups of people who have the potential to be affected by the proposed scheme.