Huntley Wood Quarry,
Staffordshire

Environmental Statement for the Change of Use of Huntley Wood Quarry to a Golf Course including the Construction of Associated Buildings.

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1.0 INTRODUCTION

General

1.1 This Environmental Statement has been prepared in support of a planning application made to Staffordshire Moorlands District Council for the change of use of Huntley Wood Quarry in Staffordshire to a Golf Course.

1.2 The proposed golf course scheme would restore the disused sand and gravel quarry to a high quality 18 hole golf course including a club house, caretakers house, green keepers building and parking. The application includes these elements and references to change of use to a golf course throughout this document should be taken to include the construction of these buildings.

1.3 The landform of the golf course within the quarry would be created through the importation of inert materials and soils. A planning application for the importation of inert materials has already been made to Staffordshire County Council as the Waste Planning Authority. A planning application has also been made to Staffordshire Mooorlands Council who have requested an Environmental Statement. This document comprises an environmental statement of the change of use application. However as it is impossible, in environmental terms, to divorce the infilling element of the development from the change of use, the environmental assessment also assesses some of the impacts created by the infilling operation.

1.4 This environmental statement has been prepared on behalf of Spectre Developments Limited and has been prepared on their behalf by SLR Consulting Limited (SLR).

1.5 Huntley Wood Quarry comprises a disused sand and gravel quarry that has stood dormant for a number of years. Since the cessation of sand and gravel extraction at the site, plant has been removed, but no work towards the restoration of the site has taken place. Natural regeneration has taken place over a number of parts of the quarry, although a number of areas remain bare and there are no proposals for restoration and long term management of the site.

1.6 The golf course would provide the long term restoration of the disused quarry as well as providing a leisure amenity and employment for the local area. The design of the golf course is such that it would provide an interesting and challenging course to both the novice and more experienced golfer encouraging players from both the local and wider area.

1.7 Wildlife habitats for nature conservation would be provided within the site between the golf course fairways. The proposed golf course would be largely screened from external views by the retention of the existing woodland which surrounds much of the quarry site.

1.8 Previously the site has been utilised as an operational quarry, and so was previously accustomed to a high level of vehicle movements by large quarry vehicles. A similar level of usage can be expected during the infilling operation. In contrast the proposed golf course would be of a much lower

impact in terms of vehicle movements, visual amenity, noise, and dust during its opening hours.

1.9 The quarry now comprises of a steep sided depression in the ground between 10-20metres below surrounding and original ground level. There are known to be woodland and wildlife habitats at the site, and the proposed restoration scheme would provide for the management of the existing woodlands to ensure their preservation and enhancement by controlling some existing dominant non native plant species present within the ancient woodland. The golf course would also provide a range of new wildlife habitats within the course for local native flora and fauna.

Planning Background

1.10 The landfilling of inert materials at the quarry site would form much of the landform required to create the golf course fairways. A separate planning application has already been made to Staffordshire County Council (SCC) as the waste planning authority for the importation and landfilling of inert materials at Huntley Wood Quarry. SCC have deemed the application for the infilling of the quarry did not require an Environmental Impact Assessment (EIA). This was presumably due to the nature of the previous quarry workings at the site and the inert nature of the infilling materials.

1.11 A planning application was made to Staffordshire Moorlands District Council (SMDC) in November 2006 for the change of use for the quarry to a golf course. It was the view of SMDC that the application for a change of use required an EIA.

1.12 A scoping opinion (dated 3rd January 2007) was provided by SMDC which highlighted that the main impacts that should be considered as part of the EIA should include hydrology, eco-systems (ecology), landscape and traffic generation. This document forms the EIA requested by SMDC.

1.13 In addition, for completeness, qualitative assessments have been carried out to consider and assess noise and air quality issues that may arise from the change of use of the site from a mineral working to a golf course. Some consideration has been given to the landfilling operation, however it should be noted that this information and assessments were not considered mandatory by the local planning authority and the landfilling element of the development is under the consideration of Staffordshire County Council as the Waste Planning Authority.

2.0 SITE DESCRIPTION

General Location

2.1 The development proposed is the change of use of the former sand and gravel working at Huntley Wood Quarry to a golf course facility. The golf course would provide for the long term restoration of the former mineral working.

2.2 Situated within Staffordshire, the application site is located in a largely rural area with a few individual residential properties and settlements interspersed throughout the area.

2.3 The nearest residential settlements to the site are Blythe Bridge, situated to the West, Cheadle to the North East and Upper Tean to the South East. These settlements are remote from the application site, each being more than 1.5km from the quarry and separated by numerous fields and vegetation. The location of the application site within the context of the surrounding area is shown on Drawing 1/1.

2.4 The nearest cities and areas of larger urban development in the area include Stoke-on-Trent approximately 7km to the west; Newcastle-under-Lyme some 13km to the west of the site and Stafford approximately 20km south of the site. Derby is present approximately 35km to the east of the site.

2.5 A number of individual residential dwellings and small settlements, farmhouses and agricultural units are distributed sparsely in the vicinity of the quarry site. This includes the small hamlet of Huntley that is located approximately 250m to the east of the site.

2.6 To the north west of the site lies an area of industrial development located on either side of Draycott Cross Road. This area forms the south-westerly part of Cheadle and comprises a range of industrial units.

2.7 The quarry is largely surrounded by a belt of woodland, some of which is classified as ancient woodland. Beyond this area the land is divided into fields and used for farming. Field boundaries are marked with hedgerows and hedgerow trees which form part of the character of the area.

2.8 The main strategic road in the vicinity is the A50 which runs in a roughly east to west direction 2km south of the site. Vehicles accessing the site can turn off the A50 and travel along minor roads through Draycott In The Moors to access the site. The site can also be accessed from the north via minor roads leading off the A521.

2.9 With regards to the topography of the area, the land in the vicinity of the application site is undulating, with the application site located on a ridge of land. The land drops away to the north and east down to 135-145mAOD before rising to higher ground at around 230mAOD approximately 2km away. To the south the land falls away down to around 150mAOD, whilst to the west the land rises gently to around 250mAOD approximately 2km away. Much of the quarry site is screened from surrounding locations by the rim of the quarry and by the presence of scrub and woodland.

The Application Site

2.10 The application site covers a total area of some 69ha and comprises of the former Huntley Wood Quarry, its access and some surrounding mature woodland.

2.11 The disused sand and gravel working forms a majority of the application site and covers an area of 32.8ha. The base of the disused quarry is situated below the surrounding ground level where sand and gravel remains exposed in some areas. In other areas of the site, water has collected to form large pond features.

2.12 The sides of the quarry rise up to the surrounding ground level and are relatively steep. In some areas the quarry side slopes have colonised with naturally regenerating grass or remain exposed with sand and gravel.

2.13 Along the northern edge of the quarry, the side slopes rise up approximately 20metres to meet with original ground level where some 14.2ha of ancient woodland are present. Along the southern perimeter of the site, the quarry side slopes rise only 10metres to meet the existing ground level.. A band of woodland covering an area of some 16.3ha is present along the southern edge of the site.

2.14 Two depressions situated within the former quarry that have become permanently filled with water. Despite the sandy nature of the ground within the quarry, some areas of have colonised with grass and plant species. Other areas have been planted with tress and shrubs. Today, the site is dominated by post-mineral extraction habitats that form a mosaic of bare substrates consisting of sand and gravels, mixed woodland plantation, natural broad-leaved woodland and scrub development, standing open water, some acidic grassland/heathland.

2.15 The central area of the site previously used for the processing and stocking of sand and gravel has not been colonised by plant species due to heavy trafficking during the operation of the quarry. The same can be said for areas of the quarry that have been worked most recently. In particular there is limited vegetation cover at the western end of the quarry.

2.16 Along the southern edge of the site lies an established band of mature woodland. This woodland is situated on land sloping downwards gently in a southerly direction and is in part designated as a Biodiversity Action Site. The width of this band of woodland varies along it's length, between 50 – 250metres wide. This band of woodland screens the site from the view of land situated at a lower elevation to the south of the site.

2.17 A separate band of woodland is present along the eastern and northern boundary of the site and is designated as Ancient Woodland. This woodland is situated around the edge of the quarry on natural ground. This band of woodland varies in thickness between 80metres and 200metres wide.

2.18 Access to the site is gained via an existing access road that was used by the previous quarry operation. This road joins Cheadle Road / Draycott Cross Road at a cross roads to the west of the application site. Cheadle Road /

Draycott Cross Road connects with a series of A classified roads to the north and south of the site.

2.19 There is currently little built development remaining within the quarry. Plant, equipment and storage sheds used for the quarrying operation has been decommissioned and removed from the site. since the cessation of quarrying operations. The proposed club house and car parking would be constructed in the vicinity of the former quarry offices and weighbridge.

3.0 PROPOSED DEVELOPMENT

Introduction

3.1 This environmental statement has been prepared to accompany a planning application submitted to Staffordshire Moorlands District Council for the change of use for the Huntley Wood quarry from a mineral working to a golf course. The change of use also includes for the some built development such as a club house and other buildings necessary for the operation of the golf course.

3.2 The planning application for the change of use has been made to Staffordshire Moorlands District Council as the Local Planning Authority. SMDC have considered that the planning application for the change of use should be the subject of an EIA and thus the application should be accompanied by an Environmental Statement.

3.3 The profile of the golf course would be created through the importation of inert waste. This would be used to create the fairways, greens and tees within the site. The scale of infilling is therefore limited to the creation of these features and does not involve the wholesale infilling of the quarry void. The importation of inert waste to Huntley Wood Quarry is the subject of a separate planning application that has been made to Staffordshire County Council (SCC). SCC have considered that the application for infilling does not require an Environmental Impact Assessment and the infilling application has been subject to consultation with statutory consultees. It is understood that no significant objections have been raised as part of this planning application.

3.4 The proposed development would provide an 18 hole high quality golf course which would incorporate facilities including a club house, caretakers house, green keepers building and car parking.

3.5 The golf course would be formed within the footprint of the area of the former mineral working and some of the surrounding woodland and as such would cover an area in the region of 25.2ha. The fairways would be formed through the importation of inert material within the quarry. The golf course design seeks to retain and enhance the existing plants species, wildlife habitats and water bodies where possible.

3.6 Much of the existing woodland present around the edge of the quarry site would be retained as part of the golf course and the applicant proposes that management of the ancient woodlands be provided to reduce the dominance of non native species to enhance the quality of the ancient woodland.

Construction of Golf Course Fairways

3.7 Presently, the application site comprises of a disused sand and gravel quarry with no restoration works having taken place at the site since it's closure a number of years ago. As a result the quarry still consists of a steep sided depression which is in contrast to the surrounding natural ground level.

3.8 The fairways tees and greens for the golf course would be formed by importing 360,000 cubic metres of inert materials such as soils, clays and crushed rock. Drawing 3/1 shows the location and extent of where material would be placed within the quarry to form the fairways of the golf course. The original planning application indicated the location of the fairways, tees and greens. This information has been utilised in this environmental statement to create a 3-dimensional model of the proposed infilling. This is presented on Drawing 3/1. The areas coloured green represent those areas where infilling or earthmoving is proposed either to create the fairways, tees or greens or the batters associated with those features. The areas coloured brown would remain undisturbed by the proposed infilling operation. Sections through the quarry are presented in drawings 3/2 and 3/3. These illustrate that the amount of filling proposed is relatively limited in the context of the quarry void as a whole.

3.9 Inert material used to form the fairways would be imported by HGV and deposited within the footprint of a fairway/ green tee. Infilling would take place on one hole at a time, with operations commencing in the east of the site and moving progressively westwards. Imported inert waste would be inspected on arrival and better quality soils and soil making material would be utilised to form the uppermost metre of the fill profile. Material would be spread and compacted in layers to form the gently profiled fairways with a flat playing surface.

3.10 The majority of the golf course fairways would be constructed within the floor of the former quarry in order to preserve the woodland present around the edge of the quarry. However due to constraints at the site, most notably the limited size of the site, it would be necessary to remove some of the scrub/woodland present to the south of the site. It would also be necessary to remove some small areas of the ancient woodland present along the eastern side of the quarry site. However it can been seen that as far as possible the ancient woodland has been avoided, and the overall amount of ancient woodland affected by the golf course would be very limited.

3.11 In mitigation for the loss of ancient woodland maintenance and preservation of the ancient woodland is proposed. The ancient woodland is currently over run by invasive, non native plant species. Provision of management to reduce and control this invasion would increase and enhance the value of the ancient woodland.

3.12 In addition, the layout of fairways within the golf course design also provides opportunities to retain and enhance existing habitats within the site whilst also creating new habitats to compliment the existing.

3.13 Where possible, the applicant would seek to retain existing habitats where situated between the golf course fairways. Areas between fairways currently devoid of habitats would be the subject of planting to encourage local flora and fauna to establish and inhabit the site.

3.14 In total, the proposal would create five ponds in between the golf course fairways.

Club House, Caretakers House, Green Keepers Facilities and Parking

3.15 Whilst the golf course development would comprise of mainly the fairways and landscaping, it would be necessary to provide a club house, caretakers house, green keepers facilities and car parking for the running of the golf course. These buildings would be situated at the end of the access track into the golf course and so would be present in the south of the site, close to the location where quarrying plant has previously been positioned. The position of the buildings within the site is shown on Drawing 3/1. Detailed elevations of the buildings wee submitted as part of the planning application documentation

3.16 The club house would provide facilities for customers using the facilities of the golf course. The clubhouse would be a single storey building with a hipped roof. The external materials of the club house are likely to be brick walls and tiled roof. The clubhouse building is relatively small scale in comparison to the whole development.

3.17 The clubhouse would provide a pro shop and store facilities for goods. The pro shop would be utilised by customers using the golf course and would sell golfing equipment. The clubhouse would also contain male and female toilets, as well as male and female locker rooms. A bar serving drinks and a bar store room would also be present within the clubhouse. A small office for the use of the golf course manager and employee would also be made available in the clubhouse for the running of the facility.

3.18 The greenkeepers building would be a more functional building and would provide storage and workshop facilities for the maintenance of the site. This building would also provide office, mess and welfare facilities such as toilets and showers for maintenance employees.

3.19 The greenkeepers building would be a single storey building with a shallow pitched ridged roof. Due to the functional nature of this building, it is likely that this building would have clad walls and roof. The building would have large doors to allow access for vehicles in case access was needed for grass cutting machinery or golf buggies.

3.20 Car parking would be provided in the area between the club house and greenkeepers building for staff and customers. It is anticipated that this area would be surfaced with tarmac or a similar hard wearing surface.

3.21 Due to the large and isolated nature of the site, it would be necessary to have a caretaker stationed at the site permanently. A caretakers house would be positioned in the same area as the clubhouse. This building would be the only two storey development at this site. The caretakers house would be a small typical house with a pitched ridged roof and is likely to be constructed of facing brick and roof tiles. It is envisaged that the detailed design of the buildings on the site would be the subject of a further planning application once the principle of establishing a golf course at the site has been established.

3.22 Access to the golf course would be along the same access road used for importing inert waste. There are no properties located along this road.

Proposed Method of Working

3.23 As described above, the profile of the golf course fairways would be created through the importation of some 360,000 cubic metres of inert materials. Inert materials would be imported to the site by HGV using the existing along Cheadle Road / Draycott Cross Road, that was also used by the former quarry operation.

3.24 HGV's would deposit materials within the footprint of the fairways. Vegetation present in the areas of fairways would be stripped prior to the placement of materials. Typically, it is expected that these works would commence in the eastern part of the site and progress in a westerly direction back towards the site entrance, with infilling operations taking place on one hole at a time.

3.25 Seeding and planting would take place progressively as each hole is created, and as soon as weather conditions dictate. Therefore by the time that infilling is completed a significant proportion of the site would be restored.

Timescale

3.26 The proposed operations for the infilling of the quarry to form the profile of the golf course would commence immediately following receipt of planning permission. Infilling would be carried out over a period of two years.

3.27 Following infilling, the final stages of planting and landscaping of the golf course would be expected to take approximately 6months. The construction of built development associated with the golf course, such as club house, green keepers building and car parking would take place during the same time as the infilling and landscaping operations subject to the grant of a detailed planning permission.

3.28 During the period of infilling, landscaping and construction works, the proposed operational hours of the site would be as follows:

Monday to Friday: 0700 – 1700 hours
Saturday: 0700 – 1300 hours

3.29 Should planning permission be granted in the autumn of 2008, it is anticipated that infilling and construction works would be complete, and the golf course open by 2011.

3.30 The proposed opening hours of the golf course would be as follows:

Monday to Sunday: 0700 – 1900hours

3.31 These hours would naturally be reduced in accordance with the available daylight hours during the winter months.

3.32 The Clubhouse present within the site is likely to provide male and female toilet and locker facilities, as well as a bar and pro shop. The opening hours for the clubhouse would therefore need to be slightly later than the golf course. The opening hours for the club house would be dependant upon the licensing arrangements, however they are likely to include:

Monday – Sunday 0700 – 0100 hours

3.33 Such hours would be necessary in order to provide changing and welfare facilities from early morning to early evening. The bar and restaurant facilities would operate in accordance with licensing agreements, however would need to be later in accordance with standard public house hours.

4.0 PLANNING POLICY

Introduction

4.1 This section sets out the planning policy framework against which the proposals should be considered. These policies are addressed at regional and local level.

4.2 S54A of the Town & Country Planning Act 1990 provides that planning applications shall be determined in accordance with the relevant development plan, providing that the plan is approved, adopted, relevant and up to date, unless material considerations indicate otherwise.

4.3 The application site is situated within Staffordshire, where a two tier local government exists. Staffordshire County Council is responsible for planning policy and the regulation waste and minerals related developments. Whilst the application site lies within the area of the Staffordshire Moorlands District Council who regulate and enforce local planning policy.

4.4 The proposed development relates to the restoration of a former mineral working using inert waste arisings and so both the minerals and the waste local plans should be consulted in determining this planning application.

4.5 As the Minerals and Waste Planning Authority, Staffordshire County Council are responsible for the preparation of the Minerals and Waste Development Framework (MWDF). The MWDF will contain a series of documents known as the Development Plan Documents DPDs, which will replace the minerals and waste local plans. At the time of writing, no policies had been formed for inclusion in these documents.

4.6 It should be noted however, that a planning application for the infilling of the Huntley Wood Quarry has already been accepted by Staffordshire County Council and has been the subject of extensive consultation with statutory consultees and local groups. There is considered to be significant support for the establishment of a golf course at this location, and no significant objections have been received.

4.7 As this ES relates primarily to the change of use application being considered by the District Council the primary focus of this section is to consider planning policy relating to the change of use of the quarry to a golf course.

4.8 In Staffordshire Moorlands District Council the Local Plans is in the process of being replaced by documents forming the Local Development Framework (LDF) and so in addition to the local plan documents, consideration should also be given to any emerging local development framework documents that are currently being prepared following the adoption of the Compulsory Purchase Act 2004. However, in a number of cases, Development Plan Documents are currently being saved until the adoption of LDF documents.

Staffordshire and Stoke on Trent Structure Plan

4.9 Following the adoption of the Planning and Compulsory Purchase Act 2004, and the subsequent preparation of the Local Development Framework Documents, a number of policies within the structure plan have been saved.

4.10 The Structure plan has been was originally adopted to cover the period 1996 – 2011 and a number of policies have been saved beyond September 2007. Saved policies within the plan that are considered relevant to the development proposed in this environmental statement includes:

4.11 Policy MW6 states that applications for minerals and waste developments would be assessed in terms of their social, environmental and economic effects.

4.12 The golf course would have a positive effect in both social and economic terms by providing employment opportunities and a leisure facility in what is currently a disused quarry. The layout of the golf course would encourage nature habitats for local flora and fauna species and so would contribute positively to the local environment.

4.13 Structure Plan policy MW9 considers appropriate rehabilitation methods for waste and minerals developments. The application site consists of a former mineral working, the proposal provides for the permanent restoration of the site by changing the site to a golf course. The profile and landscape of the golf course would be in keeping with local surrounding area and would enhance the beauty and ecological value of the area over the existing situation.

4.14 A number of general development policies are also contained within chapter 5 of the Structure Plan.

4.15 Planning Policy D5B is entitled: Development in the Green Belt. This policy considers inappropriate development within the green belt and outlines the types of construction and development that may be considered appropriate to be carried out within the green belt. Part (c) of the of the policy lists the following as acceptable development within the green belt,

'essential facilities for outdoor sport and recreation, cemeteries and other uses compatible with the openness of the Green Belt;'

4.16 The golf course requires a small amount of built development in the form of a club house, car park, green keepers building and caretakers house. This built development is incidental to the main development which is a golf course. The built development would form a small part of the overall golf course development, but is necessary for the operation and running of the golf course facility. The scale of built development is considered to be the minimum that would be necessary to effectively operate the proposed golf course. The built facilities would be located in a well screened location at the entrance to the golf course.

4.17 The proposed golf course development and surrounding mature woodlands and vegetation are such that the openness and visual amenity of the green belt would not be compromised by the golf course.

4.18 Chapter 6 of the Structure plan concerns employment in the area. Whilst the site is not designated as an employment site in any of the current development plans, the development would give rise to a limited number of employment opportunities.

4.19 Chapter 9 of the structure plan considers the Natural and Cultural Assets of the area. The development accords with the principles in policies NC1 and NC2 in that proposed golf course would not significantly impact on the character of the countryside and would have a sympathetic landscape character with minimal built development. Currently the quarry is unrestored, and is subject to unauthorised access by motor bikes and others. The proposed golf course would return the site to productive long term use, whilst preserving the key ecological features of value.

4.20 Chapter 11 of the structure plan deals with planning and policies relating to Recreation, Leisure and Tourism. The proposed development would accord with policy R3 which discusses Recreational Facilities in the Countryside, since the golf course could not be developed in a built up area and the impacts resulting on the countryside and in traffic terms would be limited.

Staffordshire County Council Minerals Local Plan

4.21 The minerals local plan for the Staffordshire area was formally adopted in 1999 and covers the period of 1994 – 2006. A number of the plan policies have been saved beyond September 2007 however and the proposed development is considered in the light of such policies.

4.22 Many of the policies within chapter 3 of the MLP have been deleted, and those that remain relate to issues such as proposed new mineral extraction operations, land banks for minerals, and the sterilisation of minerals. Such issues are unrelated to the proposed development which has extracted all available mineral and has now ceased operation.

4.23 Policy MLP21 states that mineral developments should be sympathetic to landscape character and quality. The landscape and visual impact of the proposed development is considered in more detail in section 5 of this Environmental Statement. However, the golf course would be formed in the depression occurring due to the working of the mineral. Much of the former quarry is surrounded by mature woodland and so is screened visually from the surrounding area.

4.24 Where the site is visible from land situated at a lower elevation present to the south, views and visual receptors are limited. The nature of the development, which is a golf course, would inherently have a limited potential impact due it's very nature.

4.25 Policy MLP30 requires that applications relating to minerals developments should where appropriate be accompanied by a traffic impact appraisal. This Environmental Statement includes traffic assessment for the restoration of

the quarry site. Furthermore, it is understood that the site is situated along a strategic highway allocated in the saved Structure Plan.

4.26 Chapter 8 of the Minerals Local Plan relates to sand and gravel mineral workings. However, this chapter provides policies relating to such issues as land banks and provision of sand and gravel. There are no provisions made in this section which relate to the restoration of such sites.

4.27 Page 38 of the MLP considers minerals developments within the green belt. This short section acknowledges that minerals can only be extracted where they lie and that this may coincide with the location and extent of the green belt. Mineral extraction at this site has already taken place and this section does not take account of the restoration of mineral workings within the green belt.

The Staffordshire and Stoke-on-Trent Waste Local Plan

4.28 The waste local plan was formerly adopted in February of 2003 and covers the plan period between 1998 - 2011. Following the adoption Planning and Compulsory Purchase Act, certain policies within this document have been saved to extend beyond September 2007.

4.29 Since the profile of the proposed golf course would be formed within the quarry through the importation of inert waste materials it is necessary to consider the policies within the waste local plan. It is anticipated that the applicant would carryout the importation and placement of the waste under a Environmental Permit Exemption regulated by the environment agency.

4.30 Policy 3 of the WLP considers general protection of the environment and goes on to state that permission would not be granted where the proposed development may cause material harm. The proposed development is for a golf course, that would be formed through the importation and placement of inert materials.

4.31 This environmental statement gives consideration to all of the relevant areas where the proposed development may have an impact. The findings of the technical studies are addressed in individual sections. The impact of the overall development is low and the benefits gained by restoring the former quarry to a golf course outweigh the benefits of leaving the site unrestored.

4.32 Policy 4 of the WLP states that planning application for a waste facility should include a comprehensive restoration scheme is provided. The acceptance of waste at the site will be form part of the restoration of the former mineral which is proposed to return the mineral working to a golf course.

4.33 The proposals to restore the former mineral working to a golf course accord with the requirements of Policy 10 in the Waste Local Plan. This policy requires that where waste is imported for landscaping, engineering or improving the land, the proposal should represent BPEO, only use inert materials, only deposit the minimum amount of inert waste necessary for the intended purpose. The proposal accords with each of the principles in this policy.

4.34 The remainder of the saved policies within the WLP refer to planning application coming forward for waste treatment facilities and incinerators.

Staffordshire Moorlands District Council Local Plan

4.35 The Staffordshire Moorlands Local Plan was adopted in 1998 and it is currently being replaced by new policy documents. The process of preparing documents for inclusion in the LDF is currently ongoing, and so a number of policies within the Local Plan have been saved and extended past September 2007.

4.36 Staffordshire Moorlands District Council have prepared a document containing all of the saved local plan policies. Reference has been made to this document as part of the current development plan against which the proposal should be assessed.

4.37 The application site comprises of the former Huntley Wood Quarry which is situated within an area of green belt surrounding the urban area Newcastle-under Lyme. Saved local plan policies N2, N3 and N7 which concern development within areas of the green belt therefore need to be considered.

4.38 Policy N2 states that the district council would generally take the view that development within areas of green belt in unacceptable, except in certain circumstances other than:

b: essential facilities for outdoor sport and outdoor recreation provided that the associated built development is of a scale appropriate to the green belt.

4.39 The proposed golf course is an outdoor recreation facility. The golf course is the leading element of the development and would form a majority of the development. Some built development is necessary for the operation of the golf course. This built development however is limited to a club house, green keepers building and caretakers house. These buildings would be small in scale, generally being single storey with the exception of the caretakers house which is a small two storey building. These buildings are necessary for the operation and maintenance of the golf course and form a very small part of the overall development. Importantly the proposed development would not be possible without each of the elements of built development.

4.40 Policy N7 considers the visual amenity provided by the green belt and views of the greenbelt. The proposed development would return an unrestored mineral working to productive use as a golf course. The golf course would comprise of grassed fairways, landscaped areas and wildlife areas planted with local species. The golf course would be situated within the depression created by the mineral working and would retain the existing woodland present around the perimeter of the site. The golf course would therefore be well screened from the surrounding areas of green belt, and would blend visually with the surrounding land in it's nature, colour and topography. Overall the facility is not considered to have a negative impact on the visual amenity of the green belt.

4.41 The application site does not form part of any national statutory landscape designation such as an Area of Outstanding Natural Beauty (AONB) or

National Park. However the Staffordshire Moorlands Local Plan identifies that the site is located within an area designated as a Special Landscape Area and Green Belt. Saved policies N8 and N9 within the local plan relate to Special Landscape Areas and so are relevant to this application.

4.42 Policy N8 states that *In the special landscape area permission will not be given for development which would materially detract from the high quality of the landscape because of its siting, scale, design and materials, and associated traffic generation. In areas where the special landscape overlaps the green belt there will be a presumption against most development in accordance with policy N2.*

4.43 The proposal is to form a landscaped golf course within the application site. Given the nature of the development and it's natural appearance and landscaping, it is considered that the golf course would not detract from the high quality of the landscape. Much of the golf course would be situated within the former quarry which is surrounded by mature woodland which would visually screen much of the development.

4.44 Traffic generation is considered elsewhere within the Environmental Statement and is considered to be appropriate for the local highway network and given the previous use of the site as a quarry.

Policy N8 goes on to state that *In areas where the special landscape overlaps the green belt there will be a presumption against most development in accordance with policy N2.* Policy N2 considers what would be appropriate development within the green belt, and this has been addressed in the above paragraphs. Policy N2 considers that outdoor sport and recreation facilities with associated built development at an appropriate scale would be suitable within the green belt. The proposed golf course would provide outdoor sport and recreation facilities incorporating only a limited amount of built development to facilitate the running of the golf course.

4.45 Saved policy N9 also considers development within special landscape areas and states that the planning authority will seek to promote and require high standards of design for development with the special landscape area.

4.46 The proposal is to form a high quality golf course that would incorporate landscaping that supports local wildlife. The golf course would also provide some management of the ancient woodland within the site to increase the conservation value of the area. The landscape and visual impact assessment within the Environmental Statement provides further consideration of the development within the context of the Special Landscape Area.

Alternatives

4.47 Alternatives considered by the applicant is a mandatory part of an environmental statement. In this case the applicant had acquired the disused quarry with the intention of submitting an application for a golf course development as the site was considered well suited to such a scheme, given the size of the quarry, the well screened nature of most of the application site, and the existence of woodland and areas of regeneration within the site.

4.48 Therefore no alternative sites were considered by the applicant. The application site being brownfield land in a well screened location, yet with good access and the proximity of centres of population, was considered to lend itself to the development of a golf course.

4.49 The available land within the application for the development of the golf course was limited, although care was taken to avoid the ancient woodland as far as possible. No alternative access points were considered as the existing quarry access was considered to be suitable, and had previously been used for high volumes of quarry traffic

5.0 LANDSCAPE AND VISUAL ASSESSMENT

Introduction

5.1 This section of the ES assesses the potential landscape and visual implications of the proposed development, and is divided into seven main sub-sections:

- general introduction and summary of the methodology used;
- planning history, policy, relevant guidance and designations;
- landscape baseline study which includes a review of all existing landscape character assessments as well as a more detailed assessment of the landscape character of the application site and its context;
- visual baseline study which includes an assessment of the visibility of the existing site and the choice of representative viewpoints;
- study of the development proposals, including mitigation, to identify potential landscape and visual characteristics, effects and impact generators;
- assessment of the sensitivity of the landscape and visual receptors to the proposed development and the potential residual landscape and visual impacts likely to be generated after mitigation has been considered and their significance; and
- summary and conclusions.

Methodology

5.2 The format of this assessment is based on the principles produced by Countryside Agency's *Landscape Character Assessment Guidance for England and Scotland*, (2002) and The Landscape Institute and Institute of Environmental Management and Assessment's *Guidelines for Landscape and Visual Impact Assessment*, Second Edition (2002).

5.3 A desktop study was undertaken including analysis of maps and 3D computer terrain models of existing and proposed landforms and structures to identify potential viewpoints and create perspective views. These viewpoints and any others identified during the fieldwork were then visited and assessed for their sensitivity to the proposed development.

5.4 The application site and surrounding areas were visited on 9th January 2008. The weather conditions were acceptable for assessing all types of view.

5.5 Photographs were taken to illustrate views from a series of viewpoints (selected from the desk top assessment) using a Nikon D70 digital camera, set to a focal length which is the equivalent of a 50mm lens for a 35mm format camera. Panoramic views consisting of three or four photographic frames were merged together using Photovista software (v2.0).

5.6 The potential significance of landscape and visual impacts is determined by combining the magnitude of the potential impact and the sensitivity of the

landscape and visual receptors to change, as shown in Table 5/1, below. Moderate/Substantial Impacts, and Substantial Impacts, (in bold on Table 5/1) are regarded as significant.

5.7 This process is not a quantitative process; there is not an absolute scoring system. Instead, the correlation of the two factors, although reflecting recognised features and methods of working outlined in this section, is in the end a matter of professional judgement.

Table 5/1
Principles of Assessing Significance of Landscape and Visual Impacts

Sensitivity / Magnitude	Negligible	Low	Medium	High
Negligible	Negligible Impact	Negligible/ Slight Impact	Slight Impact	Slight/Moderate Impact
Low	Negligible/ Slight Impact	Slight Impact	Slight/ Moderate Impact	Moderate Impact
Medium	Slight Impact	Slight/ Moderate Impact	Moderate Impact	**Moderate/ Substantial Impact**
High	Slight/ Moderate Impact	Moderate Impact	**Moderate/ Substantial Impact**	**Substantial Impact**

5.8 Table 5/2, below, provides a brief definition of the full range of significance criteria. Both landscape and visual impacts can be adverse, beneficial or neutral in nature.

Table 5/2
Description of Significance Criteria for Landscape and Visual Impact

Level of Significance	Definition
No Impact	The proposed scheme has no effect on landscape or visual receptors.
Negligible	The proposed scheme is largely appropriate in its context. It would be very difficult to differentiate from its surroundings and would affect very few or no receptors.
Negligible/Slight	The proposed scheme would result in minimal change to the landscape which would be difficult to differentiate from its surroundings and would affect few receptors.
Slight	The proposed scheme would cause a barely perceptible impact, and would affect few receptors.
Slight/Moderate	The proposed scheme would cause few changes to the landscape, which would not be clearly noticeable, and would affect few receptors
Moderate	The proposed scheme would cause a noticeable difference to the landscape, and would affect several receptors. However, this change would not alter the essential character of the local landscape or that of the view.

Level of Significance	Definition
Moderate/Substantial	The proposed scheme would cause a very noticeable difference to the landscape, and would affect several or many receptors. This change would therefore alter the character of the landscape in this locality, or the character of a view.
Substantial	The proposed scheme would change the character and/or appearance of the landscape for a long period of time or permanently. It would affect many receptors. This change would therefore alter the character of the landscape in this locality, or the character of a view.

Technical Difficulties

5.9 No technical difficulties were encountered in assessing the landscape and visual impacts of the proposals.

Landscape Baseline Study

Planning Context

5.10 The application site is centred on a worked out sand and gravel quarry which is in various states of natural regeneration including woodland, grassland and heathland, as well as bare ground, waterbodies and silt lagoons. However there is also an area of ancient woodland around the north-east of the site and smaller areas of pasture and scrub to the west. The old quarry access road to the south-west would also be re-used as part of the proposals.

5.11 The most recent planning permission for the extension of operations for the winning of sand and gravel reserves (ref SM93/1169) was granted subject to a number of conditions. In particular condition 28 required a scheme for restoration to be submitted to and approved in writing by the Mineral and Waste Planning Authority. However this condition has not been discharged and the proposed development has therefore been put forward as a possible restoration scheme. In the absence of this proposed development, as discussed in greater detail below, it is assumed that the site would continue to naturally regenerate.

5.12 Table 5/3 provides a summary of the relevant landscape planning policies in relation to the proposed development. This includes reference to the following statutory documents which comprise part of the Development Plan for the application site:

- Staffordshire and Stoke-on-Trent Structure Plan 1996-2011 (adopted May 2001)
- Supplementary Planning Guidance to the Staffordshire and Stoke-on-Trent Structure Plan 1996-2011 (adopted May 2001)
- Staffordshire Moorlands Local Plan (adopted September 1998);
- Waste Local Plan (adopted February 2002); and
- Minerals Local Plan (adopted December 1999).

Table 5/3
Local Landscape Planning Policies

Policy	Summary
Greenbelt (Local Plan N2, N7 and Structure Plan D5B)	Establishes a general presumption against inappropriate development in the green belt, including new buildings other than essential facilities for outdoor sport and recreation that are of an appropriate scale. Development which would injure the visual amenity of the green belt by virtue of its siting, materials or design will not be permitted in locations which are within or visually conspicuous from the green belt.
Special Landscape Area (Local Plan N8)	This policy sets aims to prevent development which would materially detract from the high quality of the landscape within designated areas because of its siting, scale, design and materials, and associated traffic generation.
Nature Conservation (Local Plan N12, N14, N15)	Proposals for development likely to have an adverse effect on a grade 1 county site of biological importance (SBI) or a regionally important geological/geomorphological site will only be approved if it can be clearly demonstrated that there are reasons for the proposal which clearly outweigh the need to safeguard the intrinsic nature conservation value of the site. Where development is to be approved that could have adverse effect on a site of nature conservation value, appropriate measures shall be required to conserve the site's interest and provide replacement habitats or features where damage is unavoidable.
Trees (Local Plan N20, N21 and Structure Plan NC13)	Applications for development will need to make provision for retention and safeguarding of existing trees and planting of new trees. Development must not cause loss or directly or indirectly damage sites of ancient woodland unless it can be demonstrated that the need for the development outweighs the value of the ancient woodland. Management of existing woodlands and trees should be improved.
Recreation (Local Plan R7, R8 and Structure Plan T4, E11A)	Recreation development will be encouraged in the countryside provided the scale, use, design and arrangement are compatible with these areas and adequate parking and access arrangements are made. Major new developments should be accessible by a range of means of transport, including public transport and cycling. The retention and development of a network of well signposted and maintained public rights of way or concessionary routes will be encouraged.
Landscape Character (Structure Plan NC1, NC2)	Development should be informed by and be sympathetic to landscape character of the countryside.

Designations

5.13 The application site does not form part of any national statutory landscape designation such as an Area of Outstanding Natural Beauty (AONB) or National Park.

5.14 The Staffordshire Moorlands Local Plan (*op cit*) identifies that the site is located within Special Landscape Area and Green Belt, as shown on Drawing 5/2. Also there is an area of ancient woodland and Grade 1 SBI to the north-east of the site and a "Biodiversity Alert" site in the south of the site.

5.15 There are a number of scheduled ancient monuments within the local area including a double-moated site located approximately 2.3km to the north-west of the proposed development; a bowl barrow situated 2.8km to the south-east of the proposed development; and the earthworks remains of a moated site, which is located 3.0km to the south.

5.16 The central historic part of Cheadle, situated over 1km to the north-east and Upper Tean situated over 1km to the south-east are designated as Conservation Areas.

5.17 Cecilly Brook Nature Reserve is situated in the town of Cheadle and located 1.9km to the north-east of the proposed development.

Landscape Baseline

5.18 Landscape assessment, as opposed to visual assessment, deals with the fabric, character and quality of the landscape. The landscape fabric consists of the elements that make up the landscape, such as landform, land use and cultural factors. The way these elements fit together in terms of proportion, pattern, scale, etc., gives rise to a particular landscape character. Changes to the fabric and character of a particular landscape may affect the perceived value of that landscape, giving rise to changes in its quality.

5.19 Potential landscape receptors can therefore include elements of the physical landscape that may be directly affected by the development such as: topographic, geological and drainage features; woodland, tree and hedgerow cover; land-use; field boundaries and artefacts[1].

5.20 This section of the assessment aims to assess the character and quality of the landscape in and around the application area by carrying out a subjective assessment, and by also examining particular factors objectively, in accordance with the guidelines defined by Countryside Agency (*op .cit)*.

5.21 Countryside Agency (*op. cit.*) guidelines make a clear distinction between the characterisation process (in which the attributes of the landscape are described) and the judgement making process. This sub-section of the assessment deals with the characterisation process and later sub-sections of this report make judgements about the potential effects of the proposals based upon the characterisation.

[1] Guidelines for Landscape and Visual Impact Assessment (Second Edition), paragraph 6.13

Existing Landscape Appraisals of the Application Site and its Surroundings

5.22 The Countryside Agency guidelines describe how Landscape Character Assessment can be applied at different scales, from the national to the parish level. Assessments are ideally prepared at different scales that should fit together as a nested series or hierarchy of landscape character types and/or areas, such that each level of assessment adds more detail to the one above. The three main levels are: national and regional scale; local authority scale; and local scale. This assessment uses and presents a summary of the relevant published assessments at national, regional and local authority scales. These wider character assessments are then used to provide the context for the local scale landscape assessment for the application site.

Countryside Agency's Character Areas

5.23 The application site and surrounding area is located within Countryside Agency's Character Area 64 *"Potteries and Churnet Valley"*. Key characteristics of this area are:

- *Strongly dissected hills and small plateau, rising up to the Pennines and cut by major river valleys;*
- *Strong contrast between remote uplands, urban areas, sheltered wooded valleys and hillside pastures;*
- *Prominent Millstone Grit and Coal Measures ridges;*
- *Sprawling industrial towns of the Potteries forming a major conurbation;*
- *Extensive former industrial and extractive sites, many now reclaimed, intermixed with settlements and open land;*
- *Open moorland and rough grazing on higher ground;*
- *Rural settlement pattern of sheltered villages on low ground with hamlets, scattered farmsteads and cottages elsewhere; and*
- *Brick and sandstone older buildings with tile and slate roofs.*

5.24 Countryside Agency's Character Area 68 "*Needwood and South Derbyshire Claylands*" is situated adjacent to the south of the application site.

Local Authority Landscape Assessment

5.25 The Supplementary Planning Guidance to the Staffordshire and Stoke on Trent Structure Plan 1996-2011 "Planning for Landscape Change" identifies the application site to be within an area of "*Dissected sandstone cloughes and valleys"* and is bordered to the south by *"Settled plateau farmland slopes"* and to the north by *"Ancient plateau farmland".*

5.26 Characteristic landscape features of "*Dissected sandstone cloughes and valleys*" are:

- *Steeply sloping landform with incised valleys;*
- *Broadleaved and conifer woodland;*
- *Stone walls and buildings;*
- *Small sunken enclosed lanes;*

- *Low intensity pastoral farming;*

5.27 Incongruous landscape features of "*Dissected sandstone cloughes and valleys"* are:

- *Past and present sand and gravel quarrying;*
- *Industrial sites;*
- *Stockproof fencing; and*
- *Busy main roads.*

5.28 Landscape quality of "*Dissected sandstone cloughes and valleys"* is described as *"currently limited by a decline in the condition of some of the characteristic landscape features described above and, to a lesser extent, the introduction of some incongruous features and the loss of some of the semi-natural vegetation characteristic of this landscape type. This landscape type is locally sensitive to the impacts of development and land use change."*

5.29 It was also identified that "*New woodland planting would be of particular value as a major component of the restoration of sand and gravel quarries, and the strategic siting of new native woodland could be very valuable in reducing the effects of fragmentation and isolation of ancient woodland. Design of woodlands both to landform and field pattern needs to be considered as appropriate. Both edge details and internal designs of woodlands are important and the scale of any planting should vary to reflect the scale of the landscape."*

Landscape Appraisal of the Application Site and its Surroundings

5.30 Countryside Agency guidance (*op. cit.)* recommends that the characterisation process should be based on an assessment of natural factors, cultural and social factors and aesthetic and perceptual factors. These factors have been examined for the application site's surroundings and the existing site as it stands today.

Natural Characteristics

5.31 The existing topography of the worked out parts of the application site varies as follows:

- The main central area which has been worked out and is enclosed by steep side slopes, varies in elevation between a series of terraces at 200m AOD in the west, 208m AOD associated with a central plateau area and 184m AOD associated with a large waterbody in the south-east;
- The quarry rim varies between 230m-235m AOD in the north-west, 210m AOD in the north-east, to 175m AOD in the south-east and 215m AOD in the south-west; and
- There are also a number of geological fissures within the site which are to be assessed and subject to remedial works as necessary to remove any potential hazards.

5.32 The topography of the surrounding local landscape can be summarised as follows:

- to the north the land drops away to the river valley at elevations of 145m AOD approximately 1km away, before rising up to higher ground such as around Cheadle Park at 233m AOD at approximately 2km away;
- to the east the land drops away to the river valley at elevations of 135m to 145m AOD approximately 0.4km away before rising up to higher ground such as around Gorstyhill at 230m AOD at approximately 1.5km away;
- to the south the land falls away to elevations of 160m AOD to 145m AOD to a valley associated with a small watercourse at 0.4km away, before rising up to higher ground between Grange Farm and Hilltop Farm at 203m AOD at approximately 1km away; and
- to the west the land rises gently to 253m AOD at St Thomas's Trees at approximately 2km away.

5.33 Table 1, the derivation of landscape character types and sub-types, of Staffordshire and Stoke on Trent's "Planning for Landscape Change" (*op cit*) identified the dominant solid geology as Palaeozoic and Triassic sandstones, with principal acid sands with some stagnogley soils. Heathland would be the characteristic semi-natural vegetation and the main farming activity would be mainly stock-rearing with regular and irregular, small to medium, hedged and walled field pattern amongst heavily wooded valleys.

5.34 Full details of the ecological context of the application area are described in Section 6. Drawing 5/1 presents a recent aerial photograph of the site and its surroundings, and identifies the area of proposed disturbance. The existing vegetation and land cover of the application site varies as follows:

- The main central area which has been worked out, includes 10.3ha of sandy and gravely bare ground and 22.5ha of various stages of natural regeneration grassland, gorse and broom scrub and birch woodland, with patches of Rhododendron and also areas of tree and shrub planting which has been carried out by the mineral operator. There are two rectangular waterbodies of less than 1ha and 3ha within the site;
- Beyond the quarry rim to the north and east there is 14.2ha mixed broadleaved (ancient) woodland and to the south 16.3ha of woodland and grassland with a small 0.5ha fishing pond and south-west a small 0.8ha field; and
- The old quarry site management area and tarmac access road which leads from the site entrance to the public highway, Cheadle Road / Draycott Cross Road covers approximately 0.5ha.

5.35 The vegetation and land cover in the local area can be summarised as generally agricultural land in all directions, which consists of neatly clipped hedgerows or fencing, numerous scattered hedgerow trees and occasional plantations/woodland. Arable farming is carried out where gradients allow access by machinery, with permanent pastures and woodland typically on the steeper slopes.

Cultural and Social Factors

5.36 The application site includes an area of historic mineral workings which ceased operation in 2004. Although there is some natural regeneration and restoration work completed around the side slopes, the visual character is generally of an abandoned state due to the regular, engineered topography and areas of bare ground with trespass, vandalism and the unauthorised use of motor vehicles.

5.37 There are several (active/disused) quarries located to the east of the application site and a disused opencast working is located to the north.

5.38 There are a number of residential buildings, farmsteads and settlements in the local area, including the following:

- Cheadle at approximately 0.5km to the north-east;
- Huntley House and village of Mobberley are situated approximately 0.2km to the east of the proposed development area;
- Teanford and the village of Upper Tean at approximately 1km to the south-east;
- Totmonslow and Draycott in the Moors at approximately 1km to the south; and
- Boundary at approximately 1km to the north-west.

5.39 There are a number of public highways in the local area, including the following:

- A minor road which passes around the northern and eastern boundary of the site;
- The A522 lies to 0.55km to the east of the site and connects Cheadle with Upper Tean;
- The A50 road which runs roughly from east to west is situated approximately 2km to the south of the application site; and
- The Cheadle Road at approximately 0.1km from the west of the site.

5.40 There is a public right of way that crosses the northern part of the site, running through the woodland around to the south-east and connects the site, via other public rights of way, with Huntley House in the east and Harplow Lane to the north.

5.41 Several public rights of way exist within the vicinity of the application site:

- connection between Cheadle Road with Huntley Lane and runs along the application site's southern boundary;
- connection between Harplow Lane with Cheadle to the north-east;
- connection between Huntley Lane with Cheadle to the north-east;
- Breach Lane towards Huntley Lane to the south-east;
- connection between Totmonslow and Hollow farm to the south; and
- from the Cheadle Road to the village of Boundary.

5.42 The Staffordshire Moorlands walks, a national trail, is situated at 1.5km to the north-west.

Aesthetic & Perceptual Aspects

5.43 The Table 5/4 summarises the main aesthetic characteristics of the application site and its surroundings, according to the categories identified within The Countryside Agency's latest guidance[2].

Table 5/4
Aesthetic Attributes of the Landscape within and around the Application Site

Aesthetic Factors	
Scale	The application site and surrounding areas are of medium to large scale due to the size of the redundant excavation, undulating topography and agricultural field patterns. Several areas of woodland and pasture fields associated with the valleys are of a smaller scale.
Enclosure	The application site mainly consists of recently disused mineral workings which are enclosed, to varying degrees, although once beyond the quarry rim the rolling topography and farmland is more open and exposed.
Diversity	The application site is diverse due to topography and vegetation cover, although the surrounding farmland areas are typically simpler with localised areas of diversity associated with roads, scattered farmsteads and buildings.
Texture	The application site is smooth to rough, depending on the degree of natural regeneration or other vegetation. The surrounding farmland areas are generally smooth to textured.
Form and Line	The application site is typically sloping and angular associated with the quarry workings, although the waterbodies and plateau terracing are more horizontal. The surrounding farmland is rolling to horizontal in form with straight and angular lines from neatly clipped hedgerows, roads, scattered farmsteads and buildings.
Colour	Areas of abandoned and regenerating mineral extraction are colourful to muted, depending on the degree of vegetation cover. In the surrounding farmland in the winter, the brown and red tinged ploughed fields and dark greens of the trees and woodlands would be muted and contrast strongly with the brighter greens of the permanent pastures. In summer, the landscape would be generally more colourful due to varying light, dark and yellow green hues. Waterbodies, roads, scattered farmsteads and buildings would be more constant monochrome colour.
Balance	The application site is typically discordant to chaotic associated with the recently disused workings. The surrounding farmland consists of balanced relationship of agricultural fields with scattered trees, hedgerows and woodland. Distribution of farmsteads, properties and connecting roads are more discordant to chaotic.
Movement	The recently disused mineral workings and woodland within the site, as well as the surrounding farmland are typically calm to still, depending on weather conditions and occasional use by machinery or other vehicles. Main roads in the local area are busy, although other minor "B" roads in the area are calm and occasionally busy.
Pattern	The worked out areas of the site are typically random, which contrasts with the more regular pattern of surrounding farmland.

2 'Landscape Character Assessment' – Countryside Agency and Scottish Natural Heritage (2002) – Box 5.1

Landscape Dynamics

5.44 The application site includes an area of disused sand and gravel quarry. There is no permitted restoration scheme in place although the terms of the current planning consent requires a beneficial afteruse to be agreed with the Local Planning Authority prior to implementation.

5.45 In the absence of this development, it is assumed that an ecological based scheme would be the likely restoration scheme for the site. This would utilise natural processes such that birch and gorse scrub would continue to colonise the remaining open areas forming dense stands and gradually restricting the already limited ground flora. The existing areas of scrub and woodland would also continue to mature to form a silver birch dominated canopy with other species of trees through previous planting or regeneration providing variation in species composition, age and vegetation structure. Acid grassland would still be present in small patches in the more open areas of woodland and where scrub development is kept in check by grazing rabbits. The unchecked growth of Rhododendron would continue to be a problem and would eventually cover or dominate the majority of the site. With the exception of the fishing pond all the other ponds are likely to gradually suffer from the accumulation of silts entering these water bodies from surface run-off carrying high loadings of sand with the marginal vegetation succeeding to more swamp type communities.

5.46 In addition to the ecological conditions described above, the site would continue to exhibit the worked-out topography characteristics and also potentially existing levels of vandalism and trespass.

5.47 Therefore, whilst the baseline for this assessment acknowledges the site's current condition, it also acknowledges that the landscape in the local area is transient and would be subject to varying degrees of positive and negative change as a result of the existing planning permission, depending on the nature of the final restoration scheme.

Landscape Classification & Evaluation

5.48 The application site is mainly associated with recently disused mineral workings, which although there is some natural regeneration and restoration work completed around the side slopes the character is of a largely abandoned/derelict state. Overall the character of the majority of the site would therefore be of "abandoned mineral workings" set amongst "mature woodland and pastoral farming".

5.49 In this respect the site is consistent with the key characteristics of the "*Dissected sandstone cloughes and valleys*" defined by Staffordshire and Stoke on Trent's Planning for Landscape Change (*op. cit*.), although it would be considered to be an incongruous element.

5.50 Eventually over very long timescales, the natural development of woodland may disguise the worked out character of the site and rendering the site less incongruous. The steep-sided, vertical to sloping and angular topography would nevertheless remain.

Potential for Landscape Enhancement

5.51 As discussed above, Staffordshire and Stoke on Trent's Planning for Landscape Change (*op. cit*.), identified that the restoration of sand and gravel quarries within "*Dissected sandstone cloughes and valleys*" should include new native woodland planting to reduce the effects of fragmentation and isolation of ancient woodland, with a particular emphasis on edge details and internal designs.

Conclusions on the Landscape Appraisal

5.52 This section has assessed the character and quality of the landscape in and around the application site by carrying out an objective and subjective assessment.

5.53 The application site includes recently disused mineral workings, the old quarry access road, areas of ancient woodland and other establishing habitats. Whilst there is some natural regeneration and restoration work completed around the side slopes, the appearance is of a largely abandoned/derelict state. Overall the character of the majority of the site would therefore be of "abandoned mineral workings" set amongst "mature woodland and pastoral farming".

5.54 In the long-term if left to natural regeneration, the site may become more assimilated into its surroundings in terms of developing a more continuous woodland cover, however the steep-sided, vertical to sloping and angular topography would remain.

Visual Baseline

5.55 Visual impact assessment relates to "*changes that arise in the composition of the available views as a result of changes to the landscape, to peoples' responses to the changes and to the overall effects with respect to visual amenity*" (Guidelines for Landscape and Visual Impact Assessment, Second Edition, op .cit.).

5.56 Potential visual receptors can include the public or community at large, residents, visitors and other groups of viewers as well as the visual amenity of people affected[3].

5.57 Initially it is necessary to define the extent of visibility both within and outside the application site. Viewpoints are then selected to represent views from the most commonly used locations in and around the application site, and the existing views from each of these points are briefly described with the aid of photographs.

Visibility of the Application site

[3] Guidelines for Landscape and Visual Impact Assessment (Second Edition), paragraph 6.3

5.58 The visibility of the application site was initially assessed by undertaking 3D computer modelling and calculation of the zone of theoretical visibility (ZTV) of the proposed golf course landform using LSS (McCarthy Taylor), as described below (illustrated by Drawing 5/2 and the method statement provided in Appendix 5/1).

5.59 The ZTV does not take account of any vegetation or off site buildings and therefore represents a worse case scenario; vegetation can significantly reduce the actual visibility of the application site and the ZTV should therefore always be used in conjunction with more detailed site assessment. However, as an initial exercise, the computer generated ZTV is very useful as it allows comparisons to be made between both potential areas of visibility and visual receptors.

5.60 An initial study of the Ordnance Survey 1:25,000 map was made to identify potential viewpoints based on the following criteria:

- proximity to the site;
- high concentrations of viewers, such as settlements, local recreational facilities, etc.;
- views from designated areas, private properties, footpaths and other receptors;
- views illustrating the visual character of the surrounding area; and
- areas identified as having a high potential for visual impact from the ZVI.

5.61 Photographs and fieldwork analysis of views of the application site were then undertaken from the surrounding landscape, to validate and check the ZTV. The object was to determine which locations offer the clearest views of the application site and are most accessible to the public, as well as illustrating the general range of views possible.

5.62 The site is located within a well wooded and undulating location and little of the main worked out site is visible from outside of its boundaries. The edges of the site, beyond the quarry rim however are visible over greater distances.

5.63 The visibility of the application site is therefore restricted to varying degrees by:

- the topography of the adjacent land, where most views are either at a similar elevation or lower and would thus only perceive the elevated elements of the proposals;
- existing trees, woodlands and hedgerows which provide full or partial screening of the vertical elements from the various locations within the surrounding landscape; and
- farmsteads and other buildings which provide full or partial screening of vertical elements.

Viewpoints

5.64 Viewpoints[4] are selected on the basis of which points provide the clearest views of the application site and are also the most accessible to the public. Viewpoints may also represent views from areas which are not commonly used by the public, or which would provide less clear views of the proposals. Viewpoints may also represent areas which may be perceived to be sensitive to the visual impact of the proposals due to their nature or proximity, but which in reality have restricted views of the site. Drawing 5/2 illustrates the viewpoint locations.

Table 5/5
List of Viewpoints

Viewpoint	Description	Drawing No.
Viewpoint 1	Public right of way to the north of the site	5/4
Viewpoint 2	Public right of way to the east of the site	5/4
Viewpoint 3	Public right of way to the east of the site on the edge of Huntley.	5/5
Viewpoint 4	Public right of way by Coneygreave	5/6
Viewpoint 5	Public right of way on minor road next to The Breach	5/7
Viewpoint 6	Public right of way on elevated ground to the south-west	5/7
Viewpoint 7	Public right of way to the south of the site by the site entrance	5/8
Viewpoint 8	Cheadle Road by Lyndhurst	5/8
Viewpoint 9	Delphouse Road by Boundary	5/9
Viewpoint 10	Edge of Cheadle	5/9

Potential for Visual Enhancement

5.65 The potential for visual enhancement of the application site is closely-related to the potential for landscape enhancement as described above, such as new native woodland planting/revegetation of the worked out void.

Conclusions of the Visual Assessment

5.66 This section has assessed the visibility of the site which is located within a heavily wooded and undulating area where little of the main worked out site can be seen from outside of its boundaries. The edges of the site, beyond the quarry rim however are visible over greater distances.

5.67 Representative viewpoints have been selected to represent views from the most commonly used locations in the surrounding area and potential visual receptors.

5.68 Opportunities for visual enhancement have been identified and these are closely related to the opportunities for landscape enhancement.

[4] Guidelines for Landscape and Visual Impact Assessment (Second Edition) Paragraph 6.29

Landscape and Visual Implications of the Proposals

Summary of Proposals

5.69 The extent and nature of the proposals is described in Sections 3 of this Environmental Statement and also the Planning, Design and Access Statement, 21st September 2006, prepared by Architectural and Surveying Services Ltd. The following items have been examined in detail due to their specific landscape and visual implications:

- Change of use of land to an 18-hole golf course;
- Erection of clubhouse, caretakers house and green keepers building;
- Construction of car parking areas; and
- Importation of 360,000m^3 inert waste to form the tees, fairways and greens.

Potential Landscape and Visual Elements of the Proposals

5.70 The new buildings are the minimum necessary to provide facilities for the quality of golf course proposed and would generally be located on existing hard-standing.

5.71 The clubhouse has been designed to accommodate 100 members at any one time, although the overall membership would be greater than this. It would measure 19m x 19m and be single storey with a hipped roof, 5m to the ridge and 3m to the eaves. It would be constructed from building materials to match the local character to be agreed with the local planning authority.

5.72 The green keeper's building would be a functional maintenance building constructed of profile sheet, steel clad walls, which would be coloured green. It would measure approximately 23m x 9m and be single storey with a shallow pitched roof, 4m to the ridge and 3m to the eaves. It would be constructed from building materials to match the local character to be agreed with the local planning authority.

5.73 The caretaker's building is proposed to offer round the clock service to members and a security presence. It would contain 3 bedrooms and be approximately 8.7m x 6m and be 2 storey, 5m to the ridge and 3m to eaves. It would be constructed from building materials to match the local character to be agreed with the local planning authority.

5.74 The scale of the development proposed is constrained by the size of the site, which permits only a single 18 hole golf course, which is the minimum scale at which such as operation is commercially viable.

5.75 Landfilling and associated earthworks would be carried out to create 18 strips of the land through the site to form the tees, fairways and greens. Drawing 5/11 shows two cross sections through the site. These cross sections show the existing landform and the extent of areas where material would be placed to form the fairways.

5.76 Outside the strips of fill, there are additional areas of disturbance associated with cut and/or fill to enable marrying in to the landform and elements of the existing landscape.

5.77 It would therefore be necessary to clear limited areas of vegetation and existing woodland to create the golf course layout proposed. The final golf course layout includes additional and compensatory planting and habitat and provision for long-term management of the site as a whole.

5.78 A wheel washer would be installed close to the exit of the site to remove mud to prevent the deposition of material on the highway.

5.79 A temporary mobile site office would be installed on site close to the entrance for the duration of the tipping operation to provide security and to manage the tipping.

Timescales of Potential Impacts

5.80 The proposed operations for the infilling operations would commence immediately following receipt of planning permission. Infilling would then be carried out over a period of two years on a progressive basis.

5.81 Landscaping of the golf course would be expected to take approximately 6 months to complete following completion of infilling. The construction of built development associated with the golf course, such as club house, green keepers building and car parking would run concurrently with the infilling and landscaping operations.

5.82 The proposed after use of the site as a golf course would then be established on a permanent basis.

5.83 During the period of infilling, landscaping and construction works, the proposed operational hours of the site would be as follows:

- Monday to Friday: 0700 – 1700 hours
- Saturday: 0700 – 1300 hours

5.84 The proposed opening hours of the golf course would be as follows:

- Monday to Sunday: 0700 – 1900hours

5.85 These hours would naturally be reduced in accordance with the available daylight hours during the winter months.

5.86 The Clubhouse present within the site is likely to provide male and female toilet and locker facilities, as well as a bar and pro shop. The opening hours for the clubhouse would therefore need to be slightly later than the golf course. The opening hours for the club house would be dependant upon the licensing arrangements, however they are likely to include:

- Monday – Sunday 0700 – 0100 hours

5.87 Such hours would be necessary in order to provide changing and welfare facilities from early morning to early evening. The bar and restaurant facilities would operate in accordance with licensing agreements, however would need to be later in accordance with standard public house hours.

Potential Indirect Impacts

5.88 The main indirect impact would be from traffic generated from the development, as this would have a potential visual impact for other users of the local communication network, and a general impact on the scenic quality of local views.

5.89 All heavy vehicles transporting inert waste to the site would be for a temporary period. Subsequent golf course traffic is assumed to be mainly member's cars and commercial delivery vehicles, although this would be operating throughout the entire week.

5.90 It is not envisaged that the proposals represent a significant additional indirect visual impact in this respect.

Lighting

5.91 Lighting would be provided within the car park and surrounding the club house. This would be designed to enable good visibility for those users with poor eyesight whilst also adding to the security of the facilities. All lighting would be designed to avoid light pollution and it is proposed to deal with a detailed lighting scheme as part of a planning condition.

Proposed Mitigation Measures

5.92 The restoration of the site to a golf course after use would provide the principal medium and long-term mitigation measures. These have been designed to enhance wildlife habitats and be sympathetic to the area's local landscape character and were described by STRI[5] as follows:

- *Create a safe site through filling and subtle reprofiling;*
- *Use fill to raise and manage levels as part of a designed restoration scheme;*
- *Make use of the existing qualities of the site to include maintenance of the rugged landscape and lakes whilst maintaining short, medium and long distance views through the landscape;*
- *Improve diversity giving particular emphasis to increasing the heathland resource;*
- *Use local native trees and shrubs including ash, birch, oak, rowan, whitebeam, field maple, scots pine, blackthorn, hazel, hawthorn, holly;*
- *Provide an exciting and challenging golfing experience that will attract wide interest;*

5 'Ecological Assessment of the Huntley Wood Site' 1st August 2006 – STRI, Bingley West Yorkshire

- *Retain fishing and walking facilities that already exist on site whilst allowing for additional provision wherever possible; and*
- *Create a land use that generates income and guarantees future management.*

5.93 All working areas would be kept to a minimum through the site. All routes in and out will be clearly delineated and fenced at the commencement of works.

5.94 The construction of the golf course would be undertaken in a phased approach working from the west of the site to the east. This would ensure that any site clearance, infilling, reforming and construction activities would not affect the whole site at any one time and provide on site refuges for individual and groups of species.

5.95 All ancient woodland soils would be stripped and recovered for later re-use in accordance with MAFF Good Practice Guide for Handling Soils[6]. The remaining parts of the ancient woodland that are unaffected by the proposed development would be managed according to best practice and a woodland management plan to be prepared. For example, the removal and control of invasive Rhododendron.

5.96 Non-playing areas of the golf course would be identified for the creation of heathland and acid grassland habitats or through restoration actions on the existing resources that may be present in these areas. Where appropriate clean sand and gravels would be excavated and stockpiled to not only be used over any imported material to the site in the construction of the golf course but also to provide nutrient poor, acid and free draining substrate for heathland and acid grassland development as well as providing areas of bare substrate for invertebrates.

5.97 The management of the teeing grounds, fairways, greens and rough will be undertaken in a sympathetic way and in a manner to ensure areas outside these playing areas are not affected from the use of pesticides, fertilisers and irrigation.

Predicted Residual Landscape Impacts

5.98 Following the assessment of the baseline and potential elements of the development likely to cause change to that baseline, a detailed assessment of the possible sensitivity and magnitude of those changes can be made.

Landscape Sensitivity

5.99 Sensitivity is categorised as high, medium, low or negligible, according to the degree to which a particular landscape or area can accommodate change arising from a particular development, without detrimental effects on its character.

5.100 The sensitivity of the existing landscape resource is based on the following factors:

[6] MAFF (2000), Good Practice Guide for Handling Soils, FRCA:Cambridge

- the value placed on the landscape;
- compatibility of the proposed development with the existing land-uses and landscape character;
- condition of the landscape;
- contribution of the landscape within the site to the overall landscape character;
- the scope for mitigation of the proposed development; and
- degree to which landscape elements and characteristics can be replaced or substituted.

5.101 It has been identified that different parts of the site would have different sensitivities to the proposed development, influenced largely by the historic quarrying activity and the presence of ancient woodland. Table 5/6[7] illustrates how the above criteria have been appraised to gain an understanding of the sensitivity of the application site both as a whole and as individual parts.

5.102 Overall the landscape of the application site is considered to have a medium to high sensitivity to the landscape changes arising from the proposed development.

[7] Guidelines for Landscape and Visual Impact Assessment (Second Edition), paragraphs 7.16 and 7.17

Table 5/6
Sensitivity of the Landscape to the Proposals

Landscape Element	Description	Sensitivity of Ancient Woodland
Ability to Accommodate Change	The ancient woodland has very limited ability to accommodate change. The un-worked areas have a variety of vegetation types and ages and therefore a variable ability to accommodate change. The worked out parts of the site, whilst having limited areas of natural regeneration are relatively recent and overall this slightly increases the ability to accommodate change.	Medium to High
Quality and Condition	The worked out quarry is lacking in landscape features and therefore of a low landscape quality and condition. The ancient woodland is of a higher quality and condition, although Rhododendron has invaded both the worked and unworked parts of the site including the ancient woodland, which is affecting the overall condition. It is assumed that this would continue in the absence of this development.	Medium
Value	The site is not covered by any national landscape designations, but is within a Special Landscape Area and within Green Belt. Parts of the site are designated as a Grade 1 SBI and Ancient Woodland.	High
Contribution to Character	With the exception of the areas of natural regeneration and completed restoration planting, the character of the worked out areas, remains in a largely abandoned/derelict state and is an incongruous element amongst pastoral farming and mature woodland.	Medium
Ability to Replace or Substitute Elements	The proposed development has the potential to replace the worked out quarry areas with a beneficial afteruse. Any trees or other secondary natural regeneration to be removed either within or outwith the worked out areas could be replaced as part of the development. However, the ancient woodland habitat has limited ability for replacement, in particular ground flora and soils biodiversity.	Medium to High
Overall Landscape Sensitivity to the Proposed Development		Medium to High

Magnitude of Landscape Impacts

5.103 The magnitude of landscape impacts, which are categorised as high, medium, low or negligible, depends upon the following factors[8]:

- the scale or degree of change to the existing landscape resource;
- the nature of the change caused by the proposals (for example, beneficial or adverse); and
- the timescale or phasing of the proposals.

5.104 The magnitude of change is categorised as high, medium, low or negligible.

Predicted Residual Landscape Impacts

5.105 The baseline landscape assessment identified the important elements and character of the local landscape. The predicted landscape changes to the application site and its surroundings which would occur as a result of the proposals are discussed below, according to changes to: natural characteristics; cultural and social factors; aesthetic and perceptual factors; and changes in classification and evaluation.

5.106 The construction phases of the development (including the landfilling) represent short to medium term impacts, whereas the final golf course restoration scheme represents the principal medium to long-term landscape impact.

Changes in Natural Characteristics

5.107 The initial site development and landfilling would generate landform changes, to varying degrees, as illustrated by Drawing 5/3 and as follows:

- Gradients for fairways would vary between 1:5 and 1:50;
- Gradients for greens would vary between 1:12 and 1:60; and
- Gradients for tees would be generally flat with a cross fall of 1:100.

5.108 Approximately 25.2ha of the site would be disturbed by the proposed golf course layout; 21ha would be filled with imported inert waste and 4.2ha would be re-graded or reduced by cutting. There would be additional minor areas of disturbance associated with temporary haul routes, etc.

5.109 A total of 5ha of the proposed disturbance would take place within the overall 10.3ha of sand and gravely bare ground located within the main central area of the site. The remaining 20.2ha of proposed disturbance would affect established and establishing habitats including woodland, scrub and to a lesser extent also areas of tree and shrub planting and grassland.

5.110 Approximately 1.2ha of an overall area of 14.2ha of ancient woodland would be directly affected by the limit of disturbance (i.e. cut or fill), although there may be additional effects upon individual trees that are outside this footprint

[8] Guidelines for Landscape and Visual Impact Assessment (Second Edition) Paragraphs 7.18 and 7.23

where root protection zones are affected. In addition Huntley Wood SBI would also be affected by the development.

5.111 The clubhouse, car park, terrace, main access road, caretakers house and greenkeeper's building would occupy an additional 0.5ha, of which 0.3ha is already hardstanding being associated with the quarry access.

5.112 The 3 existing waterbodies on the site total 4ha. Of this, 0.6ha would be filled in, whilst 2 new lagoons will be excavated within the centre of the site, totalling 0.2ha.

5.113 The tees, fairways and greens would subsequently occupy 12.9ha. The remaining 12.3ha of the overall area of disturbance would be restored to a variety of habitats, including heathland, tree and shrub planting.

5.114 In addition there would be 5.3ha of habitat restored on existing bare ground.

5.115 All new habitats would be managed, for example preventing the reversion of selected areas of heathland and grassland to scrub or woodland. Lowland Heathland is identified as priority habitats in the national and local Biodiversity Action Plans, but requires constant human intervention/management.

5.116 The remaining parts of the ancient woodland and Huntley Wood SBI that are unaffected by the proposed development would be managed according to best practice and a woodland management plan to be prepared.

5.117 By undertaking nature conservation management within the site as a whole the negative effects of temporary disturbance would be compensated and are likely to generate long-term residual positive ecological effects.

Changes in Cultural and Social Factors

5.118 The proposed earthworks associated with Hole 7 at the east of the site would directly affect approximately 100m of public right of way. The route would be temporarily diverted during construction phases, but would be returned to the original route with longitudinal gradients along 50m to be steepened up from 1:4 to 1:2.5.

5.119 Pathways around the final golf course would accommodate buggies and wheelchairs, although this would not be open to the general public.

5.120 Vehicular access to the golf course would be via the existing, redundant quarry entrance to the south of the site, which connects with Cheadle Road.

Changes in Aesthetic & Perceptual Aspects

5.121 The site preparation and landfill stages of the development would generate changes to aesthetic and perceptual aspects to the application site to varying degrees as follows:

- the earthworks and landfilling would be more complex and rough, with a more sloping to vertical form and angular lines, more colourful to muted, discordant to chaotic and more random due to the introduction of new landforms and substrates; and
- more movement and disturbance associated with plant and machinery during working hours.

5.122 The golf course afteruse stages of the development would then generate changes to aesthetic and perceptual aspects, to varying degrees. However the main difference would be the introduction of golf course greens and tees, and to a lesser extent the fairways, which would contrast in colour and texture with the rest of the course (and semi-natural habitats) and also the surrounding landscape due to grass species, irrigation, mowing regime, mowing pattern and fertiliser applications.

Changes in Classification and Evaluation

5.123 The site development and landfill stages would temporarily alter the local landscape character type of the application site from "abandoned mineral workings" set amongst "mature woodland and pastoral farming" to "industrial landfill site" set amongst "mature woodland and pastoral farming".

5.124 Final restoration would subsequently ensure permanent alteration of the site to "golf course" set amongst "mature woodland and pastoral farming".

5.125 Whilst these changes would introduce new landscape features to the area, the site would remain consistent with the key characteristics of the "*Dissected sandstone cloughes and valleys*" defined by Staffordshire and Stoke on Trent's Planning for Landscape Change (*op. cit*.). After restoration the proposals would help to ameliorate an existing incongruous element (past sand and gravel quarrying) at a faster rate that if it were left to natural regeneration.

Magnitude of Landscape Impacts

5.126 The overall magnitude of landscape impacts during construction phases (including landfilling) would be medium and adverse, in summary due to the following:

- Introduction of a new large-scale, but temporary industrial land-use;
- Approximately 35% of the site would be disturbed by the development;
- Around 10% of the existing ancient woodland being subject to physical removal as a result of landfilling and associated earthworks; and
- Of the overall area of disturbance around 25% would be situated on existing bare ground within the old quarry areas, while the remaining 75% would affect existing habitats.

5.127 The overall magnitude of landscape impact following final restoration would be low and beneficial, in summary due to the following:

- Following restoration approximately 50% of the disturbed ground would be returned to habitats and 50% to be more intensively managed tees, greens and fairways (which is around 18% of the site)
- The proposed buildings and car parks would cover around 1% of the site; and
- The proposed landscaping would ensure the amelioration of an existing incongruous landscape element and establish longer term management of the site. In particular areas of ancient woodland would be prevented from any further deterioration, such as by spread of Rhododendron and areas of heathland would be maintained rather than being left to revert to scrub or woodland.

Summary of Residual Landscape Impacts

5.128 The magnitude of landscape impact of the proposals during working would be medium, but adverse. Most of the site would be undisturbed and some of the proposed disturbance would take place with existing areas of bare ground.

5.129 Following restoration, the magnitude of landscape impact would be low and beneficial. Half of the disturbed area of ground would be returned to habitats and half to tees, greens, fairways and to a lesser extent buildings and car parks. The entire site would be managed to enhance recreational and ecological potential.

5.130 Overall these changes would not alter the essential character of the local landscape and would be consistent with the key characteristics of the "*Dissected sandstone cloughes and valleys*" defined by Staffordshire and Stoke on Trent's Planning for Landscape Change (*op. cit*.).

Predicted Residual Visual Impacts

Sensitivity of Viewpoints

5.131 The list of identified viewpoints set out in Table 5/7 below also includes a brief assessment of their sensitivity, categorised as high, medium, low or negligible. Sensitivity depends on the following factors[9]:

- the location and context of the viewpoint;
- the number of viewers who commonly use the viewpoint. Some viewpoints are commonly used by the public, such as formal viewing platforms, picnic areas or recreational rights of way. Other viewpoints may be difficult to gain access to;
- the nature of the viewpoint. Residential properties are sensitive to visual impacts as the residents experience the impacts on a regular and prolonged basis. Public footpaths can also be sensitive, since the users' attention is often focused on the landscape. By contrast, views from outdoor sport facilities, transport routes or places of work are less sensitive;

[9] Guidelines for Landscape and Visual Impact Assessment (Second Edition) Paragraphs 7.31 and 7.35

- movement of viewers at the viewpoint. More transitory views, for example from a motorway, are generally less sensitive than views experienced from residential properties and footpaths; and
- the cultural significance of the viewpoint, including its appearance in guidebooks and tourist maps, or cultural and historical associations.

Table 5/7
Sensitivity of Viewpoints

Viewpoint	Description	Sensitivity
Viewpoint 1	Represents views obtained by users of the public right of way to the north of the site, within Special Landscape Area and Green Belt	Medium to high
Viewpoint 2	Represents views obtained by users of the public right of way to the east of the site, within Special Landscape Area and Green Belt	Medium to high
Viewpoint 3	Represents views obtained by users of the public right of way to the east of the site on the edge of small hamlet of Huntley, within Special Landscape Area and Green Belt.	High
Viewpoint 4	Represents views obtained by users of the public right of way by isolated farmstead of Coneygreave, within Special Landscape Area and Green Belt	Medium to high
Viewpoint 5	Represents views obtained by users of the public right of way on minor road next to isolated properties bt The Breach, within Special Landscape Area on the edge of Green Belt	Medium to high
Viewpoint 6	Represents views obtained by users of the public right of way on elevated ground to the south-west, within Special Landscape Area and Green Belt	Medium to high
Viewpoint 7	Represents views obtained by users of the Public right of way to the south of the site by the site entrance, within Special Landscape Area and Green Belt	Medium to high
Viewpoint 8	Represents views obtained by users of the Cheadle Road by isolated property at Lyndhurst, within Special Landscape Area and Green Belt	Medium
Viewpoint 9	Represents views obtained by users of the Delphouse Road by residential properties at Boundary, within Special Landscape Area and Green Belt	Medium to high
Viewpoint 10	Represents views obtained by residents on the edge of Cheadle, Special Landscape Area and Green Belt	Medium to high

5.132 The potential visual effects of the proposed development on the surrounding landscape and in particular the views from identified viewpoints, have been assessed with the aid of plans and site assessment, and are described in detail below.

Magnitude of Visual Impacts

5.133 For each of the viewpoints the potential magnitude of the residual visual impacts, taking into account the proposed mitigation, has been assessed.

The magnitude of visual impacts is mainly dependent upon the following factors[10]:

- what proportion of the existing view would change as a result of the development proposals?
- how many features or elements within the view would be changed?
- how appropriate are the proposals in the context of the existing views?
- how many viewers would be affected by the changes in the view?
- what is the timescale of the proposals? Also, is it continuous or intermittent? and
- what is the angle of the view in relation the main activity of the receptor?

5.134 The magnitude of change for all of the viewpoints was assessed with the aid of photographs, plans and 3D computer models and is described below.

ZTV Analysis

5.135 As discussed above, ZTVs were calculated for the proposed fairways, greens and tees, i.e. the areas of landfill and re-grading (as shown on Drawing 5/2) and using LSS according to the method statement described in Appendix 5/1.

5.136 The ZTV output file from LSS calculates, for every receptor point, not just whether the development can be seen, but also what vertical angle of the development can be seen. This provides a useful initial guide as to the size and scale of the proposed development and therefore the likely potential magnitude of visual change at any point around the site: in general terms, for the type of development proposed, less than 0.25˚ of visible vertical angle would have the potential to be not visible or insignificant, between 0.25˚ and 1˚ would have the potential to be low, between 1˚ and 3˚ would have the potential to be medium and over 3˚ would have the potential to be high. For comparison, a two storey house, at an average height of 8m, would subtend a vertical angle of 4.58˚ at 100m, 2.29˚ at 200m, 0.92˚ at 500m and 0.46˚ at 1km.

5.137 As an initial exercise, the computer generated ZTV allows for analysis of the potential visibility of the proposed development from specific visual receptors/viewpoints. However, the ZTV analysis must always be used in conjunction with an analysis of the other factors described above, such as appropriateness of the change and the overall proportion of the existing view that would change. Landfill and other associated earthworks, for example, can affect a wide visible horizontal angle, whilst only affecting a low visible vertical angle.

5.138 The ZTV is calculated on landform only, without any consideration of vegetation or buildings and therefore it present a worse case scenario; vegetation can significantly reduce the actual visibility of a feature and the ZTV should always be used in conjunction with more detailed site assessment and analysis of photographs/actual views.

[10] Guidelines for Landscape and Visual Impact Assess*men*t (Second Edition) Paragraph 7.36

Viewpoint 1 – Public Right of Way to the north of the site

5.139 The field visit and photograph indicate that views to the south are screened by woodland and rising ridgeline. The existing abandoned quarry is not visible.

5.140 The initial ZTV calculations indicate that the visible vertical subtended angle of the proposed area of landfill and re-grading for the golf course would constitute 0.86˚. However, further analysis of LSS 3D computer models and photographs indicate that only limited views of the re-grading required to form part of the tee complex for Hole 5 would be visible through gaps in intervening vegetation and therefore constitute a small part of the overall view. There would be no landfilling visible.

5.141 The close up views of earthworks and machinery movements would contrast with the current woodland elements. Final restoration to golf course would assimilate more with the current woodland elements.

5.142 The LSS 3D model indicated that the proposed greenkeeper's building, caretaker's house and club house would not be visible, due to intervening landform.

5.143 Views into the site would be greatest in winter with the absence of foliage. Clearance of Rhododendron as part of the proposed woodland management would increase filtered views through the woodland.

5.144 Taking the above into account, the magnitude of visual change during working would be negligible to low and adverse and following restoration would be negligible and neutral.

Principal Viewpoint 2 – Public Right of Way to the east of the site

5.145 The field visit and photograph indicate that views to the west are screened by woodland and rising ridgeline. The existing abandoned quarry is not visible, with the only noticeable feature being the yellow warning sign ("Deep Quarry Keep Out") attached to a tree and the post and wire fence.

5.146 The initial ZTV calculations indicate that the visible vertical subtended angle of the proposed area of landfill and re-grading for the golf course would constitute 13.64˚. Further analysis of LSS 3D computer models and photographs indicate that a wide horizontal angle of view of Hole 7 would be visible through gaps in intervening vegetation and therefore constitute a relatively large part of the overall view.

5.147 The close up views of earthworks, landfilling and machinery movements would contrast with the current woodland elements. Final restoration to golf course would assimilate more with the current woodland elements, but would nevertheless alter the existing visual character of a naturalistic woodland to a more managed woodland setting.

5.148 The LSS 3D model indicated that the proposed greenkeeper's building, caretaker's house and club house would not be visible, due to intervening landform.

5.149 Views into the site would be greatest in winter with the absence of foliage. Clearance of Rhododendron as part of the proposed woodland management would increase filtered views through the woodland.

5.150 Taking the above into account, the magnitude of visual change during working would be high and adverse and following restoration would be low and adverse.

Principal Viewpoint 3 - Public Right of Way to the east of the site on the edge of Huntley

5.151 The field visit and photograph indicate that views to the west are screened by woodland and rising, undulating ridgeline. The existing abandoned quarry is not visible.

5.152 The initial ZTV calculations indicate that the visible vertical subtended angle of the proposed area of landfill and re-grading for the golf course would constitute 1.2˚. Further analysis of LSS 3D computer models indicate that three relatively narrow sections of Hole 7 would be visible on along the ridge, spread over a relatively wide horizontal angle of view but would not constitute a large part of the overall view.

5.153 However whilst views of earthworks, landfilling and machinery movements would contrast with the current woodland elements the photographs indicate they would be largely screened by intervening mature woodland, as further illustrated by cross sections on Drawing 5/10.

5.154 Filtered views into the site would be greatest in winter with the absence of foliage. Final restoration to golf course would assimilate more with the current woodland elements.

5.155 The LSS 3D model indicated that the proposed greenkeeper's building, caretaker's house and club house would not be visible, due to intervening landform.

5.156 Taking the above into account, the magnitude of visual change during working would be negligible to low and adverse and following restoration would be negligible and neutral.

Principal Viewpoint 4 – Public Right of Way by Coneygreave

5.157 The field visit and photograph indicate that views to the north are screened by scrub, woodland and rising, undulating ridgeline. The existing abandoned quarry is not visible.

5.158 The initial ZTV calculations indicate that the visible vertical subtended angle of the proposed area of landfill and re-grading for the golf course would constitute 5˚. Further analysis of LSS 3D computer models indicate that a

wide horizontal angle of view of Hole 8 in the foreground and Hole 10 further away would constitute a relatively large part of the overall view.

5.159 However, whilst views of earthworks, landfilling and machinery movements would contrast with the current woodland elements, the photographs indicate they would be largely screened by intervening vegetation. This is further illustrated by cross sections on Drawing 5/10 and the mosaic of intervening vegetation in between the strips of disturbance.

5.160 Filtered views into the site would be greatest in winter with the absence of foliage. Final restoration to golf course would assimilate more with the current woodland elements.

5.161 The LSS 3D model indicated that the proposed club house would be screened by intervening landform but the greenkeeper's building and caretaker's house would be small and above the ridge, but would not be visible due to intervening vegetation.

5.162 Taking the above into account, the magnitude of visual change during working would be low and adverse and following restoration would be negligible and neutral.

Principal Viewpoint 5 – Public Right of Way on minor road next to The Breach

5.163 The field visit and photograph indicate that views to the north consist of rolling farmland, defined by hedgerows with extensive woodland on the distant, rising and ridgeline. The existing abandoned quarry is not visible.

5.164 The initial ZTV calculations indicate that the visible vertical subtended angle of the proposed area of landfill and re-grading for the golf course would constitute 0.88˚. Further analysis of LSS 3D computer models indicate that a wide horizontal angle of view associated mainly with Holes 7, 8, 9 and 10 would constitute a potentially medium to large part of the overall view.

5.165 However whilst views of earthworks, landfilling and machinery movements would contrast with the current woodland elements the photographs indicate that they would be largely screened by the mosaic of intervening vegetation in between the strips of disturbance.

5.166 The loss of foliage in winter would have little effect on visibility from this distance. Final restoration to golf course would assimilate more with the current woodland elements.

5.167 The LSS 3D model indicated that the proposed greenkeeper's building, caretaker's house and club house would be small, below the horizon and would not be visible due to intervening vegetation.

5.168 Taking the above into account, the magnitude of visual change during working would be negligible to low and adverse and following restoration would be negligible and neutral.

Principal Viewpoint 6 – Public Right of Way on elevated ground to the south-east

5.169 The field visit and photograph indicate that views to the north consist of rolling farmland, defined by hedgerows with extensive woodland on the distant, rising and ridgeline. Small parts of the existing abandoned quarry are visible; in particular the sections of palisade fencing reflect the sunlight.

5.170 The initial ZTV calculations indicate that the visible vertical subtended angle of the proposed area of landfill and re-grading for the golf course would constitute 1.40˚. Further analysis of LSS 3D computer models indicate that a wide horizontal angle of view associated mainly with Holes 8, 9 and 10 would constitute a potentially medium to large part of the overall view.

5.171 However whilst views of earthworks, landfilling and machinery movements would contrast with the current woodland elements the photographs indicate that they would be largely screened by the mosaic of intervening vegetation in between the strips of disturbance.

5.172 The loss of foliage in winter would have little effect on visibility from this distance. Final restoration to golf course would assimilate more with the current woodland elements.

5.173 The LSS 3D model indicated that the proposed greenkeeper's building, caretaker's house and club house would occupy an isolated position and of similar scale to Coneygreaves, but the intervening vegetation and use of alternative building materials to a white render would reduce the visibility.

5.174 Taking the above into account, the magnitude of visual change during working would be negligible to low and adverse and following restoration would be negligible and neutral.

Principal Viewpoint 7 –Public Right of Way to the south of the site by the site entrance

5.175 The field visit and photograph indicate that views to the north-east consist of wooded track and farmland. Other than an industrial pair of gates/entrance with some graffiti and litter, the existing abandoned quarry is not visible.

5.176 The initial ZTV calculations indicate that the visible vertical subtended angle of the proposed area of landfill and re-grading for the golf course would constitute 1.01˚. Further analysis of LSS 3D computer models has indicated that the tees for Hole 1 would be visible along the ridge to the north. Parts of Holes 8 and 9 to the east would be spread over a relatively wide horizontal angle of view, but obscured by the Greenkeeper's Building. The Caretaker's House would obscure the Club House.

5.177 Whilst views of earthworks, landfilling and machinery movements would contrast with the current woodland elements, the photographs indicate that they would be largely screened by perimeter mature woodland. The temporary mobile site office would be visible by the site entrance to manage security as well as tipping operations.

5.178 Filtered views into the site would be greatest in winter with the absence of foliage.

5.179 Final restoration of the disturbed landforms to a golf course would assimilate more with the current woodland elements and the industrial entrance would become more recreational/leisure in character.

5.180 The temporary mobile site office would be removed. Vehicle movements would change at this stage from landfilling HGVs to golf course members cars and delivery vehicles, although this would occur effectively 7 days a week due to the proposed operating hours.

5.181 The proposed buildings are well sited being set back from the public right of way, but close enough to provide a security deterrent. The building materials would be sympathetic to the local rural character (the greenkeeper's building would appear agricultural and the caretaker's house would appear more residential) and the small scale and size would similar to other properties nearby at Coneygreaves and Coneygreaves Farm. Nevertheless they would constitute permanent, new buildings in the green belt.

5.182 Taking the above into account, the magnitude of visual change during working would be negligible to low and adverse and after restoration low to medium and adverse.

Principal Viewpoint 8 – Cheadle Road by Lyndhurst

5.183 The field visit and photograph indicate that views to the north-east consist of rural road, bounded by clipped hedgerows and wooded ridgeline. The existing abandoned quarry is not visible.

5.184 The initial ZTV calculations indicate that the visible vertical subtended angle of the proposed area of landfill and re-grading for the golf course would constitute 0.60˚. Further analysis of LSS 3D computer models indicate that the re-grading associated with Holes 2 and 3 would be visible along the ridge to the north and parts of Holes 8 and 9 to the east would be spread over a relatively wide horizontal angle of view.

5.185 However whilst views of earthworks, landfilling and machinery would contrast with the current woodland elements the photographs indicate that they would be largely screened by perimeter mature woodland and roadside hedgerow.

5.186 The loss of foliage in winter would have little effect on visibility from this distance. Final restoration to a golf course would assimilate more with the current woodland elements.

5.187 The LSS 3D model indicated that the proposed greenkeeper's building, caretaker's house and club house would occupy an isolated position and of similar scale to Coneygreaves, but would be less visible due to intervening hedgerow vegetation along the roadside.

5.188 Taking the above into account, the magnitude of visual change during working would be negligible to low and adverse and following restoration would be negligible and neutral.

Principal Viewpoint 9 – Delphouse Road by Boundary

5.189 The field visit and photograph indicate that views to the south-east consist of undulating valley with a waterbody surrounded by agricultural land and woodland, with rising, undulating wooded ridgeline. The existing abandoned quarry is not visible.

5.190 The initial ZTV calculations indicate that the visible vertical subtended angle of the proposed area of landfill and re-grading for the golf course would constitute 0.05˚.

5.191 Further analysis of LSS 3D computer models indicate that the re-grading associated with Hole 5 would be visible along the ridge to the north, but would constitute a small part of the overall view.

5.192 However whilst views of earthworks and machinery would contrast with the current woodland elements the photographs indicate that they would be largely screened by perimeter mature woodland.

5.193 The loss of foliage in winter would have little effect on visibility from this distance. Final restoration to a golf course would assimilate more with the current woodland elements.

5.194 The LSS 3D model indicated that the proposed greenkeeper's building, caretaker's house and club house would not be visible due to intervening landform.

5.195 Taking the above into account, the magnitude of visual change during working would be negligible and adverse and following restoration would be negligible and neutral.

Principal Viewpoint 10 – East of Cheadle

5.196 The field visit and photograph indicate that views to the south-west consist of undulating farmland with rising, undulating wooded ridgeline. The existing abandoned quarry is not visible.

5.197 The initial ZTV calculations indicate that the visible vertical subtended angle of the proposed area of landfill and re-grading for the golf course would constitute 0.32˚.

5.198 Further analysis of LSS 3D computer models indicate that three relatively narrow sections of Hole 7 would be visible on along the ridge, spread over a relatively wide horizontal angle of view but would not constitute a large part of the overall view.

5.199 However whilst views of earthworks, landfilling and machinery would contrast with the current woodland elements the photographs indicate that they would be largely screened by intervening mature woodland.

5.200 The loss of foliage in winter would have little effect on visibility from this distance. Final restoration to a golf course would assimilate more with the current woodland elements.

5.201 The LSS 3D model indicated that the proposed greenkeeper's building, caretaker's house and club house would not be visible due to intervening landform.

5.202 Taking the above into account, the magnitude of visual change during working would be negligible and adverse and following restoration would be negligible and neutral.

Summary of Residual Visual Impacts

5.203 The magnitude of visual impact has been assessed by direct changes to specific viewpoints, as listed above.

5.204 The magnitude of change would be greatest along a relatively short section of public right of way to the west of the site where the proposed Hole 7 cuts across the route. There would also be potential visibility of Hole 7 to the north and east, but of a negligible to low magnitude. Potential visibility of a low magnitude would also affect viewpoints to the south associated mainly with construction of Holes 8, 9 and 10. In all these cases the adverse effects are associated with the parts of the development situated beyond the abandoned quarry rim within undisturbed woodland or scrub.

5.205 Following completion of final restoration to a golf course after-use the magnitude of effect upon most viewpoints would be negligible and neutral, as the development at this stage would assimilate more with the current woodland elements. Nevertheless, adverse effects would persist upon a short section of public right of way to the east of the site, adjacent to Hole 7.

5.206 The installation of the new buildings would constitute up to a low to medium adverse effect upon viewpoints to the south. However the building materials have been selected to suit the local character and the small scale and size, being set back from the public right of way would be similar to other properties nearby at Coneygreaves and Coneygreaves Farm. Nevertheless they would constitute permanent, new buildings in the green belt.

Potential Significance of Landscape Impacts of the Proposals

5.207 Overall the application site would have a medium sensitivity to the development proposals. During working the magnitude of landscape change would be medium, but adverse, whereas following restoration the magnitude of change would be low and beneficial.

5.208 The significance of landscape impacts during working would therefore be moderate and adverse and after restoration slight to moderate and beneficial; the proposed development would cause a noticeable difference to the landscape and would affect several receptors.

5.209 Overall these changes would not alter the essential character of the local landscape and be consistent with the key characteristics of the "*Dissected sandstone cloughes and valleys*" defined by Staffordshire and Stoke on Trent's Planning for Landscape Change (*op. cit*.). There would be no significant landscape impacts.

Potential Significance of Visual Impacts of the Proposals

5.210 The significance levels are summarised in Table 5/8 for all viewpoints during working and Table 5/9 for all viewpoints following restoration.

Table 5/8
Significance Levels for all Viewpoints during Working

Viewpoint	Sensitivity	Magnitude of Change	Significance of Impact
Viewpoint 1	Medium to high	Negligible to Low and adverse	Slight to moderate and adverse
Viewpoint 2	Medium to high	High and adverse	**Moderate to Substantial and adverse**
Viewpoint 3	High	Negligible to low and adverse	Slight to moderate and adverse
Viewpoint 4	Medium to high	Low and adverse	Slight to moderate and adverse
Viewpoint 5	Medium to high	Negligible to low and adverse	Slight to moderate and adverse
Viewpoint 6	Medium to high	Negligible to low and adverse	Slight to moderate and adverse
Viewpoint 7	Medium to high	Negligible to low and adverse	Slight to moderate and adverse
Viewpoint 8	Medium	Negligible to low and adverse	Slight to moderate and adverse
Viewpoint 9	Medium to high	Negligible and adverse	Slight and adverse
Viewpoint 10	Medium to high	Negligible and adverse	Slight and adverse

Table 5/9
Significance Levels for all Viewpoints following Restoration

Viewpoint	Sensitivity	Magnitude of Change	Significance of Impact
Viewpoint 1	Medium to high	Negligible and neutral	Slight and neutral
Viewpoint 2	Medium to high	Low and adverse	Slight to moderate and adverse
Viewpoint 3	High	Negligible and neutral	Slight to moderate and neutral
Viewpoint 4	Medium to high	Negligible and neutral	Slight and neutral
Viewpoint 5	Medium to high	Negligible and neutral	Slight and neutral
Viewpoint 6	Medium to high	Negligible and neutral	Slight and neutral
Viewpoint 7	Medium to high	Low to medium and adverse	Moderate and adverse
Viewpoint 8	Medium	Negligible and neutral	Slight and neutral
Viewpoint 9	Medium to high	Negligible and neutral	Slight and neutral
Viewpoint 10	Medium to high	Negligible and neutral	Slight and neutral

5.211 During infilling, the significance of visual impacts for Viewpoint 2 would be moderate to substantial and adverse; the proposed development would cause a very noticeable difference to the landscape. The result would be a significant adverse effect. Works in the immediate vicinity of this view would take place for a period of several months.

5.212 During working for all other viewpoints the significance of visual impacts would be no more than slight to moderate and adverse; the proposed development would cause a few changes which would not be clearly noticeable and would affect a few receptors. The result would not be a significant adverse effect.

5.213 Following restoration, the significance of visual impacts upon Viewpoint 2 would be slight to moderate and adverse due to the golf course layout and Viewpoint 7 would also experience slight to moderate effects of an adverse nature, due to proposed new buildings in the green belt; the proposed development would cause a few changes which would not be clearly noticeable and would affect a few receptors. The result would not be a significant effect.

5.214 Following restoration for all other viewpoints the significance of visual impacts would be slight and neutral; the proposed development would cause a barely perceptible to noticeable difference to the view.

5.215 Significant adverse visual effects would therefore be limited to a small section of public right of way within the east of the site and would be limited in duration to working/construction phases only, after which point the adverse effect would not be significant.

Potential Impacts of the Development in relation to Landscape Planning Policies

5.216 As discussed above, local landscape planning policies have been identified as relevant to the proposed development. This sub-section considers the potential landscape and visual impacts of the proposed development in relation to each policy.

5.217 Although the site is situated within the Green Belt, the proposed development would not be inappropriate as recreational uses are promoted within PPS2. Furthermore the Greenkeeper's Buildings, Caretaker's House and Clubhouse are limited to essential facilities for outdoor sport and recreation and would be of an appropriate scale. The proposed development would not permanently degrade the visual amenity of the green belt by virtue of its siting, materials or design. The golf course would only be visually conspicuous from a relatively short section of public right of way within the green belt, resulting in significant adverse visual effects for a relatively short period of time (during construction/working phases). The proposed new buildings would be visible from a short section of public right of way, but would be set back amongst woodland and be of appropriate materials to match the local character. The proposed development would therefore not be in conflict with Local Plan Policy N2, N7 and Structure Plan D5B.

5.218 Although the site is situated within the Special Landscape Area, the proposed development would not permanently or materially detract from the high quality of the landscape because of its siting, scale, design and materials or associated traffic. The exception, as for the Green Belt above, would be a relatively short section of public right of way which would experience adverse visual effects for a relatively short period of time (during construction/working phases). Overall the proposed development would help to ameliorate an incongruous landscape element (past sand and gravel quarry) within shorter timescales than if the site were left to natural regeneration. The proposed development would therefore not be in conflict with Local Plan Policy N8.

5.219 The proposed development would retain and safeguard large areas of existing trees, although approximately 1.2ha of ancient woodland would be directly lost. However the development would also ensure the planting of new trees /disturbed and the remaining parts of the ancient woodland that are unaffected by the proposed development would be managed according to best practice and a woodland management plan would be prepared. The proposed development would therefore be not conflict with Local Plan Policy N20, N21 and Structure Plan Policy NC13.

5.220 The proposed development would establish a new recreational afteruse in the countryside. The scale, use, design and arrangement would be compatible with the surrounding rural area and adequate parking and access, including temporary diversion and subsequent reinstatement of an existing public rights of way. The proposed development would therefore be not conflict with Local Plan Policy R7, R8 and Structure Plan Policies T4, E11A.

5.221 The proposed development would be informed by and be sympathetic to landscape character of the countryside, in terms of habitat creation (including

tree and shrub planting) and long-term woodland management. As discussed above the proposed development would help to ameliorate an existing incongruous landscape element. The proposed development would therefore not be in conflict with Structure Plan Policy NC1, NC2.

5.222 The potential effects upon the SBI and other areas of nature conservation interest are discussed in detail under section 6, in terms of Local Plan Policy N12, N14 and N15.

Conclusion

5.223 This section has assessed the potential landscape and visual implications of the proposed development, as has been described in Section 3. This included a baseline study of the existing site and its surroundings, a study of the landscape and visual characteristics of the development and an assessment of the residual landscape and visual impacts likely to be generated after mitigation has been considered and their significance.

5.224 The application site is centred on a worked out sand and gravel quarry which is in various states of natural regeneration including woodland, grassland and heathland, as well as bare ground, waterbodies and silt lagoons. However there is also an area of ancient woodland around the north-east of the site and smaller areas of pasture and scrub to the west. The old quarry access road to the south-west would also be re-used as part of the proposals.

5.225 The option of simply leaving the abandoned quarry as an ecologically-based restoration scheme with natural regeneration and no further development would require a very long time to develop sufficient woodland to the degree required to disguise the worked out profile. Furthermore, unchecked growth of Rhododendron would lead to further degradation of the existing ancient woodland, as well as any subsequent woodland regeneration and the unchecked development of woodland itself would miss the opportunity for heathland creation, which is both a national and local Biodiversity Action Plan target habitat.

5.226 The proposed change of use to a golf course would initially cause some adverse landscape and visual effects through the physical disturbance associated with landfilling and other earthworks over a two year period, although most of the site would be undisturbed and some of the proposed disturbance would take place within existing areas of bare ground.

5.227 Following restoration half of the disturbed area of ground would be returned to habitats and half to tees, greens, fairways and to a lesser extent buildings and car parks. The entire site would be managed for recreational and ecological enhancement.

5.228 Whilst these changes would introduce new landscape features to the area, the site would remain consistent with the key characteristics of the "*Dissected sandstone cloughes and valleys*" defined by Staffordshire and Stoke on Trent's Planning for Landscape Change (*op. cit*.). After restoration the proposals would help to ameliorate an existing incongruous element (past

sand and gravel quarrying) at a faster rate than if it were left to natural regeneration. Overall there would be no significant landscape impact.

5.229 In visual terms, the site is located within a heavily wooded and undulating area where little of the proposed development would be seen from outside of its boundaries. Significant adverse visual effects however would occur to a small section of public right of way within the east of the site and would be limited in duration to working/construction phases only.

5.230 Overall the proposed development would not generate unacceptable landscape and visual effects and would not be in conflict with the aims of local landscape planning policies such as green belt, special landscape area, trees, recreation and landscape character.

APPENDIX 5/1 METHOD STATEMENT FOR ZTV

Zones of theoretical visibility (ZTV) were calculated for the proposed greens, fairways and tees (i.e. the areas of landfill or re-grading) using 3D digital terrain models in LSS.

The receptor point grid interval was set to 10m, with a 1.7m eye height (above the digital terrain model) and covered an area of over 4km x 4km centred on the application site.

The following target points were then set for ZTV calculation, to include representative points on the proposed processing plant:

- E 399021.946, N 341644.495, 221.000m AOD;
- E 399679.133, N 341045.748, 178.400m AOD;
- E 400003.073, N 341161.965, 190.000m AOD;
- E 400066.371, N 341461.338, 189.000m AOD;
- E 399890.439, N 341597.079, 217.000m AOD;
- E 399526.472, N 341863.912, 225.000m AOD;
- E 399151.336, N 341757.923, 235.000m AOD;
- E 399401.737, N 341347.911, 201.000m AOD;
- E 399323.545, N 341362.787, 206.000m AOD;
- E 399290.965, N 341441.814, 214.000m AOD;
- E 399484.584, N 341770.009, 219.470m AOD;
- E 399689.373, N 341281.900, 206.000m AOD;
- E 399877.407, N 341112.689, 185.000m AOD;
- E 400060.786, N 341281.900, 188.837m AOD;
- E 399848.550, N 341522.700, 206.700m AOD;
- E 399565.569, N 341456.690, 202.000m AOD;
- E 399492.031, N 341227.976, 188.795m AOD;
- E 399200.671, N 341582.203, 211.957m AOD; and
- E 399738.708, N 341695.631, 213.940m AOD.

6.0 ECOLOGY

Introduction

6.1 This Chapter provides a description of the Ecological Impact Assessment (EcIA) conducted as part of the wider EIA process in respect of the proposed development of the former Huntley Quarry into an 18-hole golf course.

6.2 The EcIA can be considered as having three main purposes:

- to provide an objective and transparent assessment of the ecological effects of a proposed development or activity;
- to permit objective and transparent determination of the consequences of the proposals in terms of national, regional and local policies relevant to nature conservation; and
- to demonstrate that a proposed development or activity will meet the legal requirements relating to habitats and species.

6.3 This EcIA follows a standard approach based upon the description of the existing baseline conditions within the application site; an evaluation of the habitats and species present within the application site; the identification of potential ecological effects of the proposed golf course development; and an assessment of the likely significance of identified impacts on the valued ecological receptors (VERs). Where a significant negative impact has been identified, suitable mitigation measures to prevent, reduce or offset the level of impact are provided with any residual effects that may continue post construction identified and assessed.

Legislative and Policy Context

6.4 This section summarises the key legislation and policies relevant to ecology and nature conservation.

Legislation

6.5 The key wildlife legislation underpinning the conservation of habitats and species are summarised below:

- **The Wildlife and Countryside Act 1981 (as amended)**. The Wildlife and Countryside Act 1981 is the primary legislation in Great Britain for the protection of flora, fauna and the countryside. This legislation is the means by which the 'Bern Convention' and the European Union Directives on the Conservation of Wild Birds (79/409/EEC) and Natural Habitats and Wild Fauna and Flora (92/43/EEC) are implemented in Great Britain. The Act also empowers Natural England to protect habitats of national importance through the statutory designation of Sites of Special Scientific Interest (SSSIs) for features of interest.

- **The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended)**. The Conservation (Natural Habitats, &c.) Regulations 1994 transpose Council Directive 92/43/EEC on the conservation of natural

habitats and of wild fauna and flora (EC Habitats Directive) into national law and provides for the designation and protection of 'European sites' including Special Areas of Conservation (SAC) and Special Protection Area (SPA), the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European Sites. The regulations introduce a review procedure for plans and projects likely to significantly affect a European site, and licensing requirements for developments that may affect a European protected species for example, bats, otter and great crested newt. In 2007, an amendment to the regulations increased the legal protection given to protected species in England and Wales and removed the exemption from an offence if 'actions were an incidental result of a lawful operation and could not reasonably have been avoided'.

- **Protection of Badgers Act 1992**. Badgers are protected under the Protection of Badgers Act 1992 making it an offence to knowingly kill, capture, disturb or injure and individual animal or intentionally damage, destroy or obstruct an area used for breeding, resting or shelter. A licence is required for heavy machinery work within 30m, light machinery work within 20m and had digging within 10m of a badger sett.

Planning Policies

6.6 Nationally, the Government's commitment to sustainable development and conserving the diversity of wildlife is set out in a number of Planning Policy Guidance (PPG)/Planning Policy Statement (PPS) Notes including PPS9: Biodiversity and Geological Conservation. In addition, the UK Biodiversity Action Plan (UK BAP) identifies habitats and species on a UK wide basis that require special consideration for protection, enhancement and expansion. These are summarised below:

- **Planning Policy Statement 9 (PPS9): Biodiversity and Geological Conservation**. PPS9: Biodiversity and Geological Conservation was published in August 2005 and is accompanied by Government Circular 06/05: Biodiversity and Geological Conservation which covers relevant legislative provisions at the international and national level that can impact on planning decisions affecting biodiversity and geological conservation issues, and Good Practice Guidance. PPS9 sets out the Government's broad policy objectives in relation to the protection of biodiversity and geological conservation in England through the planning system, and its proposed planning policies that will help deliver these objectives. These policies reflect statutory obligations for nature conservation.

- **UK and Local Biodiversity Action Plans**. The UK, along with 150 other countries, signed up to the Convention on Biological Diversity in 1992, during the United Nations Conference on Environment and Development held in Rio de Janeiro in 1992. The aims of the plan are: "To conserve and enhance biological diversity within the UK, and to contribute to the conservation of global biodiversity through all appropriate mechanisms ". The UK BAP identifies a number of Priority Habitats and Species and outlines UK Habitat Action Plans (HAPs) and Species Action Plans (SAPs) to conserve them. To implement the UK

BAP, a number of Local Biodiversity Action Plans (LBAPs) have been produced including the Staffordshire BAP. This plan implements individual HAPs and SAPs at the local level.

6.7 A number of regional and local policies relating to the protection and enhancement of the natural environment, are contained in the West Midlands Regional Spatial Strategy (June 2004), Staffordshire and Stoke-on-Trent Structure Plan 1996-2011 (adopted March 2001) and Staffordshire Moorlands Local Plan (adopted February 1998). The policies relevant to ecology and nature conservation are summarised in Table 6/1.

Table 6/1:
Summary of Local Planning Policies Relating to Nature Conservation

Policy Area	West Midlands Regional Spatial Strategy	Staffordshire & Stoke-on-Trent Structure Plan	Staffordshire Moorlands Local Plan
Protection and enhancement of the countryside	QE1, QE2	NC1	N1
Protection of nature conservation sites		NC7a, NC7b, NC7c	N12, N13, N14, N15
Protection of semi-natural habitats	QE7	NC6,	N17, N18, N19
Protection of trees, hedgerows and woodlands	QE8	NC13	N20, N21
Protection of species	QE7		N24

6.8 The Staffordshire Moorlands area has been defined, within the West Midlands Regional Spatial Strategy, as one of fourteen Biodiversity Enhancement Areas (BEAs) in the West Midlands. These BEAs are envisaged to be a large-scale area based approach to manage, enhance and restore habitats and species with an emphasis on how sites and species link within the wider landscape and relating their conservation to social and economic issues.

Methodology

6.9 Baseline ecological data was collated through a combination of desk-based study and field survey. This Chapter draws heavily on the field survey work commissioned by Tamar Group in 2005 and which was carried out by the Staffordshire Wildlife Trust during 2006. This has been supplemented by further desk-based study and field survey, identified through consultation with Natural England, Staffordshire Moorlands District Council and Staffordshire County Council, and conducted in 2008 by SLR.

Desk-based Study

6.10 A preliminary desk-based study was undertaken and involved collating data from a number of organisations and examining published data relating to and in the general vicinity of the former Huntley Quarry. Data included information on statutory and non-statutory nature conservation sites as well as records for protected and notable species within a 2km radius of the site (OS NGR SJ 994416).

6.11 Data sources used in the collection of ecological data included:

- Multi-agency Geographic Information for the Countryside (www.magic.gov.uk);
- National Biodiversity Network (www.nbn.org.uk);
- Natural England (www.naturalengland.org.uk);
- Staffordshire Biodiversity Action Plan;
- Staffordshire Ecological Records Centre;
- Staffordshire Moorlands District Council (www.staffsmoorlands.gov.uk);
- Staffordshire Wildlife Trust (www.staffordshirewildlife.org.uk) including their Ecological Survey of Huntley Quarry Report dated August 2006; and
- UK Biodiversity Action Plan (www.ukbap.org.uk).

Field Surveys

6.12 Huntley Quarry was extensively surveyed in 2006 by Staffordshire Wildlife Trust. Whilst this survey provides good baseline data, consultation with Natural England, Staffordshire Moorlands District Council and Staffordshire County Council identified the need to undertake further ecological survey work to provide more up to date information on the current baseline conditions within the application site. The scope of further ecological survey identified included an extended Phase 1 Habitat Survey and further surveys for great crested newt (*Triturus cristatus*) and badger (*Meles meles*).

Extended Phase 1 Habitat Survey

6.13 An extended Phase 1 Habitat Survey was carried out at Huntley Quarry on 22 and 30 April 2008 by a senior ecologist from SLR. The survey was conducted following a standard methodology[11] and involved the production of a map of the habitats present using colour codes and target notes (TN) for any feature of particular ecological interest. This survey method was extended to include the recording of additional information on habitats and species, including any evidence for the presence of, or potential presence of, statutorily protected species, other species of conservation concern, or any other features of note and that require mitigation or ecologically sensitive design of the proposed development.

[11] Nature Conservancy Council (1990). *Handbook for Phase 1 Habitat Survey – a Technique for Environmental Audit, 2003 reprint*. JNCC, Peterborough.

6.14 Whilst not a full botanical or protected species survey, the extended Phase 1 Habitat Survey enables experienced ecologists to obtain an understanding of the ecology of a site such that it is possible to:

- confirm the nature conservation significance of a site, and assess whether the potential for impacts on habitats/species is likely to represent a material consideration in planning terms; or
- establish the scope and extent of any additional specialist ecological surveys that will be required before such a confirmation can be made.

Badger Survey

6.15 An initial badger survey was carried out at Huntley Quarry in 2006 and identified badger activity within the application site. Due to the highly mobile nature of this species, a further badger survey was deemed necessary and this was carried out on 17 June 2008 by an experienced ecologist from SLR.

6.16 The survey comprised a thorough walkover of the survey site during daylight hours to visually inspect and assess it for its potential to support badgers. Particular attention was paid to features that are particularly likely to support badger setts including woodland, scrub, ditches and banks. Evidence of badger activity searched for included setts, characteristic pathways and paw prints, hairs, latrines and signs of foraging.

Great Crested Newt Survey

6.17 A preliminary survey for great crested newts was undertaken in 2006 by Staffordshire Wildlife Trust. However, due to a number of constraints this survey was not considered suitable to meet the standards expected by Natural England and a further survey was deemed necessary to provide adequate information for the determination of the planning application.

6.18 A total of seven ponds, identified during the initial extended Phase 1 Habitat Survey visit, were assessed on their suitability for great crested newt using the Habitat Suitability Index (HSI)[12] scoring system.

6.19 In 2008, a presence/absence survey was carried out in accordance with the survey techniques recommended in the Great Crested Newt Mitigation Guidelines[13] at all ponds within the site. A minimum of four survey visits were made between 30 April and 10 June by ecologists from SLR holding current licences for handling and surveying great crested newts. A combination of established methods were used to detect the presence of, and count, great crested newts including bottle trapping, nocturnal torch survey and egg searches. In all ponds where great crested newts were detected, a further two visits on 16 and 19 June 2008 were made to provide a population size class assessment in accordance with Natural England's guidelines.

[12] Oldam, R.S., Keeble, J., Swan, M.J.S. and Jeffcote, M. (2000). *Evaluating the Suitability of Habitat for Great Crested Newt (Triturus cristatus)*. Herpetological Journal Vol.10 pp 143-155 (2000).

[13] English Nature (2001). *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough.

6.20 All surveys were carried out in appropriate weather conditions with temperatures above 5^{o}C at all times of the survey.

Uncertainty of Data and Limitations

6.21 As the Extended Phase 1 Habitat Survey was conducted in spring, some late-flowering plant species may not have been in evidence at the time of the survey. However, it is considered that the survey results are representative of the habitats within the application, and include the dominant and characteristic species of flora.

6.22 The lack of evidence of any one particular protected species does not necessarily preclude its presence at the site either at this current time or in the future. It is considered however, that the timing of the extended Phase 1 Habitat Survey was suitable for protected species and their habitat-based assessment, as most species would have been active during this time and provided evidence of their presence.

6.23 The above limitations are considered to be minor, and it is unlikely that additional survey of the site would materially alter the conclusions of this EcIA, based on the layout of the development as currently proposed.

Assessment Methodology

Evaluation

6.24 The ecological features, identified through the desk-based study and field survey, were given a value based on a geographic context. Ecological features are defined as:

- statutory protected (i.e. Natura 2000 sites, SSSI, National Nature Reserve) or non-statutory locally designated (i.e. County Wildlife Sites) sites and features;
- sites, habitats and features of recognised biodiversity value but not designated as detailed above (i.e. areas listed on published inventories of priority habitats such as the ancient woodland inventory and lowland grassland inventory) or areas of habitats subject to an UK HAP or Local HAP; and
- species protected or controlled by law or of biodiversity value or significance including Species of Conservation Concern; and UK SAP and Local SAP species.

Assessment of Impacts

6.25 The assessment of potential ecological impacts has been carried out using the Institute of Ecology and Environmental Management (IEEM) guidelines[14] and can be summarised as:

[14] Institute of Ecology and Environmental Management (2006). *Guidelines for Ecological Impact Assessment in the United Kingdom*.

- the identification of the range of potential impacts that may arise from the proposed development;
- the consideration of the systems and processes in place to avoid, reduce and mitigate the possible effects of these impacts;
- the identification of opportunities for ecological enhancement within the proposed development;
- an assessment of the residual impacts, following consideration for the implementation of avoidance, mitigation and enhancement measures; and
- where necessary the identification of compensation required to offset any residual effects.

6.26 Where a potential impact has been identified, mitigation measures have been formulated using best practice techniques and guidance to prevent, reduce or offset a significant effect.

6.27 Impacts are defined as being negative, neutral or positive. The term significant is independent of the value of the receptor. A significant impact is defined as an impact on the integrity of a defined ecosystem and/or the conservation status of habitat or species within a given geographical area.

Ecological Baseline Conditions

6.28 The application site is located approximately 1.5km southwest of the town of Cheadle, Staffordshire and covers approximately 69ha that consists of the former Huntley Quarry and Huntley Wood. The surrounding landscape is predominantly agricultural grassland but also includes some arable land and woodland blocks lying inside a ring of urban settlements with Cheadle in the northeast and Upper Team, Draycott in the Moors and Blythe Bridge towards the south.

6.29 A large part of the site was, until quite recently, an active quarry for the extraction of sand and gravel which has left steep slopes leading from the surrounding land to the quarry floor. Within the confines of the quarry the topography is varied with areas of old spoil heaps and made ground, steep banks and cliff faces and a number of depressions some of which have filled with water.

6.30 Since the cessation of quarrying operations the site has been largely left abandoned. Today, the site is dominated by post-mineral extraction habitats that form a mosaic of bare substrates (consisting of sand and gravels), semi-natural and plantation woodland, scrub and open standing water.

6.31 The site is subject to large amounts of disturbance caused by its informal use. In particular, large numbers of motorbikes have resulted in damage to open areas of the quarry floor, its sloping sides and to many of the sand banks.

Nature Conservation Sites

Statutory Designated Nature Conservation Sites

6.32 There are no international (i.e. SAC, SPA, or Ramsar Site), national (i.e. SSSI, or NNR) or local (i.e. Local Nature Reserve (LNR)) statutory designated nature conservation sites at or within 2km of the development site.

Non-Statutory Designated Nature Conservation Sites

6.33 There are six non-statutory designated nature conservation sites within 2km of the proposed development site that include five Sites of Biological Importance (SBI) and one Biodiversity Alert Site (BAS):

- Draycott Hollow SBI (SJ980410);
- Huntley Wood SBI (SJ988416);
- Commonside SBI (SJ992424);
- Breach Lane Marsh SBI (SK005407);
- The Eaves SBI (SK009418), and
- Draycott Common Wood BAS (SJ996412).

6.34 Of these six sites, Huntley Wood SBI and Draycott Common Wood BAS lie within the application area. Huntley Wood is also listed on the Ancient Woodland Inventory as ancient and semi-natural woodland (ASNW). These sites are detailed on Drawing 6/1.

Habitats

6.35 The application site is a mosaic of different habitat types that are comprised of five broad habitat types including sand and gravel workings; woodland and scrub, grassland and marsh, heathland and open water. Drawing 6/2 shows the locations and extent of the habitats recorded along with the location of associated Target Notes(TN).

6.36 The following habitats, in order of area of coverage from high to low, are present within the application site:

- semi-natural broadleaved woodland;
- bare sand and gravel (quarry workings);
- scrub;
- woodland plantation (broadleaved, coniferous and mixed);
- standing open water;
- dry dwarf shrub and lichen/bryophyte heaths;
- marshy grassland;
- acid grassland;
- marginal vegetation.

Woodland and Scrub

6.37 The majority of the site is covered in different woodland and scrub types including semi-natural broadleaved woodland, plantation woodland (broad-leaved, coniferous and mixed) and dense and scattered scrub consisting of a variety of woody species.

6.38 Mature semi-natural broadleaved woodland, typically consisting of an oak-birch woodland type with a rich bryophyte community and often abundant rhododendron, is predominantly found in the northern (TN 51) and eastern (TN 17) parts of the site with a further smaller block in the central part of the site (TN8). By far the largest block of this woodland type is Huntley Wood which has been designated a SBI and ASNW.

6.39 Semi-mature birch dominated semi-natural woodland is found in small blocks on the edge of the quarry, its slopes and floor (TN 3, 12, 14, 22, 30, 31, 33, 38, 40 and 46). This woodland often has a field and ground flora showing an affinity to dry dwarf shrub and lichen/bryophyte heath communities although through successional changes these heathland type habitats are diminishing under dense gorse scrub and birch regeneration.

6.40 Woodland planting consisting of broadleaved species (TN 7, 18, 41 and 45), conifers (TN 5) and mixed planting (TN 39) has taken place on some of the quarry sides and in the southern parts of the site. Birch regeneration and gorse development is often conspicuous forming dense re-growth vegetation in the drier areas of broadleaved tree planting. In damper areas rich thick carpets of bryophytes are present.

6.41 A variety of scrub habitat types are present across the site often forming relatively large patches of dense vegetation consisting of a dominant single species with typically an acid grassland or dry dwarf shrub and/or lichen/bryophyte heath community where the canopy is relatively open. The main types of scrub include: gorse scrub (TN 6, 35, 42 and 44) with the largest stands predominantly found in the western half of the site but which is prominent throughout; alder and willow scrub (TN 20) present in damper areas of the site; hawthorn scrub (TN 15) on the far eastern side of the site and which is dominant in a complex mosaic of scrub, bracken and acid grassland; and silver birch regeneration (TN 23, 25, 26, 32, 34 and 47) ubiquitous across the site and often forming very dense growth.

Grassland and Marsh

6.42 Acid grassland is predominantly found in the eastern parts of the site (TN 16) but small patches are found throughout the site (TN 11) forming generally a sparse field and ground layer under the more dominant woodland and scrub habitats. The largest areas of acid grasslands are dependent upon heavy rabbit grazing to check the development of scrub and tall ruderal species.

6.43 A semi-improved neutral grassland is found in the southwest corner of the application site (TN 48) and is currently managed for low density grazing by cattle. Other neutral grasslands are found at the entrance of the site (TN 1) and on the narrow roadside verges of the lane leading to the site entrance (TN 49 and 50).

6.44 Marshy grassland, dominated by soft rush, is found at the entrance of the site (TN2 and 4) and in damper areas of the site (TN 36) but birch regeneration and scrub development are evident in these areas.

Heathland

6.45 Remnant patches of heathland habitat consisting of ling dominated dry dwarf shrub heath (TN 9) and lichen/bryophyte heath (TN 24 and 43) are found throughout the site but which often form a component part of the woodland and scrub habitats found on the site.

Open Standing Water

6.46 There are a number of permanent and ephemeral ponds within the application area (TN 10, 13, 19, 27, 28 and 29). The quality of water in each of the ponds varies considerably with some receiving large quantities of silt carried in surface water run-off and most appearing to be eutrophic with dense green algae forming in areas of shallow water. TN 29 is a perched pond and does not receive large quantities of surface water run-off and the water quality in this pond would appear to be eutrophic/mesotrophic. Most of the ponds have some marginal vegetation that becomes more diverse in the smaller ephemeral water bodies but little truly aquatic species of flora.

Bare Ground

6.47 Bare ground consisting of exposed sands, gravels and pebbles is predominantly found in the western half of the site. A sand cliff face forms a prominent feature in this part of the site and provides nesting opportunities for sand martin. Erosion through surface water flows and by motorbikes has however, damaged significant parts of this feature.

Table 6/2: Target Notes

TN	Detail
1	A 1.5m high bank dominated by a neutral grassland with abundant Yorkshire-fog (*Holcus lanatus*); occasional, cock's-foot (*Dactylis glomerata*), red fescue (*Festuca rubra* agg.); and rare soft rush (*Juncus effusus*). Also present were rosebay willowherb (*Chamerion angustifolium*), creeping thistle (*Cirsium arvense*), foxglove (*Digitalis purpurea*), ribwort plantain (*Plantago lanceolata*), broad-leaved dock (*Rumex obtusifolius*), dandelion (*Taraxacum officinale* agg.), red clover (*Trifolium pratense*), white clover (*Trifolium repens*) and gorse (*Ulex europaeus*). Directly behind the bank was a line of trees consisting of silver birch (*Betula pendula*) and goat willow (*Salix caprea*) with frequent bramble (*Rubus fruticosus* agg.).
2	A 2m high wide bank dominated by marshy grassland community with abundant soft rush and frequent Yorkshire-fog. Other grass species present were cock's-foot and red fescue along with rosebay willowherb, creeping thistle, broom (*Cytisus scoparius*), foxglove, hogweed (*Heracleum sphondylium*), field wood-rush (*Luzula campestris*), ribwort plantain, bracken (*Pteridium aquilimum*), bramble, broad-leaved dock, ragwort (*Senecio jacobaea*), rowan (*Sorbus aucuparis*), and gorse. Silver birch regeneration was evident with some saplings growing through the sward.
3	A semi-mature semi-natural broadleaved woodland with a canopy dominated by silver birch and pedunculate oak (*Quercus robur*) particularly along a raised bank that runs along the southern edge of the woodland. The sparse shrub layer consists of sycamore (*Acer pseudoplatanus*), rhododendron (*Rhodoendron ponticum*), elder (*Sambucus nigra*), rowan and gorse with goat willow in the damper areas. The ground flora consists of frequent bramble with rosebay willowherb, Yorkshire-fog, bluebell (*Hyanthioides non-scripta*), red campion (*Silene dioica*) and common nettle (*Urtica dioica*). Bryophytes are locally abundant on the woodland floor.
4	A 1m high raised grassland area with abundant soft rush. Floristically similar to TN2

TN	Detail
	but with common bird's-foot trefoil (*Lotus corniculatus*), greater plantain (Plantago *major*), dandelion and white clover present in the sward and many of the woody and tall ruderal species absent or in significantly lower densities.
5	A mature conifer plantation consisting of closely planted Scots pine (*Pinus sylvestris*) with some silver birch the only other tree species present. The ground is covered in a thick layer of pine needles and is largely absent of flora. Along the western and southern boundary of the plantation is a small strip of unimproved grassland that extends into the plantation where light can penetrate the pine trees. The grass species include abundant Yorkshire fog with false oat-grass (*Arrhenatherum elatius*), cock's-foot and red fescue. Other species include creeping thistle, spear thistle (*Cirsium vulgare*), foxglove, soft rush, field wood-rush, bramble, red campion, dandelion, white clover, gorse, germander speedwell (*Veronica chamaedrys*) and growing between the grassland and pebbled track thyme-leaved speedwell (*Veronica serpyllifolia*).
6	Dense scrub dominated by gorse but with some broom and bramble also forming part of the woody composition. Bracken is locally abundant forming a dense ground cover but where absent the ground flora dominated by bryophytes.
7	Broadleaved plantation of alder (*Alnus glutinosa*) with pedunculate oak, goat willow and elder present in the scrub layer. The ground flora consists rosebay willowherb, Yorkshire fog, bracken, bramble, common nettle and rough meadow-grass (*Poa trivialis*) with abundant bryophyte coverage.
8	A mature semi-natural broadleaved woodland dominated by silver birch and pedunculate oak with a few Scots pine. The shrub layer is dominated by rhododendron much of which has been cleared north of the track that dissects this block of woodland but which has left a deep woody litter on the woodland floor. Other shrubs include silver birch, common hawthorn (*Crataegus monogyna*), goat willow, rowan and gorse. Where present the ground flora consists of sweet vernal-grass (*Anthoxanthum odoratum*), rosebay willowherb, creeping thistle, wavy hair-grass (*Deschampsia flexuosa*), foxglove, red fescue, hogweed, bluebell, soft rush (locally abundant along the trackside), bracken and bramble. The northern edge of the woodland ends in a 5m high cliff face leading to the main quarry floor.
9	A small patch of dry heath with abundant ling (*Calluna vulgaris*) with common bent (*Agrostis capillaris*), common mouse-ear (*Cerastium fontanum*), wavy hair-grass, Yorkshire fog, soft rush, bracken, ragwort and an abundance of bryophytes are all present in the sward. Silver birch regeneration with rhododendron, bramble and gorse are becoming a prominent.
10	A small pond that receives surface water flows emanating from the exposed sands and gravels in the east of the site. The banks are steep with silver birch woodland/scrub heavily shading the ponds margins. Small patches of submerged fennel pondweed (*Potamogeton pectinatus*) are found within the pond with soft rush present growing around the marginal zone.
11	A small patch of acid grassland growing on partly exposed pebbles/gravels between patches of woodland and scrub. The sward consists of common bent, sweet vernal-grass, cock's-foot, wavy hair-grass, Yorkshire fog with ling, common mouse-ear, creeping thistle, soft rush, field wood-rush, black medick (*Medicago lupulina*), tormentil (*Potentilla erecta*), bramble, common sorrel (*Rumex acetosa*), wood sage (*Teucrium scorodonia*), white clover, thyme-leave speedwell present and frequent bryophytes.
12	A semi-mature silver birch dominated woodland with a gorse shrub layer running between a track and conifer plantation with pedunculate oak and goat willow becoming more abundant on the lower slope. The ground flora consists of common mouse-ear, spear thistle, foxglove, red fescue, Yorkshire fog, bracken, bramble and germander speedwell.
13	A rectangular shaped pond used for fishing with a number of set pegs around its edge. The open pond has little vegetation with the exception of small patches of greater

TN	Detail
	pond-sedge (*Carex riparia*) and reedmace (*Typha latifolia*). Around the outside of the pond and on its banks are some mature/semi-mature trees and areas of dense/scattered scrub that include sycamore, silver birch, hawthorn, wild cherry (*Prunus avium*), dog rose (*Rosa canina* agg.) and willows (*Salix* spp.) with broom, bramble and gorse comprising the scrubby elements. Other species growing around the pond include cow parsley (*Anthriscus sylvestris*), common mouse-ear, creeping thistle, spear thistle, cock's-foot, foxglove, red fescue, cleavers (*Galium aparine*), hogweed, Yorkshire fog, common cats-ear (*Hypochaeris radicata*), soft rush, ribwort plantain, greater plantain, creeping buttercup (*Ranunculus repens*), broad-leaved dock, ragwort, dandelion, white clover and common nettle.
14	A semi-mature silver birch dominated semi-natural woodland with holly (*Ilex aquifolium*), rhododendron, goat willow and elder forming a sparse shrub layer and a field/ground flora dominated by dense stands of bracken and bramble.
15	A mosaic of scrub, tall herb fern, tall ruderal and very small patches of acid grassland. The scrub consists predominantly of mature hawthorn within some sycamore, wild cherry, pedunculate oak, goat willow and elder also present interspersed by dense patches of bramble, gorse, bracken and locally abundant rosebay willowherb. Where rabbit grazing has checked the development of scrub very small patches of grassland showing affinities to acid grassland are present with species comprising common bent, sweet vernal-grass, false oat-grass, common knapweed (*Centaurea nigra*), cock's-foot, marsh thistle, spear thistle, foxglove, red fescue, cleavers, hogweed, Yorkshire fog, bluebell, ragwort, perennial rye-grass (*Lolium perenne*), ribwort plantain, greater plantain, creeping buttercup, red campion, common nettle and germander speedwell.
16	Within TN15 are some larger areas of acid grassland that are maintained by heavy grazing by rabbits. The grassland is dominated by sweet vernal-grass with common bent, common mouse-ear, common eyebright (*Euphrasia nemorosa*), heath bedstraw (*Galium saxatile*), heath wood-rush (*Luzula multiflora*), tormentil, creeping buttercup and germander speedwell. Areas less intensively grazed have become colonised by rosebay willowherb, creeping thistle, marsh thistle and ragwort which has deteriorated these areas of grassland.
17	A semi-mature pedunculate oak dominated woodland with occasional silver birch and a few specimens of common hawthorn, holly, elder and rowan along with gorse forming the shrub layer. The ground flora is relatively sparse with rosebay willowherb, bluebell and bracken all locally abundant.
18	Broadleaved woodland plantation consisting of predominantly alder, pedunculate oak and rowan with dense silver birch and gorse scrub regeneration on a steep east facing slope. The ground flora is dominated by ling and a rich carpet of bryophytes but with common bent, red fescue, Yorkshire fog, soft rush and bramble also present.
19	A small ephemeral pond with wide margins of soft rush and reedmace that receives large quantities of surface water run-off from the high ground to the west.
20	Alder dominated scrub with frequent goat willow and some silver birch regeneration growing in a damp low-lying area. The ground cover is dominated by a rich carpet of bryophytes.
21	A small ephemeral pond with clear water surrounding by woodland and scrub. Common water-starwort (*Callitriche stagnalis*) forms locally frequent patches of submerged vegetation with marsh willowherb (*Epilobium palustre*), soft rush, water forget-me-not (*Myosotis scorpioides*) and reedmace forming a patchwork of emergent species.
22	A semi-mature silver birch dominated woodland with a ground flora composition similar to TN18.
23	Dense scrub dominated by silver birch regeneration with a ground flora composition similar to TN18.

TN	Detail
24	A small area of bryophyte dominated heathland on partly exposed pebbles and gravels with some common bent, ling, common mouse-ear, common cats-ear, soft rush, heath rush (*Juncus squarrosus*), ragwort and common nettle also present in small isolated patches.
25	An area of largely bare ground with silver birch regeneration evident. The sparse ground cover includes a short ephemeral type vegetation consisting of rosebay willowherb, spear thistle, field horsetail (*Equisetum arvense*), soft rush, ragwort, dandelion, colt's-foot (*Tussilago farfara*) and with locally frequent common spotted-orchid (*Dactylorhiza fuchsia*).
26	A patchwork of silver birch regeneration scrub with a sparse bryophyte heathland type ground flora.
27	A large open standing water body with a wide marginal fringe of reedmace around its perimeter and scattered scrub development of silver birch and goat willow on the slopes leading to the waters edge. Dense mats of green algal growth was present in areas of shallow water.
28	A small shallow ephemeral pond with clear water supporting marsh willowherb, soft rush, water forget-me-not and reedmace.
29	A rectangular shaped pond with spiked water-milfoil (*Myriophyllum spicatum*) and fennel pondweed growing in patches in open water. In the north of the pond is a large marginal dominated by reedmace but with common water-starwort also present in shallow water. In the drier areas of the marginal zone rosebay willowherb, marsh thistle (*Cirsium palustre*) and soft rush are present with an abundance of bryophytes.
30	A semi-mature broadleaved woodland with abundant alder and frequent goat willow with silver birch, hawthorn and rhododendron forming the shrub layer. The ground flora is limited to soft rush, bramble and a rich carpet of bryophytes.
31	A broad-leaved woodland dominated by silver birch with alder, rhododendron and gorse forming a dense shrub layer with frequent goat willow in the wetter areas. The ground flora consists of patches of ling, soft rush in amongst abundant bryophytes.
32	An area of silver birch regeneration with broom, goat willow, rowan and gorse also developing over a heathland type community consisting of abundant ling with common bent, wavy hair-grass, soft rush and a rich bryophyte community.
33	A semi-mature broadleaved woodland consisting predominantly of alder and goat willow with some silver birch, rhododendron and gorse in the shrub layer. The ground flora is dominated by bryophytes with ling, soft rush, and bramble growing in the drier parts of the woodland.
34	An area of exposed pebbles and gravels that has some scrub encroachment consisting of silver birch, bramble, elder, goat willow and gorse. Other species present include marsh thistle and common nettle.
35	Dense gorse scrub with frequent broom and bramble and silver birch regeneration. The ground flora consists of common bent, sweet vernal-grass, cock's-foot, red fescue, Yorkshire fog with ling, rosebay willowherb, spear thistle, foxglove, square-stalked St John's-wort (*Hypericum tetrapterum*), soft rush and selfheal (*Prunella vulgaris*) present.
36	An area of soft rush dominated vegetation prone to heavy disturbance by motorbikes. Other species present are spear thistle, ragwort and colt's-foot.
37	A small shallow depression with scattered scrub of silver birch and goat willow growing on the sides and top of the banks. In the bottom of the depression tufted hair-grass (*Deschampsia caespitosa*), soft rush and reedmace are all present growing in the soft damp substrates.
38	A silver birch dominated woodland with evidence of some tree planting. The woodland has a close affinity with TN32.

TN	Detail
39	A mixed woodland plantation with abundant Scots pine and dense silver birch and gorse under-storey. The ground flora is patching with affinities to TN32.
40	Semi-mature silver birch dominated woodland with locally frequent rhododendron and gorse. The ground flora is dominated by bryophytes with ling conspicuous.
41	A broadleaved woodland plantation of alder, silver birch, beech, hawthorn, ash (*Fraxinus excelsior*), pedunculate oak and goat willow with scrub development consisting of silver birch regeneration, gorse, broom and bramble. The ground flora is dominated by bryophytes.
42	Gorse dominated scrub with occasional broom forming dense vegetation with little vegetation growing beneath this canopy. Where open a grassland community consisting of the grass species common bent, sweet vernal-grass, red fescue, and Yorkshire fog is present along with common knapweed, creeping thistle, soft rush, common bird's-foot trefoil (*Lotus corniculatus*), ribwort plantain, greater plantain, selfheal, creeping buttercup, ragwort and germander speedwell.
43	Bryophyte dominated heathland with soft rush in the damper low-lying areas. Silver birch regeneration along with rhododendron, bramble and gorse is being to develop in these areas.
44	An area of dense scrub in front of a birch dominated woodland fringe running on the edge of the quarry. The woodland consists of silver birch and pedunculate oak with sycamore, alder, beech, hawthorn, holly and rhododendron forming a dense shrub layer. The scrub is dominated by patches of gorse and bramble with broom and birch saplings also prominent. In open areas and immediately downslope of the scrub exists a rich plant community with affinities to woodland/grassland/heath habitat types including common bent, sweet vernal-grass, ling, common centaury (*Centaurium erythraea*), common mouse-ear, rosebay willowherb, creeping thistle, spear thistle, cock's-foot, foxglove, red fescue, Yorkshire Fog, heath bedstraw, square-stalked St-John's-wort, common cat's-ear, soft rush, heath rush, heath wood-rush, tormentil, common sorrel, broad-leaved dock, ragwort and thyme-leaved speedwell.
45	Broad-leaved woodland plantation consisting of alder, silver birch, common hawthorn, beech, ash and rowan with dense scrub of gorse and silver birch regeneration growing amongst the planted trees..
46	Semi-mature broadleaved woodland dominated by silver birch with gorse forming a dense shrubby layer. Ling is abundant in the field layer with bryophytes forming a rich carpet in the ground layer.
47	Silver birch scrub with similar field and ground layers as TN46.
48	A semi-improved neutral grassland consisting of the grass species Yorkshire fog, perennial rye-grass and meadow-grass (*Poa* sp.) with spear thistle, field wood-rush, ribwort plantain, greater plantain, creeping buttercup, broad-leaved dock, ragwort and dandelion present.
49	A line of mature trees and gappy hedgerow running along the northern side of the access lane including silver birch, hazel (*Corylus avellana*), common hawthorn, holly, blackthorn (*Prunus spinosa*), pedunculate oak, elder and rowan. The field and ground flora extending into the narrow roadside verge includes cow parsley, false oat-grass, cock's-foot, great willowherb (*Epilobium hirsutum*), cleavers, Yorkshire Fog, bluebell, bracken, bramble, red campion and common nettle.
50	A line of mature trees and gappy hedgerow running along the southern side of the access lane very similar in composition to TN49.
51	A mature semi-natural oak-birch woodland with sycamore, alder, beech, common hawthorn, holly elder ,goat willow and rowan forming the shrub layer along with locally dominant rhododendron. The field layer is dominated by locally abundant bracken, bramble and gorse with broom, ling and bilberry (*Vaccinium myrtillus*) also locally frequent particularly on the upper slopes along the woodland edge. The ground flora is

TN	Detail
	relatively sparse but includes the grass species common bent, wavy-hair-grass and Yorkshire fog with rosebay willowherb, foxglove, bluebell, soft rush, wood sage and an a rich diversity of bryophytes.

Flora

Protected and Notable Species

6.48 No statutory protected plant species were noted during surveys of the site.

6.49 Notable species of flora recorded at Huntley Quarry include trailing St John's-wort (*Hypericum humifusum*), sand spurrey (*Spergularia rubra*) and knotted pearlwort (*Sagina nodosa*) all of which have limited distribution in Staffordshire and bilberry which is listed in the Staffordshire LBAP.

Non-native Invasive Species

6.50 No non-native invasive species of plants were found in or immediately adjacent to the application site.

Fauna

6.51 Records of protected and notable fauna within a 2km radius around the site were obtained from Staffordshire Ecological Records Centre and from the NBN gateway and annotated accordingly.

Badgers

6.52 The Protection of Badgers Act (1992) prohibits the intentional or reckless damage, destruction or obstruction of a badger sett, the intentional or reckless killing or injury of a badger, and the disturbance of a badger whilst it is occupying a sett.

6.53 In 2006, an active main badger sett and annex sett were found in Huntley Wood by Staffordshire Wildlife Trust. Further evidence of badger activity was also recorded to suggest that badgers were crossing the former quarry site at the time of this survey.

6.54 The re-survey of the application site during June 2008 found a total of 14 sett entrances in and around the location of the main and annex sett identified by Staffordshire Wildlife Trust with only two entrances that would appear to be active.

6.55 A further outlier sett was found in the central part of the former quarry. This consisted of two entrances with one of these showing signs of collapse. Although the spoil outside the entrances appeared to indicate that these had been excavated fairly recently there was no evidence to suggest that badgers were currently using this sett (i.e. footprints, bedding outside the entrances and/or pathways leading to and from the sett).

6.56 Other evidence of badger activity recorded during the 2008 survey included a number of pathways typical of badger crossing Huntley Wood and leading from the woodland to the farmland north of the application site; badger hair attached to pushed up fencing along the northern boundary of the wood; and footprints in soft mud around the largest pond on the former quarry site.

Bats

6.57 All 17 species of bat resident in the UK are afforded full protection under the Wildlife and Countryside Act 1981 (as amended) and the Conservation (Natural Habitats &c.) Regulations 1994 (as amended). Seven of these species have Species Action Plans within the UK BAP because of their rarity or because their population has undergone a significant decline. Noctule bat (*Nyctalus noctule*) and pipistrelle bat (*Pipistrellus pipistrellus and P. pygmaeus*) are identified as priority species within the Staffordshire LBAP.

6.58 Common and soprano pipistrelle and an individual Myotis species were recorded foraging and commuting along the woodland edges within the application site by the Staffordshire Wildlife Trust during activity surveys in 2006.

6.59 There are no buildings or structures within the application site however, a number of buildings offering bat roosting potential are present in the surrounding urban and countryside areas. Most of the trees on the application site offer low potential for bats due to their age and structure. The mature trees likely to be lost to the development are also considered to offer low bat roosting opportunities as they do not exhibit obvious cracks, crevices, loose bark, dense ivy or other potential roosting features and no evidence was found to suggest that any of these trees are currently being used by bats.

6.60 However, the habitats present within the application site do provide suitable foraging potential for a wide range of bat species. These habitats are linked to the surrounding countryside by well defined features (i.e. mature hedgerows) that offer good potential commuting routes.

Dormouse

6.61 Dormouse (*Muscardinus avellanarius*) are afforded full protection under the Wildlife and Countryside Act 1981 (as amended) and the Conservation (Natural Habitats &c.) Regulations 1994 (as amended). As such their presence must be taken into account when habitat changes are likely as a result of development or changes in woodland management within their range.

6.62 The variation in age and structure of the woodland and scrub found within the application site do provide some suitable habitat for dormouse with connectivity via often mature hedgerows to some other woodland areas. Whilst dormouse have been recorded in North Staffordshire, there are no known populations of this species within close proximity of the application site and it is unlikely this species will be present.

Birds

6.63 All wild bird species occurring in the UK, with the exception of eleven very common and/or 'pest' species, are afforded protection under the Wildlife & Countryside Act 1981 (as amended) prohibiting: their killing, injuring or taking; the damage, destruction or taking of nests in use or being built; and the taking or destruction of eggs. A refined list of bird species receives a greater degree of protection under Schedule 1 of the Act.

6.64 The mosaic of habitat types of vegetation with varying ages and structure in the application site offers suitable habitat for a diverse assemblage of bird species typical of woodland, farmland habitats and open standing water.

6.65 A formal breeding bird survey, carried out by Staffordshire Wildlife Trust in 2006, recorded 28 species of bird within the application area (24 species in the quarry and 17 in Huntley Wood. A further two species were incidentally recorded outside the timed surveys. Historical records also include barn owl (winter 2002) and firecrest (2001). A full species list including relevant abundance assessed by Staffordshire Wildlife Trust are presented in Table 6/3.

6.66 Of the 32 species recorded only barn owl is listed on Schedule 1 of the Wildlife & Countryside Act 1981 (as amended) with 1 and 4 species included on the Red and Amber List of Birds of Conservation Concern[15] respectively.

6.67 No formal bird survey was carried out in 2008 however, the species visually and aurally recorded during the site visits were typical of those recorded in 2006.

Table 6/3: Birds Species and Relative Abundance Recorded at Huntley Quarry and Huntley Wood (Staffordshire Wildlife Trust 2006)

Common Name	Huntley Quarry	Huntley Wood	RSPB Species Status	BAP
Barn Owl			Amber	
Blackbird	0.75	0.9		
Blackcap	0.5	0.4		
Blue Tit	0.44	0.4		
Buzzard	0.06			
Carrion Crow	0.19	0.2		
Chaffinch	0.75	1		
Chiffchaff	0.13	0.5		
Coot	0.13			
Firecrest				
Garden Warbler		0.2		
Goldcrest		0.1	Amber	

[15] RSPB (2004). *The Population Status of Birds in the UK – Birds of Conservation Concern 2202-2007*. Royal Society for the Protection of Birds.

Common Name	Huntley Quarry	Huntley Wood	RSPB Species Status	BAP
Great Spotted Woodpecker		0.3		
Great Tit	0.44	0.7		
Greenfinch	0.06			
Jackdaw	0.13	0.1		
Jay				
Lapwing	0.06			
Little Grebe	0.06			
Long-tailed Tit	0.13			
Magpie	0.19			
Robin	0.69	0.9		
Sand Martin	0.19		Amber	
Song Thrush	0.75	0.5	Red	
Sparrowhawk		0.1		UK & Local
Swallow	0.19			
Tufted Duck	0.06			
Wheatear				
Whitethroat	0.13			
Willow Warbler	0.63	0.5	Amber	
Woodpigeon	0.56	0.2		
Wren	0.69	1		

6.68 Sand martin (*Riparia riparia*) do not build conventional nests but excavate holes in sand banks. Within the application site sand martins have and continue to utilise the exposed sand cliff to excavate their burrows for breeding purposes. Since 2006, the number breeding burrows would appear to have diminished from 34 burrows to only four recorded in April 2008. The sand cliff does suffer from high levels of disturbance caused by erosion and motorbikes and may be a contributory factor in decrease in burrows recorded.

Reptiles

6.69 There are no historical records for reptile species at or within the vicinity of the application site although the site does provide some optimum habitat for the more common species such as slow-worm (*Anguis fragilis),* common lizard (*Lacerta vivipara*), grass snake (*Natrix natrix*) and adder (*Vipera berus)*. Whilst the absence of reptiles from the site cannot All of these species mentioned are afforded limited protection under the Wildlife & Countryside Act 1981 (as amended) making it an offence to intentionally kill or injure individual animals.

6.70 A reptile survey undertaken by Staffordshire Wildlife Trust in 2006 found no evidence of reptiles during targeted searching of habitats and from artificial refugia and during the site visits in 2008 no reptile species were observed or

evidence of reptiles using the site was found. However, given the scale of the site and availability of suitable habitat it is likely that small populations of reptiles may exist within the application site but that any population is likely to be small and the site is unlikely to be important or critical for the species if present.

Amphibians

6.71 Great crested newts are fully protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation (Habitats &c.) Regulations 1994 (as amended) and it is an offence to kill or injure great crested newts. Furthermore, the amended legislation now states (in regulation 39(1)) that a person commits an offence if he:

> "(b) deliberately disturbs wild animals of any such species [i.e. great crested newts] in such a way as to be likely significantly to affect –
> (i) the ability of any significant group of animals of that species to survive, breed, or rear or nurture their young; or
> (ii) the local distribution or abundance of that species."

Deliberate disturbance of great crested newts can be licensed by Natural England for a number of purposes, set out in Regulation 44. These include 'imperative reasons of over-riding public interest', which could cover the deliberate disturbance of these species during development operations. Licences can only be issued where there is no satisfactory alternative and where the action authorised will not adversely affect the conservation status of the species involved.

6.72 There are no historical records for great crested newt at or in close proximity of the application site. A limited survey for great crested newt, undertaken by Staffordshire Wildlife Trust in 2006, found no evidence of this species present at any of the four ponds surveyed.

6.73 During the extended Phase 1 Habitat Survey a total of seven ponds were found within the application area. Only one pond was assessed with a HSI "good" value (TN 29) with and "average" value for the largest pond (TN27). All the other ponds had values of "below average" (TN 28 and 21) or "poor" (TN19, 13 and 10). All ponds had some levels of restricted access through a combination of either steep banks or deep water or soft substrates or dense bank-side vegetation that severely constrained the survey effort on these waterbodies. All ponds are shown on Drawing 6/2.

6.74 Great crested newts were found to occur in one pond within the application site (TN10). The full results of the survey are presented in Table 6/4 along with the numbers of smooth newts recorded for comparative purposes.

Table 6/4: Results of Great Crested Newt Survey

Date	Pond	Method	Great Crested Newt		Smooth Newt	
			Male	Female	Male	Female
30 April 2008	TN10	Bottle Trapping	-	-	-	-
	TN13	Bottle Trapping	-	-	-	-
	TN19	Torching	-	-	-	-
	TN21	Bottle Trapping	-	-	-	3
	TN27	Bottle Trapping	-	-	3	1
	TN28	Bottle Trapping	-	-	1	11
	TN29	Torching	-	-	-	1
27 May 2008	TN10	Bottle Trapping	2	7	99	
	TN13	Bottle Trapping	-	-	-	-
	TN19	Not surveyed - totally dried out				
	TN21	Torching	-	-	-	-
	TN27	Torching	-	-	1	-
	TN28	Torching	-	-	-	2
	TN29	Torching	-	-	-	-
02 June 2008	TN10	Bottle Trapping	6	3	31	79
	TN13	Bottle Trapping	-	-	-	-
	TN19	Not surveyed - totally dried out				
	TN21	Torching	-	-	-	-
	TN27	Torching	-	-	-	-
	TN28	Torching	-	-	-	-
	TN29	Bottle Trapping	-	-	-	-
10 June 2008	TN10	Bottle Trapping	1	8	188	
	TN13	Bottle Trapping	-	-	-	-
	TN19	Not surveyed - totally dried out				
	TN21	Torching	-	-	-	-
	TN27	Not surveyed - totally dried out				
	TN28	Torching	-	-	-	-
	TN29	Bottle Trapping	-	-	-	-
16 June 2008	TN10	Torching	4	19	221	
19 June 2008	TN10	Torching	8	22	224	

6.75 Egg searches were constrained by restricted access to the ponds but where vegetation was examined no evidence of breeding great crested newts was found in any of the ponds surveyed.

6.76 The maximum adult count size from this pond during the six visits was 30 individuals recorded on 19 June 2008. This would indicate a 'medium' population size class based upon the criteria detailed in the Great Crested Newt Mitigation Guidelines where populations can be classed as:

- small – maximum counts of up to 10 adults;
- medium – maximum counts between 11 and 100 adults; and
- large – maximum counts of over 100 adults.

6.77 Whilst the presence of adults only in this pond does not provide evidence of this pond being used for breeding purposes, given that there are no ponds within 500m of the application site with records for this species, it has been assumed that this species is breeding somewhere on this site for the purpose of the Environmental Statement and the design of appropriate mitigation.

6.78 In addition to great crested newt, the site supports a 'large' population size class of smooth newts (*Triturus vulgaris*) as well as common toad (*Bufo bufo*) and common frog (*Rana temporaria*) with these latter species listed as priority species in the UK BAP.

Invertebrates

6.79 Huntley Quarry provides good habitat for a number of important invertebrate species. Key species recorded by Staffordshire Wildlife Trust include the dingy skipper butterfly (*Erynnis tages*) and a total of 29 solitary bee and wasp species that are listed as a priority group of species in the Staffordshire LBAP.

Other Species

6.80 No other evidence was found during the site visits of any other protected or notable species.

Predicted Trends

6.81 The proposed development will be undertaken in a phased approach and is not anticipated to be completed until 2010. In the absence of this development, it is considered that up to this time birch and gorse scrub would colonise the remaining open areas forming dense stands of this vegetation type and gradually restricting the already limited ground flora. The existing areas of scrub and woodland would continue to mature to form a silver birch dominated canopy with other species of trees through previous planting or regeneration providing variation in species composition, age and vegetation structure. Acid grassland would still be present in small patches in the more open areas of woodland and where scrub development is kept in check by grazing rabbits. With the exception of the fishing pond all the other ponds are likely to gradually suffer from the accumulation of silts entering these water bodies from surface run-off carrying high loadings of sand with the marginal vegetation succeeding to more swamp type communities..

Evaluation of Habitats, species and the site

Evaluation Criteria

6.82 Ecological features that have the potential to be affected by the proposed development were evaluated and valued in accordance with the following geographical context:

- international;
- UK;
- National (England);
- Regional (West Midlands);
- County (Staffordshire);
- District (Staffordshire Moorlands);
- Local or parish (Cheadle); and/ or
- Within the immediate zone of influence (less than local value).

6.83 These categories are then applied to the features identified in the baseline surveys and desk-top studies. Some features can already be recognised as having ecological value and as such they may be designated as a statutory or non statutory wildlife site, other features may require an evaluation based upon their previously un-assessed biodiversity value. The rationale for grading such features is provided below.

Designated Sites

6.84 Natural England notifies sites that are of international or national importance for nature conservation as Sites of Special Scientific Interest (SSSIs), although some sites that are of national importance for certain species have not been so designated. Internationally important sites may also be designated as Special Areas of Conservation, Special protection Areas or Ramsar sites. In some instances a site that is considered to be of national importance can also be purchased by Natural England and designated as a National Nature Reserve.

6.85 Staffordshire County Council recognises sites/features that are of county and local importance for nature conservation with a range of non-statutory designations. Whilst these areas are not protected by law, it is a requirement of the planning process that any potential impact upon such sites are considered when making a planning decision. These designations include Sites of Biological Importance (SBI) and Ancient Woodland.

Non-designated Features of Biodiversity Importance

6.86 Criteria are applied to assess the nature conservation value of the habitats and species/populations that a site supports. As there is rarely comprehensive quantitative data on the habitat or species population resource, particularly at the regional and local levels, the nature conservation evaluation process inevitably involves a qualitative component. This requires a suitably experienced ecologist to make a professional judgement based upon a combination of published sources, consultation responses and knowledge of both the site and the wider area

Habitat Value

6.87 For features that have not been formally recognised by a designation, an evaluation based upon those IEEM guidelines has been undertaken. The features being evaluated are considered in the context of the site and locality. In this way it is possible to provide a more accurate assessment of the impacts in the locality.

Value for Species

6.88 The criteria used to determine the biodiversity value of a species or features that may support a species include the following general considerations:

- rarity at a geographical level (international, national or local);
- endemism and locally distinct varieties or sub-species;

- species on the edge of their geographic range;
- size of populations in the local geographic context;
- species-rich assemblages of a larger taxonomic grouping, e.g. herpetofauna or over-wintering birds;
- plant communities, ecosystems or habitat mosaics/associations that provide habitat for any of the above species or assemblages; and
- populations of species considered as significant under locally published guidelines or red data books.

6.89 All species and populations of species, including those with statutory protection, are evaluated on the same basis. It should be noted that even when a species is protected under European and UK statute, the presence of a small population on a site within a region where this species is widespread is unlikely to be assessed at a value of greater than district level importance. Equally, a particular feature on a site may attract large numbers of an unprotected species that has limited distribution and this may represent a feature of regional importance.

Social, Community or Economic Value

6.90 Some habitat/species may not be particularly rare or of high ecological value in their own right. However they may be of social or community value for a neighbourhood/community that has the use of such an area for recreational or educational use.

6.91 In addition some wild populations of animals may also be of economic value, such as red grouse on heather moors that can be shot, trout in rivers that are fished, or even significant populations of birds that may attract bird watchers to a region.

6.92 Such an assessment is, however, centred on those populations and areas that are considered to be natural or semi-natural.

Whole Site Value

6.93 A second stage of evaluation entails a collective review of the differing levels of importance of the various habitats and species present, in order to reach an evaluation of the site as a whole. Ultimately, this evaluation is also a matter of professional judgement, guided by published sources, consultation responses and local knowledge.

Evaluation of Nature Conservation Value

6.94 Table 6/5 summarises the nature conservation value given to the designated sites, habitats and species assessed as being of significance within the application area, or with the potential to be affected by the proposed development

Table 6/5: Valued Ecological Receptors

Site/Feature	Level of Value	Reason for Importance
Huntley Wood SBI and ASNW	County	Non-statutory designated site of importance for nature conservation. Oak-Birch ancient and semi-natural woodland. Social and community value to the town of Cheadle with good access via numerous footpaths.
Draycott Common Wood BAS	County	Non-statutory designated site of potential importance for nature conservation.
Mature semi-natural broadleaved woodland	District	Lowland woodland a UK BAP and LBAP priority habitat. Potential habitat to support bats, birds and invertebrates.
Semi-natural broadleaved woodland regeneration	Less than local	Potential habitat to support bats, birds and invertebrates.
Plantation woodland	Less than local	Potential habitat to support birds and invertebrates.
Scrub	Less than local	Potential habitat to support birds and invertebrates.
Acid grassland	Less than local	A UK BAP and LBAP priority Habitat.
Heathland	Less than local	A UK BAP and LBAP priority Habitat.
Ponds	Local	A UK BAP priority habitat. Important habitat for a range of species including great crested newt.
Badgers	Local	Protected species.
Bats	Local	European protected species. UK BAP and LBAP priority species. Potential roosting sites within mature trees inside the application site. Use of the site for foraging and commuting.
Breeding Birds	Less than local	Barn owl included on Schedule 1 of the Wildlife & Countryside Act 1981. Song thrust is a RSPB red listed species and a further four amber listed species are present. A relatively species rich assemblage within the site.
Great Crested Newt	District	European protected species. Medium population size class sized of great crested newt. Widespread throughout England but very few records in and around Cheadle.
Other Amphibians	Local	Large population size class of smooth newt. Common frog and common toad are UK BAP priority species but are common and widespread.
Ground nesting solitary bees and wasps	Local	LBAP priority species. A high diversity of species represented in the application site.
Dingy skipper	Local	UK BAP priority species.
Whole site	District	A mosaic of habitats, including woodland, scrub, bare substrates, acid grassland, heathland and standing open water supporting and potential to support a range of protected and other species of nature conservation value.

Predicted Impacts

Introduction

6.95 This section provides a summary of the potential ecological impacts of the proposed golf course development based on the baseline information identified through the desk-based study and field survey. Both qualitative and quantitative information has been used to identify significant ecological impacts, including the positive, negative, direct, indirect and the cumulative environmental effects.

6.96 The proposed development would comprise the upgrade of the access to the application site, selected site vegetation clearance; the importation of inert waste material and reforming of the land, construction of the golf course infrastructure including services, buildings, fairways and greens and ancillary works, landscaping and planting;

6.97 Potential impacts from the proposed development fall into two main categories:

- impacts from site clearance, importation of waste material and construction of the golf course; and
- impacts post-construction and during the operation of the golf course.

Construction Phase

6.98 There are five principal categories of impact during the construction phase of the golf course development of the former quarry site including:

- habitat loss;
- effects on species;
- disturbance due to human activity, dust, noise and light;
- water flows and quality; and
- landscaping and habitat creation.

Habitat Loss

6.99 Habitat loss involves the direct destruction or physical take-up of vegetation, or the removal of other structures with conservation interest. Habitat loss may also occur as a result of a change in land or water management, for instance the drying-up of ponds or leading to successional changes in habitat type. Habitat loss can result in the direct loss of individuals or populations of plant or animal species or indirectly by increasing levels of stress placed upon populations of some species.

6.100 The preparation of the site through the clearance of vegetation and the infilling and re-profiling of the site prior to construction of the golf course will cause the direct loss of habitats. It is anticipated that approximately 25ha of the total application area (69ha) will experience a direct loss of habitat including woodland, scrub, bare substrates, grassland, heathland and open standing water for the construction of the playing areas. Other areas of

woodland, scrub and trees are likely to be removed in order that out of play areas remain open.

6.101 A small part of Huntley Wood SBI would be lost due to the encroachment of the golf course into this woodland. This encroachment would be in area of sparsely distributed mature trees with dense rhododendron and little other ground vegetation cover. The encroachment into this woodland is unlikely to significantly affect the overall value of this woodland.

6.102 Draycott Common Wood BAS would experience some habitat loss and disturbance during the construction phase. The main area that will be affected will be the coniferous and broad-leaved plantation woodlands, valued at less than local value, whilst the fishing pond and the area of semi-natural broadleaved woodland of would remain largely unaffected.

6.103 Other areas of semi-natural woodlands, plantation woodland and scrub, assessed as being of less than local to local value would be lost as a result of the development. All of these habitats are very common normally supporting only widespread species of flora and fauna.

6.104 Both the acid grassland and heathland, whilst nationally important, is at this present time, only a small component part of the site and has a strong affinity to the oak-birch woodland community. Unless actively managed to maintain these habitats in a plagio-climax state they will succumb to successional changes and as such these habitats are assessed as less than local value.

6.105 The standing open water-bodies currently within the application site offer limited nature conservation interest with most receiving large quantities of surface water run-off laden with high quantities of silt and are of no more than locally important.

6.106 Areas of bare ground are very common habitats normally supporting only widespread species of plants and fauna however, within the context of this site the exposed substrates provide an important habitat for a range of invertebrates groups and species. Many areas of bare ground are maintained by regular human disturbance predominantly caused by the use of motorbikes across this site.

Effects on Species

6.107 It is unavoidable that site clearance activities will involve a loss of, or damage to a number of plant communities and species most of which are common and widespread in the county. Although not recorded in 2008, three notable species, trailing St John's-wort, sand spurrey and knotted pearlwort, all rare species for Staffordshire, may be lost as a result of the development.

6.108 Site clearance, land reforming and construction works would result in the loss and disturbance of great crested newt breeding and terrestrial habitat. In addition, there is the potential for great crested newts to be killed or injured as a result of clearance and construction works. While great crested newts are not uncommon and widespread in England there are few records of this species in and around the Cheadle area and as such any reduction in the size of this population, i.e. in the absence of appropriate mitigation, is likely to

be significant in a district context. An outline of mitigation measures, proposed as part of this scheme, which would be delivered through an EPS licence are provided in below in Section 6.136.

6.109 The main badger sett within Huntley Wood lies outside the footprint of the golf course development and is unlikely to be directly affected by the proposed works. However, some works may fall within 30m and therefore the works have to potential to conflict with the Protection of Badgers Act (1992) and will require appropriate mitigation to be conducted under licence from Natural England. It is important to note that badgers are not protected for reasons of rarity, but to protect them from persecution. Natural England themselves state that they will not oppose development due to the presence of badgers, provided that appropriate mitigation is implemented.

6.110 The outlier sett within the quarry site will be directly affected by the proposed development and similarly, will require appropriate mitigation under licence from Natural England if shown to be active.

6.111 Whilst the site does not support scare breeding bird species and a limited number of Birds of Conservation Concern, the loss of suitable habitat will have a temporary impact on the bird species that currently use this site during the construction phase of the golf course development providing that suitable breeding habitat is retained on site including sand banks for sand martin.

6.112 The site supports an important assemblage of solitary bees and wasps that are considered to be of county value in particular the elements making up bare and sparsely vegetated ground in the western half of the site where also dingy skipper has been recorded. The loss of these habitats has the potential to impact upon individual invertebrate populations within these areas.

6.113 The clearance of parts of the site would involve the loss of, or damage to, other wildlife that is present in the habitats that are being lost due to the construction of the golf course. For the purpose of this assessment in the absence of mitigation, the loss of individuals of amphibians, small mammals and invertebrates and plants as not previously highlighted, would be considered as a medium level impact of populations of low value.

Disturbance due to Human Activity, Dust, Noise and Light

6.114 Increases in disturbance, as a result of human activity can have a range of impacts depending upon the sensitivity of the ecological receptor, the nature and duration of the disturbance and its timing.

6.115 Site clearance and construction activities would increase noise levels across the site during daylight hours. With the exception of some bird species, none of the ecological receptors have been identified as sensitive to elevated levels of noise.

6.116 Site clearance and construction activities would be restricted by planning conditions, and any noise generated from these activities would only be confined to certain periods during the day, which is not likely to coincide with

main periods of dawn and dusk singing activity. As such, the generation of additional noise would be assessed as a low impact.

6.117 Of the known ecological receptors, only bats have been identified as sensitive to light pollution and any artificial lighting used during the construction phase could impact upon any species foraging and commuting where lighting is installed. Lighting is anticipated to be minimal during construction and will retain large areas of the site in darkness for the use of bats.

6.118 Dust levels are anticipated to increase slightly during the construction phase but are deemed unlikely to have a significant impact on the flora and fauna within the application site.

Water Flows and Quality

6.119 The potential impacts on ground condition, as well as on water flows and quality have been assessed and considered in detail in section 10 of the ES which considers the issues associated with Hydrogeology and Hydrology.

6.120 During the construction phase, the clearance of vegetation and the importation of infill material may lead to increasing rates of surface run-off, sediment loading and deteriorating water quality in the receiving areas of open standing water. Nutrient levels within the ponds are likely to increase with a greater increase in algal growth a likely consequence. Any deterioration in water quality has the potential to impact upon the aquatic communities including great crested newt.

Landscaping and Habitat Creation

6.121 The construction phase of the golf course presents an opportunity for landscaping and habitat creation for the benefit of wildlife including opportunities to create areas of UK BAP and LBAP priority habitats (i.e. acid grassland, heathland and ponds) as well as providing suitable habitat conditions for a number of individual or groups of species including bats, birds, amphibians and invertebrates. Not only would landscaping and habitat creation be beneficial for the biodiversity of the site but also increase the social and community value for users of the golf course.

Golf Course Operation

6.122 There are four principal categories of impact identified for the operation of the golf course including:

- Maintenance of the greens, fairways and rough;
- disturbance due to human activity, noise and light;
- water flow and quality;
- biodiversity enhancement through habitat creation.

Maintenance of the Greens, Fairways and Rough

6.123 The maintenance of the greens, fairways and rough is likely to require the use of herbicides, fertilisers, irrigation and their physical management to ensure a high quality playing surface.

6.124 Tree removal is an important on-going management requirement on all heathland golf courses. Highly invasion birch regeneration and gorse scrub development would have to be actively managed to ensure a continued playing surface including both physical management (i.e. cutting by motorised or hand-held tools) and in the case of the greens some selective use of approved herbicides. The use of herbicides has potential implications for some non-target species adjacent to these areas.

6.125 It has been estimated that the fertiliser requirements for the golf course will be 1030kg to 1105kg per annum[16] applied to the greens, teeing grounds, the surrounds to greens and fairways. The use of fertilisers has the potential to increase nutrient levels in surface waters leading to further eutrophication of these water and increasing levels of algal growth. Nutrient enrichment of the terrestrial habitats can also lead to more aggressive species of flora out-competing those with a preference for poor acid soils with the potential to impact any created acid grassland and heathland.

6.126 Irrigation will be restricted to the teeing grounds, greens and the approaches to the greens. Estimated daily irrigation requirements are 135m^3 producing an annual volume of 9587m^3. This water will be obtained from the retained and newly created ponds on the site and is not anticipated to have a significant impact in these water bodies. However, the use of eutrophic water on the golf course may lead to nutrient enrichment of the soils around the greens and teeing grounds to the detriment of the acid preferring vegetation and which could impact on areas of existing or created heathland.

Disturbance due to Human Activity, Noise and Light

6.127 The presence of humans within the site would increase disturbance levels across the site. Essentially the levels of disturbance are not anticipated to be high with many species over time expected to become habituated to increase disturbance levels from the management of the golf course and persons using the facility.

6.128 Bats are sensitive to light pollution and any artificial lighting used around the club house or on any night-time driving range could impact upon species foraging and commuting where lighting is installed. Although areas of lighting are anticipated to be used in and around the aforementioned facilities large parts of the site will remain in darkness.

Water Flow and Quality

6.129 The golf course would be developed with a sustainable drainage system. The fairways would be sloped to a series of open ditches that would be directed to areas of retained and newly constructed ponds. A full system of

[16] STRI (2006). *Ecological/Feasibility Report Produced on Behalf of the Tamar Group – Comment and Recommendations Relating to the Formation and Establishment of Heath at Huntley Wood Quarry (Proposed 18 Hole Golf Course Site)*.

water recycling and grey water use would be employed to irrigate the play areas.

6.130 The nutrient levels within the ponds are likely to increase with a greater increase in algal growth a likely consequence as outlined previously as an impact of irrigation. Any deterioration in water quality has the potential to impact upon the aquatic communities including great crested newt.

Biodiversity Enhancement through Habitat Creation

6.131 Whilst the development of the golf course would result in the loss of some habitats, it would give an opportunity for the creation of new habitat in particular heathland, acid grassland, ponds and ditches as well as specific features to benefit individual and groups of species such as solitary bees and wasps, sand martins, amphibians and reptiles, bats and birds.

Mitigation

6.132 The section outlines the mitigation measures that will be incorporated into the proposed development to prevent, reduce or offset any adverse effects on ecology and nature conservation. In general, mitigation measures include minimising land take and disturbance by reducing the footprint of the works so that adjacent habitats are not impacted, avoiding key habitat and areas used by protected species and minimising pollution of watercourses. Habitat creation is also an important aspect to ensure that key habitats are reinstated and wherever possible enhanced through use of seed sources on the site and through selective planning using locally sourced native species that are appropriate to the locality.

Mitigation During the Construction Phase

6.133 Prior to the construction phase of the development an Environmental Action Plan should be produced outlining the methodology of working, responsibilities, threats and mitigation measures for all actions to be taken to ensure compliance with statutory legislation and other ecological issues during the construction and post construction phases.

6.134 The layout of the golf course has been designed to minimise the loss of habitat. Vegetation clearance and subsequent infilling and reforming of the playing areas would be undertaken in a sensitive manner and be kept to a minimum. All tree and scrub removal would be undertaken if appropriate in accordance with all applicable woodland felling licences for the removal of trees and waste management licences for the disposal of the waste material.

6.135 The construction of the golf course would be undertaken in a phased approach working from the west of the site to the east. This would ensure that any site clearance, infilling, reforming and construction activities would not affect the whole site at any one time and provide on site refuges for individual and groups of species.

6.136 Undertaking the construction works in a phased approach would allow for a mitigation strategy to be implemented in respect of great crested newt. Any

mitigation strategy would have to be approved by Natural England and carried out under appropriate licence. The following outlined strategy would ensure the avoidance of great crested newts (as well as any populations of reptiles that may be present) being killed or injured and the overall population is not affected by:

- Establishing a safe area that would be incorporated into the design proposals. Herpetile-proof fencing would be used around this area, which could then serve as receptor site for any great crested newts moved out from other parts of the site.
- A comprehensive exclusion and removal strategy in areas of the site likely to contain great crested newts, prior to those parts of the site being released for clearance and construction works. Methods would include the placement of temporary herpetile-proof fencing, use of artificial refugia and pitfall traps. Great crested newts captured would be moved to safe areas.
- Ensuring there is no net loss of potential breeding ponds within the site.
- Ensuring that additional waterbodies created as part of the golf course design provide suitable breeding habitat for great crested newts.
- Provision of artificial refuges and hibernacular in safe areas throughout the site.

6.137 All work to remove woodland, scrub, trees and emergent vegetation shall be avoided during the bird breeding season between the middle of March and the end of August, wherever practicable. If any clearance works need to be carried out during this period they would only proceed after the vegetation to be removed has been checked and deemed free of active nests by a suitably qualified ecologist. If active nests are found then no clearance works would begin at the nest site and buffer zone around the nest site until the young birds have left the nest. This shall also apply to the sand cliff where sand martins currently nest.

6.138 Where the aforementioned sand cliffs are likely to be lost through the golf course development new sand banks in other parts of the site for use by sand martin would be provided, preferably by an appropriate waterbody.

6.139 Prior to the clearance of any mature broadleaved trees, each tree would be inspected and surveyed for the potential presence of bats. As the use of tree roosts is very variable from day to day and year by year, a survey shall be undertaken during the summer before felling and again immediately before felling. If roosts are identified and destruction or significant disturbance cannot be avoided further emergence surveys may be necessary to inform the EPS licensing process.

6.140 Badger activity on the site would be monitored. Due to the highly capricious and mobile nature of this species areas to be cleared would be inspected for any setts both inside, or within 30m, of these areas would require an appropriate mitigation plan to be carried out under licence from Natural England.

6.141 All working areas would be kept to a minimum though Huntley Wood. All routes in and out would be clearly delineated and fenced at the commencement of works. Only the bare minimum of clearance and disturbance would be allowed within Huntley Wood.

6.142 Suitable site management would be implemented to avoid and/or minimise the generation of excessive human disturbance, dust, noise and light during the construction of the golf course.

6.143 Non-playing areas of the golf course would be identified for the creation of heathland and acid grassland habitats or through restoration actions on the existing resources that may be present in these areas. Where appropriate clean sand and gravels would be excavated and stockpiled to provide nutrient poor, acid and free draining substrate for heathland and acid grassland development as well as providing areas of bare substrate for invertebrates.

6.144 All habitat creation and restoration would be subject to an action plan that would be overseen by a suitably experience ecologist. Following construction, a five yearly management plan would be produced outline the measures to be taken to ensure the appropriate management of these habitats to ensure their biodiversity value.

Mitigation Post Construction

6.145 The management of the teeing grounds, fairways, greens and rough would be undertaken in a sympathetic way and in a manner to ensure areas outside these playing areas are not affected from the use of pesticides, fertilisers and irrigation.

6.146 All created and restored heathland and acid grassland habitats would be subject to appropriate regime of management that shall be detailed in a Biodiversity Management Plan for the site based on a five year period. This plan should include all appropriate management aims and objectives, management actions and timings of such actions, as well detailing the provision for monitoring and continued assessment to ensure that the management regime is appropriate to a specific habitat type and for individual or groups of species associated with that particular habitat. Any plan would be periodically reviewed and its success evaluated.

6.147 Lighting used on the site shall be designed to be bat friendly to ensure that overspill is controlled to avoid adverse light pollution affected surrounding areas and potential bat foraging and commuting routes.

6.148 To offset the loss of woodland habitat in Huntley Wood through the development of the golf course nature conservation management works are proposed to be undertaken to improve the woodland habitat in this site. This will be subject to an agreed management plan but could include the clearance of rhododendron from parts of this site.

6.149 Following construction, a programme of monitoring shall be implemented to monitor the great crested newt population to ensure the population present has been maintained at a favourable conservation status. The results of the

monitoring would inform on-going management measures that might be applied in respect of this species.

Residual Impacts

6.150 This section discusses how, after the application of the mitigation measures, the likely significant ecological effects would impact upon the habitats and species within the zone of influence from the proposed development, this being defined by the sensitivity of the ecological receptor and the nature of the potential effect.

6.151 Table 6/6 provides a summary of the criteria required to evaluate impacts and assess the significance of any such impact.

Table 6/6: Key Consideration when Characterising Impacts

Descriptor	Definition[17]
Direction of impact	Positive or negative impact
Probability of occurring	Broadly defined on 3 levels: Certain, Probable or Unlikely
Complexity	Direct, Indirect or Cumulative
Extent and Context	Area/number effected and % of total
Magnitude	Describe severity of effect in words
Duration	Permanent or Temporary in ecological terms (e.g. within the lifetime of the species affected)
Reversibility	Whether or not the effect can be reversed in an ecological timescale
Area	Expressed as area or percentage of the study area.

6.152 A summary of the likely significant effects, the valued ecological receptors affected and the magnitude and significance of the effect are detailed in Table 6/7. This evaluation takes into account the mitigation measure already discussed and the residual impacts after their application

[17] Definitions for these terms and further information relating the methods of assessment are given in Guidelines for Ecological Impact Assessment (IEEM, 2006)

Table 6/7: Summary of Residual Impacts

Important Ecological Feature	Description of Potential Impact	Characterisation of Impact	Ecological Significance of Impact if unmitigated	Mitigation and Compensation Proposals	Residual Impact following Mitigation and its Significance
Huntley Wood SBI	Loss of woodland habitat. Disturbance to woodland habitat and its associated species	Negative, certain, direct, permanent. Small part of the total woodland area.	Negligible at county level and significant at local level.	Minimal land take within the boundary of the wood. Nature conservation habitat management throughout the wood.	Positive impact at a local level.
Draycott Common Wood BAS	Loss of plantation woodland habitat. Disturbance to woodland habitat and its associated species	Negative, certain, direct, permanent. Small part of the overall site.	Negligible at county level and significant at local level.	Minimal land take within the boundary of the site. Habitat creation as part of the golf course design	Not significant
Semi-natural broadleaved woodland, plantation woodland and scrub	Loss of habitat, loss of breeding sites for birds and foraging areas for bats.	Negative, certain, direct, temporary, reversible. Areas across the application site.	Significant at less than local level		Not significant

Important Ecological Feature	Description of Potential Impact	Characterisation of Impact	Ecological Significance of Impact if unmitigated	Mitigation and Compensation Proposals	Residual Impact following Mitigation and its Significance
Acid Grassland and Heathland	Loss of habitat	Negative, certain, direct, temporary, reversible. Areas across the application site	Negligible at local level, significant at site level.	Creation and restoration of heathland habitat in parts of the site.	Positive impact at a local level
Ponds	Loss of habitat. Changes to water quality and flow rates.	Negative, certain, direct, permanent. Restricted to the water bodies within the application site	Negligible at local level, significant at site level.	Surface water drainage plan. Creation of new ponds and SUDs.	Not significant
Breeding Birds	Destruction of bird breeding habitat and nests whilst in use.	Negative, unlikely, direct, permanent, irreversible.	Significant at less than local level Also an Offence under the W&CA 1981.	Clearance of the site outside the nesting season or pre-site stripping search by a qualified ecologist	Not significant
Bats	Potential disruption of bat foraging behaviour through habitat loss and changes in levels of illumination	Negative, unlikely, indirect, temporary and permanent, reversible. Restricted to very small part of the site, if at all.	Negligible at less than local level	Phase approach to construction. Careful design of lighting to avoid overspill onto adjacent areas.	Not significant.
Badger	Potential disturbance to setts through construction works.	Negative, unlikely, indirect, temporary, reversible.	Significant at less than local level An Offence under the Protection of	Phased approach to construction. Natural England approved mitigation	Not significant

Important Ecological Feature	Description of Potential Impact	Characterisation of Impact	Ecological Significance of Impact if unmitigated	Mitigation and Compensation Proposals	Residual Impact following Mitigation and its Significance
			Badgers Act 1992	scheme to be adopted and carried out under licence.	
Great Crested Newt	Destruction and disturbance to breeding and terrestrial habitat	Negative, certain, direct, permanent, reversible.	Significant at district level An Offence under the W&CA 1981 and Conservation (Natural Habitats, &c.) Regulations 1994	Phased approach to construction. Habitat creation. Natural England approved mitigation scheme to be adopted and carried out under licence.	Not significant
Other amphibians	Destruction and disturbance to breeding and terrestrial habitat	Negative, certain, direct, permanent, reversible.	Significant at local level.	Phased approach to construction. Habitat creation.	Not significant
Invertebrates	Destruction of invertebrate habitat	Negative, certain, direct, permanent, reversible.	Significant to local level	Phased approach to construction. Landscaping and habitat creation	Not significant

Important Ecological Feature	Description of Potential Impact	Characterisation of Impact	Ecological Significance of Impact if unmitigated	Mitigation and Compensation Proposals	Residual Impact following Mitigation and its Significance
Creation of New habitats	Provision of new habitats including heathland, acid grassland and features of individual and groups of species.	Positive, definite, direct, permanent.	With a well considered design it shall likely to be of significance at the local level	Not relevant	Positive impact at local level

Legal and Policy Implications of Residual Impacts

6.153 This section summarises the significance of impacts in the context of statutory legislation and planning policy.

Legal Implications

6.154 With regards to statutory protected species the only issues relevant to the development of the golf course at this current time are badger, breeding birds, great crested newt and the potential for bats. Provided that the mitigation measures described above are properly implemented and all appropriate licences gained, it would be possible to undertake all planned works without the risk of breaching wildlife legislation. It is considered unlikely, with the possible exception of reptiles, that other species afforded full or partial legal protection are currently present in the application site.

Policy Implications

6.155 A summary of national, regional and local policies implications of the golf course development are detailed in Table 6/8.

Table 6/8: A Summary of Policy Implications

Policy Area	National Policies (PPS9)	Regional and Local Policies	Implications
Regional and Local Sites	Sites of regional and local biodiversity and geological interest which include Regional Important Geological Sites, Local Nature Reserves and Local Sites, have a fundamental role to play in meeting overall national biodiversity targets; contributing to the quality of life and the well-being of the community; and in supporting research and education. Criteria-based policies should be established in local development documents against which proposals for development on, or affecting, such sites will be judged.	<u>Staffordshire & Stoke-on-Trent Structure Plan</u> NC7c – Development or land use change likely to have an adverse effect on a Local Nature Reserve or a Site of Local Nature Conservation Importance will not be permitted, unless it can be clearly demonstrated that there are reasons for the proposal which outweigh the need to safeguard the intrinsic nature conservation of the site. <u>Staffordshire Moorlands Local Plan</u> N14 – Proposals for development likely to have an adverse effect on a Local Nature Reserve or County SBI will only be approved if it can be clearly demonstrated that there are reasons for the proposal which clearly outweigh the need to safeguard the intrinsic nature conservation of the site. N15 – Where development is to be approved which could adversely affect any site of significant nature conservation value, appropriate measures shall be required to conserve the site's biological interest and to provide for replacement	The proposed golf course development will lead to the loss of a very small part of Huntley Wood SBI. The small loss existing habitat is unlikely to adversely impact the intrinsic nature conservation value of this site but any loss in value should be offset by implementing appropriate nature conservation management to other areas of the woodland the wider this negative impact. A large part of Draycott Common Wood BAS will be lost to the development. However, the areas that will be lost are broad-leaved and coniferous plantation of little ecological value.

Policy Area	National Policies (PPS9)	Regional and Local Policies	Implications
		habitats or features where damage is avoidable.	
Ancient Woodland and Other Important Natural Habitats	Ancient woodland is a valuable biodiversity resource both for its diversity of species and for its longevity as woodland. Once lost it cannot be recreated. Local planning authorities should identify any areas of ancient woodland in their areas that do not have statutory protection (e.g. SSSI). They should not grant planning permission for any development that would result in its loss of deterioration unless the need for, and the benefits of the development in that location outweigh the loss of the woodland habitat. Aged or 'veteran' trees found outside ancient woodland are also particularly valuable for biodiversity and their loss should be avoided. Planning authorities should encourage the conservation of such trees as part of the development. Through policies in plans, local authorities should also conserve other important natural habitat types that have been identified in the Countryside and Rights of Way Act 2000 Section 74 list, as being of principal importance for the conservation of biodiversity in England and identify opportunities to enhance and add to them.	<u>Staffordshire & Stoke-on-Trent Structure Plan</u> NC6 – In considering or formulating proposals for development or land use change, planning authorities will ensure, wherever possible, that damage to important semi-natural habitats or other features or sites of significant nature conservation value is avoided. Particular care will be taken to safeguard and consolidate the integrity of linear and other landscape features which are of major importance for wild fauna and flora. Where damage is unavoidable, measure to mitigate or compensate through establishment of replacement habitat or features should be taken, wherever possible. NC13 – Measures to improve the management and conservation of existing woodlands and important trees and hedgerows, will be supported. Development or land use change will only be approved where it will not result in the loss of or significant damage to ancient woodlands, and will not have an unacceptable adverse effect on other woodlands or hedgerows which contribute significantly to the landscape character	The proposed golf course development will lead to the loss of a very small part of Huntley Wood ASNW. As detailed previously above this is unlikely to adversely impact the intrinsic nature conservation value of this site. Other important natural habitats including woodland, heathland, acid grassland and open standing water are present on the site. The development of the golf course will result in the loss of some areas of these habitat types considered to be of less than local to local value. These losses can be mitigated and compensated against through appropriate careful design, landscaping, planting and habitat creation and enhancement at this site and which should improve the biodiversity value of the site.

Policy Area	National Policies (PPS9)	Regional and Local Policies	Implications
		and quality or to the meeting of biodiversity targets, unless it can be clearly demonstrated that there are reasons for the proposal which clearly outweigh the need to safeguard the site. Where, exceptionally, such woodland or hedgerow is lost to development, the developer should incorporate or provide for such compensatory planting as is appropriate and feasible in order to minimise the loss of an environmental resource. Schemes for the planting of new woodland should include subsequent management. <u>Staffordshire Moorlands Local Plan</u> N17 – Within an area of unimproved grassland and on surrounding land planning permission will only be granted for development if it can be demonstrated that the need for development outweighs the nature conservation importance of the grassland. N18 – Within an area of lowland heath and on surrounding land development will only be granted if it can be demonstrated that the need for the development outweighs the nature conservation importance of lowland heath. N19 – The council will seed to ensure that	

Policy Area	National Policies (PPS9)	Regional and Local Policies	Implications
		wherever possible development on or adjacent to areas of flowing or standing water or important wetland areas does not resulting in any damage to existing ecological value. Developers will be required, wherever possible, to provide suitable enhancement and management schemes. N20 – Applications for new development will, where appropriate, be required to make provision for the retention and adequate safeguarding of existing trees and for the planting of new trees. N21 – The council will not permit any development proposal which would directly or indirectly damage sites of ancient woodland unless it can be demonstrated that the need for the development outweighs the value of the ancient woodland.	

Policy Area	National Policies (PPS9)	Regional and Local Policies	Implications
Species Protection	Other non-statutory protected species have been identified requiring conservation action as species of principal importance for the conservation of biodiversity in England. Local authorities should take measures to protect the habitats of these species from further decline through policies in local development documents. Planning authorities should ensure these species are protected from the adverse effects of development, where appropriate, by using planning conditions or obligations. Planning authorities should refuse permission where harm to the species or their habitats would result unless the need for and benefits of the development clearly outweigh that harm.	Staffordshire Moorlands Local Plan N24 – Planning permission for development, which may damage, destroy, or obstruct access to any structure or place used for shelter by a specially protected species will not be granted unless satisfactory provision is made for the retention of such species.	Ecological surveys at the site, following best practice and published guidelines, have identified a medium population class of great crested newt present on the site. A mitigation plan will have to be approved by Natural England and all works will have to be carried out under licence. Although the site supports a number of breeding birds these are relatively common and widespread species, and due to the protection afforded to them during the breeding season mitigation measures should reduce impacts to acceptable levels. Bat surveys, undertaken at the site, consider that is unlikely that the site supports roosts at this current time. Bats are however, active in the area foraging and commuting across the site. Landscaping and careful design of lighting systems should ensure that bat usage of this site could continue. Other UK BAP and LBAP species have been recorded on this site however, through careful design, landscaping, planting and habitat creation the value of the site for these individual and groups of species can remain at its current value as well as providing habitat for a number of species not currently recorded at the site.

Conclusion

6.156 The development of the golf course would result in the loss of approximately 25ha of predominantly woodland and scrub habitat along with some grassland, heathland, open standing water and bare substrates most with values assessed from less than local to local.

6.157 A small part of Huntley Wood SBI and ASNW would be impacted by the development however, by undertaking nature conservation management in this area a negative impact compensated by improving the habitat of the woodland (i.e. removal of rhododendron) is likely to have a residual positive impact on this non-statutory nature conservation site and ancient semi-natural woodland.

6.158 The golf course development has the potential to significantly impact the great crested newt population present on the site. However, through careful planning and design and by undertaking appropriate mitigation measures carried out under licence there is no reason why the population cannot remain viable on this site.

6.159 The sympathetic development of the golf course provides an opportunity to create and restore important heathland and acid grassland habitats as well as features for individual and groups of species to improve the biodiversity value of the whole site whilst providing a golf course with social and economic value.

6.160 Through careful consideration of the potential impacts of the proposed golf course development and the mitigation measure that could be adopted to prevent, reduce or offset these impacts further, it is concluded that the proposed development complies with current planning policy and that the legal implications of the works have been addressed.

6.161 The assessment of the impacts identifies that the golf course development is unlikely to have significant negative impact on habitats, species or wildlife sites and that golf course itself along with habitat creation and enhancement through appropriate landscaping, planting and habitat creation is expected to have a positive impact at the local level.

7.0 NOISE

Introduction

7.1 A desktop assessment has been carried out with reference to British Standards and other government guidance. Noise issues relating to the site preparation of the proposed golf course development have been considered. The noise assessment has focussed on the infilling element of the golf course development as this would be the main source of noise generation at the site. The levels of noise anticipated from the proposed use of the golf course would be significantly lower.

7.2 Technical terms or references are occasionally used in this section. To assist the reader, a glossary of terminology and an introduction to the subject of noise, including a table of example noise levels that may be found in general life, are included in Appendix 7/1.

Government Advice, Standards and Good Practice

British Standard 5228: 1997

7.3 British Standard 5228: Part 1: 1997 *Noise and vibration control on construction and open sites, Part 1: Code of Practice for Basic Information and Procedures for Noise and Vibration Control*, sets out a methodology for predicting noise levels arising from a wide variety of construction and related activities. BS5228 also sets out tables of sound power levels generated by a wide variety of mobile equipment.

7.4 Noise levels generated by the site preparation operations and experienced at local receptors would depend upon a number of variables, the most significant of which are:

- the amount of noise generated by plant and equipment being used at the site, generally expressed as a sound power level;
- the periods of operation of the plant at the site, known as the 'on-time';
- the stand-off distance between the noise source and the receptor;
- the attenuation due to ground absorption or barrier screening effects; and
- the reflection of noise due to the presence of hard vertical surfaces such as walls.

Guidelines for Community Noise

7.5 The World Health Organisation publication *Guidelines for Community Noise* indicates the following guideline values for community noise.

Table 7-1
Guideline Values for Community Noise in Specific Environments (WHO Guidance)

Specific Environment	Critical Health Effect(s)	L_{Aeq} [dB(A)]	Time Base [hours]
Outdoor living area	Serious annoyance, daytime and evening	55	16
	Moderate annoyance, daytime and evening	50	16

Source of Information

7.6 Information regarding the proposed development including plant utilisation associated with the working scheme and the proposed vehicle movements to and from the site has been supplied by the applicant.

7.7 The current proposal is to import eight loads of inert materials per hour by heavy goods vehicle which would be spread to form the proposed fairways using a bulldozer. For the purpose of this assessment it is assumed that the bulldozer would be a Komatsu D37EX-21 with a sound power level of 107dB.

Approach to the Assessment

7.8 The development proposals, which have been described in detail in Chapter 3, Project Description include the importation of inert materials which would be spread and shaped to form the fairways of the proposed golf course.

7.9 This assessment considers the likely noise levels that would be generated by the proposed development at the nearby noise-sensitive receptors.

7.10 The noise predictions have been made to the nearest noise-sensitive properties, the locations of these properties are shown on Drawing 7/1 and are namely:

- Location 1 property to the north-east of Wayside Farm;
- Location 2 Harplow;
- Location 3 Harplow Lane;
- Location 4 Huntley House; and
- Location 5 Coneygreaves.

Potential Impact

7.11 The predicted noise levels produced by on-site mobile plant and site-related lorry movements have been calculated using the methodology contained in BS5228. Calculations have been made using the proprietary noise modelling software CADNA/A.

7.12 The former Department of Transport document *Calculation of Road Traffic Noise* (CRTN, 1988) states that calculations of noise level for traffic flows below 50 vehicles per hour or 1,000 vehicles per 18 hour day are unreliable and measurements should be taken when evaluating such cases. Due to the

low traffic flows, the noise generated by waste vehicle movements has been predicted using the haul route method outlined in BS5228. The impact of noise from waste vehicles has been assessed against the existing ambient noise levels.

7.13 The assessment of mobile plant and site-related lorry movements has been undertaken for the ground floor of each property considered. The predicted worst-case noise levels at each location are shown in Table 7-2 below.

Table 7-2
Predicted Site Preparation Noise Levels, Free-field $L_{Aeq,1hr}$ dB

Location	Predicted Noise Level
1. Property NE of Wayside Farm	34.3
2. Harplow	31.7
3. Harplow Lane	43.3
4. Huntley House	37.8
5. Coneygreaves	49.3

7.14 Table 7-3 compares the predicted noise levels with the WHO guideline noise level for moderate annoyance in outdoor living areas.

Table 7-3
Predicted Noise Levels compared to WHO Guidance, free-field, dB

Location	Predicted Noise Levels $L_{Aeq,1hr}$	WHO Guideline for Moderate Annoyance in Outdoor Living Areas	Difference
1. Property NE of Wayside Farm	34.3	50	-15.7
2. Harplow	31.7		-18.3
3. Harplow Lane	43.3		-6.7
4. Huntley House	37.8		-12.2
5. Coneygreaves	49.3		-0.7

7.15 Table 7-3 indicates that the predicted noise levels are below the WHO criteria for moderate annoyance in outdoor living areas at all locations.

7.16 The noise predictions represent worst case scenarios in terms of plant location, where mobile plant would be working at the closest approach to the nearby properties or at elevations where noise reductions due to barriers would be minimal or absent. In reality operations would take place at greater distances or at lower elevations and therefore additional distance and barrier attenuation would occur leading to lower noise levels.

7.17 On the basis that worst-case operations would not exceed the WHO guidelines for moderate annoyance in outdoor living areas, no mitigation measures are considered necessary.

Conclusions

7.18 The assessment has considered the potential for the proposed importation of inert materials and site preparation to give rise to noise impacts at the nearest noise-sensitive properties.

7.19 The assessment has found that noise levels produced by the proposed operations would be below the WHO criteria for moderate annoyance in outdoor living areas at all locations assessed.

7.20 Mitigation measures, above and beyond those already designed into the proposed scheme, are considered unnecessary.

8.0 HIGHWAYS

Introduction

8.1 This section of the Environmental Statement (ES) considers the implications of the proposed development in terms of highways and transport.

8.2 As described in earlier sections, SLR Consulting has been appointed by Spectre Developments Ltd to prepare an ES as part of a planning application for the establishment of an 18-hole golf course at the former Huntley Wood Quarry, Draycott-in-the-Moors, Staffordshire.

8.3 The application site is a disused sand and gravel quarry, which would require partial infilling to construct the fairways, greens and tees for a golf course. It is proposed to infill the quarry with 360,000 cubic metres (circa 540,000 tonnes) of inert waste including spoils and soil forming material. The proposed infilling is the subject of a separate planning application that has been submitted to Staffordshire County Council as waste planning authority. Staffordshire Highways have raised no objections to the scheme, subject to conditions relating to HGV movements and vehicle routing.

8.4 Post-infilling, the development would consist of an 18-hole private golf-course, access road, parking areas and clubhouse. The site would be accessed from an unclassified rural lane which joins Cheadle Road / Draycott Cross Road (the C109).

8.5 This section assesses the impact in transportation terms that would be caused by both the infilling of the former quarry and the operational golf course. The highways aspects of the development proposals are described, and the highway network within the vicinity of the application site is assessed. The proposed trip generation and routing on the surrounding highway network are assessed and the resultant impacts on highway capacity quantified. A qualitative assessment is made of the environmental impacts of site traffic, with particular regard to impacts caused by heavy goods vehicles (HGVs).

8.6 To accord with current best practice, consideration is given to site accessibility and to the opportunities for staff and users of the golf course to use non-car travel modes.

8.7 This section has been written as a Transport Assessment, prepared in accordance with the Guidance on Transport Assessment (DfT, 2007). The section also takes into account the latest Planning Policy Guidelines as directed by PPG13: Transport and relevant local guidance from Staffordshire County Council and Staffordshire Moorlands District Council. Staffordshire County Council (the highway authority) has been consulted regarding the scope of this assessment.

Proposed Development

Site Location

8.8 The location of the application site is shown on Drawing 8/1. The application site is located within the district of Staffordshire Moorlands, approximately 1.5km north of the village of Draycott and 2km south of the village of Cheadle. The site is accessed from an unclassified lane which joins the C109 Cheadle Road / Draycott Cross Road at a priority crossroads junction. The access lane is designated as a byway open to all traffic. Immediately to the east of the site access the lane becomes a stone track and is considered unsuitable for regular vehicle movements. The access lane is essentially, therefore, a no through route and besides the former quarry, provides access to one property.

8.9 To the south, Cheadle Road joins Uttoxeter Road which provides access to Draycott, Blythe Bridge and the A50 (T). To the north, Draycott Cross Road joins the A521, which provides local access to Cheadle and the A52 east / west route.

Current / Historic Site Usages

8.10 The application site is currently disused and thus generates no vehicular traffic with the exception of unauthorized motor cycles. Historically, the site was worked as a sand and gravel quarry with traffic including HGV's being routed via the existing access onto Cheadle Road / Draycott Cross Road.

Proposed Development

Infilling

8.11 It is proposed to import 360,000 cubic metres (circa 540,000 tonnes) of inert fill to provide a suitable landform for the golf course. The infilling would take place over a period of 2 years, with annual imports therefore totalling around 270,000 tonnes. Inert wastes would be imported by 4-axle tipper HGV's.

8.12 The proposed infilling is the subject of a separate current planning application. A summary of previous assessments submitted to the highway authority (Staffordshire County Council) and consultation responses is provided below. Relevant documents are provided in Appendix 8/1.

Transport Assessment (Rutherfords, March 2006)

8.13 A Transport Assessment for the proposed infill was undertaken by Rutherfords Highway Planning Consultants and submitted to Staffordshire County Council in March 2006. The TA is based on annual imports of 300,000 tonnes and estimates 80 daily HGV loads (160 two-way movements), with 16 two-way HGV movements during the AM peak hour and no HGV movements during the PM peak hour. A total of 10 daily light vehicle two-way movements are assumed. The traffic distribution was based upon an even split of traffic approaching from the south on Cheadle Road and

approaching from the north on Draycott Cross Road. The TA concluded that traffic increases would not be significant in terms of highway capacity.

8.14 Responding to the TA, the highway authority requested sensitivity analysis of the traffic distribution to assess the likelihood of a greater proportion of traffic approaching the site from the south. Rutherfords undertook further assessments based upon 70% of traffic approaching the site from the south and traffic impact was not considered significant.

8.15 The highway authority also requested an HGV Routing Strategy to ensure that HGVs avoid the A522 through Upper Tean. A routing strategy was providing, which would effectively route all HGVs approaching the site from the south and east via the A50 (T) rather than the A522.

Highway Assessment (Morgan Tucker, January 2007)

8.16 Following local consultation, the highway authority requested a survey of Cheadle Road and Draycott Cross Road to determine the feasibility for HGVs to access the application site from either the north or south. Morgan Tucker Consulting Engineers were appointed to undertake a visual survey along the full length of Cheadle Road / Draycott Cross Road between the junctions with Uttoxeter Road to the south and the A521 to the north. A more detailed assessment, including vehicle tracking, was undertaken at specific points that had the most difficult geometry in terms of road width and vertical profile.

8.17 The assessment concluded that, for the most part, HGVs can travel safely along the road. However, the road narrows to around 4.5m in places and has gradients of up to 1 in 8 (or 13%); therefore particular care and slow speeds are required in places, most notably the section in Draycott and the section from the site access lane north to Harplow Lane.

Highways Recommendations

8.18 On the basis of the assessment work described above, the highway authority issued a Recommendation of Approval on 26th June 2007. The highway authority stated that there are no objections to the proposed infilling on highways grounds, subject to the following conditions being included on any approval:

- The number of lorry loads accessing the site should not exceed 120 in any 24-hour period; and
- Wheel wash facilities are installed before operations commence and are utilised by all HGVs for the period of operation.

8.19 The highway authority also stated a requirement for a routing agreement to ensure that HGVs accessing the site use appropriate roads. If the fill is sourced from the south, the routing agreement would be required to prevent HGVs from passing through Upper Tean and access the site via the A50 (T).

Golf Course

8.20 Following infill and restoration, the site would be developed as an 18-hole private golf course. The proposed site layout is shown on Drawing 3/1. Ancillary development on site would be minimal, consisting of a club house, caretakers house, green keepers building and parking for approximately 80 cars. The site would continue to be accessed from the lane joining Cheadle Road / Draycott Cross Road.

8.21 The opening times of the facility would be as those stated in section 3 and 5 of the Environmental Statement. The proposed opening year of the golf course is 2011.

Baseline Review

Planning Policy Context

Staffordshire Local Transport Plan

8.22 The government introduced the concept of Local Transport Plans (LTP) in their 1998 White Paper on Transport, 'A New Deal for Transport: Better for Everyone'. The Transport Act 2000 made it a statutory requirement for all local transport authorities to produce LTPs. Staffordshire County Council is currently implementing their second LTP, which covers the years 2006 – 2011.

8.23 There exists a separate LTP for North Staffordshire, which includes the city of Stoke-on-Trent, Blythe Bridge and parts of Staffordshire Moorlands. The plan has been prepared jointly by Stoke-on-Trent City Council and Staffordshire County Council. The plan has been referenced, where appropriate.

8.24 On a general level, Staffordshire County Council recognise that the car is likely to remain the dominant mode of transport in Staffordshire, however aim to promote walking, cycling and the use of public transport.

8.25 The aims of the Staffordshire LTP are to:

- Provide a long-term transport strategy for the County that covers the period up to 2016 and reflects wider ambitions whilst conforming to national and regional transport strategies;
- Illustrate links with wider agendas including land-use planning, the local economy, health, education, and the environment;
- Describe how investment in local transport can contribute towards national, regional, community and corporate objectives;
- Consider the transport needs of individuals and businesses using the County's transport network;
- Detail how the national shared priorities for transport – reducing congestion, better accessibility, creating safer roads, improving air quality are likely to be delivered in the County;

- Describe how quality of life issues are affected and can be improved by the delivery of the LTP;
- Describe how the Strategic Environmental Assessment has influenced the LTP's strategies and policies;
- Show investment priorities, alongside cost-effective, value for money solutions that meet local and national targets;
- Set out local transport objectives, indicators, targets, and trajectories that form the basis of the transport priorities; and
- Describe performance management procedures, including monitoring and risk management techniques, which will be adopted over the next five years.

8.26 Alongside the Staffordshire LTP, Staffordshire County Council has also prepared a Strategic Environmental Assessment, Bus Strategy, Bus Passenger Information Strategy, Network Management Plan and Transport Assessment Management Plan.

8.27 Challenges remaining from the first Staffordshire LTP include:

- Encouraging individuals to use alternatives to the car, particularly for shorter journeys;
- Improving access to healthcare facilities and other key services for residents living in deprived communities;
- Further reducing the number of road accidents that result in death, serious, or slight injury;
- Arresting the deterioration of the road network and improving its overall condition;
- Ensuring that traffic congestion does not become a persistent problem in Staffordshire's strategic centres and on inter-urban routes;
- Minimising the impact of traffic in historic settlements and other sensitive areas; and
- Reducing the negative impact of road traffic emissions on the natural environment.

8.28 Five main transport problems have been highlighted within Staffordshire and these are:

- Accessibility;
- Road Safety;
- Highway Maintenance;
- Traffic; and
- Air Quality

Road Safety

8.29 The main road safety issues in Staffordshire relate to speed, children, young adults and motorcyclists. Steps have already been made in reducing the number of those killed and seriously injured (KSI), and further measures to bring the figures down are being implemented by means of education, engineering and enforcement. The objective is "*to ensure safe journeys and reduce road casualties*".

Congestion

8.30 The key objective for reducing the impact of traffic is "*to reduce the impact of congestion in Staffordshire's strategic centres and inter-urban roads, and to reduce the overall impact of traffic in sensitive areas of the County*." Congestion is not seen as a major problem, but is a significant issue for certain towns and inter-urban roads. A traffic manager has been appointed with aims to reduce impact of traffic in order to improve the quality of life for local communities.

Road Freight

8.31 Both LTPs discuss the movement of road freight in some detail. The long term transport strategy aims to establish appropriate freight routes. This is a 5-15 year scheme and will improve road conditions for the efficient movement of freight. Ongoing discussions will take place with the Freight Transport Association and individual road hauliers to achieve this. A Freight Quality Partnership may be put into practice and rail freight will be encouraged as opposed to road haulage. Junction improvements to the A50 will be designed to benefit road users such as freight vehicles. The Staffordshire LTP recognises that freight movement is essential for the economy of the region but aims to reduce the environmental impacts.

8.32 In line with the Staffordshire and Stoke-on-Trent Structure Plan 1996 – 2011 Policy T10, priority will be given to reducing the environmental impact of freight movement by:

- Improving, where appropriate, local roads which serve freight terminals and distribution depots;
- Using traffic management measures to concentrate road freight on the Strategic Highway Network, away from town centres and residential areas;
- Giving priority to locating new developments which are likely to generate significant amounts of heavy goods traffic, in area where there is good access to the rail network; and
- Locating developments generating significant amounts of goods traffic with easy access by an appropriate route to the Strategic Highway Network avoiding residential or environmentally sensitive areas, when rail is not available or appropriate.

8.33 Both Staffordshire County Council and Stoke-on-Trent City Council will work with the freight industry to investigate ways of improving the efficiency of freight movement and minimising impact on the environment and local communities. Measures such as routing agreements for new developments and establishing appropriate freight routes will be implemented.

8.34 In order to address any road freight policies within the Staffordshire LTP, consultations have taken place with the local haulage sector via the Freight Transport Association and Road Haulage Association. The West Midlands as a region generates a significant volume of road freight. The Regional Freight Strategy has been produced in conjunction with adjoining highways

authorities and provides a framework for the Freight Quality Partnership. The LTP states that connections for freight operators on the A50 are satisfactory.

Staffordshire Moorlands District Council Local Plan

8.35 The Local Plan was adopted in September 1998 and provides detailed planning policies and proposals for future development within the District. Some policies in the Local Plan expired in 2007 with the impending Local Development Framework. However, this is still in preparation and the majority of policies from the Local Plan still hold.

8.36 The Transportation policies of the Local Plan, and considered relevant to this assessment are summarised below.

Policy T5 – Transport Corridors

8.37 New development will generally be directed to existing public transport corridors or areas well served by public transport unless other locational factors indicate otherwise.

Policy T8 – Cycling

8.38 The District Council will encourage the improvement of facilities for cyclists both within and between the main towns and villages.

Policy T11 – Walking

8.39 The District Council will encourage the improvement of facilities for pedestrians within the main towns and villages.

Policy T14 – Roads and Development

8.40 Planning permission will not be granted for development which would lead to additional cars or commercial vehicles entering unsuitable areas, particularly those that are environmentally sensitive.

Policy T15 – Roads and Development

8.41 Where a Traffic Impact Assessment or other considerations show that a proposed development cannot be satisfactorily absorbed into the existing road network planning permission will not be granted for development except where developers are prepared to provide or finance adequate off-site improvements to enable the existing road network to accommodate the effects of the proposed development.

Policy T16 – Roads and Development

8.42 Development proposals will be expected to incorporate adequate roads, car parking facilities in accordance with the District Council's current standards and other facilities for vehicles, cyclists and pedestrians.

Policy T20 – Traffic Management

8.43 The District Council will support the introduction of traffic management measures in any areas where the volume and speed of traffic or parking of cars is causing harm to the immediate environment or to road safety considerations.

Existing Highway Network

8.44 The existing highway network within the vicinity of the application site is illustrated on Drawing 8/1 and is described below.

8.45 The application site is accessed from the main highway network by a narrow lane which is classified a byway open to all traffic. The lane proceeds east from the intersection of Cheadle Road / Draycott Cross Road and the site access is reached after approximately 200m. The current site access is an informal arrangement and is currently blocked up by metal gates.

8.46 The section of carriageway between Cheadle Road and the site access is surfaced with tarmac and ranges in width between 3 to 4m. The carriageway generally only permits single way vehicle flow although a number of informal passing places are present along the length of the road. The carriageway is surrounded on both sides by narrow soft verges and mature trees and hedgerow. The carriageway varies in horizontal alignment, which combined with the verge detail limits forward visibility in places.

8.47 The surface is generally in a good condition, although some signs of failure are present including a number of pot holes. The carriageway is subject to a 20mph speed restriction. This section of carriageway provides access to a single dwelling, a pumping station and a number of gated fields.

8.48 To the east of the site access the lane becomes a narrow unsurfaced track and is not considered suitable for regular vehicle use. Coneygreaves Farm is the single property accessed from the track.

8.49 The access lane joins the main highway network at a crossroads junction with Cheadle Road, Draycott Cross Road and an unnamed lane which proceeds in a north-west direction to join the A521 at Boundary. The access lane rises on approach to the junction. The junction bellmouth is of concrete construction and a STOP sign is present, although the road markings are no longer visible. The radii are kerbed and measure approximately 11m (south) and 18m (north). The main carriageway is generally 6m wide, although widens to approximately 8m through the crossroads junction.

8.50 Visibility from the access road is considered adequate in both directions. A wide verge accommodates visibility to the south and the straightness of Draycott Cross Road accommodates visibility to the north. Likewise, adequate visibility to oncoming traffic is available for vehicles turning right from Cheadle Road.

8.51 There is currently no signage indicating the presence of the junction and the junction has poor conspicuity when approaching from Draycott Cross Road.

Furthermore, the approach from Draycott Cross Road is downhill and vehicles are generally travelling at high speed. The conspicuity of the junction is improved when approaching from Cheadle Road due to the presence of the wide verge.

8.52 Draycott Cross Road proceeds north from the crossroads junction and joins the A521 Delphouse Road after around 2km. This section of carriageway is subject to national speed limits and is generally between 5m and 6m in width, with gradients of up to 13%. The road varies considerably in horizontal and vertical alignment, which restricts forward visibility in places. Visual inspections suggest the entire length of the road can adequately accommodate 2-way vehicle flow, although care and reduced speeds are required from passing vehicles in places, particularly passing HGVs.

8.53 Draycott Cross Road provides access to a range industrial uses including Huntley Wood Quarry, a freight depot, building suppliers, and a number of factory premises. Cheadle Household Waste Recycling Centre (HWRC) is located on New Haden Road, with access via Draycott Cross Road. Visual inspection suggests the development along Draycott Cross Road generates frequent HGV traffic, which travels both north to Delphouse Road and south to Uttoxeter Road.

8.54 The condition of Draycott Cross Road improves on entering Cheadle and a 40mph speed limit applies. The carriageway widens to around 8m with street lighting and public footways on the eastern side of the carriageway.

8.55 Draycott Cross Road joins the A521 Delphouse Road at a crossroads junction, with Brookhouse Road forming the second minor arm. Visibility from Draycott Cross Road is considered good to both the east and west. The junction is kerbed and the corner radii are sufficient to allow the full turning movements of HGVs both to and from Draycott Cross Road. Pedestrian footways and street lighting are provided at the junction.

8.56 The junction of Draycott Cross Road and the A521 is located on the western perimeter of Cheadle. To the east, the A521 proceeds through Cheadle and a 30mph speed restriction applies. Pedestrian footways, crossing facilities and physical traffic calming measures are present throughout the settlement. There are no weight restrictions on the A521 through Cheadle and frequent HGV movements were observed within the settlement.

8.57 To the west of Draycott Cross Road, the A521 proceeds in a south-west direction towards Blythe Bridge. The carriageway is a typical rural road, approximately 7m wide and subject to the national speed limit.

8.58 Cheadle Road proceeds south from the site access lane and joins Uttoxeter Road at Draycott after around 2km. Cheadle Road is generally 6m wide with soft verges and is subject to the national speed limits. Approaching Draycott, the horizontal and vertical alignments vary which serves to restrict forward visibility in places. The carriageway also narrows in places to around 4.5m, with the narrowest point located immediately to the north of the junction with Uttoxeter Road. Visual observations suggest that the majority of Cheadle Road is appropriate for two-way flow. The narrower sections approaching

Draycott require care and opposing vehicles are required to give way when a HGV passes though the narrowest section.

8.59 Cheadle Road joins Uttoxeter Road at a priority T-junction. Footways and street lighting are provided on Uttoxeter Road within the vicinity of the junction; no footways are provided on Cheadle Road. A bus lay-by is located on Uttoxeter Road immediately to the west of the junction; footways are provided at this point. The western radii is large and vehicles turning left into Cheadle Road do so at speed. The eastern radii is smaller but is sufficient for light vehicles turning left from Cheadle Road without impeding through traffic on Uttoxeter Road. HGVs were observed turning left from Cheadle Road, but require the whole of the main carriageway to manoeuvre.

8.60 Uttoxeter Road is subject to a 40mph speed limit. Visibility from Cheadle Road is considered adequate in both directions for such speeds. Uttoxeter Road within the vicinity of the junction is approximately 7m wide and traffic turning right from Uttoxeter Road blocks westbound traffic.

8.61 To the east of Draycott, Uttoxeter Road proceeds in the direction of Upper Tean and joins the A522. To the west, Uttoxeter Road provides access to the village of Blythe Bridge and the A50(T). The initial section of carriageway through Draycott is approximately 7m wide and there is a scattering of development surrounding the road including a public house and post office. Proceeding west, the carriageway widens to around 10m including a 3m wide ghost island within the centre of the carriageway. The speed limit is 40mph with street lighting, and footways surround the road behind wide grass verges. Dwellings surround the road, which are set well back from the carriageway. The properties have direct vehicular access to the carriageway.

8.62 Approximately 1km to the west of Cheadle Road, Uttoxeter Road widens to provide two lanes in each direction. Blythe Bridge is accessed from the westbound carriageway by turning right across the central reservation. Continuing west, a roundabout junction provides access to the A50(T) at a three-arm roundabout which is illuminated and of approximately 60m inscribed circle diameter (ICD). The A50(T) is a dual carriageway and proceeds north-west to Stoke-on-Trent and south-east towards Uttoxeter.

Sustainable Access Provision

Local Bus Services

8.63 The location of bus stops within the vicinity of the application site are shown on Drawing 8/1. No bus services are routed on the C109 Cheadle Road / Draycott Cross Road. There are regular bus services connecting Cheadle, Draycott and Blythe Bridge. The 7/7A service runs between Cheadle and Blythe Bridge on the A521. The 10 service runs between Blythe Bridge and Draycott on Uttoxeter Road.

8.64 A summary of local bus services is provided in Table 8/1.

Table 8/1
Local Bus Services

Service	Operator	Route	Frequency
6A	First	Biddulph – Blythe Bridge	Mon – Fri 06:21 – 22:32, every 20-30 mins
		Blythe Bridge – Biddulph	05:47 – 22:30, every 20-30 mins Reduced Weekend and Bank Holiday service.
7/7A	D&G	Tean – Cheadle – Blythe Bridge - Hanley	Mon – Sat 06:20 – 17:30, hourly 11 services per day
		Hanley – Blythe Bridge – Cheadle – Tean	07:55 – 18:40, hourly 10 services per day No Sunday Service
10	D&G	Tean – Draycott – Blythe Bridge – Cheadle – Longton	Mon – Sat 07:05 – 17:32, 5 services per day
		Longton – Cheadle – Blythe Bridge – Draycott – Tean	11:05 – 18:40, 6 services per day No Sunday Service

Local Rail Services

8.65 The nearest train station to the application site is located in Blythe Bridge. The station is located on the Derby to Crewe line and services are operated by East Midlands Trains. A summary of services is provided in Table 8/2 below.

Table 8/2
Local Rail Services

Rail Link	Station	1st Train Departs	1st Train Arrives	Last train Departs	Last Train Arrives	Service Overview
Derby to Blythe Bridge	Derby	06:39		20:28		Services in either direction run Mon-Sat approximately every hour via Blythe Bridge between Derby and Crewe. These services reduce on Sundays.
	Blythe Bridge		07:15		21:08	
Blythe Bridge to Derby	Blythe Bridge	06:34		21:25		
	Derby		07:12		22:11	
Blythe Bridge to Crewe	Blythe Bridge	07:15		21:08		
	Crewe		07:56		22:04	
Crewe to Blythe Bridge	Crewe	05:50		20:50		
	Blythe Bridge		06:34		21:25	

Cycling Facilities

8.66 There are no designated cycle routes within the vicinity of the application site. Any persons wishing to travel to the site by bicycle would have to use local roads.

Existing Traffic Flows

8.67 Baseline traffic data was obtained from Staffordshire County Council for the purposes of this assessment. The traffic count locations were on the A521 Delphouse Road within the vicinity of Draycott Cross Road and on Uttoxeter Road to the west of Cheadle Road.

8.68 The count on the A521 Delphouse Road took place from 6th June 2006 to 12th June 2006. Traffic flows recorded on Wednesday, Thursday and Friday were used to calculate average weekday flows. There was no Saturday count, however Sunday flows were used to compare weekday and weekend traffic movements. The count did not provide vehicle classification.

8.69 Two counts were used from Uttoxeter Road, one was a 7-day traffic volume count from 4th April 2006 to 10th April 2006, and the second a 12-hour classified passing count on Monday 1st October 2007. The 7-day count did not provide vehicle classifications and therefore data was used from the 12-hour count to estimate HGV proportions.

8.70 A further 7-day classified passing count was undertaken on Cheadle Road within the vicinity of the site access lane during the week commencing Wednesday 10th January 2007. It should be noted that an anomaly was found within this data wherein an average was not calculated; the amended figures have been used in the analysis.

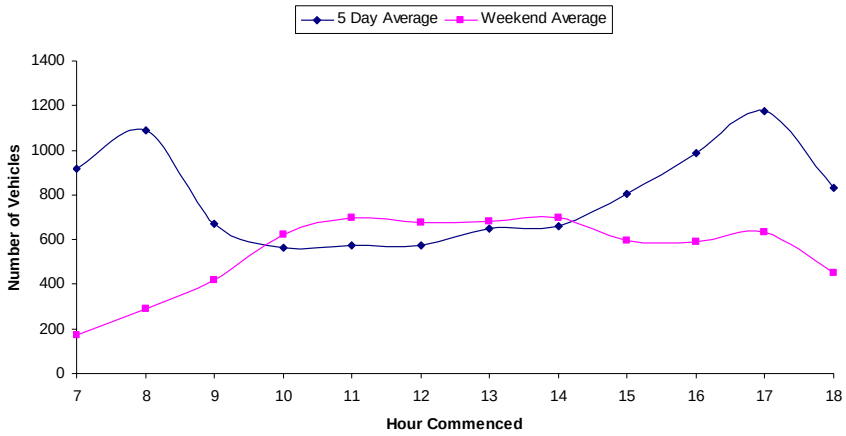
8.71 The raw traffic data can be found in Appendix 8/2 and baseline 12-hour flows are summarised in Table 8/3 below.

Table 8/3
Baseline Traffic Flows

Link		Two-Way Flow		
		Flow	HGVs	% HGV
A521[18]	Weekday	6539	-	-
	Weekend	4457	-	-
Uttoxeter Road	Weekday	9496	646	6.8%
	Weekend	6525	444	6.8%
Cheadle Road / Draycott Cross Road	Weekday	3314	132	4.0%
	Weekend	1933	49	2.6%

8.72 Daily profiles of weekday and weekend baseline traffic are provided in Figures 8/1 to 8/3 below.

Figure 8/1
Daily Traffic Profile - Uttoxeter Road



[18] HGV Proportions unavailable

Figure 8/2
Daily Traffic Profile - Cheadle Road

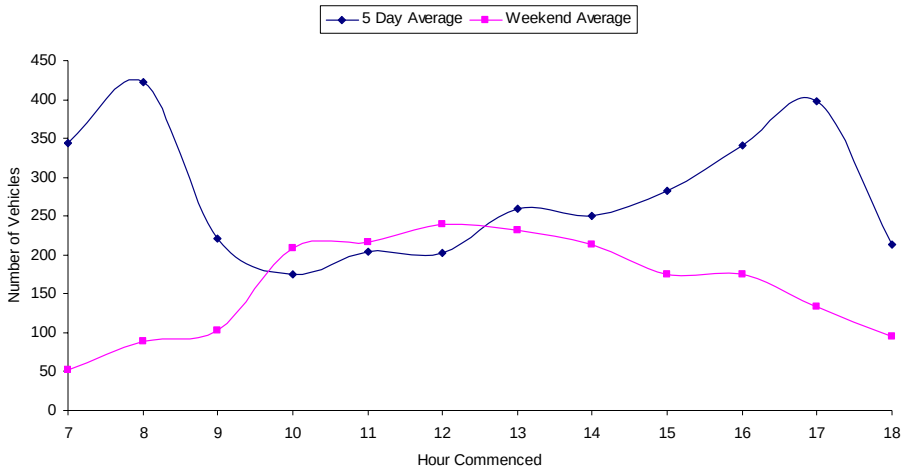


Figure 8/3
Daily Traffic Profile - A521

8.73 The graphs demonstrate significant peaks in baseline traffic during the periods 0800 to 0900 and 1700 to 1800 on weekdays. The peaks are less pronounced on the A521, however greatest weekday traffic flows still occur within these periods.

8.74 Baseline weekend flows have a different profile, with peaks generally occurring around midday and flows falling off at the beginning and end of the 12-hour period.

Accident Records

8.75 Personal injury road accident data has been obtained from Staffordshire County Council for the five year period between 2002 and 2007. The data covers the C109 Draycott Cross Road / Cheadle Road from the junction with the A521, south to the junction with Uttoxeter Road in Draycott. The data also covers Uttoxeter Road between Draycott and the A50 / A521

roundabout junction. The received data are included in Appendix 8/3 and accident locations and severity are shown on Drawing 8/2.

8.76 A total of 48 personal injury accidents were recorded within the study area. Of these, 47 were classed as slight and 1 was classed as serious. No fatalities were recorded within the study area. There were 13 accidents involving HGVs and 1 accident involving a pedestrian.

8.77 An assessment of the location and causes of accidents has been carried out in order to establish any areas of concern and to determine the impact of additional traffic on existing accident rates. A summary of accident location and severity is provided in Table 8/4 below.

Table 8/4
Personal Injury Road Traffic Accident Records

Road Section	Number of Recorded Accidents			
	Total	Slight	Serious	Fatal
A50 / A521 Roundabout	19	19	0	0
A521 / Uttoxeter Road Junction	4	4	0	0
Uttoxeter Road between Blythe Bridge and Draycott	6	6	0	0
Uttoxeter Road / Cheadle Road Junction	4	3	1	0
C109 between Draycott and Cheadle	10	10	0	0
Draycott Cross Road / A521 Junction	5	5	0	0
Total	48	47	1	0

8.78 The majority of the accidents occurred on the roundabout linking the A50 and A521, with a total of 40% of the accidents. All of the accidents recorded at this location were classed as slight. Of these 19 accidents, 11 involved HGVs. The majority of accidents occurred due to rear end shunts on approach to the roundabout, which is a common cause of accident at roundabout junctions. One accident occurred as a result of alcohol impairment.

8.79 There were four accidents at the junction of the A521 and Uttoxeter Road, which were all classed as slight. Two of the four accidents occurred when a vehicle was emerging from a private entrance, one of these involved an HGV emerging from the entrance and colliding with a car in the main carriageway which was overtaking slow moving traffic.

8.80 A total of six accidents occurred on Uttoxeter Road between Blythe Bridge and Draycott. Three of these accidents involved motorcycles, none involved HGVs.

8.81 A total of four accidents occurred at the junction between Uttoxeter Road and Cheadle Road. One accident was classed as serious, which occurred when a car making a U-turn from a lay-by within the vicinity of the junction collided with a motorcyclist. The remaining three accidents at the junction were classed as slight, one of which involved an HGV where the driver's attention was diverted and collided with a car in front held up on the carriageway.

8.82 Of the 10 accidents recorded on the C109 between Draycott and Cheadle, four were caused by excessive speeds. Despite the road being used

frequently by HGVs, there were no HGV related accidents recorded within the five year study period. One accident involved a pedestrian, which occurred at a private entrance when a car moving away from stationary collided with the pedestrian on the carriageway. No accidents were recorded within the immediate vicinity of where the site access lane joins Cheadle Road / Draycott Cross Road.

8.83 A total of five accidents occurred at the junction of Draycott Cross Road and the A521. All the accidents were classed as slight and none involved pedestrians or HGVs. Three of the accidents occurred when drivers failed to look properly for traffic when turning at the junction. One accident involved a single vehicle, the driver of which was impaired by alcohol. One accident occurred when a driver failed to obey road signs.

Trip Generation

Existing / Historic Trip Generation

8.84 The application site is currently disused and generates no vehicular traffic other than unauthorised motor cycles.

8.85 The application site was previously worked as a sand and gravel quarry. Details of historic vehicle movements are not available, however, it can be assumed that the operation generated frequent HGV movements.

Future Trip Generation

Infilling

8.86 As discussed previously, it is proposed to import 360,000 cubic metres (circa 540,000 tonnes) of inert fill to provide a suitable landform for the golf course. The infilling would take place over a period of 2 years, with annual imports therefore totalling around 270,000 tonnes. Inert wastes would be imported by 4-axle tippers.

8.87 A previous assessment undertaken by Rutherford Highway Planning Consultants, based on maximum annual imports of 300,000 tonnes, estimates 80 daily HGV loads (160 two-way movements). Assuming waste is imported 278 days per year (i.e. 5.5 working days per week, minus bank holidays), this equates to an average load of 13.5 tonnes, which is considered an accurate prediction.

8.88 The assessment predicts 16 two-way HGV movements during the AM peak hour and no HGV movements during the PM peak hour, with an additional 10 light vehicle movements over the course of a day.

8.89 The highway authority has recommended that the infill proposal be approved, subject to a maximum of 120 HGV loads in any 24-hour period.

Golf Course

8.90 To ascertain the likely trip generation of the operational golf course, use has been made of the TRICS database (Version 2008a). The TRICS database is an industry standard tool, which collates trip generation data from a wide variety of development sites, enabling the user to estimate likely trip numbers and travel patterns for proposed development sites of a similar nature.

8.91 The TRICS database has been interrogated for 18-hole private golf courses of a similar nature to that proposed at Huntley Wood. A major factor in determining trip rates is location and accessibility to public transport and walking / cycling facilities. Therefore, only sites located in a similar setting to the proposed facility were included. Likewise, sites with ancillary development such as hotels and conference facilities were excluded. Detailed trip rates are summarised in Table 8/5 below.

Table 8/5
Golf Course Vehicle Trip Rates

	Trip Rate (per hectare)		
	Arrivals	**Departures**	**Two-Way**
Weekdays			
AM Peak (08:00 – 09:00)	0.20	0.04	0.24
PM Peak (17:00 – 18:00)	0.12	0.27	0.39
Site Peak (12:00 – 13:00)	0.34	0.27	0.61
12 – Hour	2.31	2.05	4.36
Weekends			
AM Peak (08:00 – 09:00)	0.39	0.11	0.50
PM Peak (17:00 – 18:00)	0.08	0.30	0.38
Site Peak (12:00 – 13:00)	0.45	0.39	0.84
12 – Hour	2.87	2.74	5.61

8.82 From Table 8/5, it is clear that the peak hour for development traffic is likely to fall between 1200 and 1300, falling outside the weekday peak hours recorded on the surrounding highway network. The peak traffic times for development traffic and baseline flows are similar at weekends.

8.83 The total area of the application site is approximately 69 hectares. A summary of predicted trips is provided in Table 8/6 and the daily profiles for weekdays and weekends are provided in Figures 8/4 and 8/5, respectively.

Table 8/6
Proposed Trip Generation

	Proposed Trip Generation		
	Arrivals	**Departures**	**Two-Way**
Weekdays			
AM Peak (08:00 – 09:00)	12.7	2.3	15.0
PM Peak (17:00 – 18:00)	7.2	17.1	24.3
Site Peak (12:00 – 13:00)	21.1	17.0	38.1
12 – Hour	145.0	128.4	273.4
Weekends			
AM Peak (08:00 – 09:00)	24.6	6.5	31.2
PM Peak (17:00 – 18:00)	5.3	18.8	24.1
Site Peak (12:00 – 13:00)	28.0	24.6	52.6
12 – Hour	180.0	171.5	351.6

Figure 8/4
Daily Trip Profile - Weekday

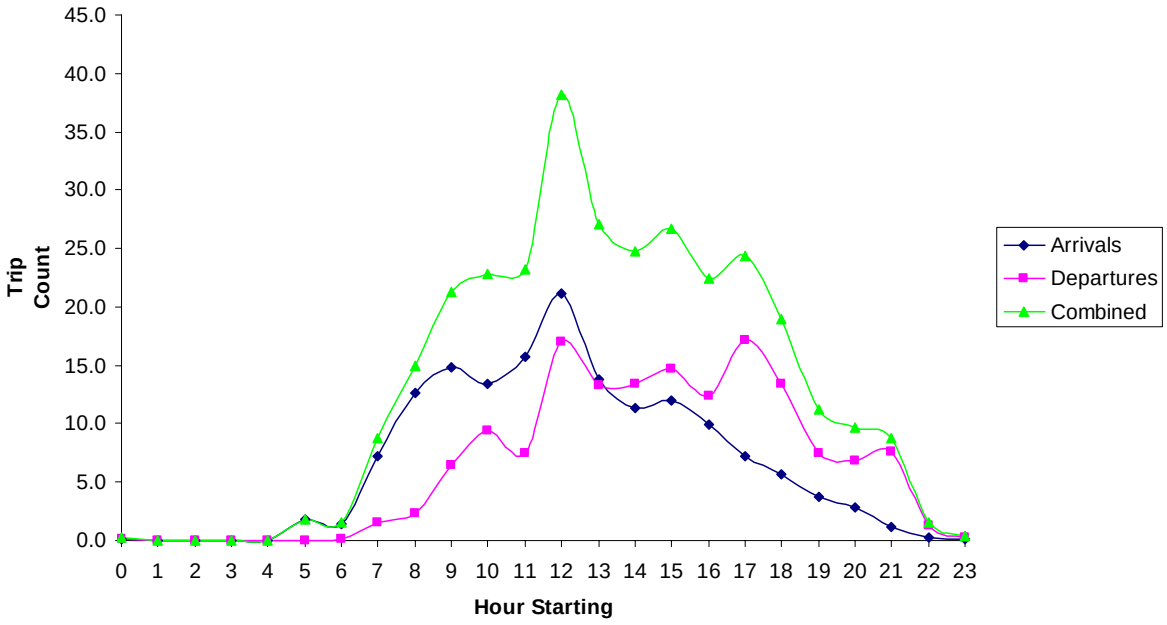
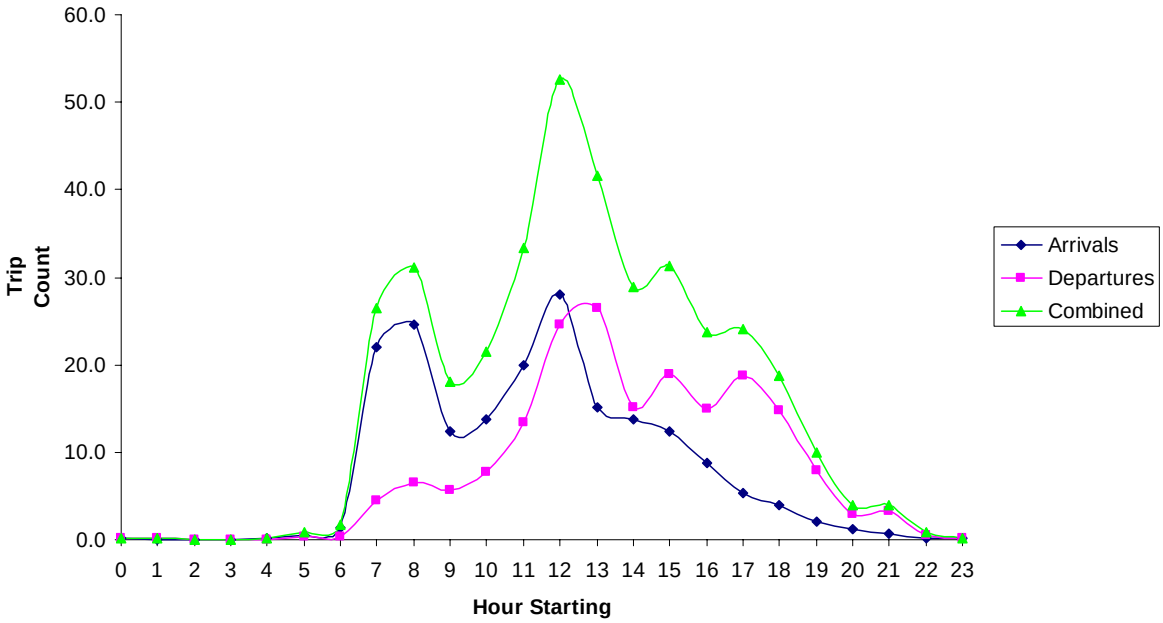


Figure 8/5
Daily Trip Profile - Weekend



8.84 The above analysis shows that weekend trips would be slightly higher than those occurring on weekdays. The daily profile of weekends and weekdays is similar with a large peak in vehicle movements during the peak 1200 to 1300.

8.85 The vast majority of traffic generated by the operational golf course would be light vehicles, comprising staff and users of the golf course. There would be the occasional HGV trip for the purpose of deliveries, but such trips are likely to total at most one per day.

8.86 The proposed development would require a workforce of up to 20, which due to the rural location of the site are likely to access the site by car. Staff trips are included in the overall trip figures provided in Table 8/6.

Trip Distribution

Infilling

8.87 As discussed earlier in this section, previous assessment work concludes that access to the application site from both the south (Cheadle Road) and the north (Draycott Cross Road) is feasible for HGVs. Rutherfords Highway Planning Consultants originally assumed an even distribution of HGV traffic approaching the site from both the north and south. However, it is considered likely that a greater proportion of traffic would approach the site from the south using the A50 (T) and therefore the highway authority requested assessment of a scenario where 70% of traffic approached from the south and 30% from the north.

8.88 It should also be noted that the highway authority have requested HGVs should not be routed on the A522 through Upper Tean. This effectively means that vehicles approaching the site from the south and east would be routed on the A50 (T), then west on Uttoxeter Road to access Cheadle Road at Draycott.

Golf Course

8.89 To correspond with previous assessment work, two scenarios shall be considered for traffic generated by the operational golf course. Firstly, an even split of traffic heading north and south from the site access lane, and secondly a 70/30 split in favour of the south.

8.90 It has been assumed that all traffic routed south would then head west on Uttoxeter Road at Draycott towards the A50 (T), Blythe Bridge and Stoke-on-Trent. In reality, a small proportion may head east towards Upper Tean, but assigning all traffic on Uttoxeter Road will provide a worst-case assessment of impact.

8.91 It has been assumed that all northbound traffic would head east through Cheadle upon reaching the A521. It is unlikely that traffic would head west on the A521, as this route leads to Blythe Bridge, which can be accessed quicker by travelling south from the application site.

8.92 A summary of the trip distribution for the two scenarios is provided in Table 8/7.

Table 8/7
Trip Distribution

Route	% of Development Traffic
Scenario 1	
Draycott Cross Road ➔ A521 towards Cheadle	50%
Cheadle Road ➔ Uttoxeter Road West	50%
Scenario 2	
Draycott Cross Road ➔ A521 towards Cheadle	30%
Cheadle Road ➔ Uttoxeter Road West	70%

Highway Impact

Methodology

8.93 As discussed earlier in this section, the proposed importation of fill has been assessed in a previous planning application and the highway authority has no objections to the proposal, subject to conditions which would be implemented. The assessment of highway impact has therefore been based upon the operational golf course.

Link Capacity

8.94 Anticipated future traffic flows, including traffic generated by the operational golf course, are compared to baseline flows in Tables 8/8 to 8/11 below. Tables 8/8 and 8/9 show anticipated traffic increases on weekdays for Scenarios 1 and 2, respectively. Tables 8/10 and 8/11 relate to weekend traffic flows.

Table 8/8
Traffic Increases - Weekday Scenario 1

Link	Period	Existing Flows	Development Traffic	Future Flows	% Increase
A521	AM Peak	569	18	587	3.1%
	PM Peak	696	22	718	3.2%
	Site Peak	491	19	510	3.9%
	12-Hour	6539	137	6676	2.1%
Draycott Cross Road	AM Peak	423	18	441	4.1%
	PM Peak	398	22	420	5.4%
	Site Peak	203	19	222	9.8%
	12-Hour	3314	137	3451	4.1%
Cheadle Road	AM Peak	423	18	441	4.1%
	PM Peak	398	22	420	5.4%
	Site Peak	203	19	222	9.8%
	12-Hour	3314	137	3451	4.1%
Uttoxeter Road	AM Peak	1089	18	1097	1.6%
	PM Peak	1176	22	1188	1.9%
	Site Peak	575	19	594	3.3%
	12-Hour	9496	137	9633	1.4%

Table 8/9
Traffic Increases - Weekday Scenario 2

Link	Period	Existing Flows	Development Traffic	Future Flows	% Increase
A521	AM Peak	569	11	580	1.8%
	PM Peak	696	13	709	1.9%
	Site Peak	491	11	502	2.3%
	12-Hour	6539	82	6621	1.3%
Draycott Cross Road	AM Peak	423	11	434	2.5%
	PM Peak	398	13	411	3.3%
	Site Peak	203	11	214	5.6%
	12-Hour	3314	82	3396	2.5%
Cheadle Road	AM Peak	423	25	448	5.8%
	PM Peak	398	31	429	7.8%
	Site Peak	203	27	230	13.1%
	12-Hour	3314	191	3505	5.8%
Uttoxeter Road	AM Peak	1089	25	1114	2.2%
	PM Peak	1176	31	1207	2.6%
	Site Peak	575	27	602	4.6%
	12-Hour	9496	191	9687	2.0%

8.95 Tables 8/8 and 8/9 show that on weekdays the greatest traffic impact is likely to occur during the site peak hour with a 10% increase in baseline flows on Cheadle Road / Draycott Cross Road in Scenario 1 and a 13% increase on Cheadle Road in Scenario 2. It should be noted that baseline flows during the site peak period 1200 to 1300 are low, generally half that of flows witnessed during peak hours. Future traffic flows during this period would therefore remain well below existing peak hour levels.

8.96 Traffic generated by the golf course during the AM and PM peak hours would be low and traffic increases on all links during peak hours would be less than 10%. 12-hour traffic increases on all links would also be less than 10%

Table 8/10
Traffic Increases - Weekend Scenario 1

Link	Period	Existing Flows	Development Traffic	Future Flows	% Increase
A521	Site Peak	511	26	537	5.1%
	12-Hour	4457	176	4633	3.9%
Draycott Cross Road	Site Peak	239	26	265	11.0%
	12-Hour	1933	176	2108	9.1%
Cheadle Road	Site Peak	239	26	265	11.0%
	12-Hour	1933	176	2108	9.1%
Uttoxeter Road	Site Peak	674	26	700	3.9%
	12-Hour	6525	176	6701	2.7%

Table 8/11
Traffic Increases - Weekend Scenario 2

Link	Period	Existing Flows	Development Traffic	Future Flows	% Increase
A521	Site Peak	511	16	527	3.1%
	12-Hour	4457	106	4563	2.4%
Draycott Cross Road	Site Peak	239	16	255	6.6%
	12-Hour	1933	106	2039	5.5%
Cheadle Road	Site Peak	239	37	276	15.4%
	12-Hour	1933	246	2179	12.7%
Uttoxeter Road	Site Peak	674	37	710	5.5%
	12-Hour	6525	246	6771	3.8%

8.97 At weekends, the times of peak development traffic would coincide with peak baseline flows, both occurring around midday. The greatest traffic impact during this period would occur for Scenario 2 with a 15% increase in baseline flows expected on Cheadle Road. It should be noted, however, that total future traffic flows during this period would remain significantly less than existing peak hour weekday flows, which are adequately accommodated by the existing highway network.

8.98 The maximum increase in 12-hour flows at weekends would be 13%, which would occur on Cheadle Road. Traffic increases on the wider highway network would be significantly less.

8.99 To summarise, visual inspection suggests that capacity is not an issue on the access routes to be used by development traffic. Development traffic would not significantly add to baseline flows and it is considered that future flows would remain well within the operating capacity of the surrounding highway links.

Junction Capacity

Site Access Lane / C109 Crossroads Junction

8.100 The operation of the crossroads junction providing access from the C109 to the site access lane has been assessed using TRL software PICADY 5. The software is an industry standard tool which predicts capacities, queue lengths and delays at isolated junctions.

8.101 The Guidance on Transport Assessment (DfT, 2007) recommends that the capacity of the local transport network be assessed for a period of no less than five years after the date of the registration of the planning application. It is likely that the golf course would be operational in the year 2011. For robustness, the capacity of the junction has therefore been assessed for the opening year 2011 and 5 years after this, in 2016.

8.102 Baseline flows recorded in 2007 have been modelled for growth to 2011 and 2016 using National Road Traffic Forecasting (NRTF) medium growth rates.

8.103 The weekday capacity assessments are based upon peak hours 0800 to 0900 and 1700 to 1800, as observed by baseline traffic flows. Weekday capacity assessments have also been undertaken for the anticipated peak hours of the golf course, which have been shown to be 1200 to 1300. The times of baseline peak traffic flow and development peak traffic generally concur at weekends, during the period 1200 to 1300. The weekend capacity assessments are therefore based on this period.

8.104 Future turning movements at the junction are provided in Appendix 8/5 and the PICADY output files are included in Appendix 8/6. For ease of reference the results are summarised in Tables 8/12 and 8/13 below. The output indicates the estimated maximum queue lengths and the ratio of flow to capacity (RFC), which is a measure of the traffic intensity at each arm.

Table 8/12
Site Access Lane / C109 Junction Capacity Assessment - Weekday

Arm	AM Peak		PM Peak		Site Peak	
	RFC	Max Q	RFC	Max Q	RFC	Max Q
Weekday Scenario 1 2011						
Site Access Lane	0.004	0.00	0.046	0.05	0.022	0.02
Unnamed Road	0.014	0.01	0.014	0.01	0.013	0.01
Cheadle Road	0.033	0.04	0.008	0.01	0.020	0.02
Draycott Cross Road	0.011	0.01	0.011	0.01	0.010	0.01
Weekday Scenario 1 2016						
Site Access Lane	0.004	0.00	0.047	0.05	0.022	0.02
Unnamed Road	0.017	0.02	0.017	0.02	0.015	0.01
Cheadle Road	0.033	0.04	0.008	0.01	0.020	0.02
Draycott Cross Road	0.014	0.02	0.013	0.02	0.012	0.01
Weekday Scenario 2 2011						
Site Access Lane	0.006	0.01	0.049	0.05	0.021	0.02
Unnamed Road	0.014	0.01	0.014	0.01	0.013	0.01
Cheadle Road	0.047	0.07	0.010	0.01	0.027	0.03
Draycott Cross Road	0.011	0.01	0.011	0.01	0.010	0.01
Weekday Scenario 2 2016						
Site Access Lane	0.006	0.01	0.049	0.05	0.021	0.02
Unnamed Road	0.017	0.02	0.017	0.02	0.015	0.02
Cheadle Road	0.047	0.07	0.010	0.01	0.028	0.04
Draycott Cross Road	0.014	0.02	0.013	0.02	0.012	0.01

Table 8/13
Site Access Lane / C109 Junction Capacity Assessment - Weekend

Arm	Site Access Lane	Unnamed Road	Cheadle Road	Draycott Cross Road
Weekend Scenario 1 2011				
RFC	0.028	0.013	0.026	0.010
Max Q	0.03	0.01	0.03	0.01
Weekend Scenario 1 2016				
RFC	0.028	0.016	0.026	0.012
Max Q	0.03	0.02	0.03	0.01
Weekend Scenario 2 2011				
RFC	0.031	0.013	0.037	0.010
Max Q	0.03	0.01	0.05	0.01
Weekend Scenario 2 2016				
RFC	0.032	0.016	0.037	0.012
Max Q	0.03	0.02	0.05	0.01

8.105 The level of RFC generally considered acceptable for junctions is 0.850[19]; RFC values on all arms are significantly lower than this figure, indicating significant reserve capacity would be available in the future situation with minimal queuing or driver delay expected

Wider Highway Network

8.106 Visual inspection suggests that the surrounding highway network currently operates within capacity and no significant queuing was observed at the main junctions likely to be used by development traffic.

8.107 As discussed above, traffic increases anticipated during weekday peak hours would be minimal and an insignificant impact on junction capacity is envisaged. Baseline vehicle movements during site peak hours and at weekends are appreciably lower than weekday peak movements and, thus, no capacity issues are anticipated.

Environmental Impact

Impact of Additional Traffic

Infilling

8.108 Infilling would generate approximately 160 two-way HGV movements a day for a period of two years. As discussed previously, the highway authority

[19] TA23/81 'Junctions and Accesses: Determination of Size of Roundabouts and Major / Minor Junctions', from Volume 6, Section 2, Part 7 of the Design Manual for Roads and Bridges

considers this degree of traffic acceptable, subject to conditions which would be implemented to mitigate environmental impact.

8.109 Wheel wash facilities would be installed within the site before the proposed operations commence, which would prevent mud and detritus being deposited on the public highway.

8.110 A routing agreement would be enforced to ensure that HGVs avoid the A522 through Upper Tean. It is likely the routing agreement would be provided as part of a Section 106 agreement.

Golf Course

8.111 The guidelines for the Environmental Assessment of Road Traffic (IEA, 1993) suggest two broad rules to define the need for an environmental impact analysis:

- highway links where traffic flows will increase by more than 30% (or the number of HGVs will increase by more than 30%); or
- sensitive areas where traffic flows will increase by 10% or more.

8.112 Analysis provided above, demonstrates that overall 12-hour flows on all links would increase by at most 6% on weekdays. Weekday traffic increases during the AM and PM peak hours would also be less than 10%.

8.113 Traffic increases are likely to be higher during the weekend, with at most a 13% 12-hour traffic increase expected on Cheadle Road. However, weekend baseline flows on the surrounding highway network are significantly less than weekday flows and overall future traffic levels would remain less than those currently experienced on weekdays.

8.114 The large majority of traffic generated by the golf course would be light vehicles, with at most one HGV trip per day expected for the purpose of deliveries. Although the golf course would generate approximately double the number of vehicle movements when compared to the infill operation, the environmental impact of light traffic is far less than that of HGVs and therefore environmental impact during the operational phase is likely to be less than that during the period of infilling. As discussed above, the highway authority raised no objections to the infill operation.

8.115 It is therefore considered that the proposed development would have an insignificant environmental impact. Notwithstanding this, consideration is given to relevant environmental issues below.

Road Safety

8.116 A review of personal injury accidents on the surrounding highway network over the previous 5 year period 2002 – 2007 is included earlier in this section.

8.117 The assessment did not highlight any particular concerns regarding road safety and all accidents were classified as slight, with the exception of one

serious accident which occurred as a result of a driver attempting a U-turn in the carriageway. No accidents were recorded on the site access lane or on Cheadle Road or Draycott Cross Road within the immediate vicinity of the site access lane.

8.118 Given the modest traffic increases anticipated from the development proposals, it is not considered that the additional traffic would have a significant impact on road safety.

Pedestrian / Cyclist Amenity

8.119 The application site is located in a relatively remote area and away from any significant generators of pedestrian or cyclist movements. Within Blythe Bridge, Draycott and Cheadle there are footpaths present to cater for pedestrian movements.

8.120 Given the modest traffic increases expected, an insignificant impact on cyclist and pedestrian amenity is concluded.

Accessibility

8.121 The nature of the development suggests that the majority of golf course users are likely to access the site by car. Private golf course users generally use their own set of golf clubs and it is not feasible to transport this equipment by bike, foot or bus. However, it is likely there will be an element of car sharing between golf course users.

8.122 Accessibility to the site, for staff, by sustainable means is considered poor and all but the most dedicated sustainable travellers are likely to access the site by car. However, a maximum of 20 staff would be located on site, thereby generating a relatively small number of vehicle movements. The highway authority has suggested that a Travel Plan is unlikely to be required for the development.

Construction Traffic

8.123 The main construction phase would be the two year period of infill and restoration, the traffic impact of which has been discussed earlier in this section.

8.124 Post infill and restoration, HGV traffic would be generated by construction of the access road, parking areas and clubhouse. HGV traffic generated during this phase would be significantly less than that generated by the infilling and would be for a temporary period of around 3 months. HGV trips during this period would total at most 25 per day, compared to the maximum 120 HGV trips which the highway authority would permit for the infilling.

8.125 It is recommended that all HGV traffic generated during this phase be subject to the same restrictions as during the period of infilling, including vehicle routing and use of wheel wash facilities. It is also recommended that HGVs carrying granular materials are sheeted.

Mitigation and Residual Impact

8.126 In light of the above assessment, the following measures of mitigation are proposed as part of the planning application:

Infilling

- The number of lorry loads accessing the site not to exceed 120 in any 24-hour period;
- Wheel wash facilities to be provided on site before operations commence and to be utilised by all HGVs for the period of operation;
- HGVs to be sheeted, where appropriate;
- Provision of temporary signage warning of HGV turning movements at the junction of Cheadle Road / Draycott Cross Lane; and
- Routing agreement to ensure that HGVs accessing the site use roads of a suitable nature and do not use the A522 through Upper Tean.

Golf Course

8.127 During the post-infill construction phase, HGVs would be subject to the same mitigation measures as above.

8.128 In order to promote sustainable travel to staff and users of the facility, local bus and train information would be provided within the clubhouse and staff would be encouraged to car share.

8.129 It recommended that permanent signage be erected on Cheadle Road / Draycott Cross Road within the vicinity of the site access lane, indicating the presence of the golf course and likely turning movements.

Residual Impact

8.130 Given the above mitigation measures, it is considered that the development proposals would have an insignificant residual impact in traffic and transport terms.

Conclusions

8.131 A Transport Assessment has been undertaken to assess the transport implications of proposals to develop a private 18-hole golf course at a disused sand and gravel quarry located at Huntley Wood, Draycott-in-the-Moors, Staffordshire.

8.132 The quarry would initially require infilling to provide a suitable landform for the golf course. The infilling is the subject of a current planning application and Staffordshire Highways have raised no objections to the scheme, subject to conditions relating to HGV movements and vehicle routing.

8.133 The golf course would comprise 18-holes, access road, parking areas and clubhouse. The facility would be accessed from an existing rural lane which joins Cheadle Road and Draycott Cross Road.

8.134 The golf course would generate around 273 two-way vehicle movements on weekdays and around 352 movements on weekends. The vast majority of traffic generated would be light vehicles. Development traffic would peak during the period 1200 to 1300 and would avoid the times of peak traffic on the surrounding highway network.

8.135 The operation of the surrounding highway network has been assessed, including the junction of the site access lane with Cheadle Road / Draycott Cross Road. It has been demonstrated that development traffic would not significantly add to baseline flows and future traffic levels would remain well within the capacity of the surrounding road links.

8.136 Mitigation measures have been suggested to reduce the environmental impacts of development traffic, particularly during the infill and construction phases including a routing agreement for HGVs and provision of wheel wash facilities.

8.137 Overall, it is considered that the development proposals would not have a significant impact in terms of transportation and highways.

9.0 AIR QUALITY

Introduction

9.1 D ue to the nature of the proposed development, the operation of the golf course would not have an impact on air quality, especially when considered in light of the previous quarry operation which occupied the site. The operation of the golf course would entail golfers using the site with some limited maintenance taking place.

9.2 The air quality impact of the infilling operation, where inert materials are imported to the site to form the golf course fairways, is considered briefly below. A planning application for the importation of inert materials to the site in order to form the golf course fairways has already been submitted for consideration to Staffordshire County Council as the waste planning authority for the area.

9.3 This section of the supporting statement considers the potential for the proposed development to generate dust, which may give rise to a nuisance impact. Dust is defined as particulate matter in the size range of 1-75µm (microns) in diameter is produced through the action of abrasive forces on materials such as tipping minerals and trafficking vehicles on bare ground.

9.5 The most common concern regarding dust emissions is their nuisance effect. The nuisance effects of dust emissions are related to both emissions of large and fine particles. Deposition of these particles onto surfaces such as windows and cars causes soiling, which, if sufficiently great, can be considered to be a nuisance. In addition, occasional clouds of dust can cause a visual and sensory nuisance.

9.6 The proposal to import inert materials to form the golf course fairways would only affect air quality when each of the following conditions is met:

- When emissions are released from the site in sufficiently high concentrations;
- When wind conditions carry these emissions towards sensitive receptors; and,
- When there is insufficient dispersion to dilute emissions to a concentration that does not have deleterious effect.

9.7 Therefore, the significance and resultant impacts of emissions to air from the proposed development would be dependant upon the magnitude of the emissions, the proximity of the sensitive locations and intervening topography to the emission sources, and the prevailing meteorological conditions for that location. The potential for these to occur and to give rise to off site impacts is assessed below.

9.8 This section of the supporting statement takes into consideration each potential source of dust from the proposed development along with the

proximity of sensitive locations and meteorological data available for the area. Any mitigating measures considered necessary for the proposed development will also be described in detail.

Sources of Dust

9.9 Dust arises when very small particles, typically less than 75µm (microns) are raised into the air and dispersed by wind. The critical wind speed for raising dust from the ground above approximately 5metres per second. Dust is also raised by vehicles travelling over dry, dusty, ground in addition to the unloading and handling of potentially dusty materials. The amount of dust generated by each activity depends upon the moisture content of the material.

9.10 Dust emissions from the proposed development will be at their greatest when there is a plentiful supply of small dry particles. The principle activities that may give rise to dust emissions from the proposed development have been identified as follows:

- Movement of plant and vehicles on unsurfaced road and unclean surfaced access roads;
- Unloading of inert materials from HGV's;
- Spreading and profiling of minerals to form the golf course fairways.

9.11 These activities have been considered in more detail in the following paragraphs.

Movements of Plant and Vehicles on Surfaced and Un-Surfaced Roads

9.12 The weight of vehicles, their speed and the number of wheels in contact with the ground can all affect the generation of fugitive dust. However, the surface over which they pass is most likely to affect the potential for dust emissions.

9.13 Vehicle movements as a result of the proposed development would mainly consist of HGV's delivering restoration materials to the site, and movement of a tracked dozer to deploy the restoration materials within the quarry site.

9.14 HGV's delivering restoration materials would enter the site along the existing road present to the south of the site. It would be necessary for the HGV's to travel over the surface of the quarry site as well as the inert materials forming the fairways.

9.15 In order to reduce the dust arisings from the site, a towed bowser would be made available as necessary to dampen down any dust. The speed limit for HGV's entering the site would be set at a suitable speed to reduce dust arising of fugitive dust.

Unloading of Materials

9.16 Inert materials would comprise of soils and inert materials delivered by HGV and deposited by tipping out.

9.17 Typically soils delivered to the site would have a residual moisture content which would serve to reduce the likelihood of dust arisings.

Spreading and Profiling of Materials to Form the Fairways

9.18 Following unloading from a HGV, minerals would be spread into place using a tracked dozer. To reduce dust arising, where the material is dry and significant dust emissions are likely a towed bowser would be used to dampen the material in the area to be profiled.

Dust Generated During Adverse Weather Conditions

9.19 Wind has the potential to lift dust from surfaces, depending on wind speed, the condition of the surface and size of the particulate matter. Wind blow is not unique to infilling operations and can affect bare land such as fields particularly during dry periods and in areas with no vegetation cover.

9.20 To reduce the affects of wind blow, the operator would seek to seed restored areas at the earliest opportunity, as this would also provide the maximum opportunity for vegetation to become established.

9.21 Existing vegetation not disturbed by the construction of the golf course fairways would assist in limiting the amount of wind blown dust emissions. By only working in particular areas of the quarry at any one time, the existing scrub grass cover would remain in place until fairway construction takes place.

Sensitive Receptors

9.22 Sensitive receptors are those locations where the public may be exposed to dust from the site. Locations with a high sensitivity to dust include hospitals and clinics, hi tech industries, painting and furnishing and food processing. Locations classed as being moderately sensitive include schools, residential areas and food retailers.

9.23 In terms of identifying sensitive locations, consideration is usually given to sensitive locations within 500m of the site boundary.

9.24 There are no receptors of high sensitivity within 500m of the application site, largely due to the rural and agricultural nature of the surrounding area. Receptors of medium sensitivity within 500m of the application site include several individual residential dwellings including:

- Residential properties at Wayside Farm, 350metres to the west;
- Several individual properties off Harplow/Huntley Lane to the north of the site at distances of 120-200m from the proposed earthworks;

- Residential Property at Harplow Lane;190metres north of the site;
- The residential property at Coneygreaves Farm some 300metres south of the site;
- Houses in Huntley around 250m to the east of the proposed earthworks.

Source to Receptor Distance Attenuation

9.25 It should be noted that the distance, topography and features present on the land between the source of any dust arisings and sensitive receptors may serve to provide a certain amount attenuation to dust arisings.

9.26 Dust is the generic term used to describe particulate matter in the size range 1-75µm in diameter (BS 6069). The distance from the source to the location of the receptor plays an important role in the potential dust impact experienced, as both airborne dust and dust deposition rates fall off rapidly following dispersion from the source.

9.27 The very largest particles usually only travel 10-20m before being deposited. PM_{10} particles, on the other hand, are not readily deposited and can travel for longer distances. The vast majority of dust is deposited within 100m of the source. All of the properties situated around the application site are situated over 100metres from the soil tipping areas.

9.28 The topography of the intervening land between the dust source and receptor should also be considered. The site comprises of numerous high and steep sided quarry faces which in some areas of the quarry are up to 20metres high. The land surrounding the site is therefore at a higher elevation and the quarry is surrounded by mature woodland vegetation. The presence of the quarry faces and mature vegetation would contain any dust created as part of the operations at the site.

Assessment of Impact

The overall impact of the proposed development in air quality terms is considered to be low. The operation of the golf course would not give rise dust emissions due to it's very nature. Due to the nature of the tipping operation, and the day to day running of the golf course there would be no impacts from the development as a result of odour. Consideration has been given to the potential for dust arisings and nuisance from the importation and placement of inert materials to form the golf course tees and fairways.

Although there are no high sensitivity receptors such as hospitals within 500metres of the application site, a number of residential properties are present. A number of factors will determine the extent of the dust impact arising from the tipping of inert soils to form the golf course fairways. Such factors include the distance between the source and receptor, intervening topography between the source and receptor, nature of the material being tipped at the site and prevailing wind directions.

Given it's particle size, dust arisings would settle out of the air back to ground level within 100metres of the source of emission i.e. before reaching residential properties surrounding the application site. The intervening topography such as the quarry sides

would shelter the site to minimise dispersion of any dust and retain dust arisings within the site.

Additional mitigation measures such as setting a speed limit for vehicles onsite during the tipping operations and using a towed bowser to spray and suppress dust on the site could also be utilised. To this extent, the potential for air quality impacts arising from the infilling operation at the site is considered to be low.

10.0 HYDROLOGY

Introduction

10.1 This section outlines the hydrogeological and hydrological baseline conditions of the site and surrounding area. The potential impacts of the development are identified, and where necessary, mitigation measures to reduce these impacts to acceptable levels are outlined.

Relevant Policies and Guidelines

10.2 The construction and operation of the proposed golf course would be in accordance with variety of policies and guidelines in order to limit the potential for impacting the baseline conditions of the site and surrounds. This chapter has been prepared with reference to the following documents:

- Planning Policy Statement 25 (PPS25): Development and Flood Risk;
- Land Drainage Act 1991;
- Water Resources Act 1991;
- EC Water Framework Directive (2000/60/EC);
- EC Directive on Groundwater (80/68/EEC);
- Environment Agency - Pollution Prevention Guidelines;
- The SUDS Manual - C697 (CIRIA, 2007);
- Control of Water Pollution from Linear Construction Projects – C648 (CIRIA, 2007);
- The Royal and Ancient Best Practices Guidelines for Golf Course Management (continually updated www.bestcourseforgolf.org/); and
- Code of Practice for using Plant Protection Products (Defra, 2006).

Assessment Methodology

10.3 The methodology applied in the assessment is a qualitative risk assessment methodology, in which the probability of an impact occurring and the magnitude of the impact, if it were to occur, are considered. This approach provides a mechanism for identifying the areas where mitigation measures are required, and for identifying mitigation measures appropriate to the risk presented by the development. This approach allows effort to be focused on reducing risk where the greatest benefit may result. The assessment of risk is outlined in Table 10/1.

Table 10/1
Matrix used to Estimate Risk

Probability of Occurrence	Magnitude of Potential Impacts			
	Severe	Moderate	Mild	Negligible
High	High	High	Medium	Low
Medium	High	Medium	Low	Near Zero
Low	Medium	Low	Low	Near Zero
Negligible	Low	Near Zero	Near Zero	Near Zero

Sources of Information

10.4 The following sources of information have been used in preparation of this study:

- British Geological Survey - Solid with Drift Geological Map Sheet 124 (Ashbourne);
- Environment Agency - Groundwater Vulnerability Map, Sheet 17, Derbyshire;
- Environment Agency Website (www.environment-agency.gov.uk) for details of river quality, source protection zones and flooding; and
- Centre of Ecology and Hydrology (CEH Wallingford), Flood Estimation Handbook CD ROM (2006)

Baseline Conditions

10.5 The development site comprises an area of 69ha and is situated within an old sand and gravel pit. Currently, vegetation at the site has naturally regenerated over part of the site, but a large part of the site has not been formally restored.

Regional and Local Geology

10.6 The regional geological setting is presented on Drawing 10/1 which is an excerpt from the published 1:50,000 Solid with Drift Geological Map Sheet 124 (Ashbourne), produced by the British Geological Survey. Review of Drawing 10/1 confirms that the development area is located upon Triassic Sherwood Sandstone bedrock, which is overlain in the west and north of the proposed development by superficial deposits of Glacial Till.

10.7 The till is described as being clayey, sandy or gravely and widely distributed in this area. The Triassic bedrock comprises the Sherwood Sandstone Group which generally consists of red-brown and yellow sandstones and conglomerates with rare siltstone and mudstone bands. In the area of the proposed development the Sherwood Sandstone Group has been subdivided into three formations and two members.

10.8 The youngest of the formations is the Huntley Formation, which outcrops to the north of the proposed development, and comprises a pebbly sandstone or conglomerate in which there is a large proportion of locally derived sub-angular pebbles. The Hawksmoor formation which is a cross-bedded pebbly sandstone is shown to outcrop over the majority of the proposed development area. This formation has two conglomerate units, the Freehay Member, which is shown as outcropping in the centre of the site, and the Lodgedale Member. The geological map notes that both the conglomerate units are worked for gravel.

10.9 The published geological cross section (see Drawing 10/1) intersects the proposed development and indicates the Sherwood Sandstone Group overlies the Westphalian Coal Measures of the Cheadle Coalfield, which are Upper Carboniferous in age. A number of coal seams are present in this area.

10.10 An air shaft and a disused shaft are shown as being present within the site boundary.

Mining and Quarrying

10.11 The British Geological Survey website (www.bgs.ac.uk/geoindex) indicates that there is an active asand and gravel quarry at NGR 401800 341400 called Freehay Quarry. The quarry is located approximately 2,200m east of the proposed development site.

Hydrogeology

10.12 The Environment Agency's Groundwater Vulnerability Map Sheet 17, Derbyshire shows the majority of the application area lies upon a Major Aquifer (Highly Permeable), i.e. the Sherwood Sandstone Group with soils of a high leaching potential. This has been confirmed by correspondence with the Environment Agency. An extract of the groundwater vulnerability map is presented as Drawing 10/2a. A Major Aquifer status is given to highly permeable formations usually with a known or probably presence of significant fracturing. They may be highly productive and able to support large abstractions for public supply or other purposes.

10.13 Soils with a high (H2) leaching potential are described as soils which are generally deep permeable coarse textured soils which readily transmit a wide range of pollutants because of their rapid drainage and low attenuation potential.

10.14 The Hydrogeological Map of England and Wales shows that deposits underlying the site are characterised as being an extensive and highly productive aquifer. The British Geological Survey report that the Triassic sandstones yield up to 125 l/s of good quality, hard to moderately hard water. An extract of the Hydrogeological Map of England and Wales is presented as Drawing 10/2a.

10.15 It should be noted that there are three wells documented on the Ordnance Survey 1:25,000 plan, within close proximity to the proposed development boundary see Drawing 10/3a.

10.16 Using the catchment descriptors (Baseflow Index * Average Annual Rainfall) taken from the Flood Estimation Handbook (FEH)[20] CD-ROM, the average recharge to the underlying sandstone aquifer is estimated to be 749mm/year.

Groundwater Levels and Flow

10.17 The topography of the area indicates that the proposed site is located upon an area of high ground; the contours typically slope steeply away from the site.

10.18 The Hydrogeological Map of England and Wales shows that the regional groundwater level below the site is approximately 180mAOD. The site is

[20] Flood Estimation Handbook (CEH, 2006)

located above a groundwater divide between the Upper Tean and Mobberley Brook to the north and east, and the River Blither to the south and west.

Abstractions

10.19 The Environment Agency has provided details of water abstractions within 2km of the site boundary which are summarised in Table 10/2, and are shown on Drawing 10/3a.

Table 10/2
Summary of Water Abstraction Licences

Drawing Ref	License No.	National Grid Reference	Owner	Type of Abstraction	Use
1	02/28/06/0055	SJ 974 395	Severn Trent Water Limited	Groundwater from Cresswell Boreholes	Public Water Supply – Potable Water Supply –Direct
2	03/28/32/0028	SK 0065 4065	Severn Trent Water Limited	Groundwater - Teanford	Public Water Supply– Potable Water Supply –Direct
3	03/28/32/0014	SJ 9886 4122	Severn Trent Water Limited	Groundwater – Draycott Cross – Wells	Public Water Supply– Potable Water Supply –Direct
4	03/28/32/0025	SK 0056 4129	Hanson Quarry Products Europe Ltd	Surface Water – River Tean	Industrial, Commercial and Public Services a) Mineral Washing b) Dust Suppression c) Process Water
5	03/28/32/0032	SJ 9894 4432	Wheat Brothers, Bradeley Farm, Cheadle	Groundwater – Borehole at Bradeley Farm Cheadle	a)Private Water Supply b)Agriculture – General Farming and Domestic
6	03/28/32/0013	SK 0073 4349	Severn Trent Water Limited	Groundwater – Cheadle – 2 Wells with Boreholes Drilled Through the base of each	Public Water Supply – Potable Water Supply – Storage

10.20 Review of Table 10/2 indicates that the majority of abstractions are from groundwater and are for private or public water supplies. A single abstraction is from surface water from the River Tean and is used for a number of industrial and commercial purposes.

Groundwater Source Protection Zones

10.21 The Environment Agency has confirmed that the site lies within Zone II (Outer Zone) and Zone III (Total Catchment) of the Source Protection Zones for the Draycott and Teanford Public Water Supply abstractions. These abstractions are located at SJ 9886 4122 and SK 0065 4065 respectively.

The proposed development is within Zone II of the Draycott abstraction. The extent of the Source Protection Zones are shown on Drawing 10/3.

10.22 Groundwater Protection Zone II is the area defined by the 400-day travel time from any point below the water table to the source. The travel time is based upon that required to provide delay and attenuation of slowly degrading pollutants.

10.23 Groundwater Protection Zone III covers the complete catchment area of a groundwater source and is defined as the area needed to support an abstraction for long-term annual groundwater recharge (effective rainfall)

Groundwater Quality

10.24 The Environment Agency does not have any groundwater monitoring boreholes in the vicinity of the site, and therefore there is no available groundwater quality information.

10.25 The Environment Agency has provided details of an historic landfill site within 1.5km of the proposed development, details are presented below and the location is shown on Drawing 10/3. The landfill (HDL Ref: EAHLD28917) is situated at NGR SJ 983 414 and comprised silt tipping operations undertaken pre-1976.

Hydrology

10.26 The site features 3 unlined ponds, totalling in the region of 4ha. The water level in the ponds varies. Water level in the central pond is approximately 204mAOD, the western pond is approximately 184mAOD and the southern pond is approximately 176mAOD. The regional groundwater contours are at around 180mAOD, therefore the western and southern ponds may be in hydraulic connection with groundwater, however the central pond is likely to be an expression of a perched water above the regional levels.

10.27 Ordnance Survey mapping indicates that approximately 400m east of the site, an unnamed watercourse flows south east into Mobberley Brook which then flows south. The site comprises a fairly level plateau which slopes slightly to the south west. The plateau is bounded to the east and north by a ridge which forms a watershed for surface water runoff. The land to the north-east of the ridge slopes to the north east and surface water would naturally drain this way ultimately draining to the unnamed tributary of Mobberley Brook.

10.28 The Environment Agency website indicates that there is a River Quality Target of RE2 for Mobberley Brook at Upper Tean, approximately 1.7km downstream of the site. Sampling undertaken between 1995 and 2006 indicates that the water quality complies with the targets.

10.29 The Flood Estimation Handbook (FEH) catchment descriptors indicate that the site has an average annual rainfall of 856mm and a standard runoff rate of 15.8%. The greenfield runoff rate for the site (prior to development of the quarry) has estimated for a variety of events using the IoH124 Method,

details are presented in Table 10/3.

Table 10/3
Estimated Greenfield Runoff Rates (IoH124 Methodology)

Parameter (units)	Catchment Descriptor	
Unit Area (Ha)	69.0	
Soil Index (dim)	0.45	
Region Number (n/a)	4	
Average Annual Rainfall (mm)	856	
Storm Return Period (annual probability of occurrence)	Calculated Peak Rate of Runoff	
	(l/sec)	(l/sec/Ha)
2-year (50%)	331.8	4.8
30-year (3%)	725.4	10.5
100-year (1%)	951.5	13.8

10.30 The EA have a flow gauging station at Cresswell situated 3.5km south west of the site on the River Blithe. Data gathered between 1 January 2005 and 1 March 2008 indicates that flows vary between 0.038m^3/s and 4.98m^3/s. During this same period the annual average rainfall measured was 877mm and the highest rainfall in one day was 44.2mm on 17 August 2006.

Flood Risk

10.31 The Environment Agency Flood Mapping presented in Drawing 10/3, indicates that the site lies within PPS25 Flood Zone 1 - Low Probability defined as *'land assessed as having a less than 1 in 1000 annual probability of river or sea flooding in any year (<0.1%).'*

10.32 EA correspondence[21] indicates that there are no records of historic groundwater flooding in this area.

Identification of Potential Impacts

10.33 This section aims to identify the potential hazards to groundwater and surface water presented by the proposed development and outlines the mitigation measures proposed to ensure that these impacts are minimised so as to be acceptable in terms of the environment.

10.34 A summary of the unmitigated potential impacts is provided in Table 10/4.

[21] Environment Agency Letter dated 7 March 2008. Ref: CSC141311/DT

Table 10/4
Summary of Unmitigated Potential Impacts

Potential Impact	Spatial and Temporal Impact	Probability of Occurrence	Magnitude of Impact	Significance of Impact	Mitigation Required ?	Residual Impact
Groundwater Flow Regime						
Reduction in Recharge Rate	Local and Long Term	Medium	Mild	Low	No	Low
Abstraction for irrigation	Local and Long Term	Low	Mild	Low	No	Low
Groundwater Quality						
Fuels and oil spillage during construction	Local, Short Term	Medium	Moderate	Medium	Yes	Low
Fertilisers, herbicides and pesticides	Local/Regional, Short and Long Term	High	Moderate	High	Yes	Low
Surface Water Quality						
Sediment from earthworks	Local, Short Term	Low	Severe	Medium	Yes	Low
Spillage of fuels and oils	Local, Short Term	Medium	Moderate	Medium	Yes	Low
Fertilisers, herbicides and pesticides	Local/Regional, Short and Long Term	Medium	Moderate	Medium	Yes	Low
Surface Water Flow Regime						
Abstraction for irrigation	Local and Long Term	Low	Mild	Low	No	Low
Flood Risk						
Risk of flooding to the development	Local, Long Term	Low	Mild	Low	No	Low
Increased downstream flood risk	Regional and Long Term	Medium	Moderate	Medium	Yes	Low

Development Proposals

10.35 The proposed development is described in detail in Section 3 of the Environmental Statement. However, as an aid to understanding the potential implications upon the water environment, the main features of the development are:

- The greens, fairways and tees of the golf course would be raised by importing inert fill to the site. A total area of 21ha would be raised.
- There would be construction of a clubhouse, car park, terrace, main access road, caretakers house and green keepers building, comprising a total area of 5000m^2.
- An irrigation system would be installed and used to maintain grass and landscaped areas during dry spells.

Groundwater Impacts

Groundwater Flow Regime

10.36 Importation of fill to the site may reduce the infiltration rate of the soils, leading to an increase in runoff and a reduction in the recharge to the underlying aquifer. The impact would be local and is considered to have a *medium probability of occurrence* and would have a *mild magnitude of impact.* Therefore the overall risk without mitigation is *low*.

10.37 In order to maintain healthy and fit for purpose greens and fairways, irrigation would be required during periods of low rainfall. It is proposed that water would be abstracted from the ponds on site which are likely to be in hydraulic connection with the groundwater beneath the site. The site drainage will flow into the ponds ensuring that levels are maintained by harvesting rainfall. Over abstraction from the ponds may drawdown groundwater levels locally, however it will not be possible to drawdown groundwater below the base of the ponds, thereby limiting the impacts upon nearby licensed groundwater abstractors. Drawdown of groundwater levels is considered to have a *low probability of occurrence* and would have a *mild magnitude of impact.* Therefore the overall risk without mitigation is *low*.

Groundwater Quality

10.38 As set out above the proposed development is partially situated above a Major Aquifer classed as being Highly Vulnerable to pollutants.

10.39 During construction of the golf course a variety of potential contaminants will be stored and used on site such as fuels and lubricants. Adverse impact upon groundwater quality arising from accidental spillage of contaminants is considered to have a *medium probability of occurrence* and would have a *moderate magnitude of impact.* Therefore the overall risk without mitigation is *medium*.

10.40 During the operation of golf course a variety of fertilisers, herbicides and pesticides may be used to maintain a playing surface that is fit for purpose. Adverse impacts on groundwater quality resulting from the application of fertilisers, herbicides and pesticides are considered to have a *high probability of occurrence* and would have *moderate magnitude of impact.* Therefore the overall risk without mitigation is *high*.

Surface Water Impacts

10.41 Given the hydrological setting, it is considered that the proposed development has the potential to impact on the surface water environment in terms of both the surface water quality and the hydraulic regime. The impact of flooding is also considered.

Water Quality

10.42 Earthworks undertaken during the construction phase of the golf course have the potential to generate runoff with high loadings of suspended sediment, which may pollute any surface water features in the surrounding area. Pollution of surface water features by runoff from areas of earthworks is considered to have a *low probability of occurrence* and would have a *severe magnitude of impact* because of the large distance to the nearest watercourse. Therefore the overall risk without mitigation is *medium*.

10.43 During construction of the golf course a variety of contaminants will be stored and used on site such as fuels and oils, which may be carried by runoff to any surface water features in the surrounding area. Pollution of surface water arising from accidental spillage of contaminants is considered to have a *medium probability of occurrence* and would have a *moderate magnitude of impact.* Therefore the overall risk without mitigation is *medium*.

10.44 During the operation of golf course a variety of fertilisers, herbicides and pesticides may be used to maintain a playing surface that is fit for purpose. There is a high risk of adverse impacts on groundwater quality resulting from the application of fertilisers, herbicides and pesticides. Migration of contaminated groundwater into nearby surface water drainage features is considered to have a *medium probability of occurrence* and would have a *moderate magnitude of impact.* Therefore the overall risk without mitigation is *medium.*

Flow Regime

10.45 In order to maintain healthy and fit for purpose greens and fairways, irrigation will be required during periods of low rainfall. It is proposed that water be abstracted from the ponds on site which will harvest runoff from the surrounding areas. Water used for irrigation will be lost to evapotranspiration and will not recharge the underlying aquifer which may results in lower flows in the receiving watercourses. The area impacted by reduced recharge rate is minor in comparison to the total recharge area of the aquifer and extremely small compared to the overall catchment of the receiving watercourses. Therefore, the impact of water abstraction on the flow regime in the receiving watercourse is considered to have a *low probability of occurrence* and would have a *mild magnitude of impact.* Therefore the overall risk without mitigation is *low*.

Flood Risk

10.46 Planning Policy Statement 25: Development and Flood Risk advises Zone 1 – Low Risk is suitable for all development types. The proposed development is considered to be at *low risk of flooding* and would flooding would have a *low magnitude of impact.* Therefore the overall risk is considered to be *low.*

10.47 The importation of fill, construction of new buildings and areas of hardstanding may generate increased volumes and rates of runoff compared with the baseline conditions and can increase the flow rate in receiving watercourses. Increased runoff generation has the potential to increase flood

risk in the downstream environment and is considered to have a *moderate probability of occurrence* and would have a *medium magnitude of impact.* Therefore the overall risk without mitigation is *medium.*

Appropriate Mitigation Measures

10.48 The potential impacts of the proposed development on both ground and surface water environments have been identified above. Where there is a medium or high significance of impact, mitigation measures are required to reduce the risk of impact to acceptable levels.

10.49 Table 10/5 summarises the mitigation measures applied to each potential impact.

Construction Phase Management

10.50 Two types of management measures will be implemented during construction to reduce the impacts of sediment on nearby watercourses. Erosion control measures will aim to prevent runoff flowing across exposed ground and becoming polluted with sediments. Sediment control measures are designed to slow runoff to allow any suspended solids to settle out in-situ. In addition to measures targeting sediment control, a variety of measures will be implemented during the construction phase to reduce the impacts of accidental spillage on site.

10.51 The construction phase management measures will include the following:

- wherever possible a traffic management system would be put in place to reduce the potential conflicts between vehicles, thereby reducing the risk of a collision;
- a site speed limit would be enforced to further reduce the likelihood and significance of collisions;
- all plant would be regularly maintained and inspected daily for leaks of fuels, lubricating oil or other contaminating liquids/liquors;
- refuelling of vehicles would either be undertaken in a surfaced compound area from a fuel tank(s) that is bunded in compliance with the Control of Pollution (Oil Storage) (England) Regulations 2001, and PPG2 or be undertaken off-site to minimise the risk of uncontrolled release of polluting liquids/liquors;
- interceptors would be incorporated into the design of the site to catch any leaks and spills;
- maintenance of plant and machinery would be undertaken within the site compound or off-site, as appropriate, to minimise the risk of uncontrolled release of polluting liquids;
- spill kits would be made available on-site to stop the migration of spillages, should they occur;

- soil movements and excavations would be undertaken to minimise the generation of silt, and all soils would be stored in accordance with the relevant guidance (such as PPG1, PPG5 and PPG6) to avoid the migration of contaminated liquors. Where necessary, ditches would be cut to capture runoff from areas generating any clay and silt laden runoff to allow for settlement of fines (clay and silt fractions) prior to discharge;

- if any water is encountered and is required to be pumped from excavations during construction, it would be directed to a settlement pond prior to discharge or in accordance with CIRIA Report C532;

- a SuDS scheme will ensure that low level contamination from spillages does not have any adverse impact on groundwater or surface water quality; and

- design of any sewerage discharges will be in accordance with the relevant Pollution Prevention Guidelines, such as PPG1, PPG4 and PPG5 and all discharges to sewers will be controlled.

10.52 These measures would reduce the residual impact of fuel and oil spillages on surface water and groundwater quality from moderate to low and would reduce the residual impact of sediment on surface water quality from moderate to low.

Fertiliser, Pesticide and Herbicide Management

10.53 Fertiliser application should be in accordance with the principles of current best management, which includes:

- use of experienced and appropriately trained green keepers;

- visual inspection of turf for colour, density and growth rate would indicate the nutrient requirements of the turf;

- when deciding the most appropriate form of nutrient application, attention will be given to grass species, turf usage, soil type and climate;

- fertilisers should be applied only to the areas which require nutrients and using slow release, low concentration, high frequency regime;

- use of soil and leaf tissue analysis to determine the appropriate fertiliser application rates to ensure nutrients are only applied on an ‘as needed’ basis;

- determination of no spray zones around water bodies; and

- undertake water quality monitoring in ponds and any discharges to off-site watercourses.

10.54 Pesticide and herbicide application should be in accordance with the ‘Code of Practice for using Plant Protection Products’ (Defra, 2006) which advises on

when to use plant protection products, handling and storing of products and a variety of measures to minimise the impact of their use on the environment.

10.55 Adoption of current best practice techniques for managing the use of fertilisers, pesticides and herbicides would reduce the residual impact of their use on surface water and groundwater quality from moderate to low.

Flood Risk

10.56 A surface water management plan should be prepared for the development detailing how Sustainable Drainage Systems (SuDS) will be implemented on site in order to mitigate against any increased runoff generated by the site.

10.57 The requirement for SuDS will depend on the nature of the imported fill and the infiltration capacity of the sub surface. There are several large pond already on site which can be used to attenuate any increased runoff.

10.58 Micro Drainage has been used to estimate the volume required to attenuate runoff from the areas of imported fill, buildings and hard standing to the 2 year (pre-development) greenfield rate of 4.8L/s/ha. It was assumed that the 25ha of land filling would have a runoff coefficient of 45% and the 0.8ha of buildings and hardstanding would have a runoff coefficient of 95%. The required attenuation volume for the 1 in 100 year event including an allowance for climate change of 30%, would be 10,246m^3.

10.59 The Micro Drainage modelling indicates that it is possible to mitigate against increased runoff flows from the development, thereby reducing the impact from moderate to low. It is recommended that a surface water and environmental management plan is prepared prior to construction works commencing.

Conclusions

10.60 This chapter indicates that the key impacts of the development relate to groundwater and surface water quality and surface water runoff flows, all of which are manageable by implementing a mitigation measures comprising a series of management measures including:

- construction phase management;
- fertiliser, herbicide and pesticide management; and
- surface water management.

10.61 Following implementation of mitigation measures, the residual risk of the development causing an adverse impact on the geology, hydrogeology and hydrology is assessed as low.

11.0 NON TECHNICAL SUMMARY

11.1 This non-technical summary forms part of an environmental statement that accompanies a planning application for the Change of Use of Huntley Wood Quarry to a golf course. The application site currently comprises of the former sand and gravel quarry which is surrounded by a band of mature woodland. The quarry ceased operation a number of years previous, and to date limited restoration works have taken place.

11.2 A separate planning application has been submitted to Staffordshire County Council for the importation of inert materials to the site that would be used to form the fairways.

11.3 This environmental statement considers the change of use of the former quarry to a golf course and also considers the impacts associated with the material importation operation where necessary.

11.4 The material importation operation would take place over a period of approximately two years, whilst the landscaping, built development and completion of the fairways may take around a further 6 months.

11.5 This environmental statement considers of a number areas where the development may have the potential to cause an impact on the wider environment. Consideration has been given to the landscape and visual impacts, ecology, noise, highways, air quality and hydrology.

11.6 Section 5 of the Environmental Statement considers and assesses the potential landscape and visual implications of the proposed development during both the construction and the operation phase of the golf course. The assessment considers a baseline study of the existing site and its surroundings, a study of the landscape and visual characteristics of the development, and an assessment of the residual landscape and visual impacts likely to be generated after mitigation has been considered and their significance.

11.7 The proposed change of use to a golf course would initially cause some limited adverse landscape and visual effects through the physical disturbance associated with placement or inert materials and other earthworks. However, earthmoving operations would be limited to the fairways and greens, and large parts of the existing vegetation on the site would be retained. The entire site would be managed for recreation and ecological enhancement.

11.8 The restoration proposals would help to regenerate the former mineral working at a faster rate than if it were left to naturally regenerate, and overall there would be no significant landscape impact. In visual terms. The site is located within a heavily wooded and undulating area where little of the proposed development would be seen from outside of its boundaries. Significant adverse visual effects however would occur to a small section of public right of way within the east of the site and would be limited in duration to working/construction phases only.

11.9 Overall the proposed development would not generate unacceptable landscape and visual effects and would not be in conflict with the aims of

local landscape planning policies such as green belt, special landscape area, trees, recreation and landscape character.

11.10 An Ecological Impact Assessment (EcIA) was conducted for the site in respect of the proposed development. The EcIA has three main purposes: to provide an objective assessment of the effects on ecology, determine the consequences of the development, demonstrate that the proposed development will meet the legal requirements relating to habitats and species.

11.11 This EcIA follows a standard approach based upon the description of the existing baseline conditions within the application site; an evaluation of the habitats and species present within the application site; the identification of potential ecological effects of the proposed golf course development; and an assessment of the likely significance of identified impacts on the valued ecological receptors (VERs). Where a significant negative impact has been identified, suitable mitigation measures to prevent, reduce or offset the level of impact are provided with any residual effects that may continue post construction identified and assessed.

11.12 The EcIA has considered the loss of woodland and scrub habitat along with some grassland, heathland, open standing water and bare substrates that would result from the development of the golf course.

11.13 A small part of Huntley Wood SBI and ASNW would be impacted by the development however it was found that by undertaking nature conservation management in this area a negative impact would be compensated by improving the habitat of the woodland (i.e. removal of rhododendron) and this is likely to have a residual positive impact on this non-statutory nature conservation site and ancient semi-natural woodland. The sympathetic development of the golf course provides an opportunity to create and restore important heathland and acid grassland habitats as well as features for individual and groups of species to improve the biodiversity value of the whole site whilst providing a golf course with social and economic value.

11.14 Whilst the golf course development has the potential to significantly impact the great crested newt population present on the site, however through careful planning and design and mitigation measures there is no reason why the population cannot remain viable on this site.

11.15 The assessment of the impacts identifies that the golf course development is unlikely to have significant negative impact on habitats, species or wildlife sites and that golf course itself along with habitat creation and enhancement through appropriate landscaping, planting and habitat creation is expected to have a positive impact at the local level.

11.16 Section 7 of the Environmental Statement considers noise impacts arising during the construction phase of the landfill operation. The operation phase of the golf course is not considered to create any significant noise impact due to the main noise impact being car traffic visiting the facility.

11.17 The noise assessment therefore considered the potential for importation of inert materials and preparation of the site to give rise to noise impacts at the nearest noise-sensitive properties.

11.18 The assessment has found that noise levels produced by the infilling operation would be below the WHO criteria for moderate annoyance in outdoor living areas at all of the locations assessed. Mitigation measures, above and beyond those already designed into the proposed scheme, are considered unnecessary.

11.19 Section 8 of the Environmental Statement considers the potential for impacts on the highway network in the area surrounding the application site, in particular the junction at which the golf course access road would join Cheadle Road / Draycott Cross Road.

11.20 The traffic assessment considers the infilling operation and the operation of the golf course. The assessment considered the volume of vehicle movements created by both of these operations and the time of day each would take place to assess the potential impact on the highway network.

11.21 The operation of the highway network surrounding the site was assessed, including the junction of the site access lane with Cheadle Road / Draycott Cross Road. The traffic assessment demonstrated that development traffic would not significantly add to baseline flows and future traffic levels would remain well within the capacity of the surrounding road links.

11.22 Mitigation measures have been suggested to reduce the environmental impacts of development traffic, particularly during the infill and construction phases including a routing agreement for HGVs and provision of wheel wash facilities. Overall however, it is considered that the development proposals would not have a significant impact in terms of transportation and highways.

11.23 Section 9 of the Environmental Statement briefly considers air quality issues associated with the proposed development. The golf course development once operational would create little or no impact on air quality. However the infilling operation, where inert material are imported, deposited and spread, has the potential to cause some air quality impact.

11.24 The air quality assessment considered the potential for the proposed development to generate dust, which may give rise to a nuisance impact.

11.25 The majority of dust usually settles out of the air within 100-200metres from it's source point. Giiven the distance between source and receptor and the intervening topography such as the steep quarry walls and mature woodland dust nuisance is unlikely to be a significant issue. Site management and mitigation measures such as watering haul routes would be deemed sufficient to negate any significant dust impacts associated with the tipping operation.

11.26 Section 10 of the Environmental Statement considers hydrological issues associated with the proposed development. This chapter indicates that the key impacts of the development relate to groundwater and surface water quality and surface water runoff flows, all of which are manageable by

implementing a mitigation measures comprising a series of management measures including:

- construction phase management;
- fertiliser, herbicide and pesticide management; and
- surface water management.

11.27 Following implementation of mitigation measures, the residual risk of the development causing an adverse impact on the geology, hydrogeology and hydrology is assessed as low.

11.28 Overall, the Environmental Statement shows the impacts of the proposed development to be low or negligible in all cases. The operation of the proposed golf course would have only limited impacts on the surrounding area. This Environmental Statement has demonstrated that the where the development has the potential to create an impact on the local environment, such impacts are manageable using standard mitigation measures.

11.29 The proposed golf course provides for the long term restoration of the disused sand and gravel quarry to a leisure amenity that would blend in with the surrounding area. Landscaping of the golf course and a limited amount of built development along with retention of the existing woodland means that the proposal would enhance the site and area.