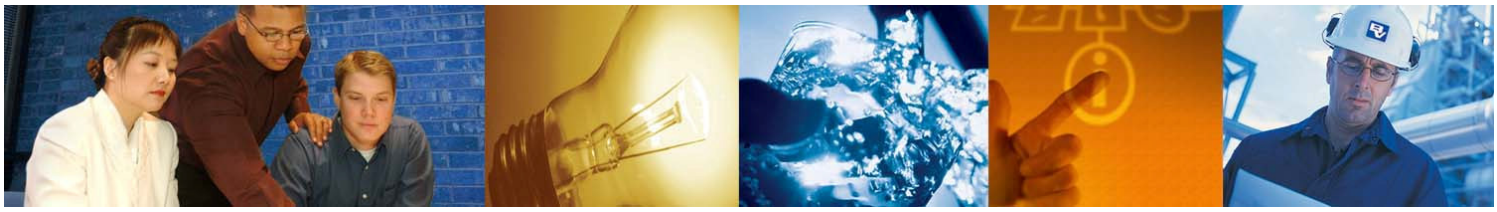
National Grid
Murphy Pipelines Ltd



Harefield to Southall Gas Pipeline
Environmental Statement

NON TECHNICAL SUMMARY

June 2006

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1	02/02/06	Initial Draft	Murphy Pipelines Ltd
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4	23/05/06	Final Draft	Murphy Pipelines Ltd, National Grid
5	02/06/06	Final	DTI, Consultees

1. INTRODUCTION

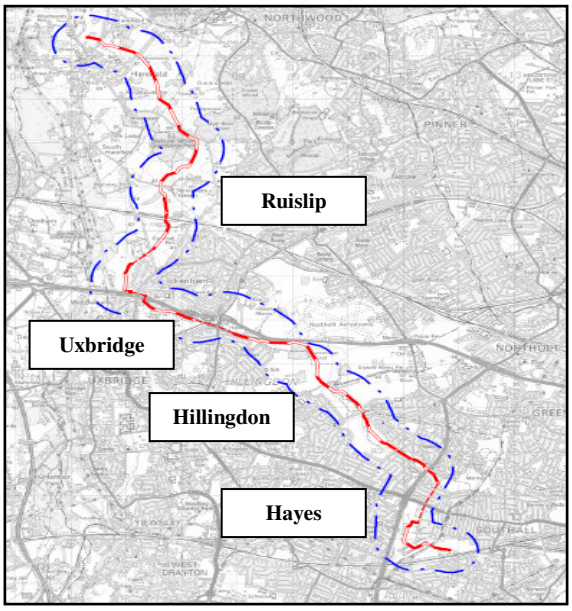

Figure 1: Harefield to Southall Gas Pipeline

1.1 Background to the Project

Natural gas is extracted at offshore platforms or elsewhere and transported to the UK via sub-sea pipelines, to onshore gas processing terminals. From there it is pumped into the UK's national gas transportation network by National Grid.

National Grid propose to build a 18.5 km long, high pressure pipeline with a diameter of 1220 mm, to transport natural gas from a new Above Ground Installation (AGI) at Harefield to an existing AGI in Southall. The pipeline originates at the proposed Hill End AGI and goes in a south-easterly direction between Mad Bess Wood and Bayhurst Wood to the south east of Newyears Green. It then runs south, skirting the western suburbs of Ickenham before it trends South East running through parts of the suburbs of Hillingdon, Yeading, Hayes and Southall. The majority of the pipeline runs within the London Borough of Hillingdon, and a short length falls within the London Borough of Ealing in the southern end of the pipeline. (See Figure 1.)

Murphy Pipelines Limited (MPL) has been appointed by National Grid to design and build the new pipeline.

The objective of the pipeline is to reinforce the National Gas Transmission System in order to meet the predicted increase in demand for gas in South East England. Failure to increase the gas supply capacity to meet the predicted increase in demand may lead to insufficient levels of gas in some areas of England. National Grid is required by law as a Public Gas Transporter to facilitate the development of the gas network to meet consumers' needs. Construction of the Harefield to Southall pipeline is planned to take place during the spring of 2007 and continue until the end of 2008.

1.2 Purpose of an Environmental Impact Assessment and a Non Technical Summary

Pipeline construction is subject to the Public Gas Transporter Pipeline Works (Environmental Impact Assessment) Regulations, 1999. Environmental Impact Assessment (EIA) is a systematic process that examines the impacts of a development on the environment. The environment comprises human beings, animals, plants, soil, water, air, climate, material assets, landscape and cultural heritage, all referred to as receptors. Positive (beneficial) and negative (adverse) impacts are identified and measures are introduced to avoid, reduce, remedy or compensate significant adverse impacts. An important aspect of the environmental assessment is that it provides a mechanism for obtaining and incorporating the views and concerns of relevant statutory bodies and the public into the project's design. The information from an EIA is documented in an Environmental Statement (ES).

This document is the Non Technical Summary of the Environmental Statement (ES) for the Harefield to Southall Gas Pipeline, and will be submitted in June 2006 in accordance with Public Gas Transportation EIA Regulations Section 1 & 2 implementing paragraph 5 of Part II of Schedule 4 of Environmental Impact Assessment Directive 97/11/EC. This requires that the

information in the ES be simplified in a Non Technical Summary to ensure that the public can understand and comment fully on the ES.

The ES has been prepared by Black and Veatch Ltd, on behalf of MPL to document the environmental impact assessment that has been undertaken. This document provides a non-technical summary of the ES.

Should you wish to obtain more information regarding the construction of this pipeline, the complete Environmental Statement may be requested from:

National Grid Community Relations: Telephone 0800 731 1231

2 ROUTE SELECTION AND CONSULTATION

Considerable care has been taken by National Grid and MPL to define a route for this gas pipeline; one that the project team considers will have the least possible adverse impact on the environment. The current route (Version 8 of March 2006), and its continued refinement, has been derived through a systematic phased approach that has taken into account new environmental constraints as they were identified.

During the first stage of the project, several 1km-wide pipeline route corridors between the National Grid installations at Harefield (proposed) and Southall (existing) were evaluated. The preferred corridor was selected based on environmental and technical considerations. The second stage used more detailed information relating to nature conservation, landscape features, archaeology, water, land-use and other environmental aspects to select a 44m wide preliminary route for the pipeline within the preferred corridor. This stage is the subject of the Environmental Statement which evaluated the impacts to the affected receptors within the pipeline route.

Following publication of the ES and obtaining consent, a third stage will identify the information that will be used to 'fine-tune' the pipeline route, so that local minor environmental features are avoided and exact crossing points for hedgerows, watercourses, roads and other linear features can be selected. This will reflect the mitigation measures outlined in the ES and include further surveys.

During the routing process consultation has been undertaken with statutory and non-statutory bodies, in addition to landowners. This is described further below.

3. PIPELINE CONSTRUCTION AND OPERATION

Subject to obtaining the necessary consents, it is proposed that the main construction works will begin in the spring of 2007 and end in 2008. This will begin with preliminary pipeline works and tunnelling. The majority of the pipeline will be constructed in 2008.

Site Preparation

The first step of the construction phase would be the establishment of a temporary site office and pipe storage yards. This will allow adequate access and safe movement within the pipeline corridor.

This will be followed by the pre-construction survey, where the centre line of the pipeline route and the working width fencing lines will be surveyed and pegged out in consultation with the landowners/occupiers. This stage will also include a detailed design study including further environmental surveys. The drainage in each field will be identified and an appropriate approach will be agreed with the respective landowner/occupier. Header drains will be installed to ensure continuity of drainage patterns, and also ensure that water within the pipeline working width is properly drained.

The 44m working width to which all traffic, construction machinery and personnel are restricted will then be prepared. Additional width may be taken at major crossings to accommodate additional storage for spoil and temporary works. The width may be reduced in sensitive areas such as where hedgerows and mature trees are encountered (See Figure 2). The working width will be fenced throughout its length. Stiles, gates or gaps will be incorporated into the temporary fencing to maintain access for public rights of way and farm tracks and access for stock and farm machinery. Temporary additional off road access roads will be created where necessary to link sections of the project site and main roads. This will normally consist of hardwood mats or may consist of a thickness of crushed stone overlay of geotextile membrane and will be removed on reinstatement of the working width.

Figure 2: Hedgerows on Taylors Meadow in Harefield

Following fencing off, vegetation will be removed and the fertile topsoil stripped from the land within the working width and stored to one side in stock piles. Pipes will be delivered to the pipeline spread from the pipeline storage yards. The lengths of pipe will be positioned along the route and welded together. The trench will be excavated either with mechanical excavators, straddling or running alongside the pipeline trench, or by using a specialised trenching machine. A nominal excavation depth of 2.4 metres will be required. The head layer (semi-fertile subsoil beneath the topsoil) will be stored separately on the opposite side of the trench to the topsoil.

Figure 3: The Yeading Brook near Grand Union Canal in Southall

Crossings

Main rivers, public roads, urban areas and major utilities will be crossed using a trenchless method (i.e. the pipe will be tunnelled underneath) where agreed with the relevant authorities and where ground conditions allow. This will reduce traffic impacts to roads in particular (See Figure 3).

Where trenchless crossings will be undertaken, additional land will be required on either side of the crossing for equipment deployment.

All other crossings, including minor watercourses, ditches and some rights of way will be undertaken using an open cut technique, i.e. the pipeline will be laid in an open trench consistent with normal construction.

Pipeline Laying

Apart from the tunnelled sections, the majority of the pipeline will be laid using a rolling spread technique whereby crews responsible for different construction activities follow each other along the pipeline at intervals of a few days.

Reinstatement

As each section of pipeline along the route is placed in the trench, the subsoil will be replaced with the head layer closest to the surface. Where necessary, this will be broken up (ripped) to remove any compaction and prevent any accumulation of water. Excess subsoil and rock will be reused and recycled as appropriate over the working width with any material that cannot be used being removed to a licensed landfill. Finally the topsoil will be spread evenly over the working area, taking care not to mix soil from different fields. Fences and drains will be reinstated in line with the requirements of the landowner/occupier and any sections of hedgerow that have been removed will be replanted with container grown, native species. Grassland will be reseeded as required by the owner/occupier or by MPL to the requirements of the local authority.

Commissioning

When the pipeline construction process has been completed, the pipeline will be inspected, tested and cleaned. It is planned that these actions will be completed by the end of 2008.

Operation

During its lifetime operation National Grid will closely monitor pressures and flow rates of gas and the internal condition of the pipeline will also be periodically monitored using fully automated pipeline inspection equipment. There will be a complete run through the pipeline by an inspection vehicle, known as an intelligent 'pig', in order to produce a 'finger print' record of the initial condition. Subsequent runs, at a maximum frequency of every fifteen years, will compare the information recorded against the 'finger print' to monitor the pipeline condition.

The pipeline will be subject to routine surveillance. The route will be flown every fortnight by helicopter (subject to any restrictions in the area due to airports or low flying zones) to check any work carried out in close proximity to the pipeline. There will be a pipeline walkover every four years to inspect the pipeline, corrosion protection and marker postings.

The pipeline will be incorporated into the National Grid's Gas Transportation Monitoring System (GTMS) already operating in the vicinity of the gas pipeline. This will help minimise any consequences to the environment and to the public in case of a failure. The GTMS will continuously monitor pressures and flows in the pipeline system. The operators monitor the system 24 hours per day 365 days per year and are trained in major leakage detection. Detection of a validated gas release will be indicated to the operator in the control room via alarms and continuous monitoring. This will lead to the mobilisation of National Grid emergency procedures, and the affected pipeline would be isolated if necessary, using a new technology to be installed in the Harefield to Southall pipeline. At the end of its life, the pipeline and all associated facilities will be safely decommissioned with due regard of the environment.

At all times throughout the life of the pipeline, National Grid will, to the utmost of its ability, protect the environment in line with its status as a Company accredited with the ISO 14001 international environmental standard.

4. EIA METHODOLOGY

This section will summarise the methodology of the EIA process and outline the criteria used for the evaluation of the significance of the impacts identified.

Screening and Scoping

The process normally begins with the Screening process where a decision is made on whether any development requires an EIA. A determination was received from National Grid that an EIA would be required in support of the application for Department of Trade and Industry (DTI) consent. A process called 'Scoping of Impacts', which encompasses the identification of potentially relevant environmental issues, was then carried out. The scoping process identified that impacts of the pipeline project will be limited to the construction phase and identified a number of specific issues which included:

- Potential for pollution through encountering (potentially) contaminated land
- Potential impacts on archaeology
- Indirect impact on Sites of Special Scientific Interest (SSSIs)
- Direct and indirect impacts on Sites of Importance for Nature Conservation (SINCs)
- Potential impacts on legally protected species – badgers, water vole, breeding birds, great crested newt, reptiles, bats
- Potential impacts on trees and hedges
- Crossing of watercourses and effects on their conservation value
- Potential for impacts on Biodiversity Action Plan (BAP) species and habitats
- Potential effects on public access and open land
- Potential effects on communities from noise and other forms of disturbance.

Consultation

Consultation is normally undertaken throughout the EIA process. Consultation helps to identify sources for the baseline information, aids in the definition of the scope of the EIA, informs the impact assessment methodology and develops acceptable project solutions including routing, design and mitigation measures. The various persons contacted (referred to as consultees) during the consultation process for this EIA included:

- Environment Agency – including biodiversity, contaminated land and water resources specialists
- Countryside Agency
- English Nature
- English Heritage – including the Greater London Archaeological Advisory Service and the Regional Science Advisor
- London Borough of Ealing – including environmental health, parks and countryside service, contaminated land specialists
- London Borough of Hillingdon – including environmental health, parks and countryside service, contaminated land specialists
- London Wildlife Trust
- Greater London Authority Biodiversity Unit
- Greenspace Information for Greater London
- Greater London Archaeological Advisory Service

Landowners/occupiers affected by the pipeline route were also contacted prior to the start of the EIA process and negotiations between MPL and landowners are ongoing, outwith the formal EIA process.

Baseline Environment

A 500 metres study area on both sides of the pipeline route was created to facilitate the collection of relevant information concerning the existing environment. The collection of this baseline information used a combination of field surveys (e.g. ecological and archaeological surveys) and desk studies.

Impact Assessment

The assessment of impacts culminates in the evaluation of the significance of the impact. The significance of the impact is the product of the magnitude of the change arising to the environment (receptors) and the sensitivity of the receptor. A number of criteria were used to determine if the potential impacts identified were 'significant' or not.

The EIA covered the following impacts of the proposed scheme:

- Direct and indirect impacts;
- Secondary and cumulative impacts;
- Short, medium and long-term impacts;
- Permanent and temporary impacts;
- Positive (beneficial) and negative (adverse) impacts.

The assessment of impact significance was classed as:

- Major;
- Moderate;
- Minor;
- or None.

Mitigation

Where significant impacts were identified, mitigation measures were identified to avoid, reduce, compensate and remediate adverse impacts, or enhance potentially beneficial impacts. Where possible, these measures will be fed back into the design process. Any residual impacts were clearly identified and included in the Environmental Mitigation Plan. These will then feed into the Environmental Management Plan, a live document which is developed during the progress of the project.

5. PLANNING ISSUES

Government guidance is set out in Planning Policy Guidance Notes (and more recent Planning Policy Statements). General Policy and Principles (PPG1) and Development Plans and Regional Guidance, requires that development be considered in relation to national policies, regional and local planning policy. Most Central and Local Government policies are intended to protect the appearance and economy of the countryside, including its flora and fauna, and the features of architectural, historic and archaeological interest that it contains.

Although the authority for formal consent of the project lies with the DTI, the London Borough of Hillingdon and the London Borough of Ealing were consulted throughout the EIA process. Relevant Plans and Policies of the affected Boroughs were analysed and mitigated appropriately against the issues arising from the project. The proposed route avoids all sites with current

planning permission and sites known to be the subject of planning applications. The pipeline crosses several areas designated by local planning policies. These are addressed under the relevant environmental topic areas below.

6. BASELINE ENVIRONMENT, POTENTIAL IMPACTS & MITIGATION

6.1 Physical Environment and Historical Landuse

This section describes the general physical environment and landuse of the study area. These include details on the geology, and soils, landuse and potential contamination.

Figure 4: Grazing at farm on Rickmansworth Road in Harefield

The proposed pipeline is located in the Thames Valley to the north of the River Thames. It is characterised by rural, low lying, agricultural farmland in the north around Harefield. The route corridor becomes increasingly developed to the south as it extends through urban centres of Uxbridge, Ickenham, Hillingdon, Yeading and Southall. The land use along the pipeline is mixed and includes agricultural land (permanent pasture) (See Figure 4), sites designated for nature conservation, recreational land, areas of made ground, transport infrastructure and urban settlements. The landuse has changed considerably over the years, due to increasing urban development. The landuse within the study area will remain largely unaffected as a result of the pipeline construction and reinstatement of the pipeline route.

Geology of the pipeline route was investigated, in order to minimise construction risks. Desk-studies have identified areas of potential contamination along the pipeline route, such as pits filled with waste or presence of historically polluting industries. Where possible, the pipeline has been routed to avoid these sites. However, where there is still potential to encounter contaminated areas, such as at Minet Country Park, further investigation will be undertaken in consultation with the London Boroughs of Hillingdon and Ealing, and the Environment Agency. Site investigations will aim to establish the nature and characteristics of potential contamination so that re-use of material or disposal can be agreed according to the risk to the human and natural environment.

6.2 Archaeology

Desk and field studies have been undertaken which have identified a range of archaeological and heritage resources in the study area. Generally, the archaeological potential along the majority of the route was low. The Canalside Conservation Area and two Listed Buildings were the only legally protected sites potentially affected by the pipeline route and permanent impacts on these sites are unlikely. An earthwork known as Grim's Ditch, possibly dating from the Iron Age or later, is the only nationally important site likely to be impacted by the pipeline, although only a very small section of the overall length will be affected. Eleven regionally important sites are located within the study corridor. One of these is directly impacted (a short length of Roman road) and a further six are possibly affected. A number of locally important sites potentially affected include earthworks, field boundaries, possible areas of ridge and furrow, pits etc.

The EIA process has identified a range of engineering and archaeological mitigation responses that will address known impacts and those potential impacts which may be determined by evaluation. Residual effects are therefore likely to be restricted to unforeseen discoveries made during the course of construction.

A 'watching brief', which will be agreed with The Greater London Archaeological Advisory Service, will include contingency responses for the recording of any such unforeseen discoveries. Where avoidance of impact (preservation *in situ*) is not possible then the preservation by record of archaeological sites will ensure no long-term adverse effects or loss of resource.

6.3 Ecology

Designated Sites

No internationally or nationally important designated sites will be directly affected by the proposed pipeline. Three nationally important Sites of Special Scientific Interest (SSSIs), comprising Ruislip Woods SSSI, the Fray's Meadow SSSI and the Denham Lock SSSIs were in the vicinity but all were avoided by the pipeline route. Local Nature Reserves (LNRs) are designated by local authorities for their nature conservation interest and are discussed below.

Several non-statutory sites for conservation occur within the pipeline study area. These include Sites of Importance for Nature Conservation (SINCs) (some of which are also LNRs). Sites which are directly affected by the pipeline and/ or the working width comprise:

- New Year's Green SINC – scrub and grassland
- Common Plantation SINC – plantation woodland
- Uxbridge Common Meadows SINC – grassland and the River Pinn
- Yeading Brook Fields SINC (including Gutteridge Wood LNR and Yeading Brook Meadows LNR) – woodland, grassland, scrub and the Yeading Brook
- Yeading Brook and Minet Country Park SINC – grassland.

Temporary effects on these sites were assessed as being 'moderate adverse'. All sites will be reinstated in consultation with the landowner, local authority and London Wildlife Trust.

Other Habitats

The pipeline passes through hedgerows and grassland. All hedgerows intercepted by the pipeline route were assessed for their ecological importance according to the 1997 *Hedgerows Regulations*. In recognition of the predominantly urban nature of this area, it has been necessary to pass underneath a total of 10 hedgerows which were assessed to be 'ecologically important'. For all other hedgerows, the working width will be minimised and the hedgerows fully reinstated upon completion. Where possible, the pipeline has been routed and designed to avoid ancient woodland and mature trees, such that no ancient woodland will be affected and very few mature trees will be lost. Thus the overall effects will be moderate adverse.

Figure 5: Drain at crossing adjacent to Newyears Green Lane

The Yeading Brook and River Pinn are also crossed by the pipeline. Although these rivers are generally canalised channels with poor habitat quality, the pipeline has nonetheless been designed to cross these rivers by passing underneath them, and this will minimise impacts to the watercourses. Detailed methods of crossing will be discussed with the Environment Agency prior to the construction of the pipeline. Other minor watercourses, drains (See Figure 5) and ditches will be crossed using an open-cut technique. Thus the overall effect is assessed to be minor adverse.

Many of the habitats along the pipeline route are included in local Biodiversity Action Plans (BAPs).
Impacts on habitats range from moderate to minor adverse and where habitats cannot be avoided, they will be reinstated following construction and are therefore short-term.

Fauna

Protected species identified along the pipeline route include breeding birds, badgers, bats, reptiles and great crested newts. No signs of otter or water vole were found along the route, although pre-construction surveys will be undertaken to make sure that these species have not moved into the area in the meantime.

Records of birds along the pipeline route include heron, kingfisher, snipe, pheasant, thrush, sedge reed and willow warbler, linnet, redpoll, robin, blackbird, meadow pipit, hobby, bullfinch, reed bunting and common sandpiper. Vegetation along the pipeline route will not be cleared during the breeding bird season.

Badger setts have been identified in the vicinity of the pipeline and the route has been designed to avoid disturbance to the setts, wherever possible. Measures such as maintaining forage routes and habitat areas will be used to avoid disturbing badgers. Further mitigation measures will be agreed with English Nature.

Bats use the study area for roosting and foraging. Trees identified as potential bat roost habitats were selected for further monitoring but are not expected to be directly affected by the scheme.

Several areas were identified as having suitable habitat for reptiles such as grass snakes and slow worms. Vegetation trimming will discourage reptiles from using the working width prior to construction and where necessary, they will be moved from the construction area.

The pipeline avoids ponds, but two ponds just outside the working width were surveyed for great crested newts.

A number of other animals are likely to be encountered along the pipeline route, including species identified as priorities for biodiversity. Habitats which are temporarily lost during construction will be reinstated and animals are expected to move back into the area. Overall the effects were considered to be minor adverse.

Overall, the effects to protected species are considered to be minor adverse or neutral.

6.4 Hydrology

There are four rivers crossed by the pipeline route which are classified by the Environment Agency as ‘main’ rivers; the New Years Green Bourne, the Mad Bess Brook, the River Pinn and the Yeading Brook. There are also minor streams and drainage ditches, two ponds and surface water drainage infrastructure, including outfalls to watercourses within the study area. Watercourses crossed mostly have poor water quality and have generally been modified by human activity (See Figure 6).

Figure 6: Drain on Recreation Ground near Lynhurst Road

The pipeline will be tunnelled beneath the Yeading Brook and Grand Union Canal in the south of the route. Several methods will be used to cross the other watercourses. These methods include passing through minor watercourses using open trench technique and underneath crossings of the Rivers Pinn and Yeading Brook using a trenchless method, unless otherwise agreed with the Environment Agency. These are suitable engineering methods designed to reduce the impact of crossings to water bodies and have been used successfully in other pipeline projects. The assessment of temporary impacts on watercourses ranges from minor to

moderate adverse. No permanent impact is envisaged.

The pipeline will have a minor adverse impact during construction upon the flood risk for the flood plain areas. Standard construction and reinstatement methodologies will reduce the potential impact of the pipeline on the existing drainage and overland flow properties of the area.

Good construction practice will minimise the risk of pollution to minor and major aquifers, which are in any case protected by the London Clay. The pipeline has already been re-routed in the north, to avoid major chalk aquifers. Working construction at any other sensitive areas will be agreed by MPL and the Environmental Agency.

6.5 Agriculture/ Land-use

Only a small proportion of the proposed pipeline route extends through agricultural farmland with most of the route passing through land with other uses**.** The majority of the agricultural land is at the northern end of the study area between Harefield and Ickenham. Based on the agricultural land types, three main land uses were identified along the study area of the pipeline route.

These are urban, non agricultural land and 'Grade 3' agricultural land considered moderately good and suitable for pastures. The impacts to agricultural operations will generally be short-term. Mitigation will involve the full reinstatement of agricultural land and communication with farmers. This will ensure they fully understand the extent of the work, disruption is minimised and they are adequately compensated. Additional or replacement land drains will be installed where necessary. Land and farm structures such as fences, hedges, ditches and culverts, will be reinstated immediately after completion of pipeline construction. Impacts were assessed as being minor adverse.

6.6 Landscape and Visual

The pipeline does not pass through any statutory designated landscape areas. However it passes through locally designated landscapes. The pipeline passes to the northwest of the Harefield Village Conservation Area and underneath the Grand Union Canal Conservation Area, designated for their historic interest. Pipeline construction will not affect either of these designations. The pipeline will also cross several Countryside Conservation Areas, locally designated for their traditional agricultural landscape (See Figure 7). There will be temporary intrusion into these landscapes during construction, although reinstatement of land and features such as hedgerows will mean there is no permanent effect. Almost all the open countryside and much of the open land in the study area is designated as Green Belt, which protects open land from urban development. The pipeline will not affect this designation.

Figure 7: Open Space near Harefield Place

Impacts on the landscape can affect people through changes to views. People who will experience visual change during pipeline construction include local residents, local employees and users of recreational facilities, footpaths or roads in the study area. The pipeline has been designed to minimise impacts to the landscape by avoiding woodland and mature trees where possible. Landscape and visual impacts will be confined to the construction of the pipeline. These will include:

- The clearance and reinstatement of all vegetation along a working width of approximately 44m (reduced at special crossings and sensitive areas) including hedgerows at all crossings along the route. In recognition of the predominantly urban nature of the area, at ecologically important hedgerows a much reduced width (8-10m) for vehicle access will apply.
- Presence of temporary features associated with construction, e.g. plant and machinery, access routes, lighting, material stock piles, topsoil and subsoil storage, parking and site office compound, etc.

Reinstatement of grassland, hedgerows and other vegetation will ensure that visual and landscape impacts of the pipeline are temporary. Where trees are removed, for each one removed four will be planted (in accordance with National Grid tree planting guidelines over pipelines). Construction activities will be undertaken in accordance with recognised standards to avoid damaging nearby trees.

Where potential visual intrusion is identified, the residents will be informed about the construction schedule of the pipeline. Information boards will be used in key public access areas. Overall the impact is assessed as being minor adverse and temporary in nature.

6.7 Noise

The nature of pipeline design means that it has, wherever possible, avoided residences and other human receptors. However, the pipeline route is within the urban fringe, particularly along the southern half of the route and some noise caused by construction will be unavoidable.

Consideration was given to the sensitive noise receptors within the study area during the construction of the pipeline. These include; residential areas, schools, doctors and hospitals, religious and community centres, recreation and commercial centres. In the vicinity of the pipeline there are other major existing sources of noise, including main roads, railways and an airfield.

In noisy areas, noise generated from pipeline construction is less likely to have a significant impact because the incremental change in noise is likely to be small and the receptors may be accustomed to a noisy environment.

General construction and pipelaying activities are unlikely to cause high levels of noise along the route and in any case will be a transient nuisance. However, nearby residences will nonetheless be sensitive to noise and the impact was assessed as moderate adverse. The construction of tunnel shafts is likely to cause significant noise and nuisance where ambient levels are lower, i.e. in open or suburban areas without other noise sources. This again will be temporary in nature, with the highest impact (piling) lasting 4-5 days at each site at most. However, due to the high sensitivity of nearby residences, the impact was assessed as major adverse.

Several measures will be used to minimise the nuisance of construction noise. These will include maintaining good communications between National Grid/ Murphy Pipelines Limited/ local residents and the Local Environmental Health Officers, confining construction to the periods of 0700 – 1900 hours from Mondays to Fridays and from 0700-1600 hours in Saturdays. Where appropriate, residents likely to be affected will be advised of the times and duration of any noisy activity likely to cause concern.

6.8 Traffic and Transportation

The pipeline will pass underneath several roads in the study area including the A40, A437, A4020 and A312. Many of the roads in the study area suffer from congestion which leads to delays for residents and businesses, high air pollution levels and the inefficient operation of bus services.

Figure 8: South of pipeline crossing underneath Yeading Lane

The proposed pipeline route crosses Ruislip to Gerrards Cross railway line and the Ickenham to Uxbridge railway line (Transport for London).

Roads and railways crossed will not be subject to any interruption of normal traffic flow as the pipeline is designed to pass underneath all roads and railways encountered (See Figure 8).

Most of the traffic disruptions related to the project will occur during construction as a result of movement of materials to the pipe-yards and subsequently to the working width of the pipeline route. Such traffic will include vehicles carrying construction plant, sand, hardcore and timber bog mats (for building temporary roads) and long articulated lorries delivering the lengths of pipe to the pipe-yard and later to the working spread. These main construction operations generally travel to access points at road crossings and then along the pipeline route, making use of the working width, except where it would be impractical or dangerous to do so. Thus the impact of construction traffic on local roads will be minimised.

Once design details are known, a Traffic Management Plan (TMP) will be developed by MPL in consultation with the Highways Authority to further minimise possible impacts and to maintain road safety during construction. This plan will include the type of construction traffic allowed to use local routes, access routes for the working width and timing of traffic movements to avoid periods of heavy flow traffic. It will also include height, width and weight restrictions. The TMP is a live document that will be regularly reviewed and updated throughout the project construction phase. The pipeline project will therefore have a minor adverse impact on the local traffic.

6.9 Socio-Economic Aspects

There are several socio-economic benefits arising from pipeline development. The primary benefit is security of energy supply. There will be a minor contribution to the local economy during construction (through use of local services) and increased security in some areas during pipeline construction. Temporary minor and moderate adverse effects of the pipeline include impacts on footpaths, public open space, recreational amenities (allotments) and community severance.

The nature of pipeline construction means that a corridor of open space needs to be utilised. In urban areas this land almost inevitably has public uses. Equally greenspace and opportunities for recreation are important in urban areas for amenity, health and well-being of communities. Greenspace and other amenities that will be partially and temporarily lost during pipeline construction comprise:

- Taylor's Meadow Sports Pitch
- Hillingdon House Farm and Uxbridge Common including Vyners School Playing Fields
- Western Avenue Allotments close to Granville Road and south of Western Avenue
- Gutteridge Wood
- Charville Lane Recreation Ground & Yeading Brook Meadows Local Nature Reserve
- Michael Frost Park

- Greenway Open Space
- Shakespeare Avenue Open Space
- Larch Crescent Open Space
- Brookside Playing Fields
- Technicolour Sports Pitch adjacent to Springfield Road (See Figure 9)
- Minet Country Park.

Figure 9: Technicolour Sports Ground near Springfield Road in Southall

The temporary impact on these areas is assessed as being moderate adverse. A number of sites will experience some temporary disturbance, although no loss, during construction activities and these include Bayhurst Woods & Country Park and Mad Bess Woods Local Nature Reserve (LNR) and National Nature Reserve (NNR); Fray's Farm Meadow LNR; Ten Acre Wood LNR; Grosvenor Playing Fields; The Grange Playing Fields; Skylark Meadows; Belmore Playing Fields; and Yeading Lane Playground. A range of mitigation measures have been proposed to help alleviate negative impacts on greenspace, from community liaison to information boards. However, the best form of mitigation is effective completion of pipeline and rapid restoration of land to its previous condition.

The pipeline crosses a number of rights of way. It will pass underneath major rights of way including the Hillingdon Trail between Bayhurst Wood and Mad Bess Wood, and the Shakespeare Avenue crossing. However, further crossings of the Hillingdon Trail (including Dog Rose Ramble) and other rights of way and temporary diversions will be subject to detailed design. Temporary diversions may need to be put in place during construction and commissioning. Some public rights of way may be subject to closure during the pipeline construction in the interests of public safety. The relevant closure notices will be applied for as required and diversions implemented.

6.10 Air and Waste Management

The two major emission types considered in relation to the pipeline route are air pollution and solid waste. Other emissions also include liquid effluent and spillages, light emissions, heat emissions and radiation.

Air Emissions

The pipeline falls within a Local Air Quality Management Area. Air quality in the area is thus sensitive as a result of emissions from Heathrow Airport, Northolt Airfield and major transport routes surrounding the area. Any additional emissions may cause further deterioration of the air quality of the area. During construction, emissions will be confined to diesel combustion and vehicle exhausts, so the impact on local air quality will be negligible. Similarly the one-off emission of the inert gas nitrogen during commissioning and routine fuel combustion from helicopter flights during operation will have a negligible impact on local air quality.

During construction, there is potential for the generation of dust. Environmental management and good site practice will address this nuisance.

Waste

Solid waste generated shall be handled through site environmental management procedures and according to current legislative requirements. The hierarchical approach of reducing waste, re-using, recycling and as a last resort, disposing responsibly, will be used at all times.

Other Emissions

Any lighting shall be directed downwards wherever possible and screening will be used to reduce the spill of light if lighting upwards is unavoidable.

There will be no further emissions during the operational phase of the project, excluding the possibility of leakages which are highly unlikely with respect to the nature of design of the pipeline and monitoring measures put in place through the use of the Gas Transportation Monitor.

7 ENVIRONMENTAL MANAGEMENT

National Grid and MPL are accredited to an international standard for Environmental Management (ISO 14001). This ensures that their operations comply with environmental laws and that major risks and liabilities are properly identified, minimised and managed.

MPL will develop and regularly update a Project Environmental Management Plan that includes a description of environmental constraints and the procedures and Method Statements to be used to prevent, minimise and mitigate environmental impacts. Any issues that remain unresolved during the preparation of the ES, or that arise as a result of further surveys and consultations with statutory and non-statutory bodies, will be carried forward into the Detailed Design phase of the project and thereafter into the Construction phase.

8 CONCLUSION

The pipeline construction period will cause some short term, adverse impacts on the local community and the environment. More significant impacts were identified and mitigation measures such as re-routeing identified to avoid sensitive areas. Where, for engineering and health and safety reasons, re-routeing has not been possible, assistance and advice will continue to be sought from experts to supplement where necessary, the mitigation measures already proposed. These experts will include ecologists and archaeologists as well as representatives of English Nature and the Environment Agency. Mitigation measures identified in the EIA and recommended by consultees will be implemented to ensure that residual impacts are minimised following construction of the pipeline. It is thus considered that on completion of the reinstatement activities, there will be no long-term adverse impacts resulting from this development.