SCOTT WILSON BUSINESS CONSULTANCY

M5 Motorway Phase III Hungary: Environmental Impact Assessment Update

V o l u m e I - R E P O R T

Scott Wilson Business Consultancy
We work with clients to develop, implement and evaluate projects, programmes and change initiatives to improve performance and reduce risk.

M5 Motorway Phase III Hungary: Environmental Update Report

February 2005

Collated and edited by:	Rachael Bailey Environmental Specialist	
Reviewed by:	Tracey Ryan Project Manager	
Approved by:	Alan Brookes Director	

Scott Wilson Business Consultancy
Greencoat House
15 Francis Street
London
SW1P 1DH

Tel: +44 (0)20 7798 5200
Fax: +44 (0)20 7798 5201
Email: consultancy@scottwilson.com

TABLE OF CONTENTS

GLOSSARY OF TERMS

AKA	Project sponsors (concessionaire) also responsible for the commissioning of the environmental permit and construction permit reviews.
A Weighted Decibel	Internationally accepted unit for the most frequently used noise measurement.
Borrow Pit	Area used to obtain materials i.e. sand for construction.
CEMP	A manual which defines the approach to environmental management during construction.
DMRB	Design Manual for Roads and Bridges produced by the UK Highways Agency and recognised as a principal tool in evaluating impact, and designing mitigation, on road and bridge projects.
EIA	Environmental Impact Assessment is a procedure for considering the potential environmental effects of land use change. EIA helps to inform decision-making and enables decisions on land use change to be taken with full knowledge of the likely environmental consequences.
Expropriation	The government's act of taking title to property owned by a private party without that party's consent under the authority of a law or statute, while paying compensation to the former owner.
Findspot	Place where artefacts of archaeological interest have been found.
FRAMA	Contractor responsible for conducting the Environmental Monitoring for Phase II, and expected to be responsible for monitoring Phase III.
Habitat	The environment in which species live or grow.
Impact	The predicted physical change to the baseline conditions attributable to the construction and operation of the Phase III motorway (e.g. areas of landtake, levels of noise, degree of visual intrusion etc.).
Intertoll	Contractor likely to be responsible for the Operation and Maintenance of Phase III.
Mitigation Measure	Actions proposed to reduce adverse effects and to enhance ones arising from the whole or specific elements of the M5 motorway Phase III.
Ove Arup	Independent engineers to the concessionaire.

Receptor	Individual, organism or physical asset that could potentially be affected by a positive or negative impact.
SPA	Special Protection Areas are strictly protected sites classified in accordance with Article 4 of the EC Directive on the conservation of wild birds (79/409/EEC), also known as the Birds Directive, which came into force in April 1979. They are classified for rare and vulnerable birds, listed in Annex I to the Birds Directive, and for regularly occurring migratory species.
Swale	A shallow vegetated channel designed to conduct and retain water, but may also permit infiltration; the vegetation filters particulate matter.
Uvaterv	Preparation of the Detailed Design.
Vignette	A mandatory annual charge for using the national motorways applicable to the drivers of all vehicles and is evidenced by a “vignette” or tax disc attached to the windscreen.

List of Abbreviations

AKA	AKA Alföld Koncessziós Autópálya Rt
ABd	above Baltic datum, i.e. it is the height above sea level
CEMP	Construction Environmental Management Plan
CJV	Construction Joint Venture for Phase II (Bouygues Travaux Publics S.A., Colas S.A., & BAU Holding Beteiligungs AG)
dB (A)	Decibel Level (A weighted)
DMRB	Design Manual for Roads and Bridges
EBRD	European Bank for Reconstruction and Development
EEC	European Economic Community
EIA	Environmental Impact Assessment
EPI	Environmental Protection Inspectorate
EU	European Union
Gov.	Government
HUF	Hungarian Forint
HUF/km	Hungarian Forint per kilometres
Km	Kilometres
Kph	Kilometres per hour
LPA	Landscape Protection Area
m	Metres
MSZ	Hungarian Standards Institution
NGO	Non Government Organisation
NO_2	Nitrogen Dioxide
NPA	National Park Authority
SO_2	Sulphur Dioxide
SPA	Special Protection Area
Veh/day	Vehicles per day
WHO	World Health Organisation

1 INTRODUCTION

1.1 Background and Objectives of the Assignment

In December 2004, Scott Wilson was commissioned by CIB Bank RT (the General Agent to the Project Lenders) to perform an environmental due diligence review and Environmental Impact Assessment ('EIA') update for Phase III of the M5 Motorway between Szeged North Interchange (Chainage 159+200 kilometres (km)) and the State Border (Chainage 173+895 km).

Based on the information provided to Scott Wilson at the start of the project, it was recognised that previous environmental studies may be out of date and may not comply with new Hungarian EIA regulation (mainly transposed from the EU Directive 85/337/EEC), as well as Project Lenders' Environmental Policies and Procedures. As such, the Lenders commissioned Scott Wilson to perform an independent Environmental Due Diligence review into the EIA process by providing a review of any existing EIA documentation, followed by the selective update of the EIA documentation to verify the adequacy and standard of the documents, assess and provide advice and help reduce the environmental impact of the project.

In addition, some of the Project Lenders are signatories to the Equator Principles[1]. Therefore, and in light of the future syndication process, the project must be executed and operated in accordance with these Principles. The environmental and social risk of the project has been classified by the Project Lenders in accordance with their internal guidelines based upon the screening criteria of the International Finance Corporation (IFC) as a Category 'B' project, i.e. medium risk.

As well as adhering to the Principles, for projects located in low to middle income countries, the Environmental Assessment Process should take into account applicable IFC Safeguard Policies. Hungary is classified by the World Bank data statistics as an upper middle income country.

This report is a selective update of the UVATERV EIA (1999) to ensure the EIA is brought in to line with current EBRD procedures, Hungarian legislation, European Union (EU) legislation and International conventions. The UVATERV EIA is provided in Annex 1A (Volume II). This document is referenced throughout this report, and as such should be referred to in conjunction with this report.

1.1.1 Principal changes required to update the Uvaterv EIA (1999)

Scott Wilson concluded in the December 2004 due diligence review that the main environmental topic areas that required updating were the air quality, noise and vibration, water quality and social assessments and that additional mitigation

[1] A voluntary set of guidelines developed by a group of roughly 27 banks (as of Nov 2004) for managing social and environmental issues related to the financing of development projects. Equator principles are based on the policies and guidelines of the World Bank and International Finance Corporation (IFC). A summary is included in Annex 1B. Other signatory banks include ABN Amro, Barclays plc, WestLB AG, KBC, Mizuho Corporate Bank, Citigroup Inc, HSBC Group, HVB Group, ING Group, Royal Bank of Canada, Standard Chartered Bank, Westpac, Mizuho Corporate Bank, to name a few.

measures were likely to be required. These mitigation measures are outlined further in Section 6 of this report. Additional archaeological information was also required.

1.1.2 Relevant previous assignments

In April 2004, Scott Wilson undertook a similar due diligence assignment for Phase II of the M5 Motorway, which resulted in updating the previous EIA reports. The current Concessionaire and the Lenders are substantially the same for Phase III.

1.2 Operational Framework

The project will be constructed in accordance with the following legislation:

- Current Hungarian EIA and environmental legislation;
- EU environmental legislation that has been adopted in Hungary;
- Equator Principles and relevant IFC Guidelines; and
- International Conventions (in particular the Aarhus Convention 2001) and the EBRD's Environmental Policies and Procedures.

The Hungarian and EU environmental legislation introduced prior to, and post 1999, together with relevant International Conventions, are set out in Annex 3A of this report, and discussed briefly in Section 3.1.

1.3 The Site and Project History

Phase III is an extension of the M5 motorway leading up to the State border (Serbian border). This section of the M5 motorway is the final linkage of connecting the capital city, Budapest, to the southern areas of the country, and also to the south-east European countries.

In 1991 UVATERV, a Hungarian consultant firm prepared an environmental assessment (in Hungarian with an English summary) for the proposed M5 Motorway. This report was in compliance with Hungarian environmental legislation in effect at the time. In 1999 UVATERV prepared an update EIA report (produced in February 1999) for Phase III (Chainages 159.2 to 173.9 km). This EIA was submitted to the Lower Tisza Environmental Protection Inspectorate (EPI) in order to obtain the necessary Environmental Permit. Environmental Permitting is discussed in more detail in Section 3.3 of this report. This assessment formed part of the original EIA work also undertaken by UVATERV for Phase II. No up-date of the Phase III EIA has been undertaken since it was produced in 1999.

Hungary's environmental law has changed substantially since 1999, to bring it into harmony with EU Legislation. Furthermore, the EBRD has adopted both a new environmental policy and a new public information policy (2003). As indicated previously in this report Scott Wilson completed a Gap Analysis Report in May 2004 to outline any deficiencies in the original studies (1991 and 1998/99), with particular reference to current EBRD Procedures, Hungarian Legislation and EU legislation. The recommendations of this study are summarised in Section 1.5 below.

The EBRD was approached for financing of the Phase II section of the M5 in 1998 and are currently considering financing Phase III. The project is subject to review under the EBRD's Environmental Policy and must satisfy the requirements of the project lenders, which include a number of Equator Principles signatory banks. There is also a need to ensure the EIA complies with current Hungarian Legislation and EU Legislation.

Scott Wilson has prepared this EIA update to set out how the various parties involved in the project have started to addressed the issues and shortfalls identified in the Gap Analysis Report, following meetings with key stakeholders and a new Scoping Meeting on 13th of January 2005, and provide advice on how the project can continue to work towards compliance with the Equator Principles. An executive summary (translated into English) of the Phase III 1999 EIA was made available to SW during the site visit to Hungary and a full translation of the EIA was made available for this EIA Update.

1.4 Analysis of Alternatives

Alternatives for the location of the entire M5 Motorway were considered in a study for the Hungarian Government originating back to 1977. The study considered seven or eight alignments based on the engineering feasibility and construction costs. A decision on the preferred location was made in the early 1980s by the Hungarian Government.

Due to the long timescale of the project and the fact that the alignment was identified in the 1980s, development and new construction has been restricted in this area for many years to manage the potential future impact on the residents of this area. The current alignment can be expected to avoid demolition, as far as possible, of the small farms, farming and industrial buildings in the area.

The construction of the M5 Motorway was halted in 1985 due to lack of financial funding. It was reported by representatives of the Ministry of Economy and Transport during the preparation of this current study, that there have been no changes to the preferred Phase III alignment of the motorway since the mid 1980s. The former reports on the analysis of the alternatives were not available for review by Scott Wilson, as it was reported that these documents have since been archived as these studies originated back to the late 1970s and early 1980s.

1.5 Recommendations from Gap Analysis Report

Based on the findings of the December 2004 Environmental Due Diligence Study/Gap Analysis undertaken on behalf of the Project Lenders, Scott Wilson recommended that the following additional works should be carried out in order to complete the February 2005 EIA update report:

- We recommended that the water (surface/ground), air quality and noise sections of the EIA be updated to reflect the situation in February 2005. UVATERV agreed to revise the necessary calculation for this work by mid January 2005. Scott Wilson received these calculations in January. In particular, the February 2005 update report should include the new environmental legislation that has been introduced in Hungary since

1999 and the changes to the proposed toll system on which traffic forecasts were made.

- We recommended that revised traffic forecasts, based on the same road sections as the original traffic data, be made available to SW so we could review the updated air quality and noise sections prepared by UVATERV. Again, Scott Wilson received this data in January 2005.
- Should it be necessary, the detailed design for Phase III should be updated to reflect any recommended revisions to the mitigation measures in the updated EIA.
- We recommended that we review any amendments to the detailed design that were made at this stage.
- We also recommended that the applications for the outstanding permits be submitted to the appropriate authorities as soon as possible to reduce the risk of delay to the time schedule. The current status on permits in detailed in Section 3.3 of this report.
- We also recommended that monitoring be strengthened considerably during Phase III. This should include expanding the scope and frequency of measurements in the Monitoring Plan that was used for Phase II and more stringent monitoring of site management practices and health and safety procedures.

The above recommendations formed the basis for the Scott Wilson update of the UVATERV EIA produced in 1999, which is the subject of this report.

1.6 Structure of the Report

The remainder of this document is organised as follows:

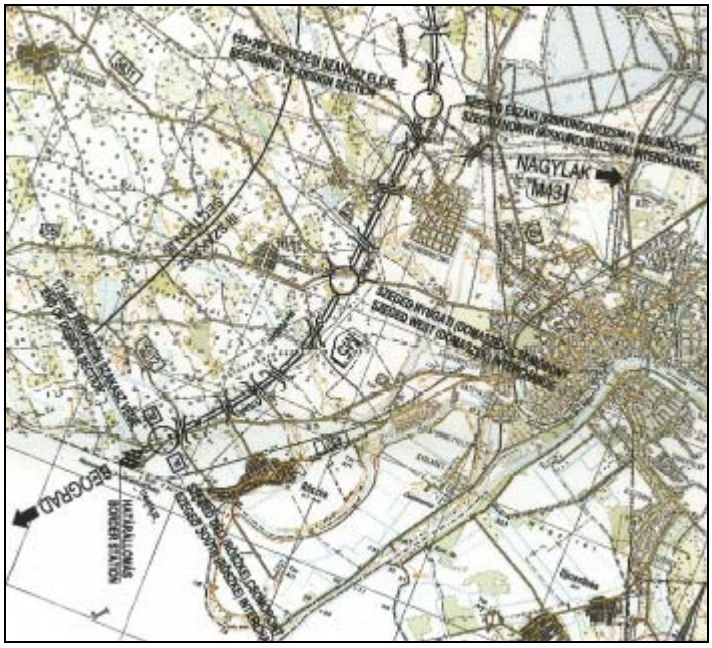
- Section 2 briefly describes the project description and key design features;
- Section 3 summarises the legal and institutional framework and current environmental legislation and environmental permitting requirements;
- Section 4 discusses the environmental topics and environmental issues that required updating from the previous environmental studies;
- Section 5 summarises the public consultation that has been carried out to-date on the project and the proposed ongoing liaison programme;
- Section 6 describes the proposed environmental mitigation measures;
- Section 7 discusses recommendations for the draft environmental monitoring plan;
- Section 8 details the project environmental management plan;
- Section 9 makes recommendations for the Construction Environmental Management Plan; and
- Section 10 provides a non Technical Environmental Summary of the main findings of the EIA Update Report.

Volume II of this report contains the figures and Annexes referenced throughout this report.

2 PROJECT DESCRIPTION

2.1 Overview

Phase III of the M5 Motorway starts at the Szeged-North interchange in Csongrád County and ends at the State border with Serbia. The Phase III alignment is shown in Figure 1 below and is approximately 15km in length. The nearest towns are Szatymaz, Kiszundorozsma, Domaszek, Roszke and Szeged.



Phase III of the M5 Motorway comprises one section:

Section IIc 159.2 – 173.9 km (Csongrád County). A detailed location plan is provided in Annex 2A.

2.2 Key Design Features

The key design features of the M5 motorway are as follows:

- The motorway will be dual two-lane carriageway (4m x 3.75m) with hard shoulders (2m x 3.0m) for emergency use.
- 3 new interchanges, including Szeged North at 159km, Szeged West at approximately 166km and Szeged South at 172km.
- One game underpass at 160 km, north of Szeged.
- 9 local road crossings of the Motorway at intervals along the alignment, at approximately160km, 162km, 164km, 165km, 167km, 169km, 169km and 171km, 172km.
- 1 footbridge at approximately 173km.
- 13 Canal crossings (culverts).
- There will be a rest area at Szeged South Interchange, approximately 2.5km km north of the State Border.

The design team, UVATERV, have indicated that there has been no reported change to the Phase III alignment since the 1999 proposed design. There has been a change on the part of the Szeged North interchange, which is being constructed during Phase II. Originally it was proposed that the connecting road to the National Road 50 would be a single carriageway road (2x1). It was requested that the design team revised this design to a dual carriageway (2x2) for some 3.1km from the Szeged North interchange going east connecting to the proposed M43.

A detailed project description is provided in the UVATERV EIA report in Annex 1A.
.

3 Environmental Legislation and Permitting

3.1 Legal and Institutional Framework

To-date the Ministry of the Environment together with other ministries, such as, Transport, Agriculture and Regional Development, has been in charge of overall environmental policy planning and implementation, and of drafting environmental legislation in Hungary. The Ministry of the Environment, its Environmental Protection Inspectorate ('EPI'), and 12 Regional Environmental Inspectorates are the key institutions in managing the EIA process.

3.2 Environmental Legislation

At the time of the previous environmental studies, the Hungarian Act LIII of 1995 on the General Rules of Environmental Protection was considered to be the umbrella environmental legislation.

This Act also forms the core parent directive for new Government Decrees adopted since 1995. Since the latter part of the 1990s, Hungary has made significant progress in implementing relevant parts of the European Union ('EU') environment acquis for EU accession. This has culminated in the adoption in April 2001 of new legislation (20/2001. (II.14.) Gov. Decree on Environmental Impact Assessment) on Environmental Impact Assessment. Several other new environmental laws, relating to air, noise, waste, surface water and groundwater protection, have also been introduced since 1999 in preparation for Hungary joining the EU on 1st May 2004. These are listed in Annex 3A.

The Government also ratified the Aarhus Convention in July 2001 making new provisions on access to information, public participation in decision making and access to justice in environmental matters.

3.3 Environmental Permitting and Licensing

New legislation was introduced last year concerning infrastructure projects considered to be 'in the national interest', including Motorways. This legislation transferred responsibility for issuing the Environmental Permit for Motorways from the Regional Inspectorates to the National Environmental Protection Inspectorate.

The environmental Permit for Phase II of the M5 Motorway also incorporated Phase III. This permit was authorised in 1999 and expires at the end of 2004. The National Environmental Inspectorate has now issued an extension to this permit for an 'undefined' period. A copy of the letter is provided in Annex 3B.

A description of the required permits is also provided in Annex 3B.

3.3.1 Construction Permit

The National Transport Authority issued the construction permit to the National Highway Company on 23 June 2003. A copy of the construction permit is also provided in Annex 3B.

3.3.2 Water Permits

UVATERV is ready to submit the applications for the water permits to the Lower Tisza Environmental Protection Inspectorate.

3.3.3 Borrow Pit Licences

We understand that applications for the Phase III borrow pit licences have already been submitted by the borrow pit operators. Additionally, some of the Phase II borrow pits could also be used for Phase III.

3.3.4 Emergency Response

Magyar Intertoll Rt. is likely to be appointed as operational contractors for Phase III of the M5 Motorway, as they are currently responsible for operating Phase I and II. They will therefore be responsible for accidental spillage / emergency response procedures as well as motorway maintenance. The current emergency response procedure in the event of an accident / spillage is for Intertoll to inform either the Hungarian Civil Guard and/or fire brigade of the accident and if applicable, the type of spillage material. Intertoll has no direct responsibility for any clean-up operations or carrying out any measures to prevent any spill from entering the local environment. Its role is limited to informing the relevant parties should such an accident happen. It is the responsibility of the Civil Guard or fire brigade to notify the relevant environmental authorities of the spill. The Lower Tisza Environmental Inspectorate then provide advice on the appropriate measures to clear the spill, including removing the topsoil of cleaning the groundwater if required.

Other Intertoll responsibilities for Phase II also include the operation of the highway maintenance areas.

4 PHASE III ENVIRONMENTAL ISSUES

4.1 Assessment Methodology

The assessment method followed by the Uvaterv EIA is summarised as follows:

- A scoping exercise was carried out to identify all the factors that could potentially be affected by the construction and operation of the M5 Motorway. The EIA covers most of the environmental topics specified in the EU Council Directive 97/11/EC of 3 March 1997 amending Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment, which are as follows:
    - human beings, fauna and flora;
    - soil, water, air, climate and the landscape;
    - material assets and the cultural heritage;

  The only exception to this was cultural heritage, which Scott Wilson has provided in this EIA Update report.
- The areas that would be affect by the new Motorway, in either a positive or negative way, were identified. These included areas near the M5 Motorway that will be affected by the construction works and road traffic during operation, and areas near existing roads that will experience a reduction in traffic once the M5 Motorway is opened. For example, air quality impacts were considered for a zone 200-300m wide either side of the M5 and landscape impacts were considered for a far larger area.
- The environmental sensitivity of the area was assessed to identify sensitive receptors, which included one highly sensitive watercourse, a locally designated nature conservation area, areas of medium and low sensitivity for groundwater protection, and the settlements of Szeged, Domaszek and Roszke. Further details are provided under the relevant environmental topic headings below.
- The extent of the potential positive and negative effects on these sensitive receptors was assessed using the standards set out in Hungarian Legislation at that time.
- Mitigation and monitoring measures were proposed by Uvaterv. Further measures have been proposed by Scott Wilson.

The following supplementary EIA assessment has been undertaken by Scott Wilson based on current Hungarian and EU Legislation, International Guidelines and Best Practices. This incorporates supplementary information provided by Uvaterv, statutory consultees, stakeholders and members of the public.

4.2 Traffic

The 1999 EIA was based on a traffic regime that was based upon a toll charging system for the M5 Motorway, and looked at two scenarios: a toll level of 10 HUF/km and one of 20 HUF/km.

Since that time the Hungarian Government has decided to abandon the toll system on the M5 Motorway and to replace it with a Vignette system, whereby drivers purchase a permit to travel on all the motorways in Hungary for a predefined period. As a result, the operational traffic data on which the 1999 air quality, noise and pollution assessment predictions were based has recently been updated by Uvaterv (Table 4.2.1) and both baseline and "with motorway" predictions have been extensively revised.

The "new data with motorway" scenario is based on replacing the 10 to 20 HUF/km toll options with a vignette system. The predicted traffic volumes for the vignette system are lower than those with a 10 Toll.

Table 4.2.1: Traffic Data

Road Link		Total vehicles per 24hr			% Change new data versus UVATERV 'with motorway' data	
		New data 'with motorway' 2015# Vignette	UVATERV 'with motorway' data 2015* Toll 10	UVATERV 'with motorway' data 2015* Toll 20	Toll 10	Toll 20
M5	Szeged North Interchange - Szeged West Interchange	8301	11516	7925	-28	+5
M5	Szeged West Interchange - State Border	6589	8393	8020	-21	-18
M43	M5 ap. - 50.sz. főút	13177	16461	7700	-20	+71
55	Domaszék - M5 ap.	7822	12873	12882	-39	-39
55	M5 ap. - Szeged	5359	8233	10853	-35	-51

Notes: Data supplied by AKA, provided by UVATERV in June 2004 and January 2005
* Predictions made in 1999, related to a worst-case scenario based on a toll of 10 HUF/km.
# Predictions revised in 2004, related to an operational scenario based on a vignette scheme.

Table 4.2.1 illustrates that the latest operational 2015 'with motorway' traffic data for a vignette system and we have based our studies on these figures.

4.3 Land Use and Soil

4.3.1 Baseline Information

As stated in the 1999 EIA (Annex 1A), the main land use impacts of the M5 Motorway will be the severance and loss of agricultural land and the demolition of properties. Originally all properties within 30m of the Motorway alignment were due to be demolished. However, Hungarian air quality legislation introduced in 2001 specifies that a 50m protective zone must be established along new Motorways. The legislation states that all properties within this 50m zone should be demolished and cultivation of produce for human consumption restricted.

4.3.2 Impacts Assessment

Construction

In addition to the impacts that have been identified for the operation phase below, there will be additional land required on a temporary basis for the construction compounds and haul roads. The location of these sites is not yet known, but they should be selected to avoid areas of nature conservation value and high agricultural productivity. During construction the local populations access to the road network can be reduced by poor maintenance of haul roads and local roads used for construction traffic.

Operation

There are approximately 70 land plots and one farm along the proposed route of the M5 Motorway, Phase III, which are still subject to compulsory land purchase. It is anticipated that all expropriation will be completed by 1st June 2005. All properties within 50m of the M5 alignment must be acquired according to Hungarian Law and will be demolished. This process is 90% complete and has been carried out following the procedures of the Ministry of Transport. Further details regarding land and farm purchases is provided in Section 4.10.2 and 4.10.3.

There will be a loss of agricultural land as entire land holding or parts of agricultural landholdings are acquired. There will also be a slight impact on agricultural land uses due to the realignment of overhead transmission lines, although we understand that the utility companies will provide financial compensation to reduce these impacts. There will also be some change in agricultural practices as cultivation will be restricted in the 50m buffer zone on both sides of the M5 Motorway.

No settlements are directly affected by the alignment of the M5 Motorway, but journey times and routes between existing settlements, such as Domaszek and Roszke will be affected.

4.3.3 Mitigation

Measures to maintain the local roads will be identified in the CEMP and a reporting system will be established to enable local people to report any concerns to the construction contractor.

The settlement severance during operation will be largely overcome by the provision of 7 local road crossings and one footbridge crossing of the M5 Motorway at intervals along the alignment and the creation of new earth roads parallel to the M5 Motorway.

4.3.4 Monitoring

The impact on the local population and their access should be monitored through effective communication throughout the construction and operation of the M5 Motorway.

4.4 Water Quality

4.4.1 Background

The site was inspected by Scott Wilson in December 2004. The whole length of the proposed Phase III of the M5 motorway was inspected from a 4-wheel drive vehicle. At features of interest, such as canals and wet areas, a closer inspection on foot was undertaken. At the time of the inspection the weather was dry and overcast.

Meetings were held on date December 2004 as follows:

- Tuesday 7 December (afternoon) – Tibor Kovacs (drainage engineer) of UVATERV in Budapest;
- Wednesday 8 December (morning) – Lower Tizsa Regional Environmemtal Protection Inspectorate in Szeged;

All the meetings and inspections were attended by Rachael Bailey and Tracey Ryan of Scott Wilson accompanied by Gabor Szemeti of AKA.

4.4.2 Baseline

The highway crosses an area of almost flat plains. There is a very gentle gradient from north-west to south-east. The only surface water features are man made drainage channels that flow towards the River Tisza to the east of the proposed motorway alignment. These vary in size from ditches 1 to 2m wide to larger channels up to approximately 10m wide and all are ephemeral, as they only have temporary flows. At the time of the inspection all were wet but flows were low (estimated to be less than 10 litres per second in all cases). The groundwater surface is typically 1m to 3m below the ground surface.

Aquatic receptors comprise the groundwater and the surface water channels. The nearby local nature conservation area is an indirect receptor. There, the unsaturated zone above the groundwater table is very shallow and the sandy soil can be very permeable. Groundwater in this area is thus considered to be a moderately sensitive receptor.

The water quality standards to be achieved are detailed in Annex 3 of Joint Decree 10/2000[2], column B pollution limit values.

4.4.3 Impact Assessment

The motorway will be built on a shallow embankment, typically 1m to 4m above existing ground level. Surface runoff from the paved surface will flow over the grassed shoulder to a grass lined toe ditch running down each side of the motorway. Where the embankment height exceeds 3m the runoff will be directed down concrete lined chutes to prevent erosion. The toe ditches will act as swales.

[2] Joint Degree No. 10/2000 on the limit values necessary to protect the quality of groundwater and the geologic medium

Water collected in the toe ditch will flow to the next surface water drainage channel where it will be discharged. In some locations the toe ditch is laid at zero gradient and in these sections some infiltration is expected though no additional soakaway structures have been provided.

The motorway will cross one protected watercourse (Category I), Algyoi main channel (chainage 160+464km). No rainwater runoff from the road surface will be discharged into this watercourse.

The motorway will cross a further 8 watercourses of low water quality (Category VI). The cleaning structures are sections of lined channel 10m long, 1.5m wide and 1.2m deep with skimmer boards at the downstream end. They have two functions: the skimmers will trap any oil or floating debris and they will provide a settling basin for coarse sediments. It is understood that these have been designed to comply with the requirements of the environmental permits to provide oil interceptors and settling facilities. At bridges the runoff is collected by kerbs and discharged to the toe drain at each end of the bridge.

It is understood that water permits will be required for each discharge of highway runoff. Uvaterv are currently applying for these permits.

Construction Effects

The current assessment of construction effects is limited to provision of bunded storage areas for oils and other construction chemicals.

The key water quality issues are:

- Temporary vegetation and soil removal;
- Temporary interception or loss of perched water table and associated seepage zones;
- Construction dewatering – temporarily alters local flow regime;
- Contractors plant/fuel storage and workshop facilities, ground investigation drilling and piling, temporary water demands and dust suppression;
- Temporary obstruction of watercourse channels (i.e. arterial drainage) and floodplains leading to flooding;
- Changes in runoff, peak flows or low flows due to construction earthworks and construction site drainage;
- Changes in groundwater recharge and flow patterns; and
- Deterioration in water quality caused by pollutants, either through spillages of liquids or runoff contaminated with liquids or particulate matter, or interception, disturbance and mobilisation of pollutants in existing areas of contaminated ground.

The potential construction impacts will be reduced to acceptable levels through the adoption of construction good practice, as set out in the Construction Environmental Management Plan (CEMP) recommendations in Section 9.

Operational Effects

Two potential sources of pollution exist from operational highways:

- routine pollutants in runoff such as fine sediments, wear products and drips of fluids from vehicles; and

- intermittent pollution from accidental spillage.

The only measures currently included to control routine pollution are the "cleaning structures" to be used for at the one protected watercourses. However, the toe ditch may act as a swale even if it has not been designed as such. No assessment of the effect on water quality of receiving water bodies has been undertaken.

However, Uvaterv have undertaken a risk assessment into the likelihood of an accidental spillage. Their assessment concludes that the Matyér-Subasai channel is the most prone to the occurrence of any accident due to the leakage/spillage of any hazardous materials. The frequency of such emergencies is 1 in 838 years. The UK regulations provide for precautions where the corrected frequency is less than 100 years, and therefore we believe that it is not necessary to take special measures for emergency cases.

The environmental permit specifies that consideration should be given to using an alternative treatment to sodium chloride on the Motorway in winter. The Lower Tisza Environmental Inspectorate noted that although measure was requested it is not enforceable, and furthermore that it conflicts with legislation that requires the use of sodium chloride under specified weather conditions.

Flows and Water Levels

Draw down curves were prepared by Uvaterv to assess the risk of the motorway toe ditch draining nearby areas. They assessed groundwater versus drainage ditch bed levels at chainages throughout the road alignment length, and concluded that drawdown effects caused by the toe drain cuts will be negligible. Indeed, in many locations the baseline water table lies below the invert of the toe drain bed, making drawdown impossible.

The risk that the proposed game pass under the motorway will be flooded has been identified. Uvaterv have revised the game pass design in line with the revisions that were made for the Phase II game passes in recognition of these concerns. The revised drawings that have been provided by Uvaterv show the 20m wide game pass as requested by the National Parks Authority. However, the new designs may still be liable to seasonal flooding from rising groundwater.

4.4.4 Mitigation

The proposed mitigation is set out in the Mitigation Section 6. The potential construction impacts will be reduced to acceptable levels through the adoption of construction good practice, as set out in the CEMP recommendations in Section 9.

4.4.5 Monitoring

Through our discussions with the Lower Tisza Environmental Inspectorate and the National Environmental Inspectorate we understand that no monitoring or site inspections are proposed by either of these organisation for Phase III. We strongly recommend water quality monitoring is included in the mitigation plan to check that the proposed mitigation is functioning effectively.

4.5 Air Quality

4.5.1 Background

A description of baseline air quality is presented in the UVATERV EIA (1999) (Annex 1A) and updated air quality predictions (January 2005). The assessment considers the impact of the emission of nitrogen dioxide, sulphur dioxide, carbon monoxide, lead and particulate matter. It should be noted that the original air quality assessment was based on traffic forecasts predicted for a tolling system. The tolling system on the M5 was abolished in March 2004, and as such this update review takes on board revised traffic forecasts based on the new vignette system. This review also considers the recent ban on HGV over 7.5 tonnes on Route 5, and the change in traffic speed on the motorway from 120 kilometres per hour (kph) to 130 kph. A comparison of traffic data is provided in the traffic section (Table 4.2.1 Traffic).

4.5.2 Baseline Information

Baseline air quality along the planned route of the M5 Motorway is generally good. However, in the vicinity of Szeged monitoring undertaken by ANTSZ has identified a pattern of frequently occurring episodes in which relevant Hungarian short-term air quality limits are exceeded. Uvaterv have reported that local emissions from oil wells and space heating are contributory factors in these episodes.

Monitoring of the above pollutants reported in the previous studies identifies that existing concentrations of nitrogen dioxide and particulate matter at existing receptors are identified as being close to or in exceedance of national air quality limits during some months during the period 1997-1998.

Over the last couple of years more stringent controls on emissions of air pollutants have been introduced to align national legislation with EU Directives. No additional baseline air monitoring is considered to be required as baseline conditions in the region of Szeged can reasonably be expected to improve before 2015 as these controls take effect.

The assertion that lead emissions need not to be considered in future scenarios following the withdrawal of leaded fuel is consistent with the experiences of other European countries.

4.5.3 Impact Assessment

Construction Impacts

It is not possible to carry out predictions of construction dust impacts accurately until precise details of the working methods and equipment to be used are available. Therefore, the absence of such predictions is considered reasonable at this stage.

The control of dust emissions from construction activities is primarily a matter of employing best practice control measures such as those detailed in the CEMP recommendations in Section 9 of this report.

Where such control measures are employed the UVATERV EIA has predicted dust impacts to be temporary, short term and supportable at receptors within 100m of the works.

Once information on the location of the construction compounds, working methods and equipment becomes available the predicted impacts should be prepared.

Operation Impacts

The average daily concentrations of carbon monoxide, oxides of nitrogen and carbon black (fine particulate matter) and formaldehyde have been calculated using the relevant sections of Hungarian State Standard MSZ 21459/2-81. This standard sets out a prescriptive method for the calculation of the polluting effect of line sources, such as Motorways. The UVATERV EIA reports concentrations of pollutants based on modelled traffic flows for scenarios based on toll rates of HUF 10/km and 20/km. It has been assumed that the magnitude of the predicted beneficial impact would be similar with the vignette system.

The change in concentrations of nitrogen dioxide, carbon monoxide and carbon black at receptors along the proposed M5 Motorway alignment is predicted to be negligible. The reduction in the concentration of air pollutants along Road 50 is also predicted to be negligible. The traffic contribution to total pollutant loadings within the study area as a whole, and especially in urban/industrial areas, is significantly smaller than the baseline variation in background pollutant levels.

New air quality legislation was introduced in 2001[3]. This introduces the designation of air quality zones according to the ambient air quality, with ambient air quality limit values. New motorways are required to have a 50m protective zone established along the axis of the road. Ambient air quality limit values shall be met along the outside borders of these protective zones.

The prescribed short-term (30 minute) and 24 hour limits to be achieved have not changed since the previous UVATERV reports was completed. The conclusion drawn by the previous study is considered to be valid, which is that the operation of the proposed scheme will not adversely affect the potential for air quality limits to be achieved at all receptors beyond the 50m protective zone.

4.5.4 Mitigation

The UVATERV report suggests that the noise barriers that are to be installed along sections of the proposed M5 Motorway could also have benefits as a mitigation method for airborne pollutants. The dispersion model used is in the assessment is not able to quantity the effectiveness of the noise barriers as a means of mitigation for airborne pollutants, but it is likely that they will have some beneficial effect.

4.5.5 Monitoring

It is recommended that the monitoring of dust deposition rates is extended include to receptors close to boundary of the protective zone, such as those within 60m – 70m of the M5 motorway alignment.

[3] Government Decree No. 21/2001 (II.14.) Korm. on certain rules governing the protection of air quality

Once the location of the construction compounds has been decided the monitoring should be extended to include properties near the compounds.

4.5.6 Summary

The required air quality limit values are likely to be met beyond a distance of 50 m from the road without additional mitigation measures during the operational phase.

The recommended mitigation measures to minimise dust emissions during the construction phase should be developed as additional details of the potential sources of dust generating activities, and locations of receptors and sources becomes available. This is discussed further in the CEMP recommendations in Section 9.

4.6 Noise and Vibration

4.6.1 Background

The operational traffic noise predictions along the proposed M5, in the UVATERV EIA (1999), were updated by UVATERV in January 2005 to take into account the change in the proposed charging scheme for the M5 Motorway i.e. the use of a vignette system instead of tolls. The updated operational traffic noise predictions for the M5 Motorway also followed the latest Hungarian 'Calculation of Traffic Noise' methodology (UT 2-1.302/2003) and considered the latest traffic noise limit values in decree 8/2002 (III.22.). The calculations prepared by UVATERV in 2005 did not include updated predictions for the future baseline traffic noise levels, or future noise levels at locations along the existing surrounding roads, which would be expected to experience a reduction in traffic once it is transferred to the M5 motorway. This information has been drawn from the 1999 EIA.

4.6.2 Baseline Information

Monitoring of existing baseline noise levels was carried out at nine locations in July 1998. The UVATERV EIA states that the relevant Hungarian Standards for noise measurements were followed (MSZ 18150-1-83 and MSZ 13-183-1-92). Three monitoring locations were located along the route of the new M5 Motorway (Z1-Z3) and six located along existing roads (Z4-Z9), see Table 4.6.1. The location of the monitoring points have not been provided on a plan, therefore, it has been assumed that the monitoring locations are representative of relevant locations both along the route of the proposed M5 Motorway, and the existing surrounding major roads.

Table 4.6.1: Baseline Monitored Noise Levels

Location		Daytime Noise Level dB(A)	Night-time Noise Level dB(A)
Z1	Csengele	59.0	52.0
Z2	Kiskundorozsma, Sziksós	64.5	57.4
Z3	Szatymaz	54.3	48.0
Z4	Kistelek (main road no. 50)	66.1	62.2
Z5	Szeged, Kossuth L. sugárút	69.9	64.8
Z6	Szeged, Petöfi S. út	64.2	58.2
Z7	Szeged, Szabadkai út	66.3	60.3
Z8	Kistelek (by-road no. 5411)	56.3	48.3
Z9	Balástya	59.5	51.8

Along the proposed alignment of the M5 motorway the existing daytime noise levels are below the daytime noise limit of 65 dB(A) at all three of the monitoring points (Z1, Z2, Z3). The night-time limit of 55 dB(A) is slightly exceeded at location Z2 and is below the limit at location Z1 and Z3.

The daytime and night-time noise limits are currently being exceeded in a number of locations on the roads surrounding the proposed M5 Motorway, including route 5. The monitoring indicated that the daytime noise limit is exceeded at three sites, by up to 4.9 dB(A).

At night the limit value is exceeded at four sites by up to 9.8 dB(A). As the traffic volumes will increase over time it is important to predict the anticipated noise levels at these locations in the future. Based on the calculations undertaken in 1999, the noise levels at monitoring locations Z4-Z9 were calculated to increase by 2-2.8 dB(A) by the future baseline scenario of 2015.

The existing noise levels at isolated farms along the proposed route have been estimated to be less than 45 dB (A) during the day and less than 40 dB(A) at night, this is considered to be a reasonable assumption. No change in these noise levels is predicted to occur by 2015, the future baseline scenario.

No monitoring of existing baseline vibration levels has been carried out, current vibration problems are reported at buildings close to road no. 50, though measurements at similar locations are reported as being below the Hungarian vibration limit values.

4.6.3 Impact Assessment

In 2005 the noise calculation in the UVATERV EIA (1999) were partially updated. The future operational noise levels were predicted at a total of 57 locations along the route and predicted the levels that will occur in 2015, when the M5 motorway is in operation. It has been assumed that these locations were selected as they represent sensitive receptors.

Once the Motorway is opened (2015), the noise levels are predicted to be below the noise limit values at all properties and receptors beyond 60m from the proposed M5 motorway. As all properties within 50m of the motorway will be destroyed, the area that may be affected by noise impacts is restricted to between 50m and 60m. As the predicted volume of traffic varies along the M5 Motorway, only some of the properties within 50-60m of the proposed Motorway will experience noise level that are higher than the noise limits. The predictions indicate that the noise limit values could be exceeded by up to 3.4 dB(A) at sensitive receptors within 50-60m.

The Subasa recreational area has a lower prescribed noise limit because it is designated as a recreational area. The national limits for recreational areas is 5 dB(A) lower. The noise levels are met at a distance of 128m from the M5 Motorway.

In the UVATERV EIA (1999), the future operational noise levels at three of the monitoring locations along existing surrounding roads were predicted using future operational traffic data (these were not included in the updated predictions prepared by UVATERV in 2005). In 1999, future operational noise levels were predicted at monitoring locations Z5, Z6 and Z7 located in Szeged along existing roads. At these locations the transfer of traffic onto the M5 motorway (assuming a 10 HUF/km toll) is predicted to reduce the reduces day and night time noise levels by 2.4-3.5 dB(A). It has been assumed that the magnitude of the beneficial noise impact with the vignette system would similar to that predicted for the 10 HUF/km toll option.

As all the residential properties within 50m of the M5 Motorway will be removed prior to opening, UVATERV have not prepared predictions of operational vibration levels along the proposed M5 Motorway. Traffic vibration impacts at 50m will be negligible. At receptors located along existing roads the UVATERV EIA report concludes that vibration levels will remain below the specified limits with the motorway in operation.

Construction noise and vibration predictions at specific receptors have not been carried out, so it is not possible to determine if the current required construction noise limits prescribed in decree 8/2002 (III.22.) will be met. In general, it is not possible to carry out such predictions accurately until precise details of the working methods and the equipment that will be used are available, once this information is available these calculation should be prepared.

4.6.4 Mitigation

Uvaterv (2005) have specified that they will use noise barriers to protect all properties that are predicted to experience noise levels that would exceed Hungarian noise limit values. A total of 4.085km of noise barrier has been specified on the right hand side of the motorway and 2.350km on the left hand side. The barriers will varying in height between 2m and 3.5m. With these barriers in place no exceedances of the noise limit values are predicted.

General best practice noise control measures have been specified during the construction works. These are set out in the Construction Environmental Management Plan (Section 9).

4.6.5 Summary

According to Uvaterv's predictions, the specified noise barriers will ensure no sensitive receptors along the route of the M5 Motorway experience noise levels that exceed the national noise limits. There is likely to be a minor reduction in traffic noise levels along existing roads, such as Route 5 through Szeged, from which traffic will transfer to the M5 motorway.

4.7 Landscape

4.7.1 Baseline Information

The 1999 EIA described the landscape characteristics of the area. In summary, the landscape of the M5 corridor is typical of the Great Hungarian Plain region, mainly flat with gentle undulations orientated in a north-west to south-east direction. The area lies between the Danube and Tisza rivers.

The proposed alignment for Phase III will mainly pass through agricultural lands, and it will also cross one or two small areas of oak woodland. The agricultural areas are characterised by small landholding with attractive private detached farms and a mosaic arrangement of fields, gardens, woodlands and orchards.

Landscape features of particular note include several beautiful old crucifixes along the roads in the immediate proximity of the planned M5 Phase III Motorway.

The main people who will be affected by the M5 Motorway (receptors) will be those people who currently live near the proposed route and will have views of the M5 Motorway when it is constructed. The users of the Subasa recreational area could also potentially have views of the Motorway.

4.7.2 Impact Assessment

Construction

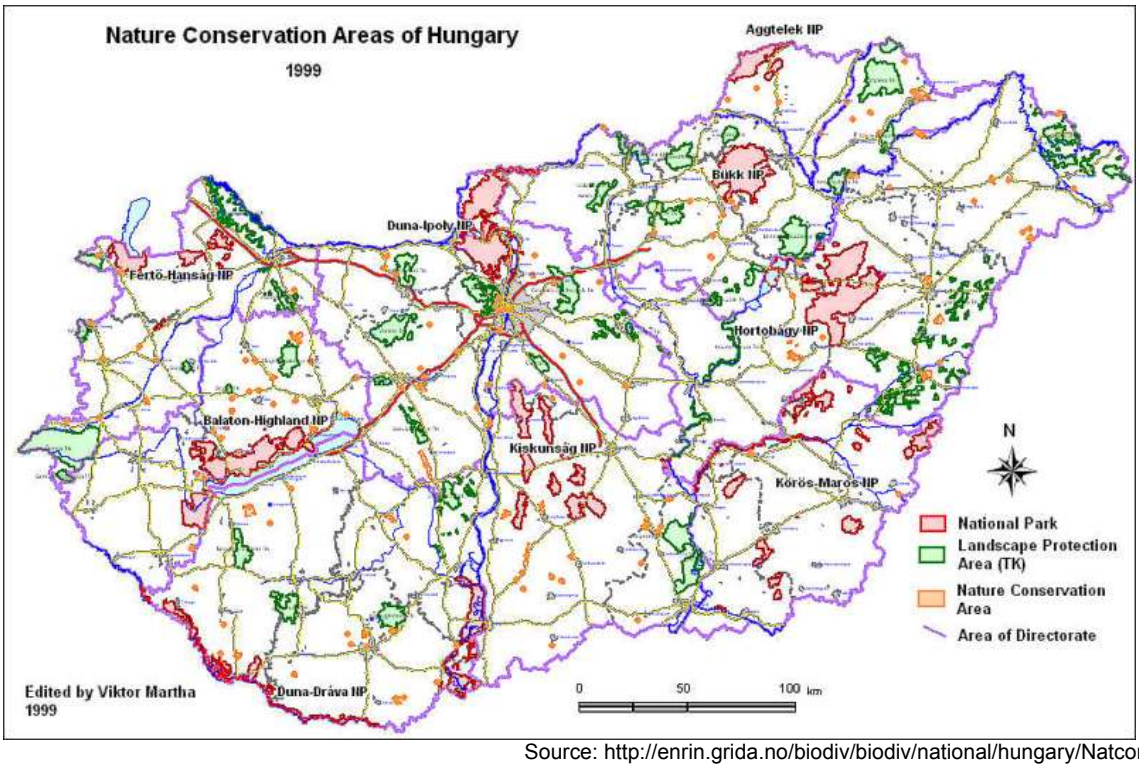
The construction activities that would give rise to landscape and visual impacts over and above these experienced during operation would include the following activities:

- Presence of construction compounds, storage and stockpile areas and activities within them. The location of the construction compounds is not known at this stage.
- Movement of construction machinery, plant and delivery vehicles on the existing road network and temporary haul roads from the borrow pit areas.
- Presence of any large earth moving equipment.

Visual impact during construction can be significant, even if they are only temporary in nature. Mitigation measures to reduce landscape and visual impacts during construction are described in Section 6.

Operation

The overall effect once the Phase III Motorway is opened, would be the introduction of a major structure, which will be a prominent feature and landmark within the current rural landscape. There will be a direct loss of agricultural land and approximately 70 landholdings due to the construction of the M5. The motorway will also form a linear feature in the landscape, which will be approximately 9m high.



Source: http://enrin.grida.no/biodiv/biodiv/national/hungary/Natcons.htm

The National Park Authority (NPA) has confirmed in June 2004 that the Phase III alignment does not affect any Landscape Protection Areas (LPA). The nearest LPA is over 300m to the east of the Phase III alignment near Kiskundorosza.

4.7.3 Mitigation

It is difficult to mitigate the effect of a raised structure within a flat landscape without having a further negative effect on long-distance views and the openness of the area. The proposed mitigation measures for landscape protection include planting of tress, shrubs and grasses for landscaping purposes to cover gullies, embankments and areas unsuitable for agriculture, adjacent to the M5 motorway.

The NPA has requested that only native species of plants are used for planting purposes in particular adjacent natural and near-natural habitats. They have also requested that no additional landtake is acquired without consulting with the NPA. The final detailed landscape plan was not available for review by Scott Wilson.

Where the motorway passes alongside the Subasa recreation area a 30m wide tree belt will be provided for prevent visitors having views of the Motorway.

A soil management plan and re-cultivation plan will be prepared for the reuse of topsoil. This will include measures to prevent the contamination and deterioration of the soil during storage.

The magnitude of visual impacts are heavily dependant on the perceptions of those experiencing the impact, therefore it is important to develop good relationships with the population living near to the alignment.

The local population should be kept informed of the works programme during construction, and where possible, be given advance warning of any delays.

Further measures to reduce the visual impact of the construction compounds and access roads are set out in the CEMP (Section 9).

4.7.4 Monitoring

The complaints register used during the construction of Phase II of the Motorway provided a valuable tool for identify and reducing visual impacts during construction. This register should be extended in scope for Phase III to include a record of verbal complaints, in addition to registering written requests.

4.7.5 Summary

While the presence of an elevated road in a flat landscape will inevitably introduce some visual intrusion this can be reduced through high quality design and appropriate planting, although care should be taken to ensure the planting does not further reduce long distance views. The impact during construction can be reduced through the adoption of good site management practices and developing effective and responsive communication practices to reduce the impact on the affected population.

4.8 Natural Environment and Ecology

4.8.1 Background

An Ecological Impact Assessment of the development proposal for Phase III of the M5 motorway was undertaken by Uvaterv for the original Environmental Impact Assessment (EIA), in 1999. The information presented here has been drawn from the original EIA and supporting technical information. All surveys undertaken for the purpose of this EIA, were carried out between May and August 1998.

An ecological desk study of the area was carried out, and habitat surveys were undertaken in line with the General National Habitat Classification System (A-NER)[4]. The status of the habitat was classified according to 'Seregelyes' value numbers of degradation[5]. Vertebrate surveys were also carried out. The study boundary for the impact assessment was set for a 200m zone on both sides of the motorway.

4.8.2 Baseline Information

Landuse - The land use of the area is mostly agricultural, however the proposed motorway also comes into contact with natural habitats.

Habitat - The motorway track will pass through the area of the Sand Ridge in Duna-Tisza Koze, where the habitat is formed of a mosaic of sand vegetation, and open sand grassland on the steeper slopes. A mosaic of closed sand desert meadows and aspen grove habitat is located where the environmental conditions are less extreme. Marshy meadows have formed in low-lying areas, whilst periodic salt marshes form in depressions. Other non-saline marshes form on the plain. As the land slopes downward from the ridge, there is a transition from the sandy grasslands occurring at higher altitudes to the wet and/saline habitats at lower altitudes.

There are no remaining natural oak woodlands or sandy grassland habitats along the route alignment. Non-native tree species have been planted on much of the less favourable areas of this habitat. The majority of the natural habitat that remains in the area is made up of fragments of marshy meadow and salt marsh.

Nearly 20% of the study area consists of grassland and marsh, which is of greatest value in terms of nature conservation. Approximately 2% is forest or woodland. Other habitats include shrub, plantation woodland, and still water bodies.

Hydrology- The track of the Phase III M5 motorway will cross a number of channels, including one category 'A' watercourse that can be expected to be of a high ecological quality.

Designated sites - There is an area designated as being of local nature conservation importance (Kiskundorozsma Nagyszek) located over 50m west of chainage 161.000 – 162.400 km. This area consists of a mosaic of saline habitats

[4] General National Habitat Classification System (A-NER) habitat types, see Annex 4A
[5] Classification criteria are outlined in Annex 4B

including *Puccinellia* swards (F4), Salt meadows (F2), Reed and Typha beds (B1), Water-fringing helophytic beds with *Butomus, Eleocharis* and *Alisma* (B3), Salt marshes (B6) and Closed sand steppes (H5).

Sensitive grasslands and a salt marsh meadow of ecological values are located between chainage 166.700 – 167.000 km.

A survey of the fauna in the area is being carried out by FRAMA in March 2005, as part of the baseline monitoring. This information will be used to supplement this EIA update report once it becomes available. Particular consideration will be given to, the presence of, and potential effects on white tail eagle, long-eared owl, hawk, kite.

While the detailed information on the bird species that may be affected will not be available until Frama undertake the monitoring, it is important to note that the Tisza River valley is one of the most important bird migration routes and the number of bird species nesting and resting here multiplies during the migration season.

The species that could be affected include:

- The sand martin (*Riparia riparia*) the bee-eater (*Merops apiaster*) and the kingfisher (*Alcedo atthis*).
- In riverine galleries, grey herons (*Ardea cinerea*), night herons (*Nycticorax nycticorax*), great white and little egrets (*Egretta alba* and *E. garzetta*, respectively), spoonbills (*Platalea leucorodia*) and squacco herons (*Ardeola ralloides*).
- On mountain areas, golden eagle (*Aquila chrysaëtos*), the white-tailed eagle (*Haliaëtus albicilla*), the lesser spotted eagle (*Aquila pomarina*), honey buzzard (*Pernis apivorus*), black stork (*Ciconia nigra*), black woodpecker (*Dryocopus martius*) and the raven (*Corvus corax*).
- Forebank forests are typical habitats of olivaceous warbler (*Hippolais pallida*) and thrush nightingale (*Luscinia luscinia*). The black kite (*Milvus migrans*) also breeds here.
- Characteristic nesting birds of more open, grove like areas are roller (*Coracias garrulus*), hobby (*Falco subbuteo*), grey-headed woodpecker (*Picus canus*) and in certain years the short-eared owl (*Asio flammeus*).

4.8.3 Impact Assessment

Construction Impacts

A small area of sensitive grassland will be destroyed (chainage 162.400 – 163.000Km) and there will be some loss of protected species. The track of the Phase III M5 motorway will pass directly across the edge of a salt marsh meadow (F2) (chainage 166.700-167.000 km).

The proposed track will pass in close proximity to a designated site of local conservation importance at Kiskundorozsma Nagyszek (chainage 161.000-162.400). A sand bank shelters this area and no significant impacts are predicted to occur.

The air pollution impact on flora and fauna during construction is predicted to be negligible. However, there are likely to be negative impacts on fauna due to the noise and vibration, particularly on vertebrates, which could result in some populations being lost from the local area. The measures set out in the CEMP can be expected to reduce these potential impacts to acceptable levels.

Particular care will be taken to prevent the construction having an adverse impact on breeding birds. The vegetation that may be used by birds for nesting during the breeding season will be cleared from the site prior to the commencement of the breeding season. If any other areas are used for nesting, such as the walls of borrow pits, they will be left undisturbed during the breeding season.

Operation Impacts

The grassland habitats found within the study area are considered to be relatively resistant to air pollutants. Air pollution is predicted to have a minor negative impact on agrarian habitats, specifically on vineyards and orchards, where growth rates and resistance to disease and/predators may be affected. This may result in deterioration in quality and quantity of crops.

Hydrology - The motorway is likely to have an adverse impact upon the local water hydrology. The Saline flats of the region are the most valuable habitats likely to be affected.

Fragmentation and Severance - Phase III of the proposed M5 motorway will create a permanent barrier between existing habitats and wildlife corridors. This impact will be more significant for those faunal species that are limited in mobility, and any floral species that are dependent on animals for the spread of seed. The barrier effect will be increased by the game fence system along sections of Phase III of the proposal.

Traffic Accidents - Animals are in danger of being hit by motor vehicles, in particular, large insects, birds and amphibians are most likely to be affected. Raptors and owls are known to hunt and scavenge along roadsides and may be particularly affected by this impact. This is likely to be a medium long-term impact on the wildlife of the area and can only be partially mitigated.

Tree and Hedge Planting - The planting of trees and hedge adjacent to the motorway and in-between the two carriageways may entice birds and other fauna, increasing the chance of road accidents. Depending on the species used in the planting of grass or trees it is possible that there will be a negative impact on the existing native species.

4.8.4 Mitigation

General - Act No. LIII. of 1996 on Nature Conservation in Hungary does not appear to require mitigation for loss of or disturbance to protected species, only that a permit is issued by the Directorate. As such, no mitigation for loss of protected plant species, disturbance to bird species or loss of amphibian habitat is provided. It is noted that the permit has already been issued and that the National Park have not requested mitigation for these impacts.

It is recommended that a Construction Environmental Management Plan be prepared to minimise the potential for impacts to occur on sensitive ecological receptors. The key issues in relation to ecology are:

- Temporary loss of flora and habitats;
- Runoff and pollution resulting in a deterioration in water quality of adjacent wetlands and water bodies (refer to discussion on Water Quality);
- General disturbance (noise and human activity) to breeding and foraging birds; and
- Killing or injury of protected fauna during site clearance.

The information below has been included in chapter 6 which details mitigation for impacts on all environmental factors.

Designated Sites - the National Park has requested that no construction compounds are situated within areas designated for their conservation importance. Screening may be required should construction compounds be located within close proximity of such sites.

No adverse impacts are predicted to occur in the local nature conservation area located, and the sensitive grassland. Fencing will be placed around sensitive grassland areas located to the west of chainage 162+400 – 163+000Km and between chainage 166.700 – 167.000 km.

Hydrology - There will be no direct discharge of runoff into sensitive watercourses to prevent impacts on areas of wildlife value. The points at which run-off is drained away should be carefully selected so as not to impact upon an area of wildlife value.

Game Pass and Game Fencing - A single game pass will be provided at chainage 160+720 km (bridge no. 77/a). European guidelines recommend that game passes need to have minimum headroom of 3m, with 4m being more appropriate for red deer, and the minimum width should be 15m[6]. For these to be of use to game, a dry corridor must be present for the majority of the year. In order to prevent animals from attempting to cross the motorway a game fence (1.8m in height) will be provided. If the game pass is proposed to be of use also to amphibians, tunnels will need to have associated amphibian fencing to channel animals towards tunnel.

Habitat - In compliance with the Forest Act LIV of 1996, approval shall be sought through the Kecskemet Directorate of the National Forest Service for the use of forest or woodcutting.

Tree, Hedge and Vegetation Planting - In areas of wildlife value, the planting of hedge in the central reservation should be avoided so as not to attract fauna to the centre of the motorway. Where planting of trees and hedge is necessary in order to minimise impacts on the landscape and to reduce road accidents, the plant species used will be native and should be of a nature that they are less suitable for nesting

[6] European Union COST 341 (2003). Wildlife and Traffic: A European Handbook for identifying conflicts and designing solutions. European Commission Action 341 on "Habitat Fragmentation due to Transportation Infrastructure".

and do not act as a food resource for birds. It is recommended that the planting of trees and hedges should be avoided in areas of wildlife value.

4.8.5 Monitoring

A detailed plan for monitoring can be found in section 7. This section provides information regarding monitoring measures specific to ecology in the area, and to the monitoring of mitigation measures put in place to minimise adverse impacts on the ecology of the area.

Biological monitoring will be undertaken at the position of the game pass in order to monitor the effectiveness of the path and to monitor the use of the pass by other species aside from deer.

4.9 Archaeology and Cultural Heritage

4.9.1 Background

Information regarding cultural heritage was gathered from discussions Scott Wilson held with the Móra Ferenc Museum (Museum of Szeged for Csongrád County). The Uvaterv 1999 EIA does not contain an Archaeology and Cultural Heritage assessment.

4.9.2 Baseline Information

Within Csongrád County, over 100 archaeological sites have been discovered by the Móra Ferenc Museum along the route of the M5 ranging from the northern boundary of Csongrád County to the state border

Since 1993 over 60 hectares of land has been excavated by the Museum from some 69 find spot areas of archaeological significance. The 69 excavated sites date back to various historical periods with the oldest sites dating back to 9000 years ago, and the youngest to 200-300 years ago. Of the 69 excavated sites 15 of those sites were excavated along the Phase III alignment. Details of all 69 excavations are provided in Annex 4C.

Archaeological findings were identified from historical periods including: the Sarmatian Age, the Age of Avars, the Bronze and Iron Ages, the Age of Prince Arpad, Late Middle Age and the New Age. All findings with Csongrád County now lie with the Móra Ferenc Museum. The Museum also published a book[7] in 2004 describing and summarising the work that they carried out along the M5 Motorway up until 2000.

4.9.3 Impact Assessment

The main impact on archaeology tends to occur during construction when heavy machinery causes soil compaction within the alignment, construction compounds and haul roads. Damage can also be caused by pilling, the removal of topsoil, and other earthworks.

During operation the impacts are generally limited to effects on the setting of built heritage.

The M5 Motorway phase III will not have an impact on any know archaeology as this has now been excavated and removed. A certificate of the completion of works (provided in Annex 3B) was issued by the Móra Ferenc Museum on 19 November 2004 declaring the site ready for works, and confirming that all archaeological excavations within the alignment area have been completed. This certificate is issued to the Ministry of Economy and Transport.

To reduce the risk of accidental damage to any previously undiscovered archaeology an archaeologist will be invited to check for any archaeology that may

[7] Entitled: On the Road: Museum Research along the intended route of the M5 Motorway. Móra Ferenc Museum. 2004.

be uncovered during the construction excavations. The watching brief will be carried out during construction in accordance with Hungarian Law, which specifies that if any archaeological artefacts are discovered the construction works will cease immediately and the Museum will be informed. Further details are provided in Section 9.

The Museum has reported to AKA that there are no ancient archaeological monuments or other man made objects of cultural heritage interest directly affected by the alignment of the M5 motorway Phase III.

4.9.4 Mitigation

If any previously undiscovered archaeology is found during the construction period then the works will cease immediately. Depending on the nature of the finds further excavations may be carried out before the construction work resumes.

4.9.5 Monitoring

The watching brief will be carried out to monitor the potential impacts on archaeology during construction and identify any new archaeology that may be uncovered.

4.10 Social and Community

4.10.1 Community and Stakeholder

As indicated in the Uvaterv 1999 report, the highway construction is likely to result in the worsening of local transport connections for some members of rural communities, particularly in regard to connecting to urban areas. Crossing points to improve connectivity of rural communities to local urban centres are planned at the locations set out in Table 4.10.1. In addition, earth roads will be constructed parallel to the Motorway to connect local roads to the crossing points. While some local journeys will be longer connections to the capital Budapest will be significantly improved. Our analysis of the household survey respondents indicates that an equal number of people expect to experience improved and worsened local connections.

Table 4.10.1 - Location of local communities crossing points

Crossing points – chainage (km)	
160.244	*169.106*
162.244	*169.930*
164.055	*171.022*
165.506	*172.510*
167.317	*173.300*

There will be some loss of agricultural due to the expropriation process, will farmers losing their entire of part of their land holdings, however they have been given financial compensation for this loss. There may also be some negative impacts on the cultivation of agricultural land during construction, but these are expected to be temporary. The Uvaterv EIA identified possible nuisance factors during construction. Potential human and social impacts are identified in Annex 4D.

Positive social and economic impacts are expected at local, regional and national scale. Anecdotal evidence from the January 2005 visit would suggest that local residents, including those who are directly affected by the road construction, believe that the road will bring benefits to the immediate area. These include contributions to regional development plans, improved employment opportunities, improved national and regional transport connections and improved environmental and safety conditions for settlements along Route 5. Some of these positive impacts will be limited and distributed unequally, for example, certain economic benefits may only be enjoyed by settlements with an entry and exit junction to the motorway.

4.10.2 Involuntary Resettlement

Background Information

Regional information from the latest Hungarian census indicates that in Csongrad County the majority of residential dwellings were built between 1920-1944. Additional, there were also quite a lot buildings built before 1919 and in the 1970s. Economic activity is largely agricultural but the census does not specify whether this is the main activity or a supplementary activity. It is likely that some areas of

the region have a higher concentration of commercial agricultural activity and some a higher concentration of subsistence farming.

The expropriation procedures have almost been completed for the Phase III alignment. The Ministry of Economics and Transport has responsibility for expropriation procedures required for a number of small farms and land plots along the alignment or within a 50m vicinity of the alignment. The expropriation and demolition of many properties has already taken place since 1993. It should be noted that responsibility for expropriation lies with the Ministry of Transport. The Ministry is required to hand over (expropriated as necessary) to AKA prior to commencement of construction.

The original alignment for the Motorway was selected in the 1970s and since then no new construction has been permitted along the alignment, which will have reduced the number of households that would have been affected.

Expropriation - Land Plots and Farms

Information on the expropriation procedures was provided by Dr. Dezso Dobay, expropriation solicitor, the agent acting on behalf of the National Motoway Rt for the Phase III alignment since 1993, and a representative from the National Motorway Company.

As already stated previously expropriation for the Phase III alignment started in 1993. At this time some 400 land plots and 54 farms were identified within the proposed alignment area that required acquisition. In 1993, 15% of the land plots were private owned whilst the remainder 85% were owned by cooperatives (some 44 plots). All of the private owned land plots and farms were acquired at this time. All associated farmhouses and buildings were also demolished at this time.

Between 1994 and 1996, the cooperative owned land plots were privatised. This resulted in the 44 cooperative plots been split into some 400 private owned plots. The majority of these plots were acquired by the state by 2000.

In 2003, the Ministry of Transport identified some 300 additional land plots and 6 farms required for acquisition based on completion of the detailed design plans and landtake drawings. As a result of this, UVATERV provided further notification of the process by holding an expropriation forum with all those people affected by the expropriation process in March 2004. At the meeting the attendees were shown maps of the areas to be affected by the construction. One of the access routes was relocated on the basis of a request from the local population at this meeting. A copy of minutes of meetings held with local residents of Szeged, Röszke and Domaszék are provided in Annex 4E.

In addition, as part of the expropriation procedures all registered owners were notified of the changes in landtake requirements by Dr Dobay, and of the expropriation procedures with regards to the State acquiring the additional land.

We understand through our discussions with the Ministry of Transport expropriation lawyer during the December 2004 site visit and in February 2005, that once a public resolution declaration is made the expropriation process is carried out as follows:

- The Ministry of Transport obtains a map and ownership register of the area to be affected. The appointed expropriation lawyer identifies all the registered land and farm owners.
- All registered owners are then notified in writing by the expropriation lawyer of the proposed Phase III proposals and of the following expropriation procedures. The owners have 30 days to respond to the initial letter.
- An appointment is then made with the registered owners for a visit by an independent local valuator so that the property value is estimated in accordance with local market prices at the time of the site visit.
- The expropriation lawyer then meets with the individuals concerned to negotiate an appropriate purchase price for their property based on the valuators assessment.
- If the owner agrees the price, the expropriation lawyer, on behalf of the landowner, prepares the required forms during this meeting. The contracts are then issued to the National Motorway Company for final agreement of the prices.
- The Motorway Company has 8 days to decide if the agreement is acceptable (which they generally do), then the expropriation lawyer can sign the agreement on behalf of the State.
- The agreed contracts are then passed onto the State Treasury to arrange payments.
- Payment for land plots is made in a lump sum payment within 45-60 days.
- Payment for farms is made in three instalment payments: 15% lowing of the total price paid 30 days following signing of the contracts by both parties; 70-80% paid after the owners prove that they have signed a contract for their new property/farm; and the final 10-15% is received after the owners vacate the resident home of the farms. The State also pays for all relocation costs i.e. removal vans/trucks.
- Assistance with relocation.

In the event that the expropriation lawyer and the registered owners cannot 'mutually' agree of the price, this may be because of several land owners owing a plot of land, *'the expropriation process enters a more 'official' second stage of expropriation conducted by the administration office. Prices at this stage are determined on the basis of sale agreements registered at the office of stamp duties.'* The land acquisition procedures must be carried out in accordance with the Law Decree No.24 dates 1976 on land acquisition. The land acquisition procedure, initiated in order to obtain the territory of the alignment, serves the public interest. In the event of motorway construction for the M5 Phase III, the public interest resides with the State, Law No. CXXVIII 2003, who are awarded ownership of the disputed land. As such, the owner can only challenge the price of the land, which the court will decide. Prices are determined on the basis of sale agreements registered at the office of stamp duties.

Current Statues of Expropriation - Land Plots and Farms

As of 28th February 2005, 90% of the total 700 land plots have been acquired by the State. The remainder 10% makes up some 70 plots owners by 7-registered landowners. The expropriation lawyer relayed that 40 of these plots are in the

process to be acquired by the end of March 2005 as the landowners have agreed the price following an assessment by the independent valuator.

The acquisition of the remaining plots will go to the second phase of the expropriation process described above. The expropriation lawyer stated that this process should be completed by 1st June 2005. It should be noted that three of the landowners are challenging the expropriation itself (not the price) as two plots have recently been identified for a proposed rest area that was not in the original alignment.

A total of five farms were expropriated in 2004. The majority of the farm owners and their families (typically two children and grandparents) resettled to another farm in the local area. Two families resettled in town houses in Röszke. The typical average sizes of the farms acquired were 3,000 m^2 including house and out buildings. Assistance was provided by the expropriation lawyer in helping all owners with identification suitable properties in order for them and their families to maintain their standard of living.

Currently, there is one remaining farm for acquisition. The owner of the farm is a middle-aged woman who resides at the farm but is not farming the land. Assistance is being provided to the owner with assistance from her family, to identify a suitable property for her to relocate to. The expropriation process is still in the 'initial' first stage with negotiations. The expropriation should be completed by 1st June 2005.

Grievance Procedure

A grievance procedure is in place by the Ministry of Transport that involves the following steps:

- The expropriation lawyer appointed by the Ministry of Economics and Transport contacts owners to buy land. At this stage information is provided on the expropriation procedure and proposed alignment plans;
- On reaching agreement, contracts are signed and held in the local administrative office;
- The owner can register a complaint about the contract to the expropriation lawyer. However, the owner cannot negotiate a higher price. On a case-by-case basis, some landowners can require that their entire plot be purchased. Initial claims are filed at the local administrative office; and
- If the grievance is not settled, landowners can go to court to appeal.

The expropriation lawyer is the first point of contact with the local people with regards to any grievance or complaints they may have. The National Motorway Company deals with any official complaints with regards to expropriation. The expropriation lawyer liases with the State Treasury on behalf of the owners with regards to arranging payments. During the initial discussions with the registered landowners the expropriation lawyer informed them verbally of the expropriation procedure, and also of the process to be followed if they were unhappy with the price of their farms/land and their legal entitlements.

The expropriation lawyer is required by law to hold all records of the expropriation process for 10 years from date of agreement on the expropriation contract. A database containing all the relevant expropriation information since 1993 i.e. name of registered land owner, plot size, farm size, dates of independent expert visit to value land, date of contact, market value price, price agreed is held by the expropriation lawyer and the National Motorway Company.

.

4.10.3 Compensation Procedures

From the information reviewed by Scott Wilson in February 2005 compensation procedures for those who have had land and farms expropriated would indicate to have approximately followed the Equator Principles and the World Bank's Directive on Involuntary Resettlement (4.30).

Whist no formal written resettlement action plan has been produced by the National Motorway Company on behalf of the State, such a plan is not required under Hungarian law on land acquisition. Hence at the time of the expropriation being carried out, the Project's compliance with Hungarian law was and is sufficient.

Based on our review of the current information and the documentation made available to the environmental advisors it would appear that appropriate measures have been put in place to deal with involuntary resettlement. We are satisfied that the procedures undertaken by the parties involved and the expropriation lawyer were carried out in compliance with Hungarian government procedures and in line with the spirit of World Bank guidelines, and that particular measures have been undertaken to protect the interests of all parties.

With regards to compensation the following steps have been or are being undertaken:

- Following on from the expropriation procedures discussed above, and on agreeing the price for the property (land/farm) the contract/agreement is then filed with the land registry and a land tax waiver is obtained.
- Payment is made in one of two ways: either it is paid directly into a bank account specified by the owner, or it is sent to the bank nearest the property owner for them to collect the money in cash (as many elderly people do not have bank accounts).
- As already indicated, the payment for farms in made in three instalments to the registered owners. As farm ownerships are typically registered in both the husband's and wife's names, it is usual for the family to name one person within the household to receive payments, but if this is not specifically requested then payment is made to named registered owners.
- In the event that farm owners vacate their existing farms before purchasing a new property, the registered owners will receive the full amount of the compensation. In the interest of all parties, all farm owners are provided with assistance in identifying a suitable new property prior to vacating the existing property. The expropriation lawyer informally follows up with all farms owners once they have settled into their new properties.
- The market price offered to farm owners also includes relocation costs, and loss of outhouses/sheds. The expropriation lawyer arranges

assistance with their move i.e. arranges relocation vans, livestock trucks to move farm animals.

- In the case of several owners for one large plot, payment is made in one lump sum split according to registered proportions. The owners can request for payments to be spilt differently by mutually agreeing in the contract on how they want the payment to be split.
- With regards to payment to unregistered plot owners the expropriation lawyer handles this issue. There have been four cases on the Phase III alignment where land was sold without change in land titles to the new owner. In this instance, the expropriation lawyer meets with both the former registered landowner and the new 'unregistered' land owner. They agree the ownership of the land, and a contract is signed between all parties i.e. both the registered and unregistered owners. The expropriation lawyer files the contract with the land registry office. Payments are then arranged with the new plot owner i.e. the unregistered owner.
- Payment is the responsibility of the State Treasury.
- There is no formal documented management or monitoring plan for either the resettlement process or compensation process. As discussed above, the expropriation lawyer is the first point of contact for local people with regards to any grievances, complaints or general advice. In the event of a dispute the local mayor is called upon to advise the landowner.

4.10.4 Vulnerable Groups

The most badly affected group identified are small-scale farming households living along the route, including those affected by expropriation. Older households who are reliant on community support are likely to be amongst the vulnerable. Given that no new construction has been permitted along the alignment since the 1970s, it is likely that there are a significant proportion of older people remaining near to the motorway route. The National Motorway Company indicated that all vulnerable groups i.e. elderly people, women living on their own etc are provided with assistance either (i) to understand the requirements of the expropriation process, and/or (ii) for identifying new properties, and/or (iii) assistance during the move.

4.10.5 Forced and Child (Under 18) Labour

Construction is considered to be an inherently dangerous activity and thus no persons under 18 should be employed on the construction site. Forced labour is not acceptable in accordance with both the Arrangers' and EBRD's policies.

It is recommended that the appointed construction contractor and any subcontractors must ensure that they abide by Hungarian Employment laws, the EBRD's policies and the IFC Occupational Health and Safety Guidelines and Good Practice Notes on Social Dimensions of Private Sector projects.

Following discussions with the Project Sponsors in February 2005 they stated that their contractors take corporate responsibility seriously. Their corporate policies states that as a company they respect human rights and promote common welfare, and will endeavour to observe the existing laws and recognize the rules of fair employment in all countries where they work.

4.10.6 Road safety

Traffic accidents are a likely potential impact of the motorway. A WHO health status report on Hungary shows that there has been positive progress on reducing traffic accidents. The highest risk groups are likely to be farmers and their families, particularly children, living very close to the motorway. During the Phase II public meeting several parties raised concerns verbally to Scott Wilson indicating that accidents regularly occur on the Phase 1 motorway, with people being knocked down while attempting to cross the motorway. No such concerns were raised during the Phase III public meeting in January 2005. It should be noted that the motorway is not designed for pedestrian use. In addition, the proposed noise barriers and game fences will also act as a barrier preventing pedestrians from crossing the motorway. It is recommended that AKA together with other parties involved in the project and local government should undertake a Road Safety campaign for children in local schools in order to raise the awareness on road safety in their areas, although the game fences will provide some protection. AKA has already organised road safety campaigns in the past year, and reported that this will be extended to the local communities of the Phase III motorway.

4.10.7 Social Impacts of Noise and Air Pollution

Noise and dust pollution is the main concern to have been raised during public consultations. The WHO identified traffic as the main cause of air and noise pollution in Hungary, affecting communities living close to roads. The project is expected to have positive benefits for residents of urban settlements currently negatively affected by air pollution and noise of the existing Route 5.

Recommendations for noise and air pollution monitoring are discussed further in Section 6 and 9 of this report.

4.10.8 Social Monitoring

An Ex-Post Resettlement evaluation could be conducted to evaluate resettlement and its impact on the standards of living of those resettled and the host population as part of the project completion report as part of the monitoring of impacts of the Phase III alignment. However, it appears that appropriate compensation has been paid and reasonable informal endeavours have been made to assist with any resettlement, in particular where property acquisition was required.

As one farm and 70 plots have still to be acquired for Phase III, we recommend that the Project Sponsor continue to liase with the appropriate expropriation representative of the National Motorway Company to ensure that there are no unforeseen delays in issues associated with the purchase of the remaining land that could lead to delays in the construction works schedule.

4.11 Borrow Pits

The material required for the construction of Phase III of the M5 Motorway will only be obtained from licensed borrow pit facilities. The Phase III borrow pit licences have already been submitted by the borrow pit operators. Additionally, and it is anticipated that consideration will be given to using some of the Phase II borrow pits for Phase III.

In order to obtain a licence the borrow pit operator must submit an exploitation plan for approval. The Recultivation plan for the aftercare of the borrow pit is also the responsibility of the borrow pit owner, under the terms of the borrow pit permit.

5 Public Information and Consultation

5.1 Original Consultation for the M5 Motorway

Prior to 1993 there was no legal requirement in Hungary to consult the public. As a result there was no public consultation for the selection of the preferred alignment during UVATERV's review of options for bypassing Kecskemét in 1979. Voluntary consultations were undertaken by UVATERV from 1990 – 1992, on the original proposals for the M5 Motorway.

The main public consultations took place in 1990 during the production of Plans for Public Discussions, although there was also consultation in 1991 – for Plans for Approval stage and in 1992 during Construction Permits. These have been summarised in Table 4 below.

The main public consultation involved a range of techniques including information letters and public meetings. At this time Environmental Protection Plans were also being produced for each town and village in the M5 corridor. Prior to these public forums meetings were also held with local Government officials in Kecskemét, Kiskunfélegyháza and Szeged, and interested groups were also consulted at this time.

Letters were sent out to all residents located within 300m of the preferred alignment route. These letters informed residents of the project and solicited their views. They also provided details of the evening public meetings that were being held.

Public meetings were held in ten settlements located in the M5 corridor by:

- Kecskemét;
- Városföld and Kunszálás;
- Kiskunfélegyháza;
- Petõfiszállás;
- Csengele;
- Kistelek;
- Balástya;
- Szatymaz;
- Szeged;
- Domaszék and Röszke.

A presentation of the proposed M5 motorway was given, with exhibitions of the motorway and time allocated for a question and answer session. In addition to the general public media representatives also attended.

The public responses were collated into a report and included suggestions for changes to the alignment. Once approved by the Motorway Directorate and Roads Administration UVATERV prepared a summary of key consultation issues for each county within the scheme alignment footprint. Modifications were subsequently made to the Plan.

The second consultation exercise in 1991 consisted of more detailed technical discussions of the Plan with local Government Officials. Additional consultations were also carried out with residents, although it is not clear how these were conducted or with whom. Once finalised the Plans were submitted to obtain the Construction Permit in 1992 for the Phase I Section of the M5 Motorway.

At this stage there was also a limited opportunity for public involvement whereby objections could be submitted. No objections were made during the 15-day period within which they had to register.

5.1.1 *Consultation during Phase II: Modified Design for Approval*

During Phase II, where modifications were made to the Approved Alignment, additional consultation meetings took place. It was initiated by an Inaugural general meeting on 12th November 1998 and included mayors from Kiskunfélegyháza, Petõfiszállás, Csengele, Kistelek, Balástya, Szatymaz, Kiskundorozsma and Domaszek, with discussions focusing on local roads, interchanges and farmers' access onto the motorway. Follow-up meetings were conducted between December 1998 and January 1999.

As part of Halcrow Fox's scope of work on behalf of the EBRD an Environmental Scoping meeting was held for Phase II on 23rd July 1998, attended by 46 people, including representatives from the Mayor's office of the towns in the M5 corridor and relevant County organisations, as well as national and regional Governmental environmental organisations and non-governmental environmental organisations.

5.1.2 *Previous Consultation for Phase II EIA Update and Environmental Review Meeting*

Scott Wilson held an Environmental Review meeting for Phase II in accordance with the EBRD's environmental procedures on public consultation, on the 14 June 2004, in Szeged town hall. Those present included AKA, UVATERV, FRAMA, EBRD and Scott Wilson.

Table 4: Summary of consultation carried out for M5 Motorway to-date (including Phase I, Phase II and Phase II)

Date	Stage	Techniques involved	Outcome
Phase I			
1990	Plans for Public Discussion	Meetings with interested groups, Notification letter, Public forum meetings, Exhibition.	Production of Report of written responses and comments. Production of Summary of Key issues raised. Modifications to Plan.
1991	Plans for Approval	Technical meetings with local Government officials, Consultations with local residents.	Finalised and submitted detailed design plans.
1992	Construction Permits	Objections could be made within 15 days after	No objections made within the timescale.

Date	Stage	Techniques involved	Outcome
		submission.	Permit granted (1992).
Phase II			
1998-1999	Phase II Modified Design for Approval	Inaugural general meeting to consult on the Construction Permit. Follow-up meetings.	Informed modification of design discussions.
1998	Halcrow Fox EIA on behalf of EBRD	Environmental Scoping Meeting for Phase II.	Report produced of meeting: 'EIA Scoping Meeting at Szeged' 1998.
14th June 2004	Environmental review update on behalf of EBRD	Update Environmental Review Meeting: specific invitations, radio and newspaper announcement.	Some questions raised by the Museum of Szeged and the NPA.
Phase III			
13th January 2005	Environmental review update on behalf of EBRD	Update Environmental Review Meeting: specific invitations, radio and newspaper announcement.	Minutes of meeting provided in Annex 5A.

5.1.3 Consultation for Phase III EIA Update and Environmental Review Meeting

In accordance with the EBRD's environmental procedures on public consultation an update Environmental Review meeting took place on 13 January 2005, in Szeged town hall. Those present included AKA, UVATERV, FRAMA, EBRD and Scott Wilson.

Following discussions with AKA a stakeholder profile was developed that identified the key organisations, groups and individuals who were likely to be affected and should therefore be consulted. This list can be viewed in Annex 5B. In addition to invitations to specific organisations, groups and individuals, an announcement was broadcast on Radio 88 (radio of Szeged region) for Tuesday (11.01.2005 at 10:00 am) and for Wednesday (12.01.2005 at 14:00). Advertisements went into two local newspapers that were identified as being the main daily newspapers read by local people (Annex 5D).

Both advertisements were published in the 14 December 2004 edition:
1. National newspaper called: MAGYAR HÍRLAP
2. Local, regional newspaper called: DÉLMAGYARORSZÁG

The purpose of the meeting was to inform and update stakeholders and the general public on the Phase III M5 Motorway alignment, potential positive and negative environmental and social impacts and the proposed environmental mitigation and monitoring. The meeting was also to provide them with an opportunity to obtain more information or to make their views known.

The agenda for this meeting can be found in Annex 5E. A Public Information Disclosure Document was also produced providing a brief history of the project, and how the information collected for the development of the third phase of the M5 Motorway would be made available to the public. It was distributed to attendees. A copy of this document can be found in Annex 5F.

A questionnaire was distributed to all attendees was used to obtain advice and suggestions on mitigation for the project and on improving dissemination of information to the public. Participants could either complete the questionnaire at the meeting or could return it to the address marked by the 31st January 2005. They could also request additional information. Please see Annex 5G for a copy of the Questionnaire.

Some 27 attendees attended the update meeting although no one from the general public or a Non-Government Organisation (NGO) attended. Five people completed and returned the questionnaire. Annex 5C contains the list of attendees.

Presentations were given at the meeting by UVATERV and Scott Wilson Consultants illustrating the key environmental issues identified to-date in January 2005.

The key concern raised during the meeting and in the questionnaires were:

- The possible benefits for development in the region.
- A reduction of traffic in town centres.
- The possible benefits on current employment.
- The effects of the development on farmers in the region.
- The possible benefits for vulnerable groups such as children, the elderly and the disabled.
- Concerns over the changes to the landscape.
- Possible effects on the people of local villages.
- Concerns over the possibility that current routes will become inaccessible or unusable as a result of the motorway.
- Concerns regarding preservation of archaeology and cultural heritage.
- Concerns regarding access and the length of journeys to markets, schools, church and other services.
- Disturbance to fauna and birds during construction, like the white-tailed eagle, long-eared owl, hawk or kite, which are nesting near farms.
- A concern that the road in front of the owners farm will be upgraded and lead to an overpass, which will lead to higher speed than on the existing dirt road (20-30 km/h), and result in higher noise and dust pollution.
- Concern that the M5 Motorway will have an adverse impact as it will change the way of life for older people.
- An expected advantage in that traffic will be reduced on E-75.
- Museum of Szeged – concern that the Hungarian translation of the archaeological chapter will be improved compared to the translation for the Phase II report.

5.1.4 Consultation following the Public Meeting – Household Survey

As there were no members of the public present at the Public Meeting in January it was necessary to use another consultation approach to disseminate information about Phase III, in line with the framework provided by the Equator Principle and World Bank Guidelines. It was important to try and understand why the general public did not attend the meeting so information can be shared more effectively in the future.

Meetings with the local mayors (Domaszék and Röszke):
On 25 January 2005 an AKA representative met with the mayors of Domaszék and Röszke. The purpose of these meetings was to further our understanding about why people did not attend at the public meeting at Szeged and find the best way to supply information to the public during construction. We asked the assistance of the mayors to help us in approaching the public. The majors were provided with the questionnaires and public information disclosure documents in order to help us in the distribution of these among the affected people. The mayors indicated to AKA that the local people are looking forward to the have the motorway in the region and they think that it will affect their life in a positive way.

Scott Wilson prepared an information pack for AKA to distribute to households along the Phase III alignment. This included the following:

- non-technical environmental summary;
- revised public meeting questionnaire; and
- public information disclosure document.

AKA distributed the above information to over 400 households in the area that will be affected by the Phase III M5 Motorway. This provided the public with the opportunity to comment on the proposed M5 Motorway, set out where and when the updated EIA would be available, and who they could contact to obtain any further information. AKA encouraged the public to fill in the questionnaires and to reply to EBRDs office in Budapest.

5.1.5 Dissemination of Information to the Public

This Environmental Impact Assessment update report will be made available for 60 days from January 21st 2005 to provide stakeholders and the general public with opportunities to make further comments. Information will also be provided that illustrates how the comments received have been considered within the study. These can be viewed in a number of different ways:

- The Mayor's offices (listed in Public Disclosure Document, see Annex 5F);
- EBRD's Budapest office;
- The web page of EBRD : www.ebrd.com;
- The web page of AKA. : www.aka.hu; and
- Personal requests (to be posted or emailed).

5.1.6 Recommended consultation during Construction

In addition, we recommend that notices be placed in public places setting out the schedule of events and areas to be affected for at least one month prior to the commencement of the construction of Phase III. Giving adequate notice is important as it can help the local population prepare for the potentially severe, albeit temporary, disruption to their daily lives and helps to maintain good relationships.

CJV and the Ministry of Transport currently hold a public complaints register for Phase II, setting out all complaints that have been made in writing during the construction period. This is a very helpful process that can be expanded for Phase III to include a register of verbal complaints.

5.1.7 *Household Survey Responses Summary*

We were delighted to receive over 30 responses to the Household Survey and would like to thank all those who responded to our questions. The responses have provided a valuable contribution to our assessment and the issues and suggestions have been used to evaluate the findings. We would also like to thank AKA for all their efforts in arranging this successful public consultation exercise.

The particular concerns that were raised in the questionnaire responses included the following:

- Traffic safety
- Disturbance due to noise
- Access to markets, schools, church and other services
- Loss of natural habitats
- Impacts on crops and animals
- Disturbance to fauna
- Loss of flora
- Increased traffic on local roads
- Impacts on water used for irrigation
- Lack of access for neighbouring settlements
- Increased amount of freight traffic in the area
- Air pollution
- Preservation of archaeology and cultural heritage
- Road accidents with fauna
- High water table level during spring-time
- The distance between residential properties and the noise barrier
- Effects on the movement of slow agricultural vehicles
- Impacts on water used for irrigation
- Wetlands were identified as areas that are particularly likely to be affected

The benefits of the motorway that respondents (those who replied to the questionnaire) identified included the following:

- Less traffic on local roads
- Quicker journey times
- Beneficial impacts on the local economy
- Reduced deterioration of local roads
- A reduction in air pollution
- Less freight traffic on local roads
- The Capital, Budapest, will be more easily accessible

The groups that were identified as likely to be most affected by the development were:

- Farmers
- Elderly
- Children

- Entrepreneurs
- Inhabitants of homesteads on the eastern side of the motorway
- Disabled

Of the concerns raised, the most common concerns were for traffic safety, disturbance due to noise, access to services and loss of natural habitats. The group identified as being the most likely to be affected were farmers. The number of people who believe that Phase III of the M5 motorway will decrease, increase or have no effect on journey times were approximately equal. The majority of people who responded to the questionnaire expect the development to have a beneficial effect on their current employment.

Approximately 50% of respondents believe that the building of the motorway is likely to have a positive impact on vulnerable groups. The other half believe that vulnerable groups will be negatively affected due to a range of impacts including noise, traffic, reduced access to the bypass road and reduced access to the centre of a split settlement.

6 Proposed Mitigation Measures

The measures to be taken to moderate the environmental and social impacts of the M5 Motorway, during construction and operation are set out in Table 5 below.

Table 5: Proposed Mitigation Measures

EIA Topic	Potential Impact	Mitigation	Residual Impact
Landuse and Settlement - Construction	Local severance of routes between settlements and increased journey times. Disruptions and deterioration of local roads due to use by construction traffic.	Use of local roads restricted to routes specified by the local authority. Ongoing maintenance of local roads during construction to standards agreed by the local authorities.	Temporary increase in journey times and severance of routes between settlements
Landuse and Settlement - Operation	Local severance of routes between settlements and increased journey times	16 local crossings at intervals along the alignment and the creation on new earth roads parallel to the alignment.	Minor increase in journey times on local roads.
Water Quality - Construction	Ground water.	The CEMP specifies detailed measures to reduce the risk of groundwater contamination during construction.	For this, specifics should be considered.
	Surface water	The CEMP specifies detailed measures to reduce the risk of surface water contamination during construction.	None
Water Quality - Operation	Accidental spillage polluting local ground water table?	Pollution Incident Plan.	None
	Accidental spillage polluting local surface water	Pollution Incident Plan.	None
	Run-off from routine operation affecting ground water	Oil Interceptors	None
	Run-off from routine operation affecting surface water	Oil Interceptors	None
	DMRB assessment- check	Emergency response procedures	None
Air Quality - Construction	Potential minor impact in the vicinity of the construction compounds (asphalt and cement plant). The two construction compounds are located 200m away from the nearest properties.	Licences will be obtained from the relevant authority prior to operation.	None
	Dust nuisance during construction in vicinity of compounds, haul roads and the right of way	Water sprinklers and wheel washing.	None

EIA Topic	Potential Impact	Mitigation	Residual Impact
Air Quality - Operation	No adverse air quality impact on beyond the 50m buffer	None required.	None
Noise and Vibration - Construction	Potential noise impact in the vicinity of the construction compounds, haul roads and right of way.	Standard best practice noise control measures will be used and their effectiveness monitored.	Adverse noise impacts may still be experienced during construction but they will be temporary.
Noise and Vibration - Operation	Minor exceedance of the noise limit values at a number of properties along the Phase III of the M5 Motorway	Noise barriers at chainages indicated in the 2005 UVATERV designers statement report.	No exceedance of the noise limit values at any sensitive receptors
	Minor beneficial noise impact on properties along existing roads, including Route 5 through Szeged, from which traffic transfers to the motorway	None required.	None
Landscape - Construction	Presence of construction compounds, stock pile areas and activities within them. Also direct loss of agricultural land and some habitats.	The CEMP sets out measures to reduce impacts during construction.	None
Landscape - Operation	Introduction of a major operation structure.	Appropriate plantation as agreed with the NPA and specified in the environmental permit and 1999 EIA reports.	None
Ecology – Construction	Disturbance to migratory and breeding birds	Vegetation clearance will not be undertaken during the breeding season and areas used for nesting will be left undisturbed. The measures to reduce noise disturbance should reduce the risk of disturbance to migratory birds.	No impact on breeding birds and small impact on migratory birds.
Ecology - Operation	Severance of deer populations-	Game passes with dry corridors where they are adjacent to canals.	None
	Loss of protected plant species	None requested by National Park but managing other areas to enhance them for these species should be considered.	None
	Drying out of adjacent wetlands	The extent of draw down has been calculated and is unlikely to have a significant effect.	None
Cultural Heritage & Archaeology – Construction	Unknown, unanticipated archaeological artefacts damaged through construction	Establish dedicated archaeological watching brief.	None

EIA Topic	Potential Impact	Mitigation	Residual Impact
	Potential archaeological remains in borrow pits	Potential archaeological remains will be excavated prior to the use of material from the borrow pits for construction.	None
Social – Construction	Deterioration of local access routes due to use by construction traffic	The Contractor has negotiated agreements with the local town councils to use specified local roads and ensure they remain in a good condition.	None
	Potential impact on physical health of construction workers	Occupational Health and Safety Management System: Occupational health and safety policy Organizational framework, competence requirements, operating procedures, training programs, system documentation, communication OHS objectives (quantified) Hazard prevention - - Risk assessment - prevention and control measures: management of changes, emergency preparedness and response, procurement (tools, equipment, plants, services, contractors) - Performance monitoring and measurements - hazard prevention measures, work related injuries, ill health, diseases and incidents -Evaluation - feed back - corrective measures	None
	Under 18s employed on construction site 'Gang' labour	Age check on all construction workers, including sub-contractor employees. Verify legal and tax status of sub-contractors.	None
	Local severance from market, church, other services	Reparation of local roads used by construction traffic. Reporting mechanisms for affected	None

EIA Topic	Potential Impact	Mitigation	Residual Impact
		farms.	
Social - Operation	Local severance from markets, church etc…	Overpasses will be constructed to allow access across the road.	Some journey times may still be longer once the road is constructed
	Traffic safety	The game fencing will reduce the likelihood of people attempting to cross the Motorway. Local crossings will also be provided.	None
	Loss of livelihood and other social and economic impacts experienced by affected households	Ensure expropriation procedures followed and Grievance procedure observed.	Risk of social and economic impacts not fully compensated by extant expropriation procedures. This is a State (NRT) risk.
	Social and economic losses to elderly or other vulnerable households	Stakeholder analysis of affected households, on basis of demographic data to inform appropriate steps.	None
	Inconvenience and disruption to local households	Reporting mechanism for affected communities.	None
	Local severance from market, church, other services	Overpasses. Improvement of existing dirt roads.	Some households may still experience worsened connections
	Death or injury	Road safety campaign in local schools.	None
Borrow Pits - Construction	Potential unforeseen damage to environmental assets due to the use of illegal borrow pits.	Only licensed borrow pits will be used to source construction material.	None

7 Recommendations for Monitoring Plan

The following measures are recommended for incorporation in the Phase III Monitoring Plan.

7.1 Water Quality

Surface Water and groundwater quality measurement should be taken in all the watercourses crossed by the Motorway alignment prior to the commencement of construction to enable comparison with later monitoring results. This will allow the identification of whether any changes in water quality are attributed to the construction of the Motorway.

7.2 Air Quality

During Phase I (1996-1999) monitoring at 8 sampling points identified that concentrations of carbon monoxide, lead and oxides of nitrogen were all restricted to levels equivalent to 10-25% of the respective limit values. Whilst levels of oxides of nitrogen might become more significant at phase one sites as traffic volumes increase, it is unlikely that levels of lead or carbon monoxide will rise sufficiently to place limit values at risk. It is therefore recommended that for Phase III, monitoring of carbon monoxide and lead is excluded from the monitoring programme and resources reassigned to enable additional dust monitoring at sensitive receptors close to the perimeter of the alignment.

A number of small farms and houses are still located very close to the perimeter to the alignment, some 60 – 70m. It is recommended that the dust monitoring is extended to include these receptors, during construction and during the first couple of years of operation.

The location of the construction compounds is not yet known. However, the impact of fugitive dust emissions from construction compounds should be minimised in the first instance by maximising the distance between the sources and the nearest receptors. In so far as monitoring is concerned the use of a deposition gauge as proposed at other sites would be an acceptable minimum.

7.3 Noise and Vibration

The noise monitoring proposed for Phase II was reasonable. However, care must be taken to ensure a selection of the closest receptors to the new Phase III M5 Motorway and along the existing roads where a benefit is expected are included. Noise monitoring should also be carried out at the nearest properties to any construction compounds.

7.4 Landscape

Visual inspection of the works areas should be undertaken on a weekly basis to ensure there are no large areas of bare soil.

7.5 Natural Environment and Ecology

Uvaterv have indicated that the locally designated nature conservation site will be monitored. The monitoring plan detail the frequency of monitoring and the duration for which monitoring will continue after construction. We also recommend that the game passes are monitored to ensure they are functioning effectively. Migratory and breeding birds should be monitored and measures taken to reduce noise and physical disturbance as required.

7.6 Socio-Economic

In view of the temporary nature of the short-term construction contract, while the impact on the local population may on occasions be significant, the duration of those impacts is likely to be short. However in the case of construction workers the short duration of the contract and the need to progress the works rapidly, leads to a need for particular consideration of the issues involved.

For the above reasons, the issues listed in Table 6 need to be assessed and reported upon comprehensively for both the local population and the workers.

Table 6: Recommended Socio-Economic Monitoring

Impacts	Monitoring	Responsibilities	Time frame
Potential impact on physical health of construction workers	Occupational Health and Safety Management System monitoring of hazard prevention measures, work related injuries, ill health, diseases and incidents	Construction Contactor	Pre-construction to end of construction
Under 18s employed on construction site	Monitor age of employees, including sub contractor employees	Construction Contactor	From start of construction to end
Forced labour	Monitor contracts of employees, legal and tax status of sub-contractors	Construction Contactor	Duration of construction activity

Impacts	Monitoring	Responsibilities	Time frame
Loss of livelihood and other social and economic impacts experienced by affected households	Monitor income of expropriated households and households within 60m proximity of route	Ministry of Economics and Transport	Pre-construction make available existing data Gather on annual basis
Social and economic losses to elderly or other vulnerable households	Monitor income and reported hardships of households with elderly members and children	Ministry of Economics and Transport /local administrative office	Pre-construction make available existing demographic data Survey on annual basis
Inconvenience and disruption to local households	Monitor complaints received by affected households	Local administrative office and Construction Contractor	Duration of construction
Local severance from market, church, other services	Interview of households identified as affected by severance	Local administration office and Construction Contactor	Agricultural harvest time
Traffic accidents	Record of accidents	Ministry of Economics and Transport	Annual check
Employment opportunities	Survey of employment of working age members of affected households	Ministry of Economics and Transport	Pre-construction – make available existing employment data Survey on annual basis
Involuntary resettlement	Post-resettlement evaluation (if required by Lenders)	Independent Review (EBRD to recommend)	Post-construction: evaluation of social and economic impacts Please note: Details of where people have moved to would be required for post-resettlement evaluation

7.7 Monitoring by the Banks

The monitoring report should be submitted to the Project Lender, National Park and Environmental Inspectorate on an annual basis. The project lender should also be notified in the event of a major emergency, with details of the event and the measures to be taken to remedy the situation.

8 Management Plan

This plan sets out measures to manage the environmental impacts of the M5 Motorway and highlights the recommended the responsibilities for parties involved in the project.

Table 7: Proposed Management Plan

Environmental Management Plan					
Ref No.	**EIA Topic**	**Mitigation**	**Responsibility**	**Timeframe**	**Cost**
L1	Landuse and Settlement - Construction	Use of local roads restricted to routes specified by the local authority. Ongoing maintenance of local roads during construction to standards agreed by the local authorities.	Construction Contractor	Duration of construction	The mitigation related to the contractors working practices will be included as a special specification for inclusion in the contractor's method statement.
L2	Landuse and Settlement - Operation	16 local crossings at intervals along the alignment and the creation on new earth roads parallel to the alignment.	Construction Contractor/ UVATERV	Included in detailed design	
WQ1	Water Quality - construction	Ground water.	The CEMP specifies detailed measures to reduce the risk of groundwater contamination during construction.	None	Water Quality - construction
WQ2		Surface water	The CEMP specifies detailed measures to reduce the risk of surface water contamination during construction.	None	

Environmental Management Plan					
Ref No.	**EIA Topic**	**Mitigation**	**Responsibility**	**Timeframe**	**Cost**
WQ3	Water Quality - operation	Accidental spillage (of oils, lubricants or other hazardous substances) polluting local ground water table	Pollution Incident Plan.	None	Water Quality - operation
WQ4		Accidental spillage (of oils, lubricants or other hazardous substances polluting local surface water	Pollution Incident Plan.	None	
WQ5		Run-off from routine operation affecting ground water quality	Oil Interceptors	None	
AQ1	Air Quality - construction	Licences will be obtained from the relevant authority prior to operation of the compounds.	Construction contractor	Prior to construction of the compounds	Management time costs.
AQ2		Water sprinklers and wheel washing. The sheeting of lorries carrying dusty materials on and off the site. Location of stockpiles away from sensitive receptors.	Construction contractor	As required during summer months (dry period) during construction	Cost not available.
AQ3	Air Quality - Operation	None required.		Review monitoring data to confirm if any additional works required	Management time costs.
N1	Noise and Vibration - Construction	The CEMP sets out measures to reduce noise impacts during construction. Monitoring will also be carried out to ensure the levels remain below the Noise Standards for construction.	Construction contractor	During construction	Costs to be prepared by the construction contractor on appointment.
N2	Noise and Vibration - Operation	Noise barriers at chainages indicated in the 1999 reports.		Prior to operation	
LS1	Landscape - construction	The CEMP sets out measures	Construction	Duration of	The mitigation related to the contractors

Environmental Management Plan					
Ref No.	**EIA Topic**	**Mitigation**	**Responsibility**	**Timeframe**	**Cost**
		to reduce landscape impacts during construction.	contractor	construction	working practices will be included as a special specification for inclusion in the contractor's method statement. These measures are standard good site practices and do not have significant additional costs.
LS2	Landscape - Operation	Planting will help to reduce landscape impacts.	Construction contractor	Prior to operation	Included in costs of noise protection forest belt
Ecol1	Natural Environment and Ecology - construction	The CEMP specifies that the nests of protected species will not be disturbed during construction. The National Park will also monitor the construction works to ensure no disturbance occurs.	Construction contractor	Duration of nesting periods. Liase with NPA regarding nesting periods.	The mitigation related to the contractor's working practices will be included as a special specification for inclusion in the contractor's method statement. These measures are standard good site practices and do not have significant additional costs.
Ecol2		Screening and timing of work.	Construction contractor	Duration of construction	Construction site good practice, no additional cost.
Ecol3	Ecology - operation	Game passes with dry corridors where they are adjacent to canals.	UVATERV	Included in detail design	Costs to be prepared by the construction contractor on appointment.
Ecol		No replacement habitat requested by National Park, but managing other areas to enhance them for protected species should be considered.	UVATERV/AKA	Included in detail design. Review during monitoring programme	Check final design and monitoring reports, management time costs.
Ecol		The extent of water table drawdown should be calculated, and appropriate measures taken is it is anticipated to have a significant effect.	UVATERV	Included in detail design	If no measures required management time costs.
Arch1	Cultural Heritage – construction & Archaeology	Establish dedicated archaeological watching brief.	Construction contractor	Duration of construction	Management time costs, good site practices.
Arch2		Construction works will remain within the right of way along the entire route and in this area.	Construction contractor	Duration of construction	Management time costs, good site practices.

Environmental Management Plan					
Ref No.	**EIA Topic**	**Mitigation**	**Responsibility**	**Timeframe**	**Cost**
Arch3		Potential archaeological remains will be excavated prior to the use of material from the borrow pits for construction.	Construction contractor	Prior to exploitation of borrow pit during construction period	Costs to be prepared by the construction contractor on appointment.
Soc1	Social – construction	The Contractor has negotiated agreements with the local town councils to use specified local roads and ensure that they remain in a good condition.	Construction contractor	Duration of construction	The mitigation related to the contractor's working practices will be included as a special specification for inclusion in the contractor's method statement. These measures are standard good site practices and do not have any additional costs.
Soc2		Development of a Occupational Health and Safety (OHS) Management System to include: • Occupational health and safety policy, • Organisational framework, competence requirements, operating procedures, training programs, system documentation, communication • OHS objectives (quantified) • Hazard prevention - - Risk assessment - prevention and control measures: management of changes, emergency preparedness and response, procurement (tools, equipment,	Construction contractor	Prior to construction and to be review during construction	Management time related costs.

Environmental Management Plan					
Ref No.	**EIA Topic**	**Mitigation**	**Responsibility**	**Timeframe**	**Cost**
		plants, services, contractors) • Performance monitoring and measurements - hazard prevention measures, work related injuries, ill health, diseases and incidents • Evaluation - feed back - corrective measures • Age check on all construction workers, including sub-contractor employees • Verify legal and tax status of sub-contractors			
Soc3		Reparation of local roads used by construction traffic. Reporting mechanisms for affected farms.	Construction contractor	Duration of construction	Good site practice. Cost included in maintenance of access and existing road maintenance.
Soc4	Social - operation	Overpasses will be constructed to allow access across the road.	UVATERV	Included in detail design	Assumption that cost included in overall design cost.
Soc5		The game fencing will reduce the likelihood of people attempting to cross the Motorway. Local crossings will also be provided.	UVATERV	Included in detail design	Management time costs.
Soc6		Ensure expropriation procedures followed, Grievance procedure observed.	AKA	Prior to operation	Management time costs.
Soc7		Stakeholder analysis of affected households, on basis of demographic data to inform appropriate steps.	Ministry of Economics and Transport (AKA to report to	Prior to operation	Management time costs.

Environmental Management Plan					
Ref No.	**EIA Topic**	**Mitigation**	**Responsibility**	**Timeframe**	**Cost**
			Lenders)		
Soc8		Reporting mechanism for affected communities	Ministry of Economics and Transport (AKA/FRAMA to report to Lenders)	During construction and operation	Management time costs.
Soc9		Road safety campaign in local schools.	AKA	During construction and operation	Good involvement with local communities, management time costs.
B1	Borrow Pits – construction	Only licensed borrow pits will be used to source construction material.	Construction contractor	Duration of construction	The mitigation related to the contractor's working practices will be included as a special specification for inclusion in the contractor's method statement. These measures are standard good site practices and do not have any additional costs.
Waste1	Waste management - construction	Ensure waste management and waste disposal procedures are in accordance with all new waste legislation. A waste minimisation plan should be produced for the construction activities. All appropriate waste transfer notes must be retained on file.	Construction contractor	Duration of construction	The mitigation related to the contractor's working practices will be included as a special specification for inclusion in the contractor's method statement. These measures are standard good site practices and do not have any additional costs. No information has been provided on local landfill disposal costs.
Waste2	Waste management – operation	Ensure waste management and waste disposal procedures are in accordance with all new waste legislation. A waste minimisation plan should be produced for all operation and maintenance activities. All appropriate waste transfer notes must be retained on file.	Intertoll (Contractor likely to be responsible for motorway maintenance)	Duration of Operation	The mitigation related to the contractor's working practices will be included as a special specification for inclusion in the contractor's method statement. These measures are standard good site practices and do not have any additional costs. No information has been provided on local landfill disposal costs.

Environmental Management Plan					
Ref No.	**EIA Topic**	**Mitigation**	**Responsibility**	**Timeframe**	**Cost**
General	Environmental Protection and Mitigation		Construction Contractor/ project Sponsor	Duration of Construction	Based on the current design information related to noise screens, game fence, planting, game and reptile passes, certain drainage facilities dedicated to environmental protection, etc., estimated costs approximately 14.5 to 15 million Euro (costs provided by AKA on February 2005).

Note on timeframe scale:
Duration of Construction – considered being a short to medium term management.
Prior to Operation – recommended that procedures etc. are in place prior to operation of motorway
Duration of Operation – considered being a long term management during the life cycle of the Phase III motorway

9 Construction Environmental Management Plan (CEMP)

We recommend that the following measures are incorporated in a CEMP to enhance the environmental mitigation and protection during the construction of the M5 Motorway.

9.1 Water Quality

The potential for impacts to occur should be minimised by adoption of the following measures in a Construction Environmental Management Plan (CEMP):

- Areas of bare soil should be kept to a minimum;
- In order to prevent water pollution resulting from worker-generated sewage effluents, portable toilets should be provided or alternatively existing toilet facilities located on the site would be identified for construction worker use;
- Where water would need to be removed from excavations, it should be transferred the minimum practical distance to discharge.
- Storage compounds (for the storage of construction materials or temporary stockpiling of excavated soils) should be located away from surface watercourses and drains;
- Drums and barrel should be stored in a designated bunded safe area within the site compound;
- All drums and barrels should be fitted with flow control taps;
- All drums and barrels should be properly labelled;
- The placing of any wet concrete in or close to any watercourse should be controlled to minimise the risk of leakage of wet cement into the watercourse;
- The washing of any concrete mixing plant or ready mix lorries should be carried out so as to prevent effluent from cleaning from being allowed to flow into any watercourse or drain;
- Haul roads on the site and the approaches to the watercourse should be regularly cleaned to prevent the build up of mud;
- Before any discharge of water is made from the site, adequate provisions should be made to ensure that it is not polluting, for example by incorporating silt settlement techniques. The techniques to be employed should be suitable for the particular site. Techniques may include settlement lagoons, use of straw bales for silt trapping and use of flocculants;
- All pumped drainage from the construction works including areas used for temporary storage of construction materials or excavated soils, should be passed through silt settlement treatment prior to discharge to surface watercourses or drains; silt settlement treatments may, for example, include straw bales, grassland soak away, silt settlement lagoons;
- All roads and hardstanding should be kept clean and tidy to prevent the build up of oil and dirt that may be washed into a watercourse or drain during heavy rainfall;
- Where appropriate, watercourses should be bunded to prevent contamination from surface water runoff;

- The use of water sprays to reduce dust or to wash down construction areas should be carefully regulated to avoid washing substantial quantities of silt etc. into surface water drains. Where large quantities of gravel, mud or other such material required clearing, the area should be swept clean prior to any subsequent hosing down;
- Manholes and catchpits should be covered to prevent concrete/cement ingress;
- Concreting at watercourse culvert sites should be closely supervised to prevent concrete contamination of the watercourses;
- The washing of any concrete mixing plant or ready mix lorries should be carried out so as to prevent effluent from cleaning from being allowed to flow into any watercourse or drain;
- Storage compounds for fuels, oils or other liquid chemicals should be sited away from surface water drains. They would have an impermeable base and bund with a capacity of 110%, and would not drain directly into the surface water drains. Where practicable, drainage from storage compounds would be passed through oil interceptors prior to discharge;
- Small plant such as pumps should be equipped with drip trays;
- Emergency response procedures should be included to handle any leakages or spillages of potentially contaminating substances;
- Spill kits should be located on sites near to watercourses and within the works compounds;
- Staff should be trained in the use of spill kits;
- Groundwater should be pumped from excavations into Lagoons/settlement tanks to enable sediment to drop out and, if necessary, aided by addition of flocculants;
- Subsoil should be exposed for a minimum length of time after topsoil strip. Cut-off trenches, where necessary, should be excavated to prevent massive surface water run-off into watercourses. Cut-off trenches should discharge into sediment lagoons; and
- Topsoil/vegetation along watercourses should be retained to aid attenuation and sediment infiltration.

9.2 Landscape

- Particularly intrusive activities should be sited away from any sensitive areas, such as residential properties. Hoarding and other screens should be erected between sensitive receptors and construction sites;
- The remediation of areas affected by construction sites and activities should be carried out as early as possible.
- Where possible existing trees and vegetation groups should be retained and protected; and
- The National Park should be asked to recommend and/or approve the species used in any of the proposed planting.

9.3 Noise and Vibration

- At night, construction vehicles should be required to operate at 15 mph and the use of horns will be banned;
- The operation of noisy equipment should be prohibited from 22.00 – 6.00 each day;

- Transportation of construction materials on the exiting roads should be carefully scheduled to avoid any disturbance to the local traffic;
- Noisy elements, i.e. compressors, haul roads, etc., should be located in less sensitive areas making use of any existing natural or artificial features that could shield the construction noise;
- The noise emission of construction equipment should be reduced through the use of mufflers and continued good maintenance on all equipment; and
- A complaints mechanism should be established for the duration of the project

9.4 Natural Environment and Ecology

- The National Park should be allowed on site during construction to survey protected fauna (including birds), if they so desire;
- The National Park should be invited to attend any relevant health and safety training for site workers;
- Measures identified to reduce impacts on protected fauna during construction should be carried out;
- Where construction compounds or working areas are in close proximity to sensitive habitats, hoarding of a minimum of 1.8m in height should be used to screen working areas;
- Construction should be confined to designated areas to minimise temporary landtake;
- Where protected plant species occur adjacent to the construction compounds or working areas, these areas should be clearly marked to avoid disturbance by machinery associated with construction; and
- Measures should be taken to ensure that there is no pollution of sensitive wetlands during construction (see Water Quality).

9.5 Archaeology

- The Móra Ferenc Museum (Museum of Szeged for Csongrád County) should have permission to access the working areas to undertake a watching brief, providing the report to the site supervisor on arrival and follow the appropriate health and safety procedures;
- The Museum should be invited to attend any relevant health and safety training for site workers; and
- The arrangement with the Museum for the watching brief, and actions to be taken in the event of an archaeological find, should be formalised through contractual agreements.

9.6 Social

- Earth roads used by construction traffic and juxtaposing the site need to be maintained to ensure that minimum disturbance is caused to local people and their use of such roads. Where necessary action needs to be taken to restore the state of the earth road. A reporting system should be established to enable local people to report any concerns to the construction contractor.

- In the process of maintaining earth roads sufficient controls should be taken to minimise the effects of mud, dust, noise and visual intrusion. Such measures are recommended in sections 9.1, 9.2 and 9.3.
- Signage along earth roads should not only be directed at the construction traffic but also as a safety measure to local people. Warning signs should be erected in vehicle turning areas or at a commonly used crossing point.

10 Non Technical Summary

The following Section provides a non-technical summary of the key findings arising during our update assessment of the M5 Motorway Hungary Phase III Environmental Impact Assessment.

10.1 Screening Category and Rationale for Classification

This project has been screened as A/0, thereby requiring an Environmental Impact Assessment (EIA), in accordance with EBRD environmental procedures.

10.2 Introduction

Phase III of the M5 motorway is the final phase of the existing M5 motorway between Szeged North Interchange and the state border with Serbia. The completed motorway will connect the capital, Budapest, to the southern areas of the country, and to south-eastern Europe. The project will be constructed in accordance with current Hungarian environmental legislation, and EU environmental legislation, International Conventions and relevant IFC Guidelines.

European and Hungarian legislation requires an 'Environmental Impact Assessment' (EIA) of Phase III of the M5 to be carried out. The EIA was carried out by UVATERV in 1999 and updated by Scott Wilson in 2005. This report is a Non-Technical Summary of the updated EIA produced in 2005 by Scott Wilson.

10.3 Method

An Environmental Impact Assessment (EIA) is an examination of the possible effects of a development on the surrounding environment. An EIA is usually carried out by environmental experts. It examines the existing environment and predicts the positive and negative effects of the proposed motorway on the environment. The environmental issues that are examined include: soil, landscape, ecology, water quality, social impacts, noise and air quality. During the EIA the environmental experts must communicate with government organisations and the general public. The results of the EIA are presented in an environmental report, which also includes proposed measures to reduce the potential negative effects and enhance the positive effects on the environment, and monitoring the effectiveness of the mitigation.

10.4 Description of the Scheme

The Hungary M5 Motorway is needed to connect Budapest and the rest of Hungary to Serbia and south-eastern Europe. The route of the motorway was chosen in the 1980s with the aim of avoiding demolition, as far as possible, of the small farms, farming and industrial buildings in the area.

Phase III of the Motorway starts at the Szeged-North interchange in Csongrád County and ends at the border between Hungary and Serbia (a total length of 14.7

km). The motorway scheme passes through areas of agricultural fields, grassland, and marshlands. The route of Phase III of the M5 is shown in Figure 1.

The motorway is dual carriageway, consisting of a total of 4 lanes (4 x 3.75m), with hard shoulders (2 x 3.0m) for emergency use. Phase III of the M5 includes local crossings and a rest area. The proposed speed limit is 130 km/h.

Government Authorities have issued the environmental protection and the construction permits necessary to commence construction of the M5 motorway.

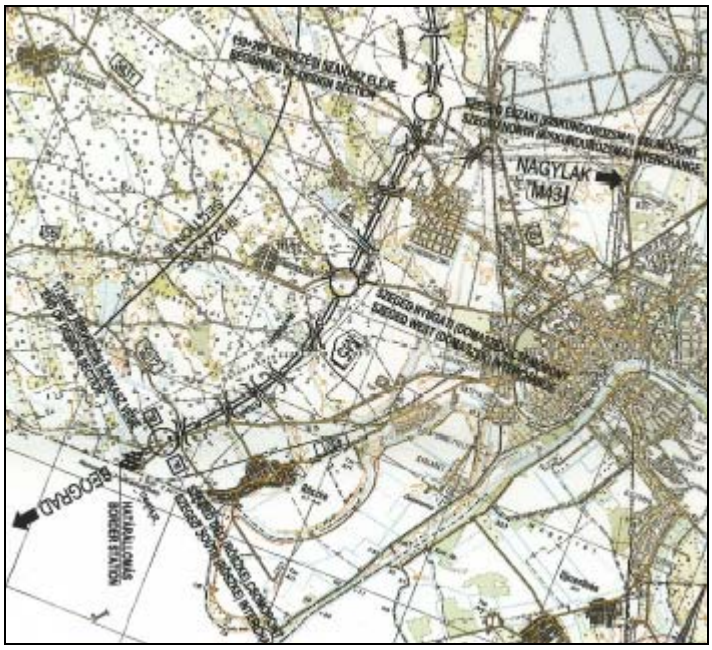


Figure 10.4.1: The route of Phase III of the M5 Motorway

10.5 Key issues

10.5.1 Land Use and Soil

The land affected by the motorway is largely agricultural land. The soil in the area is either hard, and of poor quality, or clay soil over a layer of fine sand. The productive layer of soil will be removed during the construction of the road. It will then be stored, protected and reused in accordance with a topsoil management plan. The soil that is removed will be reused around the area of the motorway, for refilling, in areas of vegetation planting and for recultivation purposes.

All properties and landholdings within 50m of the M5 alignment must be acquired by the State according to Hungarian Law. There will be a loss of agricultural land as entire land holding or parts of agricultural landholdings are acquired, however, the owners have been given financial compensation to reduce the impact of this loss. This process has been carried out following the procedures of the Ministry of Transport.

10.5.2 Water quality

Prior to the commencement of construction measures to reduce the risk of impacts on water quality, such as storing materials in a bunded area away from watercourses, will be set out in a Construction Environmental Management Plan

The motorway will only cross one highly sensitive canal and there will be no discharge from the Motorway into this canal. The Motorway will also cross several other water channels, such as irrigation and water drainage channels, which will be directed through pipes underneath the road. A system of ditches will run alongside the road to capture rainwater and where necessary cleaning structures will be put into place to prevent pollutants from the road entering the surface water channels. The groundwater in the area of the motorway is not considered to be of high sensitivity and studies predict that there will be no adverse effects on the groundwater. The new motorway will not have an adverse affect on agricultural drainage systems.

10.5.3 Air quality

While the motorway is being constructed, there will be an increaser risk of dust causing a nuisance in areas located close to the borrow pits and construction compounds. To reduce this to an acceptable levels transport routes will be selected carefully, construction materials and haul roads will be wetted in dry weather and trucks will be covered.

People living in and around town centres, such as Szeged, will benefit from a decrease in air pollution as a result of a reduction in traffic. The resettlement programme has relocated all individuals within 50m of the M5 Motorway. From our review it can be concluded that the required air quality limit values are likely to be met beyond a distance of 50m from the road without additional mitigation measures during the operational phase (based on new traffic predictions for a vignette system). However, mitigation measures are recommended to minimise dust emissions during the construction phase.

10.5.4 Noise and Vibration

Prior to the commencement of construction measures to reduce noise and vibration, such as limited working hours, use of mufflers and maintenance of equipment will be set out in a Construction Environmental Management Plan.

People living in and around town centres such as Szeged will benefit from a decrease in noise as a result of the reduction in traffic. The resettlement programme has relocated people within 50m of the M5 Motorway. Where people live more than 50m away from the motorway, calculations have been made to see if they would experience noise levels that are higher than the limits set in Hungarian and EU Legislation. If the noise levels are expected to exceed the limits then noise barriers will be put in place to reduce the level of noise. The motorway runs near to the recreation area at Subasai, where noise barriers will be placed to reduce the level of noise and an area of trees, 30m in width, will be planted to

reduce the view of the motorway. A noise monitoring system will be prepared before motorway construction commences.

10.5.5 Landscape

The landscape impacts during construction will be reduced by screening the construction compounds and locating them away from housing. There may be some residual adverse impacts but they would be temporary.

The nearest Landscape Protection Area (LPA) is located 300m from the alignment and is not likely to be affected. The main people who will be affected by the M5 Motorway (receptors) will be those people who currently live near the proposed route, and the users of the Subasa recreational area. The motorway will form a linear feature in the landscape, which will be approximately 9m high. This is likely to have a negative effect on the landscape and on the views in the region, but will be mitigated by the planting of tress, shrubs and grasses for landscaping purposes to cover gullies, embankments and areas unsuitable for agriculture, adjacent to the M5 motorway.

10.5.6 Natural Environment and Ecology

No construction compounds will be placed on areas of nature conservation importance and sensitive grassland areas will be fenced to keep workers and machinery out of these areas. Any removal or use of woods and forests will be approved beforehand. Vegetation clearance will be undertaken prior to the breeding season to prevent disturbance to breeding birds. Measures to protect species and habitats during construction will be set out in a Construction Environmental Management Plan.

Phase III of the M5 motorway does not pass through any nature conservation areas of national importance. The Motorway passes near to some locally important nature conservation areas, and there will be some loss of grassland located within the conservation area of Kiskundorozsma Nagy-szek. Some protected plant species will also be lost and although it is not considered possible to translocate these species other areas should be managed to enhance the habitat for these species. There are salt grasslands located near to the Motorway, but they will not be damaged as they will be protected by the sand ridges between them and the Motorway.

Areas of local nature conservation importance will be monitored, together with the deer underpasses during construction. In the area used for migration by deer, a deer underpass will be built to allow deer to cross the motorway, and a fence will be built to protect game and traffic. Vegetation will be planted to protect the environment along the motorway and to prevent soil erosion.

A flora and fauna base line study is being prepared now by FRAMA and the results will be included in the update EIA in April 2005.

10.5.7 Archaeology and Cultural Heritage

All the archaeological sites in the area to be used for construction of the motorway have now been excavated and a certificate of completion of works has been issued by the Mora Ferenc Museum. During construction an archaeological watching brief will be carried out, and if further archaeology is found, work will stop immediately and the museum will be informed. These measures can be expected to minimise the risk of damage to undiscovered archaeology.

10.5.8 Social and Community

A number of people living on the route of the motorway have been relocated (from 60 farms since 1993) and over 700 land plots have been purchased. As involuntary and economic resettlement involved such a low number of people that it did not make necessary to develop a Resettlement Action Plan.

Over 90% of the expropriation/land acquisition has been completed. Those individuals who will be affected by the construction of the M5 Motorway are aware of where the Motorway will be constructed in relation to their properties. A register of complaints will be kept during the construction period, should any concerns arise. Adverse impacts on the local population, including uncertainty, will be reduced by implementing a comprehensive consultation approach to ensure they have access to a good level of information on the project, including when the construction works will start.

The motorway will have a positive effect on the region by improving access to markets, employment and essential services such as hospitals. Locally, there will be some reduced access, although 7 local crossings and 1 footbridge, together with earth road parallel to the M5 Motorway will be provided to reduce the impact on access.

The level of traffic in town centres, including Szeged, is predicted to decrease. This will improve the environment for people living and using town centres, although a smaller number of people in the countryside will experience adverse effects due to the construction and traffic.

10.5.9 Borrow Pits

The soil, sand, gravel, and crushed stone needed for the construction of the motorway will only be purchased from licensed facilities. This will ensure the site operators have prepared an Environmental Action Plan and will undertake a Recultivation Plan.

10.5.10 Monitoring

The monitoring set out in the main report will be undertaken to ensure the mitigation measures are working effectively.

10.5.11 Construction Environmental Management Plan (CEMP)

The CEMP set out the measures the construction contractor is expected follow during the construction period to reduce the risk of adverse impacts on the

environment and local population. A number of measures to be included in the plan are set out in the main report, although the this list is not exhaustive and the contractor will be expected to add measures that are specific to their operation.