ENVIRONMENTAL STATEMENT
NON-TECHNICAL SUMMARY

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Infrastrata

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1.0 Introduction

ISLANDMAGEE STORAGE LIMITED is seeking permission to build an underground natural gas storage facility which will have its above-ground facilities near Ballylumford Power Station, in Islandmagee, County Antrim, Northern Ireland. Seven caverns with a total gas storage capacity of approximately 500 million cubic metres are planned within a layer of Permian-age salt, greater than 200 metres thick, located approximately 1,400 metres beneath Larne Lough. Once completed, the facility is designed to have an injection capability of 12 million cubic metres per day of gas and a withdrawal capability of 22 million cubic metres of gas per day.The facilities will permit the more efficient use of Ireland's gas infrastructure assets and will help to provide stable prices and security of supply to Northern Ireland, which currently imports 100% of its natural gas requirements and generates 60% of its electricity using natural gas.

Data acquired in the early 1980s at the Larne-2 borehole show that the Permian salt found at Larne is low in impurities and therefore particularly suited to natural gas storage. Younger Triassic-age salt is found over a much wider area of south east Antrim and at much shallower depths. This salt is already extensively mined at Kilroot for road grit, but is not considered to be as suitable for natural gas storage. The Larne area is, to date, the only location in Ireland where Permian-aged salt has been found.

Rock salt (halite) exhibits unique physical properties and mechanical behaviour that make it an ideal host for the development of caverns for the storage of substances that do not themselves react with or dissolve salt. Natural gas is one such substance and the use of salt strata for underground gas storage is already widely employed within Permian salt layers in northern continental Europe. Several gas storage facilities are also in operation in England, within the Permian salt beds in Yorkshire and Teeside and also the Triassic salt beds found in Cheshire.

The project is driven by the need to achieve security and maintain flexibility in the UK and Ireland's energy supply. Natural gas is an extremely important source of energy, currently contributing 60% of Northern Ireland's energy needs. At present, Northern Ireland produces and consumes 7% of its electricity from renewable sources, however the current Northern Ireland target is to achieve 12% renewable electricity by 2012. The Department of Energy, Trade and Investment is considering that Northern Ireland should set a new strategic goal to increase the amount of electricity generated from renewable sources to 40% by 2020. This is likely to be primarily achieved through wind-powered generation. A shift to renewable energy sources is likely to result in an increasing reliance on gas-fired power stations to support the fluctuations in supply from the

intermittent nature of wind power generation. Rapid cycle gas storage facilities, such as the Islandmagee Storage Project, will be important to respond to the rapidly fluctuating gas supply demands for electricity generation, in effect also acting as "electricity storage" in a low carbon economy.

If permission is granted, Islandmagee Storage Limited hopes to commence construction in 2011, with first gas operations commencing in 2015 and the facility fully operational by 2017.

Over the last 40 years GB and Northern Ireland have relied heavily on their North Sea resource of natural gas. The North Sea resource of a secure and sustainable gas flow has limited the need to provide significant storage volumes, since daily and seasonal demands for gas have been accommodated by the flexibility of supplies close to shore. This relative luxury is becoming less and less sustainable as the nation becomes increasingly reliant on more distant and less flexible imported gas; the outcome of which is that in order to maintain control of its own supply and demand requirements, the need for a substantial portfolio of natural gas storage facilities is now a national issue.

Gas storage in salt formations in Europe

Opportunities for a safe and environmentally-friendly method of storing gas are relatively few. Gas storage is not an uncommon requirement since, from Victorian times, gas derived from coal/coke has been stored in our towns and cities in the form of gas holders. Such gas holders only store small volumes of gas at low pressures for long enough to smooth daily demand. Were they to be used for seasonal gas storage, then the UK would need tens of thousands of new above-ground gas holders around the country to provide the level of storage required by the middle of the next decade. Above-ground storage is therefore not a realistic solution in environmental or commercial terms.

Deep underground storage is one of the safest and most environmentally-friendly methods of storing large quantities of natural gas. The use of salt strata to create underground storage caverns is a well-established technology which has been in development for more than 40 years. There are currently more than 70 salt storage facilities in operation around the world, with many more under construction. Currently about a third of the operational facilities are located in Europe, with the majority in Germany.

Seven storage caverns, each approximately 80m in diameter and 160m in height are proposed at Islandmagee. The caverns are created by a technique called "leaching", or "solution mining". The leaching process dissolves the salt, under controlled conditions, and creates a cavity within the salt layer in which gas can be stored. The size, shape and spacing of caverns are carefully designed to ensure that the caverns are structurally sound and that the stored gas is fully contained within the salt layer.

For the Islandmagee Storage Project, it is proposed that the salt will be dissolved using seawater drawn from an intake point on the eastern shore of Islandmagee. The waste product, a concentrated brine, will be discharged back into the sea at a point around 450 metres off the east coast of Islandmagee, in a water depth of approximately 27 metres from where it will rapidly disperse.

Environmental designations within and around Larne Lough

The proposed site, near Ballylumford, is ideally located for this type of project as it is close to the sea (necessary for sourcing sea-water to leach the caverns and for discharging the resultant brine) and also already possesses the two main supporting infrastructural requirements for a gas storage facility, namely a source of power, Ballylumford Power Station, and a connection to the main gas network, the Ballylumford Pressure Reduction Station which is the termination point for the SNIP (Scotland to Northern Ireland gas transmission pipeline).

Although the site is conveniently located in terms of infrastructure and geology, the site also neighbours a number of sensitive environmental habitats, such as the Larne Lough SPA, ASSI and RAMSAR sites, the Swan Island Nature Reserve, the Gobbins and Portmuck ASSIs (principally designated for their geological features but which host important numbers of breeding sea birds) and The Maidens ASSI which is currently under consideration for SAC status. Larne Lough also supports a growing aquaculture industry and the middle portion of the Lough is an E.U. Designated Shellfish Water. In addition to its environmental sensitivity, the coastline of County Antrim is a significant tourist, commercial and residential amenity area. Construction of the facility, both in terms of above-ground facilities and underground/undersea pipelines and the subsequent operation and maintenance of the plant may have potential impacts which must be addressed.

This document is a summary of the full Environmental Impact Statement (EIS) which assesses the likely impacts that the proposal may have on the environment and, where appropriate, outlines appropriate mitigation to eliminate, or reduce to acceptable levels, any impacts. The EIS also describes the project elements and summarises the Safety Report, the full version of which has been submitted to the Health and Safety Executive Northern Ireland in support of a Hazardous Substances Consent application.

2.0 Project Description

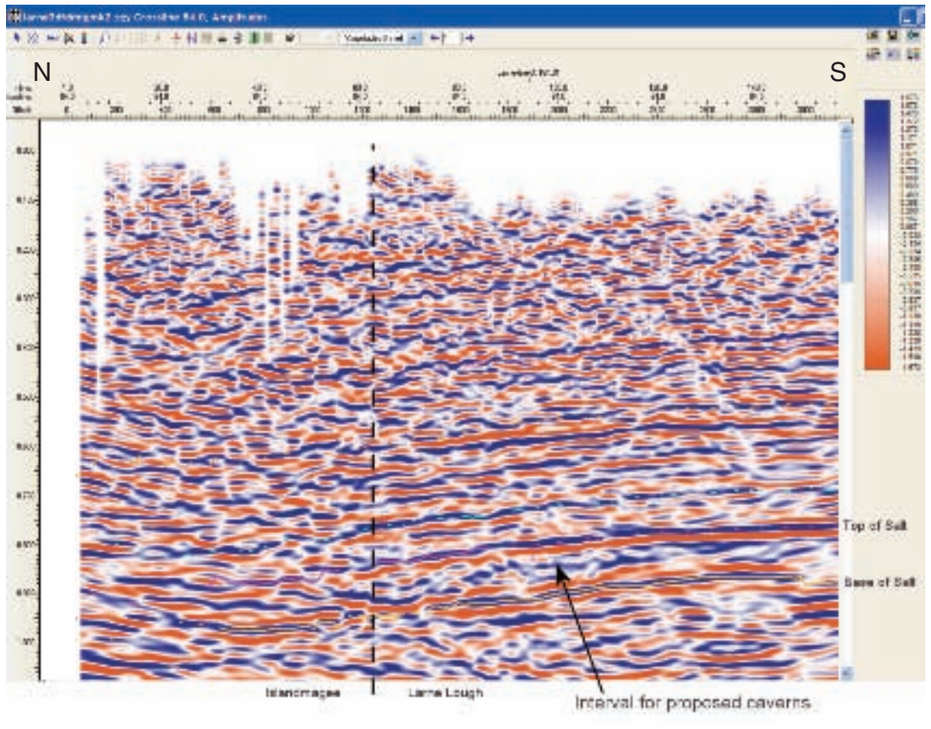
The key general infrastructure elements of the gas storage concept are:

- A location for the underground storage caverns and the surface plant required to operate gas injection into storage and withdrawal;
- A connecting point in to the gas transmission system from which the gas will be taken and returned; and
- A connecting point into the electricity transmission system from which the electricity to drive the pumps and compressors required during construction and operation can be sourced.

The site for the caverns and above-ground facilities, although not fixed, is influenced significantly by the underlying geology.

In October/November 2007 a 3D seismic survey was undertaken across part of Larne Lough and northern Islandmagee to determine whether the Permian salt layer identified by the Larne-2 borehole (drilled in 1981) was confined to the immediate area around the borehole, or whether it was more widespread. The survey was successful and gave very clear results, particularly in the areas not overlain by basalt, demonstrating that the salt layer extends beneath Larne Lough and to around 250 metres in the area around Ballylumford.

Workstation image of seismic data



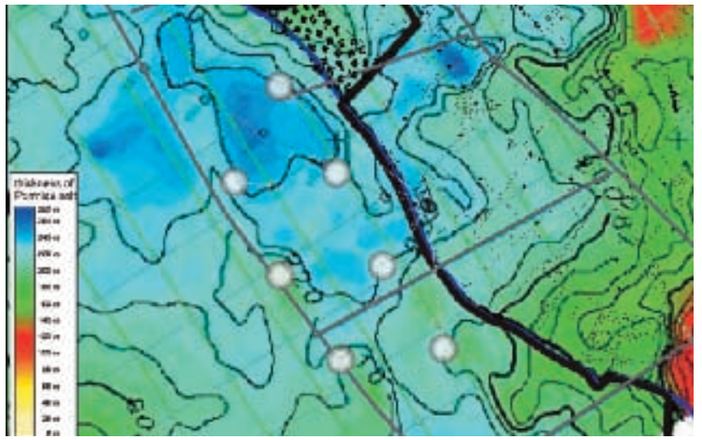
2.1 CONSIDERATION OF ALTERNATIVES

Site Selection for Above-Ground Facilities

The directional drilling technique proposed for constructing the wells to reach the caverns allows access to the thickest area of salt beneath the Lough from a horizontal distance of up to 1000m. A site selection exercise was undertaken to examine in more detail the possible areas in which the above-ground facilities could be located.

The terrestrial areas around the Lough from which the thickest layers of the salt can be accessed were identified using Geographic Information Systems (GIS). Residential areas and areas of high conservation value were excluded, as well as the areas beneath existing high voltage power cables and above the existing gas transmission pipelines.

Caverns to be located where the Permian salt has greatest thickness



Five potential sites in Islandmagee and Magheramorne were identified and examined in a desktop study to assess their suitability for locating the above-ground facilities. The sites were scored on their environmental sensitivity, proximity to residential areas, existing land use, proximity to feasible gas/electricity connections, topography and geotechnical conditions, proximity to the open sea for intake/outfall pipelines and any other relevant local constraints.

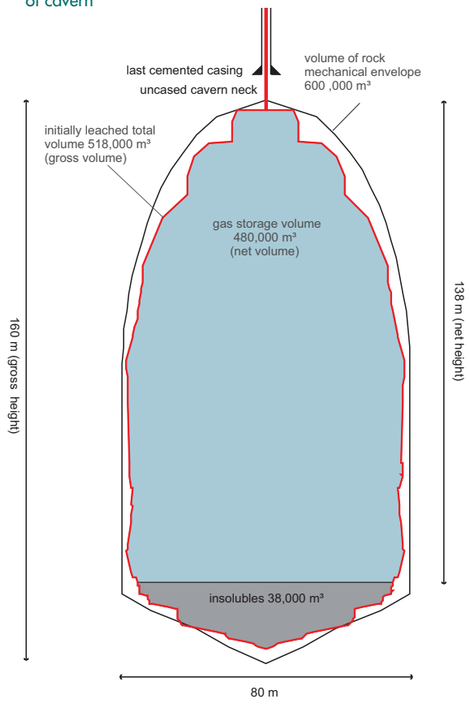
Following this initial review, three of the five sites were not considered to be viable and were subsequently eliminated from the selection process. The two remaining sites were subjected to more detailed studies. During this phase, landowners and interested parties were also consulted and permission from landowners was sought and obtained to undertake baseline ecological field studies, ground investigations and other relevant studies. The two shortlisted sites were both considered to have positive and negative attributes and it was eventually considered that the facility could be split across the two sites to take advantage of the main positive attributes of each site, therefore reducing the potential for negative impacts.

The chosen layout has the wellpad site, which provides the access to the caverns themselves, located a short distance south of the main compression and metering facilities. The main facility will be situated adjacent to the existing power station and Premier Transmission's Pressure Reduction Station for SNIP and will take advantage of the available infrastructure connection points at these locations. The two sites will be connected by a 725m sub-surface pipeline which will be directionally drilled using trenchless technology, therefore avoiding any disturbance of the ecologically sensitive area between the wellpad and the main gas plant facility.

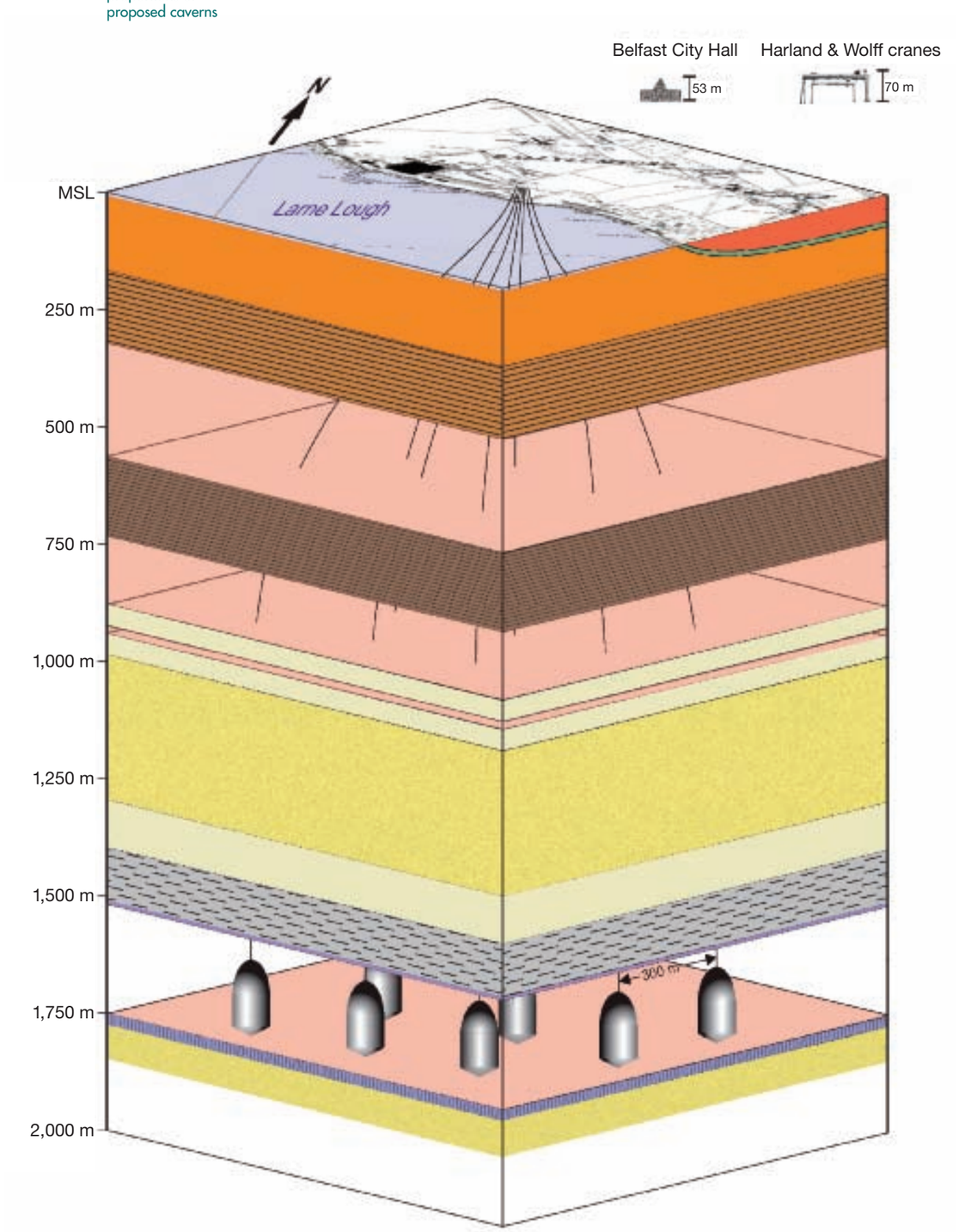
Route Selection for Seawater and Brine Pipelines

Potential routes for seawater intake and brine outfall pipelines leading from the two shortlisted sites were also examined during the site selection process. It was determined very early in the scoping and consultation phase that it would not be acceptable or appropriate to discharge any brine within Larne Lough itself. Aside from the Lough's designation as an SPA, ASSI and RAMSAR site, flushing times, especially within the inner Lough, are significant and the brine would not be able to be adequately dispersed.

Provisional design of cavern



Very simplified block diagram illustrating proportions of proposed caverns



Constraints such as sensitive habitats, land use, topography and geology were taken into account and two alternative pipeline corridors, leading to areas outside the Lough where an offshore outfall could make a connection to an onshore pipeline, were identified. The two identified landfall sites were Barr Point and the shoreline adjacent to the SNIP landfall point at Castle Robin. Again, permission to survey both pipeline corridors was sought and obtained from landowners and both routes were the subject of ecological field studies.

In addition to the two outfall connection points, four possible sites for seawater intake were examined, two within the Lough and one adjacent to each of the two outfall sites. Again, owing to the sensitivity and conservation designations of the waters within the Lough, the two intake sites within the Lough were considered to be less suitable than the two sites outside the Lough.

Hydrodynamic modelling of the tidal currents offshore at Barr Point and Castle Robin Bay demonstrated that an outfall at Barr Point would have to extend more than twice as far offshore to reach a discharge point with suitable current speeds for rapid dispersion than it would at Castle Robin Bay. This would bring the outfall length beyond the feasible range for directional drilling and conventional trenching techniques would have to be employed to construct the outfall. Owing to the site's proximity to the Port of Larne, the avoidance of trenching was considered desirable and the pipeline corridor to Castle Robin Bay was therefore chosen

Acquisition of seismic data in 2007

as the preferred route. The pipeline corridor to Barr Point was still kept open as an option for a seawater intake.

Although the intake leading from Barr Point was more desirable from a hydraulic perspective than the intake at Castle Robin Bay, the pipeline route would have the potential to cause a greater degree of disturbance to residents and particularly to Larne Golf Club during construction. Although it is more difficult to construct from a technical perspective, it was considered that there would be less impact arising from creating the intake at Castle Robin Bay as the pipeline could, for the most part, travel within the same trench as the outfall pipeline, thus confining any disturbance to a more limited footprint.

Keeping a look out for marine mammals during marine work

Alternative Uses of Waste Brine

The possibility of reusing the brine created during the leaching process within local industries, rather than disposing of it, was also investigated within the Environmental Impact Assessment (EIA). It was found that there was not sufficient demand within the food processing, chemical or textile industries to reuse the brine in any meaningful quantities. The salt production industry was also examined, as salt mining for use as road grit already takes place in Kilroot, approximately 10 miles south east of the site at Ballylumford. The salt at Kilroot is mined by conventional "room and pillar dry mining" methods and therefore processing at Kilroot is limited to crushing and screening. In order to transform the brine extracted at Islandmagee back to a crystalline salt, major evaporation works would be required. Salt production from brine requires significant amounts of landbank, e.g. the British Salt factory in Cheshire, comparable to the scale which would be required to process the brine at Islandmagee, covers 12.5 hectares excluding open air storage and brine pond areas. This type of development is not sustainable, given that the leaching process is only expected to last four years and there simply is not the demand within Ireland, nor the road or rail transport connections from Islandmagee to the nearby shipping ports to support such a large salt industry for such a short time. Re-crystallising the brine to produce salt was not considered to be a viable option in terms of economic or environmental sustainability and therefore it was determined that the most appropriate means of disposing of the leached salt from the gas storage caverns was by returning it to the sea, under carefully controlled conditions. The brine discharge is examined in more detail later in this document.

Acquiring seismic data over Larne Lough in 2007

2.2 PROPOSED DEVELOPMENT

The proposed development comprise the following main construction elements, shown on pages 12 and 13 of this document.

Gas Plant Facility

- Ground works and piling to create level platform to incorporate:
  - Main facility office and operational control building
  - Compression plant
  - Dehydration plant
  - Metering equipment
- Access road and new facility entrance from main B90 Ballylumford Road
- Creation of hardstanding area for car parking.

Seawater and Brine Pumping Facilities (Leaching Plant)

- Removal of outcropping bedrock to be reused in profiling of the gas plant facility area
- Construction of pump house containing:
  - Leaching pumps
  - Brine discharge pumps
- Electrical sub station (containing transformers for leaching plant electricity supply)
- Brine tanks (holding tanks for monitoring and temperature control of brine, prior to discharge).

Wellpad

- Reprofiling of slope to provide flat pad area measuring 110 metres by 45 metres which will host drilling rig during early construction phase
- Seven wells each capped with a wellhead, contained in cellars below ground level
- Enhancement and extension of existing access lane from main B90 Ballylumford Road.

Typical pipeline construction

Seawater Intake Pumping Station

- Excavated sump into the bedrock on the foreshore at Castle Robin Bay/Bell's Port, which will be covered by an access hatch and will contain two pumps for seawater intake.
- Two directionally drilled intake pipelines extending below the seabed from the intake sump approximately 50 metres to the seabed at the -4m contour.
- A power connection for the intake pumps will be buried within the pipeline trench.

Connecting Pipelines

The facilities will be connected together by sub-surface pipelines as follows:

- Seawater Intake Pipeline
  A 450mm seawater intake pipeline will run from the inlet structure to the wellpad via the seawater intake pumping station and the brine leaching plant building. The total length of the seawater pipeline will be 3,570m, of which 725m will be directionally drilled and 2,845m will be buried using conventional trenching methods.
- Brine Outfall Pipeline
  A 450mm brine outfall pipeline will run between the wellpad and the outfall discharge point (450m offshore) via the seawater intake pumping station. The total length of the brine pipeline is 3,880m, of which 1,320m will be directionally drilled and 2,560m will be buried using conventional trenching methods.
- Connecting Gas Pipeline
  A 406mm gas pipeline between the wellpad and the main gas plant facilities. The gas pipeline will be directionally drilled across a distance of 725 metres.

For the conventionally-trenched sections, the pipeline route consists of a 30m wide corridor, within which all pipeline laying activities will take place. The corridor is reduced to 15 metres at crossings of hedgerows, streams and other sensitive areas. The pipelines will be buried to a depth of 1.5 metres, enabling farming activities to continue as normal post-construction. Following completion and testing of the pipelines, the ground surface will be reinstated fully. As the majority of the pipeline route is across agricultural land, particular attention will be paid to reinstating drainage and mitigation of soil compaction issues, as well as restoring native hedgerows, stone walls and fencing.

For the directionally drilled sections, there will be no disturbance of the ground surface, except at the drill entry/exit points, which again will be fully reinstated post-construction.

Temporary Set-Down and Storage Compound

A construction compound incorporating construction site offices and equipment lay down area will be established on an existing but currently disused area of hardstanding 850m north west of the site. The compound, owned by Northern Ireland Electricity (NIE) will be used to reduce the construction footprint of the leaching plant, main facility and wellpad sites, by enabling storage of construction materials and allowing equipment deliveries to take place outside peak commuting times. Equipment and materials can then be transferred the short distance to the construction sites with minimal disturbance to local residents.

Example of tunnelling below roads

0 100 200 400 600 800 1,000 m

N

BRINE OUTFALL
(27m Water Depth)

SEAWATER INTAKE

c. 285 metres seawater pipeline (conventionally trenched)

c. 595 metres (horizontal distance) brine pipeline (directionally drilled)

c. 2,285 metres brine and seawater pipelines (conventionally trenched)

Temporary Construction Set-Down Area (Existing Hardstanding)

Sub-surface Seawater and Brine Pipelines

SEAWATER AND BRINE PUMPING FACILITIES (LEACHING PLANT)

(EXISTING) POWER STATION

(EXISTING) MOYLE INTERCONNECTOR

c. 275 metres brine and seawater pipelines (conventionally trenched)

MAIN GAS PLANT FACILITIES

Access Road

Vent

Sub-surface Seawater, Brine and Gas Pipelines

c. 725 metres brine, seawater and gas pipelines (directionally drilled)

WELLPAD

Proposed Cavern Locations
(Top of Caverns approx 1,500 metres Beneath the Seabed)

Legend

- Brine Outfall
- Seawater Intake
- Gas Pipeline

NOTES:
All dimensions are approximate. Aerial photography reproduced with the permission of Premier Transmission Ltd. Ordnance Survey maps and OS mapping reproduced from Land and Property Services Digital Data with the permission of the Controller of Her Majesty's Stationary Office © Crown copyright and database rights.

3.0 The Environmental Impact Statement

3.1 SCOPING

The Environmental Impact Assessment process is a method of ensuring that the likely effects on the environment of a new development, such as this, are fully understood and taken into account before planning permission is given for the development to proceed. Its primary purpose is to improve the quality of decision making by identifying potential environmental issues early in the project process.

Prior to work commencing on an EIA, it is important that the scope is effectively defined. A scoping exercise was carried out at the outset of this project to determine the issues that needed to be addressed in the EIS. The scoping exercise involved the following main elements:

- Preliminary site visits to assess the likely environmental impacts at first hand
- Preliminary consultation with the principal statutory and non-statutory consultees
- Public and private consultation sessions
- A desktop study where information about the site from a number of sources was examined.

Once the key issues were identified, baseline studies/surveys were carried out. These studies enabled the prediction of the likely environmental impacts arising from the proposed development. These impacts were then evaluated in terms of their significance and their nature and magnitude.

A fundamental aim of the environmental assessment, as part of the design process, is to ensure that any potentially damaging effects are avoided or minimised and that the beneficial aspects of the project are enhanced. The most satisfactory means of impact mitigation is to avoid it at the source either by site selection or as in this case, where possible, by redesign. Reduction involves lessening the degree of an impact which cannot be entirely avoided. Reduction acknowledges that some degree of adverse impact will arise, but provides means by which the conditions can be improved or compensated for.

3.2 CONSULTATION

The consultation phase of an Environmental Impact Assessment is of utmost importance, as it enables all concerned and interested parties to voice their opinions on the proposed development during the initial stages of the project. This enables changes to be made during the design stage of the development, taking on board comments and ideas from the consultation process.

Statutory and Relevant Bodies Consultation

Consultation meetings were held with the principal statutory consultees, such as the Northern Ireland Environment Agency, the Northern Ireland Planning Service, the Department of Enterprise, Trade and Investment, the Health and Safety Executive and the Crown Estate. In addition, other relevant bodies such as Larne Borough Council, the Port of Larne, Northern Ireland Electricity, Systems Operator Northern Ireland and Ballylumford Power Station were extensively consulted.

Local Interest Groups and Public Consultation

Recognising that consultation and input from local stakeholders is of key importance in designing a facility that will cause minimum disruption to the local community, Islandmagee Storage Limited has operated a policy of transparency and active consultation with all interested parties. Meetings and presentations were held with local interest and stakeholder groups throughout the consultation process and two public consultation events were held in June and October 2009 at which feedback was actively sought from the public to contribute to the design process.

3.3 ENVIRONMENTAL IMPACT STATEMENT

The general headings of the topics and issues reported on in the Environmental Impact Statement are as follows:

- Terrestrial Flora and Fauna (includes wintering and breeding birds)
- Intertidal and Subtidal Flora and Fauna (includes fisheries and marine mammals)
- Air and Climate (includes noise and vibration)
- Material Assets (includes traffic impact)
- Coastal Processes (includes brine dispersal)
- Cultural Heritage (includes archaeology)
- Landscape and Visual impact
- Geology and Hydrogeology
- Human Beings (includes socio-economic impact and heath and safety).

3.4 TERRESTRIAL FLORA AND FAUNA

Construction of the above-ground facilities and the intake and outfall pipelines has the potential to cause significant impacts on sensitive habitats and species. Information on the baseline conditions was collected over a two-year period though a series of desk-top and field studies including habitat surveys, breeding and wintering bird surveys and mammal surveys.

Where possible, sensitive habitats have been avoided during the site and pipeline route selection exercises and the potential impact on the sensitive scrub area between the wellpad and the main gas plant facility has been eliminated by employing the use of horizontal directional drilling (tunnelling) techniques within the construction methodology.

Best practice construction guidelines and an effective Environmental Management Plan will be drawn up and adhered to by the successful contractor. Particular attention will be paid to the management of site run-off and appropriate drainage and pollutant interception of surface waters will be incorporated into the construction phase.

Impacts on hedgerows crossed by the pipeline route will be minimised by removing hedgerow vegetation outside the breeding birds season and reducing the working width at crossing points. Mitigation measures have also been incorporated into the pipeline construction methodology to reduce the impact to watercourses and field drainage. The lands along the pipeline route will be fully reinstated post-construction and no long-term significant impacts are predicted from the pipeline construction.

Measures have been taken to minimise the effects of construction on species of conservation importance, e.g. avoiding badger setts and trees which may support roosting bats. The construction footprint of the above-ground facilities has been reduced by employing the use of a construction set-down area on an area of existing hardstanding close to the site, which will be used to manage the delivery of components to the construction site more efficiently. The plant and equipment required at the main gas plant facility and the leaching plant sites, where possible, will be pre-assembled off site and brought to the site in modules to reduce the final on-site construction to a minimum.

With appropriate mitigation in place, the construction of the above-ground facilities will result in no significant impact to the local species and habitats. The scheme has been designed to avoid undertaking any works within the environmentally designated areas within and around Larne Lough and effective management of the construction phase will eliminate potential for any indirect impacts. The loss of 1.1ha of semi-improved grassland beneath the footprint of the main gas plant facility and wellpad will be compensated for by the planting of native species-rich flower borders and planting of native trees around the fringes of the newly-built elements. Installation of bird-nesting boxes on the mature trees within the land bank owned by Islandmagee Storage Limited will further provide a positive biodiversity gain for tree-nesting birds.

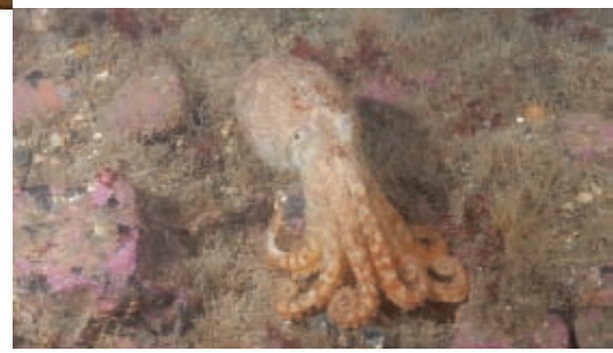
3.5 INTERTIDAL AND SUBTIDAL FLORA AND FAUNA

Construction of the intake and outfall pipelines and the operation of the brine outfall have the potential to cause significant impacts on sensitive habitats and species. Information on the baseline conditions was collected over an 18-month period through a series of desk-top and field studies including seabed videos, a dive survey, benthic grabs and trawls, acquisition of lobster fishing and bycatch data and additional benthic survey information provided by the Northern Ireland Environment Agency.

Significant impacts on areas of sensitive marine and coastal habitats will be avoided by employing the use of horizontal directional drilling (tunnelling) techniques within the construction methodology. The directional drilling construction technique will tunnel the intake and outfall pipelines beneath the seabed, only causing a small area of disturbance where the drill breaks through the surface of the seabed at the intake/outfall point.

The field surveys revealed a number of areas of the seabed around the eastern shore of Islandmagee which have high biodiversity, particularly the areas around Skernaghan Point and Muck Island. However it was noted that the biodiversity begins to decrease beyond 20 metres water depth as visibility, current speed and substrate type impose constraints on the species diversity.

The proposed brine outfall discharge point is located approximately 450m offshore at a water depth of 27 metres within an area which has good tidal currents and less sensitive marine



habitats, and is outside the principal feeding areas for the local tern and cetacean populations.

Dispersion modelling, discussed in more detail in 3.8 Coastal Processes, has shown that dilution and dispersion of the brine will be effective in minimising the impact on water quality. There is not anticipated to be any long-term impact on water quality from the operational phase of the outfall and therefore no significant impact on the benthos, fish species or crustaceans around Islandmagee, and the commercial fisheries that they support.

The use of directional drilling techniques will reduce the potential impact from construction noise on the local seal and cetacean populations and adoption of appropriate construction methodologies and timing will further mitigate against impacts. No significant impacts to marine flora and fauna are anticipated to arise from the construction and operation of the brine outfall. A thorough monitoring programme will take place during the construction and operation of the brine outfall to observe the measured outputs and impacts of the outfall and ensure that they are within the ranges predicted within the EIS.

3.6 AIR AND CLIMATE

Noise will principally be generated during the construction of the gas storage facility as the wells are drilled and the above-ground facilities are constructed. The pipeline route and location of the above-ground facilities have been chosen to avoid, where possible, coming close to residential dwellings. Six noise sensitive properties have been identified close to the pipeline routes, the construction compound and the facilities themselves.

The noise impact of laying the pipelines will be similar to that of a typical building site and will occur during normal daytime construction hours and only for a short period. Islandmagee Storage Limited anticipates using a state-of-the-art modern hydraulic drilling rig to drill the wells. The rig's built-in noise attenuation, coupled with the topography at the site, will mean that nearby houses will not experience any significant impact, despite the drilling being a 24-hour operation during the six-months of operation. Traffic noise is anticipated to be confined largely to daytime hours and the associated impacts will be minimal.

Noise emissions arising from the operation of the leaching pumps during the four-year leaching period and the compression and cooling equipment of the main facility during the lifetime of the project will be mitigated by design and will not exceed best practice noise levels for 24-hour operating plant, at source or at nearby residences. Noise monitoring will take place during construction and operation of the facility to ensure that the observed noise levels from the facilities are in compliance with the levels predicted in the EIA.

There are not anticipated to be any vibration issues as there will not be any buildings within 100m of any of the proposed works areas.

During the construction phase, the implementation of appropriate mitigation measures on construction plant will ensure that significant effects on air quality are avoided. The effects of vehicle emissions associated with the construction phase of the gas storage project are considered to be negligible. During operation, the gas storage facility will draw the necessary power requirements directly from the electricity transmission system, therefore no emissions will be directly output from the facility.

3.7 MATERIAL ASSETS

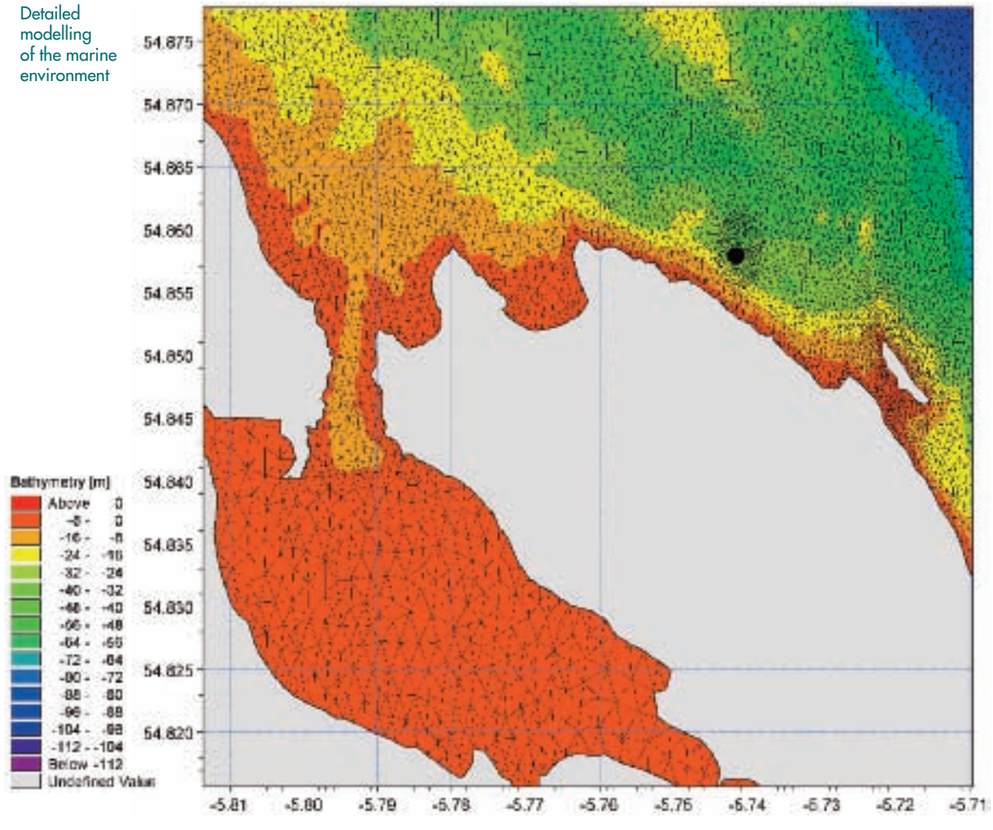
An analysis was made of the traffic generation arising from the construction of the pipelines and the above-ground facilities. Disruption to local road users from the transport of pipes, plant and materials by HGV will be minimised by effective use of the construction set-down area. This area will be used to schedule deliveries of plant and equipment outside of peak commuting hours. They can then be transferred the short distances locally between the four works areas at convenient times with minimum disruption to residents. Occasionally there may be a requirement to deliver oversize loads to the site. These will be carefully managed with adequate warning provided for residents to choose alternative routes, if necessary. There is not anticipated to be any significant traffic impact arising from either the construction or the operation of the proposed gas storage facility.

3.8 COASTAL PROCESSES

The location and length of the seawater intake and brine outfall pipelines have been carefully designed and modelled to take advantage of the natural dilution and dispersion characteristics of the tidal currents offshore from Islandmagee. The brine will be forced through the outfall diffuser at high pressure to ensure that dilution is effective and that brine is not discharged onto the sea bed at low velocities.

Monthly background salinity data examined at three water quality sampling stations close to the discharge point showed an average background salinity of approximately 34.2psu*, however the salinity can vary by up to 1psu throughout the year. The brine discharge model has examined the fate of the brine when continuously discharged at its maximum volume and concentration. In practice, the discharge will initially begin with lower concentrations and

Detailed modelling of the marine environment



*The PSU is a Practical Salinity Unit – One PSU is approximately 1 gram of salt per kilogram of solution

Photomontage
of proposed facilities
viewed from A2
at entrance to Larne

volumes before gradually rising to the peak conditions modelled, then reducing again as cavern construction nears completion.

The model shows that the diffuser used to disperse the brine will dilute salinity concentrations from the maximum concentration of 260psu in the brine to below 40psu within a few metres of the outfall. The rate of dispersion will vary with the tidal conditions, however the maximum envelope of salinity increase in excess of the range normally experienced in seasonal variations is expected to be restricted to the initial mixing zone which is less than100m from the outfall.

The phasing of the increases in salinity and volume of the brine discharge will allow the benthic organisms within the plume area to adjust gradually to the changes in salinity, thus reducing the footprint in which the salinity increase may cause an adverse impact.

The construction of the inlet and outfall structures will mostly take place using directional drilling techniques, thus reducing the generation of suspended sediment and turbidity to negligible levels when compared to those which would arise from conventionally-trenched marine pipeline construction methods. There will be no impact on tidal currents or other coastal processes arising from the construction or operation of the pipelines.

3.9 CULTURAL HERITAGE

Islandmagee has a rich and varied cultural heritage and there is precedence for items of archaeological significance being uncovered in this area during works associated with pipeline construction. Ballylumford Dolmen is located a short distance from the proposed facilities and there are a number of nearby recorded findspots. Extensive desktop studies and field walkover studies have ensured that the proposed terrestrial pipeline routes and above-ground facilities avoid all known cultural sites. Sidescan sonar and magnetometer studies have also been undertaken along the subtidal sections of the proposed pipeline route to ensure that there are no previously unrecorded shipwrecks in the vicinity of the pipelines. Archaeological mitigation by a qualified archaeologist will take place in the form of supervision of topsoil stripping in all areas where ground disturbance will take place. If any archaeological deposits or artefacts are uncovered during construction, a strategy for continuation of works, dependent on the significance of the discovery, will be agreed with NIEA Built Heritage.

3.10 LANDSCAPE AND VISUAL IMPACT

The site for the leaching plant and main gas plant facilities has been chosen with the location's existing industrial context in mind. The main facilities will be viewed within the context of the power station and will therefore not pose a significant visual impact. There are a very limited number of residential properties in Islandmagee that will have direct views of the facilities once construction of the pipelines has been completed. Visual impacts are primarily limited to views across the lough from Larne,

Glynn and Magheramorne. The visual impact of vegetation stripping during construction will be short term as vegetation will be fully reinstated following construction. The wellpad site will be remote from the main facilities hub and is located within what is currently agricultural pasture land.

The drilling rig will pose a short-term visual impact for the duration of drilling activities, however, following construction, the wellpad will have all its infrastructure contained below ground level, and will be seen as a flat pad which will have a low visual impact.

The visual impact of the proposed gas storage facilities will be mitigated by the use of appropriate colours and materials for the security fencing (black) and facility buildings (dark green); reinstatement of all removed vegetation and additional planting of native trees and hedgerows to reduce the scale of the proposed development and create a more attractive site which blends into the surrounding agricultural landscape.

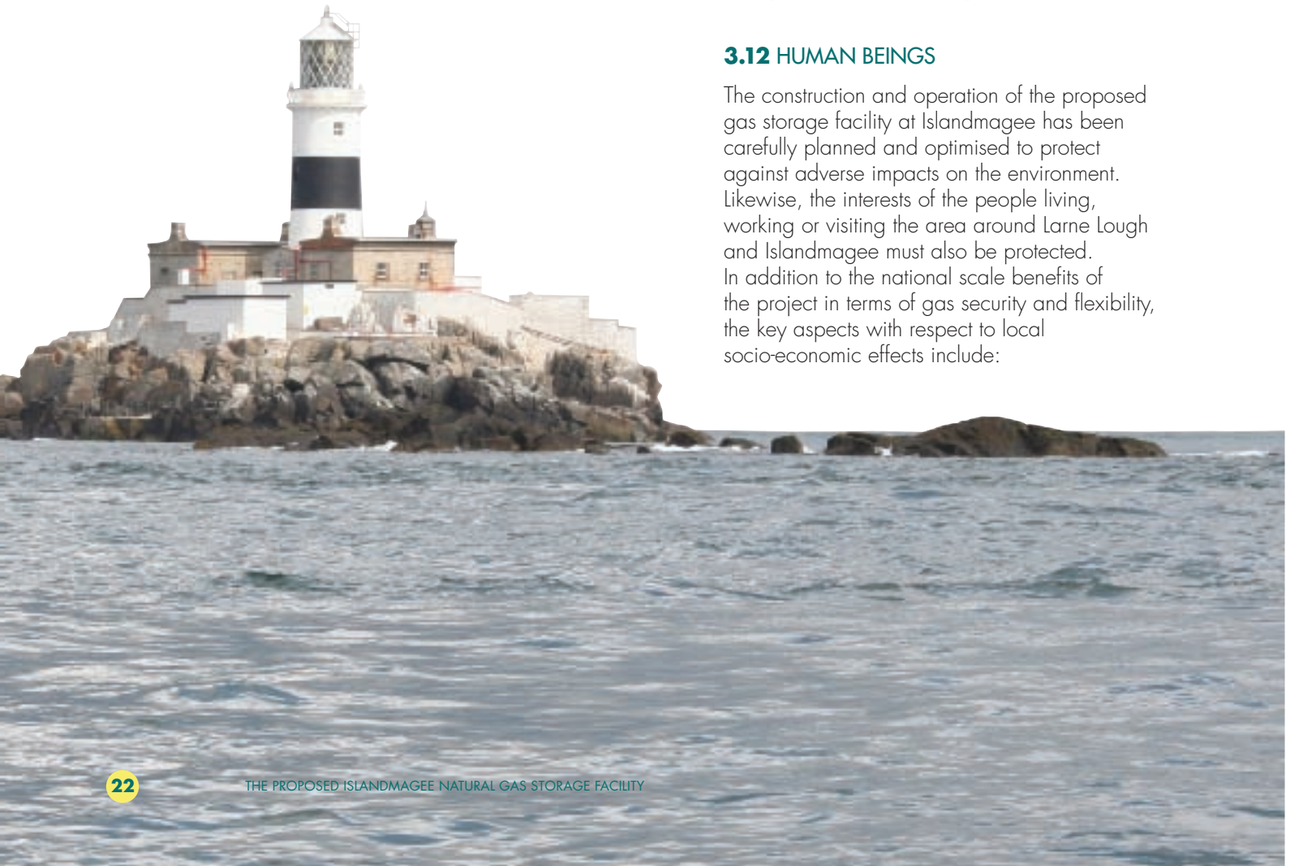
3.11 GEOLOGY AND HYDROGEOLOGY

Islandmagee and the wider Larne Lough area hosts a number of important geological exposures, including exposures of the Jurassic-Triassic boundary. The designation of the Portmuck, Gobbins and Waterloo ASSIs, primarily for their geology, reflects the importance of the area in the national context. The location of the above-ground facilities and pipeline routes does not encroach on the ASSI areas and whilst excavation of the pipeline routes and leaching plant site will result in the removal of some basalt, these outcrops are not of geological significance. The seismic mapping of the area and logging of the future caverns wells, together with other ground investigation studies necessary during the detailed design phase, will enhance the understanding of the geological history of the area and will provide the Geological Survey of Northern Ireland (GSNI) useful information for future study.

There are no predicted impacts to geology or hydrogeology arising from the proposed gas storage facility at Islandmagee.

3.12 HUMAN BEINGS

The construction and operation of the proposed gas storage facility at Islandmagee has been carefully planned and optimised to protect against adverse impacts on the environment. Likewise, the interests of the people living, working or visiting the area around Larne Lough and Islandmagee must also be protected. In addition to the national scale benefits of the project in terms of gas security and flexibility, the key aspects with respect to local socio-economic effects include:



Project timeline

PLANNING PERMISSION GRANTED

YEAR 1	YEAR 2	YEAR 3	YEAR 4
Best Case Scenario 2011 Q1, Q2 • Site preparation Q3 • Drill first borehole	Best Case Scenario 2012 Q1, Q2 • Complete front end engineering design Q3, Q4 • Construction of brine pipeline • Construction of brine outfall • Construction of leaching plant	Best Case Scenario 2013 Q1 • Complete construction of leaching plant Q2, Q3, Q4 • Commence leaching first cavern • Drill remaining boreholes	Best Case Scenario 2014 All Year • Construction of gas plant All Year • Leaching

YEAR 5	YEAR 6	YEAR 7
Best Case Scenario 2015 All Year • Leaching Q2 • First injection of gas into first cavern Q4 • First cavern becomes operational	Best Case Scenario 2016 Q4 • Leaching completed	Best Case Scenario 2017 Q4 • Final cavern becomes operational • PROJECT COMPLETED

- Construction activities will generate temporary employment for over 200 people, and operation of the facility will provide permanent employment for more than 20 people (Islandmagee Storage Limited is committed to using local labour where possible).
- Local businesses and services will benefit indirectly from the additional people and activity during the construction period.
- Tourism potential will not be adversely impacted by the scheme, and there will be no impact on the water quality of the nearby Brown's Bay designated bathing waters area. The social responsibility component of the project may serve to enhance the tourist potential of the area by assisting with funding towards the proposed Gobbins Cliff Path Scheme and other improvements to the local area.

Islandmagee Storage Limited holds a strong belief in supporting the local community. Subject to obtaining planning permission and full funding for the project, the Company wishes to set up a Trust, based around the three themes of Education, Geology and the Environment, which would have an initial investment of £1million on a range of local community projects over the first three years, with a further £50,000 per annum thereafter for a minimum of six years. Consultation with local residents and interest groups has indicated that there is a need for Islandmagee Community Centre to be upgraded. Islandmagee Storage Limited has agreed to assist with funding of the replacement of the Community Centre through the Trust as part of its primary investment phase.

During the construction phase, there is the potential for short-term disruption relating to noise or traffic to a limited number of people. Islandmagee Storage Limited will implement a mechanism for liaison with the community to inform residents of the programme of works and any unusual construction events. It is further proposed to implement a "responsible person" scheme whereby personnel on site can be reached in order to act upon and answer queries from residents.

Photomontage of proposed facilities viewed from A2 between Glynn and Larne

3.13 SAFETY

Salt caverns have been used for storage of natural gas in Europe and the rest of the world for over 40 years and have proved to be a safe and efficient means of storing gas. The storage of natural gas in salt caverns formed part of the UK Government's Energy Review published in 2006, which included an expert report by the UK Health and Safety Executive (HSE) addressing the potential health and safety risks. This concluded that the hazards and risks associated with the storage of natural gas in salt caverns are well understood, that effective safety standards have been developed to ensure that the risks from future developments can be managed sensibly, and that the existing regulatory strategy for ensuring that the risks are properly controlled is robust. The major accident risks associated with accidental releases of gas (i.e. fires or explosions) will be controlled by the adoption of established industry standards and relevant good practice, developed over many years and incorporating input from industry and regulatory authorities. A gas explosion within a cavern is highly improbable, since the great depth of the caverns and their pressure will prevent the ingress of air required to form an explosive mixture. Recognised safety engineering techniques will be adopted at key stages of the project and isolation, protection and shutdown systems will be implemented as appropriate. In an emergency at the surface, the facilities will be designed so that the gas in the caverns can be isolated immediately with sub-surface safety valves and the site made safe. Before construction is allowed to proceed, and again before operations are allowed to commence, the regulatory authorities must be satisfied that safety aspects have been properly addressed.

3.14 SUMMARY

The Environmental Impact Statement provides a comprehensive assessment of the potential impacts for all the component parts of the project. It sets out proposed mitigation measures to neutralise or reduce their potential adverse impact to an acceptable level.

The EIS has been produced by a team of specialists in each of their subjects, grouped into a comprehensive assessment as a result of a programme of close interaction within and between the environmental team, the engineering design team and the client over a two-year period.

The approach has resulted in a thorough understanding of the combined effects of the different impacts. A good example has been the inclusion of the directional drilling construction technique within the construction methodology. This not only reduces the ecological impacts within the terrestrial and marine sections where its use is proposed, by limiting the amount of surface disturbance, but also significantly reduces the impacts on archaeology, noise, coastal processes and visual impact.

Regular and invaluable informal meetings have been held with the local community, the planning authorities and key Government agencies, which has enabled the project design to be steered towards the most environmentally acceptable solution.