An Roinn Cumarsáide,
Mara agus Acmhainní Nádúrtha

Department of Communications,
Marine and Natural Resources

Mr Ian Douglas
Planning and Development Section
Mayo Council
Aras an Chontae
Castlebar
Co Mayo

30 January 2004

Re: Proposed Gas Terminal in Corrib Gas Field – your ref: P03/3343 of 30/12/2003

Dear Mr Douglas

The Minister for Communication, Marine and Natural Resources has no comments to make on this planning application.

Yours sincerely

Michael J. Daly
Principal

P03/3343

AN ROINN COMHSHAOIL, OIDHREACHTA AGUS RIALTAIS ÁITIÚIL.
DEPARTMENT OF THE ENVIRONMENT, HERITAGE AND LOCAL GOVERNMENT

3 February, 2004

Our Ref: DAU-2003-MA-MA-03/3343

County Secretary,
Mayo County Council,
Áras an Chontae,
Castlebar,
Co. Mayo.

AN ROINN COMHSHAOIL,
OIDHREACHTA AGUS
RIALTAIS ÁITIÚIL
DEPARTMENT OF THE
ENVIRONMENT, HERITAGE
AND LOCAL GOVERNMENT

DÚN SCÉINE, LÁNA FHEARCAIR,
BAILE ÁTHA CLIATH 2, ÉIRE
DÚN SCÉINE, HARCOURT LANE,
DUBLIN 2, IRELAND

Teileafón: +353 1 647 3000
Locall: 1890 321 421

Re: Planning Application Reg. Reg. No. 03/3343 by Shell E & P Ireland Limited for the development of a Gas Terminal etc at Bellagelly South, Bellanaboy Bridge, Co. Mayo and associated peat deposition site at Srahmore and Attavally, Bangor-Erris, Co. Mayo.

A Chara,

We refer to the Council's notification in relation to the above-proposed development. Outlined below are the nature conservation, archaeological and architectural recommendations of the Heritage and Planning Division of the Department of the Environment, Heritage and Local Government.

Nature Conservation

We understand that the development comprises two main elements at two separate sites that are approximately 11km apart. These are:

1) Bellanaboy Bridge Terminal at Bellagelly South (160ha approx.): to accommodate gas separation facilities and equipment, conditioning and power generation equipment, utilities including a firewater and contaminated firewater pond, pipe racks, flare, administration block, maintenance building, equipment and plant buildings, paved areas, walkways, plant roads and open areas.

2) Peat deposition site at Srahmore (117ha approx.): site for deposition of approximately 450,000m^3 of peat from the Bellagelly South site to a Bord na Móna cutover peatland at Srahmore and Attavally, Bangor Erris (part of the Bord na Móna Oweninny Works).

Peat will be transported by road between the two sites. Some road improvements are to be carried out by Mayo County Council along the haul route for the peat between Bellagelly South and Srahmore. Our nature conservation comments on the planning application follow in four parts: (1) Bellagelly South site; (2) Srahmore site; (3) the haul route; (4) general. Any references to sections are to sections of the relevant volume of the EIS.

1. Bellagelly South site

The Bellagelly South site is not covered by any conservation designation. Most of the Bellagelly South site drains southwards into watercourses that enter Carrowmore Lake Complex cSAC about 1km downstream. Part of the site drains northwards into the Glenamoy River in Glenamoy Bog Complex (cSAC) No 000500 (site Synopsis attached) less than 1.5km north of the Bellagelly South site at the nearest point.

1.1. In comparison with the previous planning application for a terminal at Bellagelly South, the main new element of the proposed development at this site, with potential for impact on nature conservation concerns, is the stockpiling of peat for drying before removal to the Srahmore site. In any grant of planning permission, the planning authority should impose whatever conditions it deems necessary to ensure that run-off from this peat does not have any significant adverse impact on the quality of receiving waters flowing away from the site.

1.2. Clarification is required on the details of site drainage and silt control measures proposed at the construction and peat excavation stage. A clear and detailed map of the existing site drainage, and of the site drainage works and silt ponds proposed at the various stages of construction and peat excavation, should be provided in the event that permission is granted and appropriate action agreed on drainage and silt control.

1.3 Physico-chemical data should be collected to properly establish the baseline water quality conditions in and around the site, and to facilitate water quality monitoring at the construction and operation stages.

1.4 The EIS states that turbidity and phosphate levels will be measured in the settlement ponds. It is recommended that pH should also be measured. This should become a condition of monitoring.

1.5 The developer should be required to address the possible impacts of free water from excavated peat on water quality, including pH and loading of humic and other acids.

1.6 A pre-construction survey for badgers is stipulated as a mitigation measure (section 6.7.3), and will be carried out in conjunction with site clearance works. Results of this survey should be supplied to the National Parks and Wildlife Service (NPWS) of this Department. Licences should be sought from NPWS for the evacuations of setts if any are found within parts of the site that will be impacted by the development or associated activities. The survey should also record any observed presence of otter and pine marten, both of which are referred to in the EIS. Mitigation measures should be devised if necessary to minimise impacts on these species. NPWS staff will be available to advise on any such measures.

1.7 Hen harriers, a species listed on Annex 1 of the EU Birds Directive, were recorded over the site in March, June and November 2001. This suggests breeding in the locality. A survey should be carried out at the appropriate time of year, prior to the commencement of any works, to establish if hen harriers are breeding in the area, with a view to devising

mitigation measures to minimise disturbance during the breeding season, if breeding is recorded.

1.8 The developer should be required to prepare a schedule of sensitive periods for wildlife when works should cease or be curtailed, which are referred to in the EIS but are not specified.

1.9 For any landscaping of the cut (peat) and fill (mineral) slopes, and any other parts of the overall site, consideration should be given to the planting of native species, and invasive non-native plants should be avoided.

1.10 The improvement of peat will involve the introduction of 36,500 tonnes of lime/cement binder to comparatively small parts of the site. The impacts of the introduction and use of such large amounts of a highly alkaline material should be further considered from the point of view of impacts on water quality, aquatic ecology and surrounding peatlands. Technical information and assessments to support the use and appropriateness of this method of peat improvement in this location should be provided before any construction is commenced.

1.11 In relation to Section 10 of the EIS (Effluent), should permission be granted there should be a condition that the water treatment facilities at the terminal will be such that the discharge will be at or below the EQSs (EPA 1997) as stated in the EIS.

1.12 It is noted that the discharge is more saline than seawater and consideration should be given to ensuring that the discharge is at ambient salinity to minimise the impacts of the discharge.

1.13 It is also noted that since the licence granted by Department of Communications, Marine and Natural Resources required the extension of the pipeline to approximately 2.5 km north of Erris Head, the results of water modelling have not been expanded to determine the dissipation of the discharge.

2. Srahmore site

The Srahmore site is not covered by any conservation designation. The Srahmore site drains into the Munhin and Owenmore rivers, which converge and flow into Tullaghan Bay proposed Natural Heritage Area (pNHA) No. 001567, (Site Synopsis attached) and Blacksod/Broadhaven Bay Special Protection Area (SPA) No. 004037. The development site is approximately 2.5km north-east of the designated areas at the nearest point.

2.1 As in the case of development at the Bellagelly South site, the crucial issue from a nature conservation perspective is not the impact of peat deposition at the Srahmore site itself, but the avoidance of any adverse impact on downstream sites of conservation importance. In any grant of planning permission, the planning authority should impose suitable conditions to ensure that run-off from the peat deposited does not have any significant adverse impact on the quality of receiving waters flowing away from the site.

2.2 Three of the six water quality samples at Srahmore were taken as drainage maintenance works were being carried out on the main watercourse through the site. This would affect the physico-chemical analyses of these water samples as a baseline for establishing existing water quality. Sampling should be repeated to give a more accurate picture of water quality in the receiving environment, should permission be granted and before any works commence.

2.3 It is argued that settlement pond S5-2 is operating efficiently in lowering the sediment loading of run-off in that location. However, the total solids figure of 475mg/l seems high, and is comparable to the levels recorded in water samples taken from the main drain when drainage maintenance work was being carried out (249-632mg/l). In the event that permission is granted, the developer should be asked to agree appropriate action with the planning authority to ensure effective methods of removing silt and solids from run-off.

2.4 Total ammoniacal Nitrogen is high in the water samples taken. No indication is given as to whether these levels will increase with the introduction of peat from Bellagelly South and whether they will impact on marine waters in Tullaghan Bay pNHA and Blacksod Bay/ Broadhaven SPA downstream of the proposed development. In the event that permission is granted, further assessment of the impacts of high ammoniacal Nitrogen levels on the marine environment should be presented, and action agreed with the planning authority to mitigate any adverse effects.

2.5 It is important that there is no peat mobilisation arising from the deposition of peat. Counter measures must be put in place, inter alia, to protect natural habitats, if permission is granted. If necessary a plan should be agreed with the planning authority before any works commence.

2.6 If there will be refuelling on site at the reception area, and mobile refuelling of plant in the deposition area, rather than at the Bangor works, conditions should be imposed to ensure that no pollution will occur.

2.7 It should be noted that the reference to bird species on Annex II of the EU Habitats Directive is incorrect and should read 'Annex I of the Birds Directive'.

3. The Haul Route

The redevelopment of parts of the haul route, the L1204, and its usage for the transport of peat from Bellagelly South to Srahmore, is an integral part of the overall development which will contribute to its cumulative impacts. It is noted that this part of the project is not covered by the current planning application.

3.1 Full details of the works proposed, together with maps, drawings and an assessment of the ecological impacts, should be provided to NPWS for comment, prior to the commencement of any works on the haul route. The assessment should cover any potential impacts on Carrowmore

Lake Complex candidate Special Area of Conservation (cSAC) No. 00476, and on a known feeding area for Greenland White-fronted Geese, a species listed on Annex I of the Birds Directive, close to the proposed haul route at Glenturk More.

4. General

4.1 The results of any pre-construction surveys that are carried out at the sites should be provided to NPWS of this Department. A project ecologist should be present to oversee works at both sites and the implementation of mitigation and compensation measures.

4.2 In relation to environmental monitoring results, all relevant reports should be provided to NPWS.

Architectural Heritage

Given the nature of the sites at Bellanaboy and Srahmore, together with their location and locality, it may well be that there is little of architectural heritage merit at or in the vicinity of either site, or in either area generally. However, should structures of architectural heritage merit be encountered at or in the vicinity of either site it is recommended that this aspect should be specifically safeguarded by the way of general condition in any grant of permission.

Archaeology

We wish to concur with the archaeological mitigatory recommendations outlined in Volume 1 Section 15 Cultural Heritage subsections 15.7 and 15.9 and Volume 2 Section 15 Archaeology and Cultural Heritage subsections 15.7 and 15.9. It is our recommendation that the following condition pertaining to Archaeological Monitoring be included in any grant of planning permission that may issue:

Archaeological Monitoring

1. The applicant is required to employ a suitably qualified archaeologist with relevant experience in Peatland Archaeology to monitor all groundworks (including enabling works and peat excavation) associated with the development at Bellagelly South, Bellanaboy Bridge, Co. Mayo and associated peat deposition site at Srahmore and Attavally, Bangor-Erris, Co. Mayo.

2. Should archaeological material be found during the course of monitoring, the archaeologist may have work on the site stopped, pending a decision as to how best to deal with the archaeology. The developer shall be prepared to be advised by the Heritage and Planning Division of the Department of Environment, Heritage and Local Government with regard to any necessary mitigating action (e.g. preservation *in situ*, or excavation) and should facilitate the archaeologist in recording any material found.

3. The Planning Authority and the Heritage and Planning Division shall be

furnished with a report describing the results of the monitoring.

Reason: To ensure the continued preservation (either *in situ* or by record) of places, caves, sites, features or other objects of archaeological interest."

Conclusion

In dealing with this application, the Department considers that the planning authority should be satisfied that the above issues can be dealt with adequately should it decide to grant permission for this development.

In addition kindly forward a copy of any further information or a copy of the decision in the event of one been made to the following address:

The Manager
Development Application Unit,
Department of the Environment, Heritage and Local Government.
Dún Scéine,
Harcourt Lane,
Dublin 2

In addition please acknowledge receipt of this letter as required under the Planning & Development regulations 2001 and forward the relevant receipt to the address above.

Mise le meas,

Noel Sheahan,
Development Application Unit.

SITE SYNOPSIS

SITE NAME : GLENAMOY BOG COMPLEX

SITE CODE : 000500

This large site is situated in the extreme north-west of County Mayo, where the climate is wet oceanic and gales from the Atlantic are frequent. This area is underlain by metamorphic rocks, comprising mainly schists and quartzites of Moinian age. From sea-level, the site reaches 379m O.D. at Maumakeogh. The soils are predominantly peats, with underlying glacial tills usually only visible along water channels and roads. Four main river systems drain the site: the Glenamoy, the Muingnabo, the Belderg and the Glenglassra Rivers. One medium-sized lake, Lougherglass, occurs on the site.

Blanket bog, a priority habitat under Annex I of the E.U. Habitats Directive, dominates the site. Glenamoy Bog is a prime example of the extreme oceanic form of lowland blanket bog and is one of the most extensive tracts of bog in the country. The bog occupies a gently undulating plain, but extends uphill to cover the slopes of Maumakeogh and Benmore in the eastern sector of the site, and northward, out toward the sea cliffs of the north-west Mayo coastline. Peat depth reaches 6 metres in the low-lying areas. A large flush occurs at Rathavisteen, which supports species-rich vegetation, including Cranberry (*Vaccinium oxycoccos*) and a moss (*Homalothecium nitens*) which is nationally rare. Four other Annexed habitats occur in close association with the blanket bog - dystrophic lakes, wet heath, Juniper heath and transition mires. Dystrophic lakes, which lie in peaty basins and have peat-stained water, are a common feature of lowland blanket bog. At Glenamoy, the lakes are particularly well-developed. Juniper (*Juniperus communis* subsp. *nana*) occurs scattered over the blanket bog, often in association with Crowberry (*Empetrum nigrum*) and hummocks formed of mosses (*Racomitrium lanuginosum*). On steep slopes where the peat is shallow, the blanket bog grades into wet heath. Here, Ling Heather (*Calluna vulgaris*), Cross-leaved Heath (*Erica tetralix*), Tormentil (*Potentilla erecta*) and Purple Moor-grass (*Molinia caerulea*) are found. Where the heath is drier, and especially towards the northern coastal zone of the site, scattered Bearberry (*Arctostaphylos uva-ursi*) occurs with Ling and Juniper.

Transition mires or quaking bogs occur where the bog vegetation merges with flush type vegetation influenced by base enrichment, and also at the interface between large pools/small lakes and adjacent blanket bog. The vegetation is characterised by lawns of *Sphagnum*, with abundant small sedges (especially *Carex limosa*, *C. paniculata*, *C. rostrata* and *C. lepidocarpa*), Bogbean (*Menyanthes* trifoliata) and White-beaked Sedge (*Rhynchospora alba*). Diagnostic bryophytes (other than *Sphagnum*) include *Aneura pinguis*, *Drepanocladus revolvens* and *Calliergon giganteum*. A rare moss, *Drepanocladus vernicosus*, has been recorded from an area of poor fen habitat

within the blanket bog complex. This is only one of 11 known sites for the plant in Ireland. This species is listed on Annex II of the EU Habitats Directive.

The coastal habitats at Glenamoy are extensive and varied. Sea cliffs extend for about 20 km along the north coast and achieve a height of 253m, at Benwee Head. They vary in physical character from sheer cliff-face to slopes of varying gradients. Typical cliff-face vegetation includes Thrift (*Armeria maritima*), Sea Campion (*Silene vulgaris* subsp. *maritima*) and Red Fescue (*Festuca rubra*). Sea stacks and several islands occur, of which Illaunmaistir is the most notable. A feature of the cliffs is the well developed cliff-top vegetation, which ranges from typical Plantain-dominated vegetation (*Plantago* sward) to coastal heath. South of Benwee Head, the rocky coastline grades into an estuarine system, Sruwaddacon Bay, which contains sand dunes and a machair system. Machair is a form of sandy, flat, coastal grassland, and this particular machair is unusual in that it extends upslope at Garter Hill - most machairs occupy flat, low-lying plains. It is, however, now very degraded owing mainly to over-grazing by sheep. *Petallophyllum ralfsii*, a rare bryophyte, listed on Annex II of the E.U. Habitats Directive, occurs abundantly on the machair habitat. This is thought to be the second largest colony (after Slyne Head in Co. Galway) of this species in Ireland.

The sea cliffs and islands provide excellent habitat for breeding seabirds. An internationally important population of Storm Petrel (7,500 - 10,000 pairs, pre-1987), occurs on Illaunmaistir . A large Puffin colony (c.2,000 pairs, pre 1987) and a small colony of Manx Shearwaters (c.100 pairs) also occurs on Illaunmaistir. The mainland cliffs was the first breeding site in Ireland for Fulmar and now has a very substantial colony (c.2,000 pairs, pre 1987). There is a sizeable Kittiwake colony (c.400 pairs pre 1987) and small colonies of Guillemots and Razorbills (less than 100 individuals of each). Peregrine Falcon and Chough, both Annex I Bird Directive species, breed on the cliffs. Another Annex I species, Merlin, breeds on the blanket bog, as does Golden Plover . In winter, a small flock (less than 50 individuals) of Barnacle Geese visit Illaunmaistir and Kid Island.

Otter, an EU Habitats Directive Annex II species, occurs on the site, as well two other Red Data Book mammal species: Badger and Irish Hare. The Glenamoy River holds Salmon and Sea Trout.

A number of landuse practices have damaged parts of this site. Grazing by sheep and cattle is widespread and over-grazing, which leads to soil erosion, has caused damage to parts of the blanket bog, heath and machair habitats. Peat cutting, by hand and to a lesser extent by mechanised means, is widespread throughout though mostly confined to near roads and tracks. The region in general has been heavily afforested with conifers and much of the site is bounded by plantations. Within parts of the site afforestation continues and poses a threat to the blanket bog.

This site is of immense ecological importance because of the presence of a number of E.U. Annex I habitats, including two priority habitats - blanket bog and machair. It supports populations of an Annex II mammal species, two

Annex II plant species and six Annex I Birds Directive species. It also has nationally important populations of other seabirds. Despite serious damage to parts of the site in recent years, large areas remain in good condition. Considerable archaeological interest is contained within the site, including the renowned Céide Fields. Furthermore, the site is of outstanding scenic value.

15.10.2001

SITE SYNOPSIS

SITE NAME: TULLAGHAN BAY

SITE CODE: 001567

Tullaghan Bay is situated approximately 10km south-west of Bangor on the west coast of County Mayo. It is a large shallow sea bay with small estuarine rivers surrounded by low-lying farmland and areas of blanket bog. The site shows a range of habitat types including coastal systems of sandy beaches, pebble shores, saltmarsh, sand dunes, and machair, as well as large areas of intertidal mudflats, sandflats and estuarine channels which are frequented by wintering waterfowl.

The bay is fringed by saltmarsh vegetation in many places. In some places the saltmarsh vegetation adjoins areas of machair. The large saltmarsh areas are grazed by cattle and sheep. Sand dunes are limited to the southern entrance of the bay.

Areas of blanket bog adjoining the bay are included in the site, displaying vegetation characteristic of the western seaboard with pools and quaking areas. Notable plant species of these blanket areas include Cranberry (Vaccinium oxycoccus), Mediterranean heath (Erica erigena) and the moss Sphagnum fuscum. There are also some small lake/ponds within the site.

The site is important because of the variety of coastal habitat types occurring within the bay and the proximity of areas of blanket bog. Transitions between saltmarsh and machair vegetation are also of interest.

Tullaghan Bay is part of the proposed Special Protection Area called Broadhaven/Blacksod Bay Complex.

Tullaghan Bay is internationally important for Brent Geese and is visited by Greenland White-fronted Geese. It is also widely used by several other waterfowl, including Wigeon, Teal, Ringed Plover, Golden Plover, Oystercatcher, Curlew, Bar-tailed Godwit, Redshank, Dublin and Sanderling.

15th February, 1995.

COMHAIRLE CHONTAE MHAIGH EO

MAYO COUNTY COUNCIL

M E M O

To: Mr. Iain Douglas, S.E.P.
From: Mr. Paddy Mahon, Senior Engineer
Re: P03/3343
Applicant - Shell E & P Ireland Ltd
Date: 11th February, 2004

Introduction

The proposed development at Bellanaboy involves the removal of 450,000m³ peat/mineral soil from the terminal site and the importing of the following materials to the site, to bring the site up to formation level:

78,000 m³ of fill (stone/gravel)
17,500 m³ of concrete
36,500 m³ of binder

The development at Bellanaboy also involves the construction of 6 major terminal buildings, storage tanks, piperacks, methanol column, flare tower as well as the pavement for approx. 5km of internal roads and carparks. All of the materials required in this construction phase of the development will be imported to the site of the proposed development.

The proposed development at Srahmore involves the importing of 450,000 m³ peat/mineral soil as well as the importing of 18,000m³ of fill to construct the road network on site, and reception facilities for the peat.

The movement of such a volume of peat as well as the importing of the volumes of fill, building materials etc., to both sites will have a significant impact on the roads infrastructure in the Erris region in general and particularly in the immediate vicinity of the Ballinaboy terminal site and the Srahmore Peat Depository site. In particular the impacts can be described as follows,

The movement of 450,000 cubic metres of excavated peat/ mineral soil from Bellanaboy to Srahmore is a major proposal which requires serious consideration. The movement of construction materials to the site is of similar significance on its own merits and when added to the peat transport represents a major impact on the roads infrastructure of the Erris Region. The transport of the peat will involve 45,000 HCV movements. The transport of the construction materials, estimated at 300,000 tonnes, will involve 12,400 HCV movements. This level of haulage will have an impact on the road pavements which will be used by the developer and all those who reside in the vicinity of the haul roads for the construction stage of the development.

The carrying out of such a haulage programme on the existing unimproved road network in the vicinity of the proposed development would lead to a rapid degradation and ultimate breakdown of the road structure. It is critical that the haul roads are identified in advance and that an appropriate strengthening programme is put in place prior to the movement of any materials. Any such strengthening programme should have regard to the document 'Guidelines on the Rehabilitation of Roads over Peat' published by the Department of Environment and Local Government in 2000.

The impact of such a high level of transport, generally in the area between the Bellanaboy site and the Srahmore site, on local residents and road users needs to be carefully examined given that the construction period is likely to last over 30 months. A transport plan dealing with the substantive issue of the peat haulage as well as all other transport issues is an essential requirement. This plan, a draft of which already has been submitted to the Westport Office of Mayo County Council needs to be fully developed taking into account all of the transport issues relating to the proposed development and submitted to Mayo County Council.

P Mahon

Paddy Mahon
Senior Enginner
PM/CB

Environmental Protection Agency
An Ghníomhaireacht um Chaomhnú Comhshaoil

PO Box 3000, Johnstown Castle Estate
County Wexford, Ireland
Bosca Poist 3000, Eastát Chaisleán Bhaile Sheáin
Contae Loch Garman Éire

T: +353 53 60600
F: +353 53 60699
E: info@epa.ie
W: www.epa.ie

Lo Call: 1890 33 55 99

Mr Ian Douglas
Senior Planner
Mayo County Council
County Buildings
The Mall
Castlebar

11/2/04

sd120/00329

Dear Sir

Re: Planning Application Register P03/3343 – Shell E & P Ireland Ltd

The Council has requested the observations of the Agency in respect of the above planning application. The development comprises;

- A gas terminal facility at Bellanaboy Bridge, Ballagelly South, Co Mayo,
- A peat disposal area at Srahmore, Bangor Erris, Co Mayo.

This application being accompanied by an EIS. The Agency has received from Mayo Co Co the EIS documents for both activities.

Both these components of the proposed development incorporate activities that will require separate authorisation from the EPA: an IP(P)C licence (EPA Acts 1992 & 2003) in the case of the gas terminal, and a waste licence (Waste Management Acts 1996 to 2003) in the case of the peat disposal area.

The Agency has received the application for the peat disposal area. This is currently under assessment and the decision by the Board of the Agency will be forthcoming in due course. In the case of the peat disposal area, all aspects of the development, operation and safe closure of the facility in so far as they may relate to environmental pollution from the licensable activities will be considered by the Agency in its determination process.

To date we have not received an application in relation to the Gas Terminal facility. In the case of the gas terminal all aspects of the operation and safe closure of the facility in so far as they may relate to environmental pollution from the licensable activities will be considered by the Agency in its determination process.

In relation to the Peat Disposal Facility Section 40(4) of the Waste Management Act mandates, *inter alia*, that:

> *The Agency shall not grant a waste licence unless it is satisfied that—*
> *(a) any emissions from the recovery or disposal activity in question ("the activity concerned") will not result in the contravention of any relevant standard, including any standard for an environmental medium, or any relevant emission limit value, prescribed under any other enactment,*

(b) *the activity concerned, carried on in accordance with such conditions as may be attached to the licence, will not cause environmental pollution,*

(c) *the best available technology not entailing excessive costs will be used to prevent or eliminate or, where that is not practicable, to limit, abate or reduce an emission from the activity concerned,*

(d) *if the applicant is not a local authority, the corporation of a borough that is not a county borough, or the council of an urban district, subject to subsection (8), he or she is a fit and proper person to hold a waste licence,*

In relation to the Gas Terminal (to be authorised under the EPA Act, 1992), Section 83(3) mandates that:

The Agency shall not grant a licence or revised licence for an activity unless it is satisfied that—

(a) *any emissions from the activity will not result in the contravention of any relevant air quality standard specified under section 50 of the Air Pollution Act, 1987, and will comply with any relevant emission limit value specified under section 51 of the Air Pollution Act, 1987,*

(b) *any emissions from the activity will comply with, or will not result in the contravention of, any relevant quality standard for waters, trade effluents and sewage effluents and standards in relation to treatment of such effluents prescribed under section 26 of the Local Government (Water Pollution) Act, 1977,*

(c) *any emissions from the activity or any premises, plant, methods, processes, operating procedures or other factors which affect such emissions will comply with, or will not result in the contravention of, any relevant standard including any standard for an environmental medium prescribed under regulations made under the European Communities Act, 1972, or under any other enactment,*

(d) *any noise from the activity will comply with, or will not result in the contravention of, any regulations under section 106,*

(e) *any emissions from the activity will not cause significant environmental pollution, and*

(f) *the best available technology not entailing excessive costs will be used to prevent or eliminate or, where that is not practicable, to limit, abate or reduce an emission from the activity.*

All matters to do with environmental emissions from the activities as detailed in the EIS and licence application documentation (when all finally received), will be considered and assessed by the Agency. Where the Agency is of the opinion that the

activities cannot be carried on, or conditioned under a licence, to the extent that permits compliance with a reasonable burden of proof for Section 40(4) of the WMA 1996, or the Section 83(3) of the EPA Act (as may be appropriate), then it is debarred from granting a licence for such an operation. Should the Agency decide to grant a licence in respect of each of the activities, it will incorporate conditions that will ensure that appropriate National and EU standards are applied, and that Best Available Techniques (BAT) will be used in the carrying on of the activities.

I must stress that the Agency consideration does not extend to any impacts or emissions associated with road use external to the controlled sites.

I trust this assurance in relation to emission aspects of the industrial operations in question as documented in the EIS reports submitted, satisfies your requirements at this time. If you have any specific queries that you feel the EPA can address please let me know and we will endeavour to answer them. The Agency will inform you in relation to any decision it may make in relation to the application currently before it. You will also be formally notified when an application is made in respect of the Gas Terminal.

Yours sincerely,

Dr Padraic Larkin
Director
Office of Licensing & Guidance

COMHAIRLE CHONTAE MHAIGH EO

MAYO COUNTY COUNCIL

MEMO

TO: MR. IAN DOUGLAS S.P.
PLANNING AND DEVELOPMENT

FROM: S.E., WATER SERVICES, CAPITAL WORKS.

DATE: 13th February 2004

RE: ERRIS REGIONAL WATER SUPPLY SCHEME, UPGRADING OF PROPOSED PIPELINE TO PROVIDE FIREFLOWS TO PROPOSED SHELL IRELAND LTD., GAS TERMINAL AT BELLANABOY ESTIMATION OF MARGINAL COST.

I refer to the above and to attached Report prepared by Ryan Hanley & Co., Consulting Engineers for the Erris Regional Water Supply Scheme.

Mayo County Council have proposals to extend the regional scheme from the water treatment plant at Carrowmore to Glenamoy.

In order to provide the necessary fireflow requirements (1100 gals/min) at the proposed Gas Terminal at Bellanaboy, it is necessary to increase the mean bore diameter of the pipeline form 200mm to 400mm. The marginal cost of providing and constructing the larger diameter pipeline over a length of 6,080 metres is estimated at €1,394,361 incl. of v.a.t. and including consulting engineers fees of €82,000.

It is proposed that the pipeline will be constructed by direct labour by Mayo County Council.

Brian O'Reilly, S.E.,
Water Services, Capital Works.

B.O'R/MW

MAYO COUNTY COUNCIL
ERRIS REGIONAL WATER SUPPLY SCHEME

EXTENSION TO GLENAMOY & CURRAUNBOY
COST OF UPGRADED PIPELINE TO THE *SHELL E&P IRELAND LTD* TERMINAL

DESIGN DATA - PIPE SIZING

Original Chainage	Length Meter	Contract Documents Dec-03	Updated design to include Enterprise Oil fire flows
0-1784	1784	200mm uPVC Class C Mean bore 200mm	400mm Ductile Iron Mean bore 400mm
1784-3047	1263	225mm HPPE (SDR17.6) Mean bore 198.7mm	450mm HPPE (SDR17.6) Mean bore 397mm
3047-3609	562	200mm uPVC Class C Mean bore 200mm	400mm Ductile Iron Mean bore 400mm
3609-6080	2471	225mm HPPE (SDR17.6) Mean bore 198.7mm	450mm HPPE (SDR17.6) Mean bore 397mm

ESTIMATED COST OF REGIONAL AND ENLARGED PIPE BETWEEN CH 0 and 6080

Chainage	Pipe Length Meter	Contract Documents Dec-03	Updated design to include Shell E&P Ireland Fire Flows	Marginal Cost to Shell E&P Ireland
0-1784	1784	€ 196,240	€ 490,600	€ 294,360
1784-3047	1263	€ 171,768	€ 375,111	€ 203,343
3047-3609	562	€ 61,820	€ 154,550	€ 92,730
3609-6080	2471	€ 336,056	€ 709,177	€ 373,121
Preliminaries and Contingencies		€ 153,177	€ 345,888	€ 192,711
Sub total		€ 919,061	€ 2,075,326	€ 1,156,265
VAT @ 13.5%		€ 124,073	€ 280,169	€ 156,096
Total		€ 1,043,134	€ 2,355,495	€ 1,312,361
Scale fees Incl VAT @21%		€ 90,000	€ 172,000	€ 82,000
Grand Total		€ 1,133,134	€ 2,527,495	€ 1,394,361

COMHAIRLE CHONTAE MHAIGH EO
MAYO COUNTY COUNCIL

MEMO

To:	**Mr. Ian Douglas,**	**Senior Planner**
From:	**Mr. Michael O' Boyle,**	**Executive Engineer**
Date	**16th Febuary 2004**	
RE:	**Planning Application P03/ 3343- Shell E & P Ireland Ltd.**	

On examining the above planning application I recommend that the following information is sought.

- Submit a map outlining phosphate hot-spots, if any that have been identified on the site. The quantities of contaminated material contained within these hot-spots and how the applicant proposes to manage these hot- spots during the construction phase including disposal routes.
- Please provide a basis for all assumptions used in relation to the drainage calculations provided and the design of the settlement ponds.
- In terms of a the actual workings of the drainage system on site please submit details outlining the feasibility of only allowing surface water which is actively pumped from the site entering the settlement ponds and thus ensuring that the drainage process is a totally pro-active hydrometric process rather than as a semi passive hydrological process. This would involve setting a maximum allowable output flow rate from the site. In the event that this flow rate is exceeded it would result in the flooding of the site rather than dealing with the risk of overloading the settlement ponds.
- In the event that the settlement ponds were repositioned further to the north of the site allowing a greater distance for the discharge to flow over ground how would this effect the stability of the underlying peat.
- Please submit a Data History set setting out the Hydrological Dynamics of the site to date. In particular the relationships between rainfall events, flows in perimeter drains and levels of phosphates and suspended solids.
- Please submit a waste management plan setting out all wastes expected to be generated by the project both during construction and operation. The expected quantities of each waste type and their probable disposal routes.

Mr. Michael O' Boyle
Executive Engineer.

COMHAIRLE CHONTAE MHAIGH EO
MAYO COUNTY COUNCIL

TO: County Manager **DATE:** 06/02/2004

FROM: Iain Douglas Senior Planner

SUBJECT : **Appointment of Consultant to Review Geo-technical Section of the EIS – Bellanaboy Gas Terminal** **FILE :P03/3343**

I attach the financial proposal from Fehily-Timoney Associates regarding a review and report on the geo-technical section of the EIS for the proposed Gas Terminal at Bellanaboy.

I have consulted with the Director of Service Capital Works who is of the opinion that the quotation is reasonable for the personnel undertaking the task.

In view of the urgency of the report, the fact that the sub-contractor to be used is one of the few experts in this field available and can carry out the review immediately I recommend the appointment of Fehily-Timoney on the terms set out in their proposal.

Iain Douglas
Senior Planner

MAYO COUNTY COUNCIL

FIRE DEPARTMENT

TO: Secretary, Planning & Development. **File No.** P03/3343.
FROM: Chief Fire Officer.
SUBJECT: Planning Conditions. **Date:** 18.02.2004.

RE: P03/3343 - Shell E & P Ireland Ltd., Proposed Gas Reception and Treatment Facilities at Bellagelly South, Belmullet.

The developments shall be designed and constructed in accordance with the following requirements.

1. A Fire Safety Certificate is required in respect of each building in accordance with the requirements of Part III of the Building control Regulations, 1997. Application for a Fire Safety Certificate shall be made to the Building Control Authority. A Commencement Notice is also required in respect of each building. The Commencement Notice shall be submitted to the Building Control Authority in accordance with the requirements of Part II of the Building Control Regulations, 1997, S.I. No. 496 of 1997.

2. Suitable and adequate provision for Vehicle access to the terminal and all installations therein shall be provided to assist the Fire Service in the protection of life and property.

   Vehicular access for the fire service to each building shall be provided in accordance with Table 5.2 of Technical Guidance Document B of the Building Regulations.

3. A fire and gas detection equipment complete with alarm systems shall be installed throughout the terminal and buildings to provide early warning of hazardous or potentially hazardous situations. The systems shall be installed in accordance with current best standards.

4. Suitable Fire Fighting and Suppression Systems shall be installed appropriate to the various risks within the terminal in accordance with current best standards.

5. All installations within the terminal shall be designed and installed to a current acceptable standards and to be certified accordingly. Certification to be made available for inspection by the Fire Authority upon request.

6. A minimum of 6 hours water supply shall be provided on the site of the Terminal for fire fighting and cooling purposes in accordance with the requirements of the Fire Authority.

7. The on site Emergency Plan and the Fire Safety Certificate Application will address the issue of forest proximity to the control building and plant. Active monitoring and active fire precautions shall be implemented as required

8. The developer shall pay to Mayo County Council a sum of €26,000 to assist with the purchase of specialist equipment and to facilitate initial and ongoing specialist training required by the Fire Service with respect to the development

9. Management of the Terminal shall liase with the Fire Authority in the preparation of on site emergency plans and general safety provisions.

10. Prior to commissioning of the Terminal, management of the Terminal shall confirm in writing that all of the Fire Authority's requirements have been fully implemented.

Chief Fire Officer,
S. Murphy B.E.

Re: Planning Registration No. P03/3343
Development: Gas Terminal at Bellanaboy Bridge, Bellagelly South, Co. Mayo and associated peat deposition site at Srahmore, Bangor-Erris, Co. Mayo
Applicant: Shell E & P Ireland Limited

16/02/04

Comments on E.I.S

The EIS relates to the Bellanboy Bridge terminal site and the peat deposition site at Srahmore. It does not cover the proposed haul route for the peat between Bellagally South and Srahmore, which is an integral part of the development.

Information on the impacts of upgrading the haul route, which is an integral part of the development, should be provided due to its proximity to and potential impact on Carrowmore Lake cSAC 00476.

The proposed development will be located primarily on highly modified blanket bog of low ecological value, within which no rare or protected species are noted. The EIS has demonstrated that there will be no significant loss of terrestrial habitat or species due to the construction of the terminal site.

Fig 6.1 Habitat Map not included in Deposition Site Volume

Baseline data on water quality conditions at and in the vicinity of the Terminal site should be provided.

The second activity, in order of execution, to be carried out in the development is the excavation of peat from the terminal site followed by transport of this peat offsite. The peat must be sufficiently de-watered for transportation to occur and this is dependent on appropriate weather conditions. In the event of adverse weather conditions, i.e. high rainfall, preventing sufficient de-watering of the peat before transport to the peat deposition site, procedures for storage of peat at the terminal site should be described.

Three of the six water samples from the Srahmore site used to assess baseline water quality were taken from the main drain when Bord na Mona were carrying out remedial works along the drain. This has resulted in elevated levels of suspended solids recorded in readings, not representative of the base line conditions. Water sampling should be repeated to provide a more representative assessment of water quality.

Description of measures to deal with run-off from the terminal site itself during periods of high rainfall due to the much altered and impervious receiving environment should be provided.

It is proposed to use lime/cement binder in parts of the site to improve the peat. Information/details should be provided on the suitability and efficacy of this method of peat improvement in this environment.

Details of vegetation, especially trees, to be removed from the terminal site prior to construction should be provided.

Deirdre Cunningham
Heritage Officer

FEHILY TIMONEY & COMPANY

CONSULTANTS IN ENGINEERING & ENVIRONMENTAL SCIENCES

Our Ref: 2004/133/01/lct001/FOR

Mr. Iain Douglas
Planning Section
Mayo County Council
Áras an Chontae
The Mall
Castlebar
Co. Mayo

MAYO CO. COUNCIL
RECEIVED
25 FEB 2004
PLANNING & DEVELOPMENT

24 February 2004

RE: Geotechnical Note on EIS for proposed Bellanaboy Bridge Gas Terminal

Dear Mr. Douglas

Please find enclosed a copy of our Geotechnical Note on the EIS for the proposed Bellanaboy Bridge Gas Terminal, Co. Mayo, as faxed to you earlier today.

If you have any queries on this matter, please do not hesitate to contact me.

Yours sincerely

03/3343

Gerry O' Sullivan
for and on behalf of **Fehily Timoney & Company**

SCANNED

Encl.

CORE HOUSE POULADUFF ROAD CORK IRELAND
TEL.: +353 21 4964133 FAX.: +353 21 4964464 E.MAIL: info@ftco.ie Web Site: www.fehilytimoney.ie

Fehily Timoney & Co.
Document Transmittal Sheet

Client Mayo County Council
Job Description Corrib Gas Terminal
Job Number 2004-133-01
Transmittal Date 24 February 2004

Doc Number	Revision	Doc Size	Issued For	No Of Copies	IssueMethod	Issued To Name	Issued To Company	Doc Title	Issued By
MCC-BGT_RPT-001	0	A4	Information	1	electronic - email	Mr. Iain Douglas	Mayo County Council	Proposed Bellanaboy Bridge Gas Terminal, Bellanaboy Bridge, Ballagelly South, Co. Mayo - Geotechnical Note on EIS	Fionna ORegan
MCC-BGT_RPT-001	0	A4	Information	1	Hard Copy-fax	Mr. Iain Douglas	Mayo County Council	Proposed Bellanaboy Bridge Gas Terminal, Bellanaboy Bridge, Ballagelly South, Co. Mayo - Geotechnical Note on EIS	Fionna ORegan
MCC-BGT_RPT-001	0	A4	Information	1	Hard Copy-Post	Mr. Iain Douglas	Mayo County Council	Proposed Bellanaboy Bridge Gas Terminal, Bellanaboy Bridge, Ballagelly South, Co. Mayo - Geotechnical Note on EIS	Fionna ORegan

Proposed Bellanaboy Bridge Gas Terminal, Bellanaboy Bridge, Bellagelly South, Co. Mayo

Geotechnical Note on Environmental Impact Statement

Prepared for

Mayo County Council
Áras an Chontae
Castlebar
Co. Mayo

Prepared by

Fehily Timoney & Co.
Core House
Pouladuff Road
Cork

February 2004

FEHILY TIMONEY & COMPANY

Proposed Bellanaboy Bridge Gas Terminal, Bellanaboy Bridge, Bellagelly South, Co. Mayo

Geotechnical Note on Environmental Impact Statement

User is Responsible for Checking the Revision Status of this Document

Rev. No.	Description of Changes	Prepared by	Checked by	Approved by	Date
0	Issue to client	MJC			24/02/2004

TABLE OF CONTENTS

PAGE

1. INTRODUCTION

This geotechnical note has been prepared by Fehily Timoney & Company (FTC), further to a request from Mayo County Council (MCC) to provide an independent commentary on geotechnical aspects of an environmental impact statement (EIS), relating to the proposed Bellanaboy Bridge Gas Terminal, at Bellanaboy Bridge, Bellagelly South, Co. Mayo, with particular reference to issues relating to the influence of the proposed works on the general stability of the extensive peat deposits, which are known to exist in the immediate vicinity of the works.

To facilitate the preparation of this geotechnical note, MCC has supplied FTC with a copy of the EIS, comprising:

- Volume 1, which relates to the proposed gas terminal at Bellanaboy Bridge and contains four books, the main EIS in one book and Technical Appendices 1, 2 & 3 in three separate books
- Volume 2, which relates to the proposed Srahmore Peat Deposition Site, at Bangor Erris, Co Mayo

As the request to FTC from MCC was to provide geotechnical comment on issues relating to the influence of the proposed works on the general stability of the extensive peat deposits in the vicinity, this note is based on a detailed reading of only a limited part of Volume 1 of the EIS, namely:

(a) the Non-Technical Summary, in order to obtain an overview of the project
(b) Chapter 2: Construction, Parts 2.1 to 2.6
(c) Chapter 8: Soils, Geology & Hydrogeology, all parts
(d) Technical Appendix 1: Geology, Hydrogeology & Global Stability, all parts
(e) Technical Appendix 2: Earthworks, all parts

Geotechnical commentary on Volume 2, which relates to the Srathmore Peat Deposition Site, is based on a detailed reading of Chapters 1 to 3 and Chapter 8 of Volume 2.

2. BELLANABOY BRIDGE GAS TERMINAL SITE

The soil and ground water conditions at the proposed gas terminal site have been summarized briefly in Chapter 8 of the EIS. This summary is based on Technical Appendix 1, which comprises a detailed analysis of the site investigation data, the development of a suitable soil and ground water model for the site and consideration of the implications of this model for the proposed terminal development activities on the site, with particular emphasis on the implications for stability of the peat in the general vicinity of the site. Technical Appendix 2 considers in some detail the design and construction of all geotechnical structures associated with the proposed terminal, including the presentation of detailed design calculations, together with a detailed summary of the proposed sequencing of construction activities.

3. BELLANABOY BRIDGE GAS TERMINAL SITE – TECHNICAL APPENDIX 1

The site investigation fieldwork was quite extensive and appears to have been sufficient to provide a comprehensive picture of the soil and ground water conditions on the site. It revealed a soil profile comprising 1m to 5m of very soft or soft peat, overlying not more than 3m of mineral soil, overlying head and weathered schist bedrock, overlying intact schist bedrock.

A considerable quantity of field data was acquired on both the permeability of the different strata and the level of the groundwater table. The interpretation of ground water conditions on the site is particularly significant in the light of the proposed development. While the ground water table in the peat was found to be generally close to the existing ground surface, numerous ground water table observations within the rock provided strong evidence that the ground water table in the bedrock was generally significantly below the ground surface over much of the site, that it was consistently at a level below the proposed level of the terminal platform and that it came close to the water table in the peat only in the vicinity of the southern extremity of the terminal platform footprint. The field permeability measurements indicated that the permeability was uniformly low within the head and highly weathered bedrock at the higher levels and within the unweathered bedrock at lower levels. Within the moderately weathered, highly fractured bedrock (core recovery in the range 75% to 90%), the measured permeability was consistently about an order of magnitude greater than at the higher and lower levels. On the basis of this interpretation, it is expected that any significant flows of ground water within the bedrock will occur in the moderately weathered zone.

Global stability of the peat has been considered in Chapter 10. On the basis of a historical review of mass movement of Irish bogs, it has been concluded that the prevailing slope angles in the vicinity of the site are such that natural failures would not be expected to occur. However, it was acknowledged that there was historical evidence that uncontrolled interference by man has led to bog failures on sites, where the slope angles were only 2°, which is only marginally greater than the very modest slope angles prevailing on the present site. On the basis of a morphological study of a 20 km^2 study area surrounding the site, it was concluded that there was no evidence of slope instability, except due to river erosion of peat slopes in the floodplain of the river. Sliding wedge stability analyses were carried out on a number of cross-sections through the site.

Very cautious estimates of the undrained shear strength of the peat, corresponding to the very lowest values measured in field tests, were used in these analyses, which yielded calculated factors of safety of 2.3 or greater.

4. BELLANABOY BRIDGE GAS TERMINAL SITE – TECHNICAL APPENDIX 2

Technical Appendix 2 considers in some detail the design and construction of all geotechnical structures associated with the proposed terminal, including the presentation of detailed design calculations, together with a detailed summary of the proposed sequencing of construction activities.

The basic construction strategy for the terminal platform is to remove all peat from the footprint of the terminal platform, to reduce its moisture content by windrowing on site and to transport it to a peat deposition site at Srahmore. Elsewhere on the site, it is proposed to leave the peat in place and to improve its geotechnical properties using dry deep mixing technology.

It is proposed to leave the peat in place and to improve it using dry deep mixing along all access roads, within the footprint of the administration building and warehouse car park, within the footprint of the temporary construction facility and around the perimeter of the settlement ponds. While dry deep mixing using a cement binder to improve the geotechnical properties of soft soils is a well-established technology in Japan and the U.S.A., and to a lesser extent in Europe, particularly in Scandinavia, it is new to Ireland. While an outline proposal for the execution of the deep mixing has been included in the Earthworks Report (Technical Appendix 2), it has been acknowledged that field trials will be required to finalise the design. Such field trials would be normal on any large contract, even where the technology is well established. A more detailed note on dry deep mixing of peat is included below. It is proposed, probably as a precaution against local failure near the edges of the improved peat, to install steel sheet piling along the perimeter of all improved peat. The use of steel sheet piles in addition to deep mixing is indicative of a cautious approach to site development. In the case of the perimeter road around and between the settlement ponds, the improved peat will be contained on either side by a steel sheet piled wall, to form a cofferdam around the settlement ponds, which will be created by excavating peat to an appropriate depth.

The terminal platform is proposed to be 9m below existing ground level at its north-western corner and 3m above existing ground level at its south-western extremity. The peat is between 1.5m and 3.6m thick under the footprint of the terminal platform, increasing in thickness generally from north-east to south-west. It is proposed to remove all of the peat from this area. Most of the perimeter of the terminal platform will be in cut. It is proposed to retain the peat along this cut perimeter using gabion walls, founded at a depth of 0.9m below the top of the mineral soil. The design calculations for these gabion walls (in Chapter 4) indicate that a cautious approach has been taken in estimating the lateral loading from the retained peat. It is proposed that the gabion walls be installed in advance of mass excavation of the peat and that only a short face of peat be exposed as the gabion wall construction advances. It is also proposed that the peat immediately uphill of the gabion wall be strengthened by deep mixing and/or supported by a temporary steel sheet piled retaining wall to ensure that the peat is temporarily retained during construction of the gabion wall. Again, this is indicative of a cautious approach to the construction.

At the southern part of the terminal platform, where the proposed levels are above existing ground levels, it is proposed to strengthen the peat using deep mixing and to install a steel sheet piled wall to retain the peat outside of the excavation area. In order to minimize the impact of groundwater flow from the mineral soil and the underlying bedrock into the excavation through the peat, it is proposed to install two rows of deep wells well in advance of the peat excavation works and to use vacuum assisted pumping to draw down the bedrock water level. In addition to drawing down the bedrock water table, it is hoped that this will also induce under-drainage of the peat with a possible beneficial effect of reducing its water content in advance of mass excavation. When the peat has been removed right up to the sheet piled wall, it is proposed to bring the fill up to existing ground level using a vertically faced geotextile reinforced soil embankment, to ensure that the fill will be self-supporting and not exert any lateral pressures on the peat when the temporary sheet piled wall is removed at the end of construction.

The strategy of windrowing the peat on site before transporting it to the peat deposition site at Srahmore is predicated on being able to remove the peat from the north-eastern corner of the terminal platform and transporting it directly to Srahmore without windrowing, so as to create an initial platform for the windrowing activities. It is stated in the report that it is the advice of Bord na Mona that the thinner peat stratum in this part of the site will be sufficiently dry and fibrous to facilitate its transport immediately upon excavation to Srahmore.

While there is no explicit reference in the EIS to the installation within the boundaries of the site of the supply gas pipeline from the Corrib gas field to the gas terminal, a methodology for the installation of a 900mm diameter piped drain from the terminal area to the settlement ponds has been described at the end of Chapter 6 of Technical Appendix 2. It is proposed to improve the peat by deep mixing along the route of this pipe, to facilitate the construction of a temporary haul road, and to install the pipe in a sheet pile supported trench. It is proposed to use ground anchors to tie down the polyethylene pipe so as to resist uplift buoyancy forces on an empty pipe. The proposed approach is stated to be based on experience of installing gas pipelines in peat elsewhere in Ireland. The strategy should serve to minimize the impact of the construction works on the peat and constitutes a cautious approach to the work.

In Technical Appendix 2, there is a consistent design strategy of improving the peat in places where it is to be retained and of minimizing the impact of the construction of the terminal platform on the surrounding peat. Detailed consideration has been given to the management of surface and ground water flows, both in the short term and in the long term. The outline of the sequencing of construction activities in Chapter 11 indicates that detailed consideration has been given at this stage to the orderly execution of the works.

5. SRAHMORE PEAT DEPOSITION SITE

The deposition works at Srahmore comprise the partial re-filling of cutover peatland using the windrowed peat from the gas terminal site. It is proposed that all of the peat deposition work will be undertaken by and supervised by Bord na Mona personnel, who have considerable expertise in handling peat and detailed local knowledge of working the Srahmore site. This should ensure that the transport, deposition and spreading of the imported peat within the cutover peatland will be carried out effectively.

A new main access road to the Srahmore site is proposed from the R313. Probing of the peat has indicated that the peat along the proposed route of this access road varies in thickness from about 6m at the R313 to about 0.6m in the peat reception area. There appears to be no quantitative site investigation data in the area of the site access road where the peat is thickest, close to the R313. It is proposed to construct a geogrid reinforced road pavement directly on the peat. If further site investigation were to indicate that the peat were too soft and compressible to sustain the proposed road pavement in a serviceable condition over the duration of the deposition project, the peat could be improved using the deep mixing technology proposed for the gas terminal site.

As the remaining peat cover in the proposed peat reception area appears to be relatively thin, the proposed reinforced concrete slab in this area should prove serviceable for the duration of the project.

6. IMPROVEMENT OF PEAT BY DRY DEEP MIXING

While dry deep mixing using a cement binder to improve the geotechnical properties of soft soils is a well-established technology in Japan and the U.S.A., and to a lesser extent in Europe, particularly in Scandinavia, it is new to Ireland. Even where the technology is well established in the treatment of organic soils, there is very limited experience of treating peaty soils, which are almost 100% organic. There are two publications of particular significance in the context of the proposed works at Bellanaboy. An international collaborative research project, EuroSoilStab, funded by the European Union, on the development of design and construction methods to stabilise soft organic soils, led to the publication of the very informative "Design Guide: Soft Soil Stabilisation" in 2000. The research work on Irish peat, which was undertaken at Trinity College Dublin as part of the EuroSoilStab project, has been presented in some detail in a recent paper, "Some experiences on the stabilization of Irish peats", in the Canadian Geotechnical Journal (Hebib, S. & Farrell, E.R., 2003).

The proposed dry deep mixing of the peat at Bellanaboy should be designed and executed in accordance with the design guide and should be informed in particular by the findings of Hebib and Farrell (2003) on Irish peat. While different combinations of cement, gypsum, blast furnace slag, pulverised fuel ash and lime have proved to be effective in soft soils with organic contents up to 30%, the design guide advises that only cement alone, cement + gypsum, or cement + blast furnace slag should be considered for peat. The laboratory-based study by Hebib & Farrell (2003) on two Irish peats showed that, while a combination of blast furnace slag and gypsum was very effective when applied to one Irish peat, it was entirely ineffective in improving the geotechnical properties of the other one. A cement binder was shown to be effective in both cases. The study also showed that it was extremely important to place a surcharge load on the stabilized peat as soon as possible following deep mixing.

The design guide recommends that, particularly where local experience of deep mixing is lacking, an initial laboratory study should be undertaken to evaluate the effects of deep mixing on the soil under ideal laboratory conditions. On the basis of experience, it is estimated that the shear strength capacity developed under mixing conditions in the field is typically only 20% to 50% of the shear strength of comparable laboratory mixed soil. When the laboratory study has been completed successfully, it is imperative that field trials be conducted in advance of the main project and that these trials be guided by what has been learned in the laboratory.

In the case of the Bellanaboy site, it would be reasonable to expect that a laboratory study of the effectiveness of dry deep mixing on the peat from the site be carried out in advance of any field trials and that field trials be executed in advance of any other site work on the project to demonstrate the effectiveness of potentially suitable dry deep mixing field strategies.

Euro Soil Stab: Design Guide: Soft Soil Stabilization. European Union, CT97-0351, Project No. BE 96-3177

Hebib, S. & Farrell, E.R. (2003) Some experiences on the stabilisation of Irish peats. Can. Geotech. J. 40: 107-120.

7. CONCLUSIONS

The site investigation fieldwork, described in the EIS, was quite extensive and appears to have been sufficient to provide a comprehensive picture of the soil and ground water conditions on the site.

In developing a construction strategy for the complete removal of peat from the footprint of the terminal platform, consideration has been given to minimizing the impact of the construction on the peat at levels both above and below the terminal area.

In all other parts of the site where any construction work is envisaged, it is proposed to stabilize the peat using dry deep mixing using a cement binder. In addition, it is proposed to construct sheet pile retaining walls around the perimeter of the improved peat, to minimize the impact of any site activities on the in situ peat outside of the stabilized areas. Here again, consideration has been given to minimizing the impact of the works on in situ peat immediately adjacent to the works.

While field trials are proposed to enable the development of an appropriate dry deep mixing strategy, it would be reasonable to expect that such field trials be preceded by a detailed laboratory study on the effectiveness of dry deep mixing on the peat from the site, particularly in the absence of experience in the application of dry deep mixing technology to Irish peat sites. On the basis of recent laboratory studies on peat from other Irish sites, there is good reason to be optimistic that the proposed dry deep mixing strategy will prove to be effective.

The proposal to use the expertise of Bord na Mona to enable the removal of excavated peat from the site and its controlled deposition at Srahmore appears to be sound. It appears to be recognized in the EIS that the need to dry the peat at Bellanaboy before it can be transported to Srahmore will have a controlling effect on the rate of development of the Bellanaboy site.

Consideration has been given in the EIS to the need to control all water flows on the site and to direct them to the settlement ponds in such a way as to avoid any possible adverse impact on the in situ peat surrounding the works.

In summary, from a geotechnical viewpoint, reasonable care has been taken in assessing the geotechnical characteristics of the site and in proposing a workable strategy for construction, which will minimize any impact on the in situ peat surrounding the site.

Form Nr. F004-6

Consultants in Engineering and Environmental Sciences

FEHILY TIMONEY & COMPANY

Job/Ref No 2004/133/01/fax001 FOR

Log No: 18119

FAX +353 21 4964464

To:	Mr. Iain Douglas	**CC:**	
Company:	Mayo County Council	**CC:**	
Fax:	(094) 9047690	**Date:**	24th February 2004
From:	Ms. Fionna O' Regan	**Total Nr. of Pages incl. this Page:**	10
Subject:	Geotechnical Note on EIS for proposed Bellanaboy Bridge Gas Terminal, Co. Mayo		

Dear Mr. Douglas

Please find attached our Geotechnical Note on the EIS for the proposed Bellanaboy Bridge Gas Terminal, Co. Mayo.

If you have any queries on this matter, please do not hesitate to contact me.

Yours sincerely

Gerry O' Sullivan
for and on behalf of Fehily Timoney & Company

Approval

CORE HOUSE • POULADUFF ROAD • CORK • IRELAND
TEL +353 21 4964133 FAX +353 21 4964464 E-Mail info@fehily.ie Web Site www.fehilytimoney.ie
Directors: E Timoney BE CEng FIEI MICE MCIWEM RConsEI D O'Sullivan BE CEng FIEI RConsEI C O'Sullivan BE CEng FIEI RConsEI
W Clarke Cert Ag Company Secretary: A Keatinge Associate: D Egan MSc

Registered in Dublin, Ireland Fehily Timoney & Co Ltd Number 160487 Registered Office Core House Pouladuff Road Cork VAT Reg No IE 6560487 D
Cert. 443254

Proposed Bellanaboy Bridge Gas Terminal, Bellanaboy Bridge, Bellagelly South, Co. Mayo

Geotechnical Note on Environmental Impact Statement

Prepared for

Mayo County Council
Áras an Chontae
Castlebar
Co. Mayo

Prepared by

Fehily Timoney & Co.
Core House
Pouladuff Road
Cork

February 2004

Proposed Bellanaboy Bridge Gas Terminal, Bellanaboy Bridge, Bellagelly South, Co. Mayo

Geotechnical Note on Environmental Impact Statement

User is Responsible for Checking the Revision Status of this Document

Rev. No.	Description of Changes	Prepared by	Checked by	Approved by	Date
0	Issue to client	MJC			24/02/2004

TABLE OF CONTENTS

PAGE

1. INTRODUCTION

This geotechnical note has been prepared by Fehily Timoney & Company (FTC), further to a request from Mayo County Council (MCC) to provide an independent commentary on geotechnical aspects of an environmental impact statement (EIS), relating to the proposed Bellanaboy Bridge Gas Terminal, at Bellanaboy Bridge, Bellagelly South, Co. Mayo, with particular reference to issues relating to the influence of the proposed works on the general stability of the extensive peat deposits, which are known to exist in the immediate vicinity of the works.

To facilitate the preparation of this geotechnical note, MCC has supplied FTC with a copy of the EIS, comprising:

- Volume 1, which relates to the proposed gas terminal at Bellanaboy Bridge and contains four books, the main EIS in one book and Technical Appendices 1, 2 & 3 in three separate books
- Volume 2, which relates to the proposed Srahmore Peat Deposition Site, at Bangor Erris, Co Mayo

As the request to FTC from MCC was to provide geotechnical comment on issues relating to the influence of the proposed works on the general stability of the extensive peat deposits in the vicinity, this note is based on a detailed reading of only a limited part of Volume 1 of the EIS, namely:

(a) the Non-Technical Summary, in order to obtain an overview of the project
(b) Chapter 3: Construction, Parts 3.1 to 3.6
(c) Chapter 8: Soils, Geology & Hydrogeology, all parts
(d) Technical Appendix 1: Geology, Hydrogeology & Global Stability, all parts
(e) Technical Appendix 2: Earthworks, all parts

Geotechnical commentary on Volume 2, which relates to the Srahmore Peat Deposition Site, is based on a detailed reading of Chapters 1 to 3 and Chapter 8 of Volume 2.

2. BELLANABOY BRIDGE GAS TERMINAL SITE

The soil and ground water conditions at the proposed gas terminal site have been summarized briefly in Chapter 8 of the EIS. This summary is based on Technical Appendix 1, which comprises a detailed analysis of the site investigation data, the development of a suitable soil and ground water model for the site and consideration of the implications of this model for the proposed terminal development activities on the site, with particular emphasis on the implications for stability of the peat in the general vicinity of the site. Technical Appendix 2 considers in some detail the design and construction of all geotechnical structures associated with the proposed terminal, including the presentation of detailed design calculations, together with a detailed summary of the proposed sequencing of construction activities.

3. BELLANABOY BRIDGE GAS TERMINAL SITE – TECHNICAL APPENDIX 1

The site investigation fieldwork was quite extensive and appears to have been sufficient to provide a comprehensive picture of the soil and ground water conditions on the site. It revealed a soil profile comprising 1m to 5m of very soft or soft peat, overlying not more than 3m of mineral soil, overlying head and weathered schist bedrock, overlying intact schist bedrock.

A considerable quantity of field data was acquired on both the permeability of the different strata and the level of the groundwater table. The interpretation of ground water conditions on the site is particularly significant in the light of the proposed development. While the ground water table in the peat was found to be generally close to the existing ground surface, numerous ground water table observations within the rock provided strong evidence that the ground water table in the bedrock was generally significantly below the ground surface over much of the site, that it was consistently at a level below the proposed level of the terminal platform and that it came close to the water table in the peat only in the vicinity of the southern extremity of the terminal platform footprint. The field permeability measurements indicated that the permeability was uniformly low within the head and highly weathered bedrock at the higher levels and within the unweathered bedrock at lower levels. Within the moderately weathered, highly fractured bedrock (core recovery in the range 75% to 90%), the measured permeability was consistently about an order of magnitude greater than at the higher and lower levels. On the basis of this interpretation, it is expected that any significant flows of ground water within the bedrock will occur in the moderately weathered zone.

Global stability of the peat has been considered in Chapter 10. On the basis of a historical review of mass movement of Irish bogs, it has been concluded that the prevailing slope angles in the vicinity of the site are such that natural failures would not be expected to occur. However, it was acknowledged that there was historical evidence that uncontrolled interference by man has led to bog failures on sites, where the slope angles were only 2°, which is only marginally greater than the very modest slope angles prevailing on the present site. On the basis of a morphological study of a 20 km^2 study area surrounding the site, it was concluded that there was no evidence of slope instability, except due to river erosion of peat slopes in the floodplain of the river. Sliding wedge stability analyses were carried out on a number of cross-sections through the site.

Very cautious estimates of the undrained shear strength of the peat, corresponding to the very lowest values measured in field tests, were used in these analyses, which yielded calculated factors of safety of 2.3 or greater.

4. BELLANABOY BRIDGE GAS TERMINAL SITE – TECHNICAL APPENDIX 2

Technical Appendix 2 considers in some detail the design and construction of all geotechnical structures associated with the proposed terminal, including the presentation of detailed design calculations, together with a detailed summary of the proposed sequencing of construction activities.

The basic construction strategy for the terminal platform is to remove all peat from the footprint of the terminal platform, to reduce its moisture content by windrowing on site and to transport it to a peat deposition site at Srahmore. Elsewhere on the site, it is proposed to leave the peat in place and to improve its geotechnical properties using dry deep mixing technology.

It is proposed to leave the peat in place and to improve it using dry deep mixing along all access roads, within the footprint of the administration building and warehouse car park, within the footprint of the temporary construction facility and around the perimeter of the settlement ponds. While dry deep mixing using a cement binder to improve the geotechnical properties of soft soils is a well-established technology in Japan and the U.S.A., and to a lesser extent in Europe, particularly in Scandinavia, it is new to Ireland. While an outline proposal for the execution of the deep mixing has been included in the Earthworks Report (Technical Appendix 2), it has been acknowledged that field trials will be required to finalise the design. Such field trials would be normal on any large contract even where the technology is well established. A more detailed note on dry deep mixing of peat is included below. It is proposed, probably as a precaution against local failure near the edges of the improved peat, to install steel sheet piling along the perimeter of all improved peat. The use of steel sheet piles in addition to deep mixing is indicative of a cautious approach to site development. In the case of the perimeter road around and between the settlement ponds, the improved peat will be contained on either side by a steel sheet piled wall, to form a cofferdam around the settlement ponds, which will be created by excavating peat to an appropriate depth.

The terminal platform is proposed to be 9m below existing ground level at its north-western corner and 3m above existing ground level at its south-western extremity. The peat is between 1.5m and 3.6m thick under the footprint of the terminal platform, increasing in thickness generally from north-east to south-west. It is proposed to remove all of the peat from this area. Most of the perimeter of the terminal platform will be in cut. It is proposed to retain the peat along this cut perimeter using gabion walls, founded at a depth of 0.9m below the top of the mineral soil. The design calculations for these gabion walls (in Chapter 4) indicate that a cautious approach has been taken in estimating the lateral loading from the retained peat. It is proposed that the gabion walls be installed in advance of mass excavation of the peat and that only a short face of peat be exposed as the gabion wall construction advances. It is also proposed that the peat immediately uphill of the gabion wall be strengthened by deep mixing and/or supported by a temporary steel sheet piled retaining wall to ensure that the peat is temporarily retained during construction of the gabion wall. Again, this is indicative of a cautious approach to the construction.

At the southern part of the terminal platform, where the proposed levels are above existing ground levels, it is proposed to strengthen the peat using deep mixing and to install a steel sheet piled wall to retain the peat outside of the excavation area. In order to minimize the impact of groundwater flow from the mineral soil and the underlying bedrock into the excavation through the peat, it is proposed to install two rows of deep wells well in advance of the peat excavation works and to use vacuum assisted pumping to draw down the bedrock water level. In addition to drawing down the bedrock water table, it is hoped that this will also induce under-drainage of the peat with a possible beneficial effect of reducing its water content in advance of mass excavation. When the peat has been removed right up to the sheet piled wall, it is proposed to bring the fill up to existing ground level using a vertically faced geotextile reinforced soil embankment, to ensure that the fill will be self-supporting and not exert any lateral pressures on the peat when the temporary sheet piled wall is removed at the end of construction.

The strategy of windrowing the peat on site before transporting it to the peat deposition site at Srahmore is predicated on being able to remove the peat from the north-eastern corner of the terminal platform and transporting it directly to Srahmore without windrowing, so as to create an initial platform for the windrowing activities. It is stated in the report that it is the advice of Bord na Mona that the thinner peat stratum in this part of the site will be sufficiently dry and fibrous to facilitate its transport immediately upon excavation to Srahmore.

While there is no explicit reference in the EIS to the installation within the boundaries of the site of the supply gas pipeline from the Corrib gas field to the gas terminal, a methodology for the installation of a 900mm diameter piped drain from the terminal area to the settlement ponds has been described at the end of Chapter 6 of Technical Appendix 2. It is proposed to improve the peat by deep mixing along the route of this pipe, to facilitate the construction of a temporary haul road, and to install the pipe in a sheet pile supported trench. It is proposed to use ground anchors to tie down the polyethylene pipe so as to resist uplift buoyancy forces on an empty pipe. The proposed approach is stated to be based on experience of installing gas pipelines in peat elsewhere in Ireland. The strategy should serve to minimize the impact of the construction works on the peat and constitutes a cautious approach to the work.

In Technical Appendix 2, there is a consistent design strategy of improving the peat in places where it is to be retained and of minimizing the impact of the construction of the terminal platform on the surrounding peat. Detailed consideration has been given to the management of surface and ground water flows, both in the short term and in the long term. The outline of the sequencing of construction activities in Chapter 11 indicates that detailed consideration has been given at this stage to the orderly execution of the works.

5. SRAHMORE PEAT DEPOSITION SITE

The deposition works at Srahmore comprise the partial re-filling of cutover peatland using the windrowed peat from the gas terminal site. It is proposed that all of the peat deposition work will be undertaken by and supervised by Bord na Mona personnel, who have considerable expertise in handling peat and detailed local knowledge of working the Srahmore site. This should ensure that the transport, deposition and spreading of the imported peat within the cutover peatland will be carried out effectively.

A new main access road to the Srahmore site is proposed from the R313. Probing of the peat has indicated that the peat along the proposed route of this access road varies in thickness from about 6m at the R313 to about 0.6m in the peat reception area. There appears to be no quantitative site investigation data in the area of the site access road where the peat is thickest, close to the R313. It is proposed to construct a geogrid reinforced road pavement directly on the peat. If further site investigation were to indicate that the peat were too soft and compressible to sustain the proposed road pavement in a serviceable condition over the duration of the deposition project, the peat could be improved using the deep mixing technology proposed for the gas terminal site.

As the remaining peat cover in the proposed peat reception area appears to be relatively thin, the proposed reinforced concrete slab in this area should prove serviceable for the duration of the project.

6. IMPROVEMENT OF PEAT BY DRY DEEP MIXING

While dry deep mixing using a cement binder to improve the geotechnical properties of soft soils is a well-established technology in Japan and the U.S.A., and to a lesser extent in Europe, particularly in Scandinavia, it is new to Ireland. Even where the technology is well established in the treatment of organic soils, there is very limited experience of treating peaty soils, which are almost 100% organic. There are two publications of particular significance in the context of the proposed works at Bellanaboy. An international collaborative research project, EuroSoilStab, funded by the European Union, on the development of design and construction methods to stabilise soft organic soils, led to the publication of the very informative "Design Guide: Soft Soil Stabilisation" in 2000. The research work on Irish peat, which was undertaken at Trinity College Dublin as part of the EuroSoilStab project, has been presented in some detail in a recent paper, "Some experiences on the stabilization of Irish peats", in the Canadian Geotechnical Journal (Hebib, S. & Farrell, E.R., 2003).

The proposed dry deep mixing of the peat at Bellanaboy should be designed and executed in accordance with the design guide and should be informed in particular by the findings of Hebib and Farrell (2003) on Irish peat. While different combinations of cement, gypsum, blast furnace slag, pulverised fuel ash and lime have proved to be effective in soft soils with organic contents up to 30%, the design guide advises that only cement alone, cement + gypsum, or cement + blast furnace slag should be considered for peat. The laboratory-based study by Hebib & Farrell (2003) on two Irish peats showed that, while a combination of blast furnace slag and gypsum was very effective when applied to one Irish peat, it was entirely ineffective in improving the geotechnical properties of the other one. A cement binder was shown to be effective in both cases. The study also showed that it was extremely important to place a surcharge load on the stabilized peat as soon as possible following deep mixing.

The design guide recommends that, particularly where local experience of deep mixing is lacking, an initial laboratory study should be undertaken to evaluate the effects of deep mixing on the soil under ideal laboratory conditions. On the basis of experience, it is estimated that the shear strength capacity developed under mixing conditions in the field is typically only 20% to 50% of the shear strength of comparable laboratory mixed soil. When the laboratory study has been completed successfully, it is imperative that field trials be conducted in advance of the main project and that these trials be guided by what has been learned in the laboratory.

In the case of the Bellanaboy site, it would be reasonable to expect that a laboratory study of the effectiveness of dry deep mixing on the peat from the site be carried out in advance of any field trials and that field trials be executed in advance of any other site work on the project to demonstrate the effectiveness of potentially suitable dry deep mixing field strategies.

Euro Soil Stab: Design Guide: Soft Soil Stabilization. European Union, CT97-0351, Project No. BE 96-3177

Hebib, S. & Farrell, E.R. (2003) Some experiences on the stabilisation of Irish peats. Can. Geotech. J. 40: 107-120.

7. CONCLUSIONS

The site investigation fieldwork, described in the EIS, was quite extensive and appears to have been sufficient to provide a comprehensive picture of the soil and ground water conditions on the site.

In developing a construction strategy for the complete removal of peat from the footprint of the terminal platform, consideration has been given to minimizing the impact of the construction on the peat at levels both above and below the terminal area.

In all other parts of the site where any construction work is envisaged, it is proposed to stabilize the peat using dry deep mixing using a cement binder. In addition, it is proposed to construct sheet pile retaining walls around the perimeter of the improved peat, to minimize the impact of any site activities on the in situ peat outside of the stabilized areas. Here again, consideration has been given to minimizing the impact of the works on in situ peat immediately adjacent to the works.

While field trials are proposed to enable the development of an appropriate dry deep mixing strategy, it would be reasonable to expect that such field trials be preceded by a detailed laboratory study on the effectiveness of dry deep mixing on the peat from the site, particularly in the absence of experience in the application of dry deep mixing technology to Irish peat sites. On the basis of recent laboratory studies on peat from other Irish sites there is good reason to be optimistic that the proposed dry deep mixing strategy will prove to be effective.

The proposal to use the expertise of Bord na Mona to enable the removal of excavated peat from the site and its controlled deposition at Srahmore appears to be sound. It appears to be recognized in the EIS that the need to dry the peat at Bellanaboy before it can be transported to Srahmore will have a controlling effect on the rate of development of the Bellanaboy site.

Consideration has been given in the EIS to the need to control all water flows on the site and to direct them to the settlement ponds in such a way as to avoid any possible adverse impact on the in situ peat surrounding the works.

In summary, from a geotechnical viewpoint, reasonable care has been taken in assessing the geotechnical characteristics of the site and in proposing a workable strategy for construction, which will minimize any impact on the in situ peat surrounding the site.

North Western Regional Fisheries Board
Bord Iascaigh Réigiúnach an Iarthuaiscirt

Fisheries Ireland
Our Natural Heritage

25 Mar, 2004

Secretary
Planning Section
Mayo County Council
Aras an Chontae
Castlebar

Re: **P03/3343 – Corrib Gas Project – additional information**

Dear Secretary

With regard Shell's response to the Council's request for further information in respect of the proposed Bellanaboy Bridge Gas Terminal, and associated Srahmore Peat Deposition Site, the Board has the following submission to make.

The additional information has been reviewed by the Board and it has allowed us to further consider the concerns highlighted in our submission of 29 January, 2004 to Mayo County Council. It appears that the applicants have further considered the potential threats, from a fisheries perspective, during the construction phase, and the proposed mitigating measures. Provided all of these measures are put in place and operated satisfactorily, the threat to the inland fisheries in the area should be minimised. If Mayo County Council grant permission for the proposed development, it is essential that stringent conditions be imposed in order to protect the fisheries in the catchments concerned. In this regard, the Board recommends that the suggested conditions set out in its original submission should be attached to any grant of permission.

Regarding the map submitted in respect of the location of the puraflow system, it appears that the potential threat to adjacent watercourses is via the drain alongside the R314, which discharges into the Bellanaboy River, a tributary of Carrowmore Lake. The Board considers it imperative that the proposed system be operated properly and that it be subject to regular monitoring and maintenance in order to avoid any deterioration of water quality in the area. As you will be aware, Carrowmore Lake has already experienced severe algal blooms in recent years and it is essential, therefore, that all necessary steps are taken to prevent any further discharge of nutrients to the lake which is an important fishery and source of water supply.

The North Western Regional
Fisheries Board
Ardnaree House
Abbey Street
Ballina
Co. Mayo
T: (096) 22788
F: (096) 70543
E: info@nwrfb.com
www.northwestfisheries.ie

Regarding Question 11, in relation to the impacts of peat binder on adjacent watercourses, the Board considers it necessary that on-site trials be conducted. These trials should be on a scale appropriate for the size of area in which this activity is to be undertaken. The Board is especially concerned about the potential threat of this novel technique on surface water quality in the vicinity of the works. The only way that concerns regarding the water quality issue can be adequately addressed, is by conducting these investigations with reference to water quality parameters, under the actual nditions experienced on the site. These investigations should be carried out during the initial phase of the works and the results reported to the monitoring group which is expected to be set up to oversee the environmental aspects of the project, and/or to the Co. Council.

Yours sincerely

VINCENT ROCHE
Chief Executive Officer

mcc-corgas34

Department of the Environment, Heritage & Local Government
Development Applications Section
Dún Scéine
Harcourt Lane,
Dublin 2

Direct Line: (01) 4117113
Fax No: (01) 4117120

facsimile transmittal

To:	Mayo County Council	90 :	(094) 21694
From:	Kathryn Ward		
Re:	Corrib Gas P03/3343	FAO Planning Dept: Ian Douglas	
Pages	4 including the cover sheet		

☐ Urgent ☐ For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

Ian

Please see attached our recommendations in relation to the above proposed development.

Regards

Kathryn Ward

1/4/04

AN ROINN COMHSHAOIL, OIDHREACHTA AGUS RIALTAIS ÁITIÚIL
DEPARTMENT OF THE ENVIRONMENT, HERITAGE AND LOCAL GOVERNMENT

1 April, 2004

Your Ref: P03/3343
Our Ref: DAU-2003-MA-MA-03/3343

AN ROINN COMHSHAOIL,
OIDHREACHTA AGUS
RIALTAIS ÁITIÚIL
DEPARTMENT OF THE
ENVIRONMENT, HERITAGE
AND LOCAL GOVERNMENT

DÚN SCÉINE, LÁNA FHEARCHAIR,
BAILE ÁTHA CLIATH 2, ÉIRE
DÚN SCÉINE, HARCOURT LANE,
DUBLIN 2, IRELAND

Teileafón: +353 1 647 3000
Locall: 1890 321 421

County Secretary,
Mayo County Council,
Áras an Chontae,
Castlebar,
Co. Mayo.

Re: Planning Application Reg. Reg. No. 03/3343 by Shell E & P Ireland Limited for the development of a Gas Terminal etc. at Bellagelly South, Bellanaboy Bridge, Co. Mayo and associated peat deposition site at Srahmore and Attavally, Bangor-Erris, Co. Mayo.

A Chara,

We refer to the response to the Councils *Request for Further Information* from Shell E&P Ireland Ltd in relation to the above-proposed development, which was forwarded to this office for consideration.

Outlined below are the nature conservation comments of the Heritage and Planning Division of the Department of the Environment, Heritage and Local Government to the further information and to the comments outlined on the original application. Numbering refers to the numbered points in the request for further information under the respective volume headings, and from the original Environmental Impact Statement (EIS)

The Council may wish to clarify with the applicant (or deal with by appropriate conditions) the issues raised on points 4, 7, 8 and 9 of Volume 1 and point 1 of Volume 2, and might consider the issues raised in relation to points 10 and 11 of Volume 1 in the context of possible conditions attaching to planning permission.

Volume 1

4. Clarification is required in respect of the wastewater treatment system as shown in drawings COR-AR-SD-RFI-001 *(scale 1:10,560)* and COR-AR-SD-RFI-002 (*scale 1:500*). At the nearest point, the percolation area comes to within 10m of drainage ditch D99, on the more detailed of the two drawings (002). However, the drainage map (from section 7 of the Further Information) - drawing COR-AR-SD-RFI-005 (construction phase drainage layout) - shows the percolation area is 34m from drainage channel D99 at the nearest point.

7. Details of the existing and proposed drainage on-site are clarified in drawings in the further information but the directions of water flow in watercourses remain unclear in some key peripheral locations, including along the southern boundary of the development site and the R314. Drainage maps indicate that all site drainage is to the south-west of the development site, towards the Bellanaboy River system, including from the temporary construction area in the east. However, other hydrological reports indicate drainage to two separate river catchments, and these state that drainage from the temporary construction area is towards the north to the Glenamoy River system. It should be noted that drainage to the north, if this occurs, presents the possibility of indirect impacts on Glenamoy Bog Complex cSAC (site code 500). The points where drains from the site enter nearby river systems are not identified (see point 8).

8. Information on the locations and physical characteristics of drains 16, 22 and 62, for which water quality (physico-chemical) data are presented, is lacking. These drains are not labelled on any site drainage maps, and their locations and directions of flow are unclear. The location of the outlet point to the river from the main channel that drains the terminal site is not identified. In the case of all outlet points from site drains to nearby river systems, upstream and downstream water quality samples are required to establish baseline conditions, to facilitate monitoring and comparison, and to determine the impacts on the river systems. This is standard practice.

9. There are concerns about the possible impacts of free water from the windrowed peat on water quality (pH, humic and other acids, and phosphates (point 6)). This query has not been addressed by way of any supporting information or assessment of the concentrations of humic acids in the freewater, or by any information on pH. A pH of 7.5 for waters draining from commercial peatland areas is presented and is slightly basic, not acidic. This is not comparable to the situation at Bellagelly South where a range of pHs is given for blanket bog, including as low as pH 3.5-4.2 (Volume 2 of the EIS). The ability of the silt ponds to treat runoff and contaminated waters from excavated peat and construction activities has not been demonstrated.

10. There are concerns about the impacts on breeding birds in general, not just Annex I species (EU Birds Directive). Best practice dictates that disturbance to birds and their nesting habitat should be avoided during the breeding season. It is suggested that this might be subject to an appropriate condition.

11. The County Council may need to consider an appropriate condition to ensure that the introduction of lime/cement binder does not have a significant impact on surface and ground waters.

Volume 2

1. As in point 8 above, the standard practice for assessing and monitoring the impacts on surface waters is to sample upstream and downstream of key points where watercourses draining the site enter river systems. No such data are available at present. Accordingly, it is not possible to establish the impacts on surface waters or the indirect impacts on designated conservation areas downstream.

The Haul Route
It is noted that the applicant has not yet provided an assessment of the ecological impacts of the proposed improvement works along the haul route, and, as indicated in our letter of 3 February, we would wish to have the opportunity to comment on this before the commencement of any works on the haul route.

Yours sincerely,

Kathryn Ward

Kathryn Ward,
Development Applications Unit.

Ward, Kathryn

From: System Administrator [postmaster@MayoCoCo.ie]
Sent: 01 April 2004 16:56
To: Ward, Kathryn
Subject: Delivered: Corrib Gas Field P03/3343

Corrib Gas Field P03/3343

<<Corrib Gas Field P03/3343>> Your message

To: Douglas Iain
Subject: Corrib Gas Field P03/3343
Sent: Thu, 1 Apr 2004 16:59:01 +0100

was delivered to the following recipient(s):

Douglas Iain on Thu, 1 Apr 2004 16:56:19 +0100
MSEXCH:MSExchangeMTA:MAYO_DOMAIN:MAYO_PRIMARY

To : Mr. E. Douglas Senior Planner

From : Mr. P. Mahon Senior Engineer West region

Re: Planning file P03/3343
Applicant Shell E&P Ireland Ltd

Date: 13/04/04

1 : Introduction

The proposed development at Bellanaboy involves the removal of 450,000m³ peat and 66,000m3 mineral soil from the terminal site and the importing of the following materials to the site, to bring the site up to formation level:

100,000 m³ of fill (stone/gravel)
17,500 m³ of concrete
36,500 m³ of binder

The development at Bellanaboy also involves the construction of 6 major terminal buildings, storage tanks, piperacks, methanol column, flare tower as well as the pavement for approx. 5km of internal roads and carparks. All of the materials required in this construction phase of the development will be imported to the site of the proposed development.

The proposed development at Srahmore involves the importing of 450,000 m³ peat/mineral soil as well as the importing of 20,000m³ of fill to construct the road network on site, and reception facilities for the peat.

The movement of such a volume of peat as well as the importing of the volumes of fill, building materials etc., to both sites will have a significant impact on the roads infrastructure in the Erris region in general and particularly in the immediate vicinity of the Ballinaboy terminal site and the Srahmore Peat Depository site. In particular the impacts can be described as follows,

1. Impact on roads from the transport of peat.
2. Impact on roads from the transport of construction. materials to the Bellanaboy site

3. Impact on roads from the transport of construction materials to the Srahmore peat deposition site.

2 : Previous Discussion on Roads

Three meetings were held between Engineers representing the Westport/Belmullet region of Mayo County Council and Tobin Consulting Engineers representing the developer in late 2003. These meetings dealt with the substantive issue of the transport of 450,000 m^3 of peat from Bellanaboy to Srahmore as well as the overall issue of haul roads and the impact on same from the proposed development at both the Bellanaboy and Srahmore sites. A joint site survey was also carried out on the proposed haul route for the peat between the sites.

As a result a draft transport plan was lodged with the Westport office of Mayo County Council in November 2003, the broad principles of which were agreed by both Mayo County Council and Tobin consulting Engineering representing the developer. The main points agreed were, as follows:

- The haul route required significant upgrading in order that it would cater for projected loading imposed by the haulage of the peat.

- The haul route for the peat would also serve as the primary haul route for construction materials into the Bellanaboy site.

- That Mayo County Council, as the roads authority, would carry out the necessary improvement works on the haul route in advance of any haulage of peat from the site in the event of permission being granted and the cost of same would be borne by the developer.

- That a transport programme for the peat identified in the draft report, be fully developed taking into account the concerns of local residents and road users, the Gardai and Mayo County Council.

- This Traffic management Plan has been revised, updated and submitted by the developer as part of the further information requested by Mayo County Council.

3 ; Overview of Proposal

The movement of 450,000 cubic metres of excavated peat/ mineral soil from Bellanaboy to Srahmore is a major proposal which requires serious consideration. The movement of construction materials to the site is of similar significance on its own merits and when added to the peat transport represents a major impact on the roads infrastructure of the Erris Region.
The transport of the peat will involve 45,000 HCV movements. The transport of the construction materials, estimated at 400,000 tonnes, will involve 21,000 HCV movements. This level of haulage will have an impact on the road pavements which will be used by the developer and all those who reside in the vicinity of the haul roads for the construction stage of the development.

The carrying out of such a haulage programme on the existing unimproved road network in the vicinity of the proposed development would lead to a rapid degradation and ultimate breakdown of the road structure. It is critical that the haul roads are identified in advance and that an appropriate strengthening programme is put in place prior to the movement of any materials. Any such strengthening programme should have regard to the document 'Guidelines on the Rehabilitation of Roads over Peat' published by the Department of Environment and Local Government in 2000.

The impact of such a high level of transport, generally in the area between the Bellanaboy site and the Srahmore site, on local residents and road users needs to be carefully examined given that the construction period is likely to last over 30 months. A Traffic Management Plan dealing with the substantive issue of the peat haulage as well as all other transport issues is an essential requirement. This plan, which has been submitted to the Mayo County Council as part of the further information deals comprehensively with all transport related issues which would be generated by the proposed development and is considered to be acceptable. The plan is a document which would require constant attention and possible revision during all stages of the development but is an acceptable baseline plan for the planning stage.

As mentioned above, the proposed development will generate approximately 56,000 HCV movements over a 30 month period. To put this in context the following are some of the estimated HCV movements in the Belmullet Area over a 30 month period;

-	Mayo County Council Road Works Scheme:	10,000
-	Private Developments/Construction:	27,000
-	Coillte related movements	6,000
	Total	43,000

The existing road network in the Belmullet area is maintained and upgraded by Mayo County Council and generally is in a reasonable condition to cater for the loads imposed on it by HCV's. The traffic generated by the proposed development will be 1.5 times greater than normal construction traffic over a 30 month period and over a much smaller number of roads. However, given that the routes to be used by development generated traffic can be predicted and given that these routes can be strengthened and improved in advance of the development, it can reasonably be concluded that the level of traffic can be catered for and that the transport/infrastructure issue, though complex, can be resolved to permit the development to proceed.

4 : Impact on roads from the Transport of Peat

The proposed route of the peat once it departs the Ballinaboy site is westwards along the R314, then south along the L1204 to its junction with the R313 which also coincides with the entrance to the Srahmore site. The overall distance is approximately 11.0km. This route at present is deficient in pavement condition throughout and alignment in several locations to cater for the traffic loading and vehicular movements associated with the transportation of 450,000m³ of peat. In order for the road to be brought up to a standard that would accommodate the movement of the peat the following will be required.

(1) The widening and strengthening of the roadway
(2) A traffic management plan which will address the needs of the Local Authority, the Gardai, other road users, local residents and the developer.

4(1) Widening and Strengthening of the Route

The road shall be widened to a minimum width of 5.5m throughout with the exception of the section south of the junction between the L1204 and the L12044. Here a one way system for the haulage of the material and return of empty vehicles incorporating the L1204, L12044 and the R313 would allow for the width requirement of the L1204 to be relaxed.

The road shall be strengthened to cater for the loads imposed on it by the transport of 450,000m³ of peat. This strengthening shall comprise the provision of reinforcement, the provision of a cold-bituminous pavement material to an average depth of 300mm and the double surface dressing of this pavement.

The details of the widening/strengthening required are outlined on Drawing No. 3225/04/01 attached. The estimated cost of carrying out the necessary widening and strengthening works to accommodate the transport of the peat is €3,500,125.00. A breakdown of this figure is outlined in the schedule attached. The developer shall make a contribution of this amount to cover the cost of these works.

4(2) **Traffic Management**

The Developer proposes to transport the peat in volumes of 10m³ on trucks using a fleet of 40 vehicles. It is anticipated that a volume of 4000m³ per day will be moved. A total of 112 working days is the envisaged duration of the haulage operation. This will result in 400 round trips per day and individual locations along the route will therefore experience 800 traffic movements per day generated by the transport of the peat. A total of 45,000 loads of peat will be transported from Ballinaboy to the peat deposition site at Srahmore. Allowing for the haulage being carried out over 9 hours each day this would result in a traffic movement occurring at an individual point every 40 seconds on average.

This level of movement will have a significant impact on local residents and other road users and could be overcome if any of the following alternatives are used:

Option 1 - The trucks to move in fleets of 4 vehicles thereby increasing the intervals between vehicular movements

to an average of 160 seconds, (2 minutes and 40 seconds).

Option 2 - The trucks to carry a larger payload (say 20m³) which would reduce the fleet level required to carry out the haulage operation to 20 - 22 vehicles.

Option 3 - The trucks to carry the 10m³ payload but the haulage operation duration to be extended to 225 working days. This would increase the interval between single vehicular movement to an average of 80 seconds.

The option of moving the peat in convoys of vehicles each carrying 10m³ of peat is considered a hazard to other road users. The option of using vehicles carrying a 20m³ payload would require articulated vehicles. The free and safe movement of these vehicles would necessitate significant realignment of the haul route over and above the level identified on the Drawing No.3225/04/01 and would add considerably to the cost and time required to upgrade the haul route. The option of increasing the duration of the haulage operation to 225 working days will just prolong the impact on local residents and road users, although increasing the interval between traffic movements. On balance the proposal indicated by the developer of 400 round trips per day (800 traffic movements) is considered a reasonable approach to the issue of transporting 450,000m³ of peat from Bellanaboy to Srahmore.

Having identified and considered possible alternatives, it is recommended that, the developer's proposal involving a maximum of 400 round trips per day (i.e. 800 traffic movements) be permitted and that a specific condition limiting the number of traffic movements to 800 per day be applied to the developer for the duration of the development.

The method of haulage identified by the developer is considered reasonable. The haulage of 10m³ peat (approx. 12 tonnes) will require 4 axle trucks capable of carrying 20 tonnes payload and 32 tonnes gross vehicle weight. It is not expected that these vehicles can carry any volume greater than 10m³ giving the density of the peat, the bulking nature of the material and the capacity of the 4 axle trucks. The average weight carried by these trucks will

be 12 tonne payload with a resultant gross vehicle weight of 24 tonnes.

4(3) As well as dealing with the substantive issue of peat haulage and materials haulage the Traffic Management Plan also deals with many other transport related issues associated with the proposed development including the following :

Sequencing of delivery of materials to the Bellanaboy Site
Enabling materials and construction materials are required to be delivered to the Bellanaboy site at various of the development. The Traffic Management Plan proposes that all these materials will access the site via the R313 - L1204 route. Whenever the transport of these materials coincides with the peat haulage operation the plan proposes to reduce the level of peat haulage to ensure that the upper limit of 800 traffic movements per day on the L1204 haul route will not be exceeded. This approach is acceptable to Mayo County Council.

Onsite Parking
Adequate onsite parking shall be provided for all vehicles associated with the construction and operational phases of the development. The Traffic Management Plan proposes that a majority of people working on the development will be transported to the site by minibus thereby reducing the traffic impact of private cars on the local road network and minimising the need for carparking space on the site. This approach is considered prudent.

School Times
All haulage associated with the development shall have regard to school opening and closing times. This is identified in the Traffic Management Plan.

Signing
A schedule of road signs, advance warning signs, information signs, etc., is included in the Traffic Management Plan. The locations of the signs shall be agreed with Mayo County Council before any haulage of materials commences.

The plan also deals with communication, traffic control, accommodating local residents, driver training, productivity restrictions and vehicle maintenance.

4(4) Traffic Monitoring

A Monitoring Group shall be established to examine all issues relating to transport generated by the proposed development. This group shall meet on a weekly basis for the duration of the construction phase to review all aspects of the transport Plan. The group shall consist of representatives of Mayo County Council, the Developer, Gardai and Local Residents and shall be chaired by the Director of Services for the Westport/Belmullet area or his nominee

4(5) Traffic Co-ordinator

Mayo County council will need to appoint a traffic co-ordinator to monitor the transport plan for the duration of the proposed development. The estimated cost of same is E100,000 and the cost of same should be borne by the developer.

4(6) Agreed Haul Routes

Mayo County Council anticipates that the L1204 and L12044 shall be the only haul route to or from the Bellanaboy site along with the section of the R314 from Bellanaboy Bridge to the main entrance to the terminal.

Mayo County Council is not aware of any alternative routes being considered by the Developer and, in any event, would be unlikely to consider favourably such alternatives. The haul route and schedule of haulage for the construction phase of the development should be clearly documented and made available to the public in a manner to be agreed with Mayo County Council. In addition all vehicles hauling materials to the Bellanaboy or Srahmore sites should have a clear notice visible to the public identifying that they are involved with the development.

5 Impact on Roads from the Transport of Construction Materials to the Bellanaboy Site

The developer proposes to transport the following materials to the Bellanaboy site at the groundworks phase.

100,000 m^3 fill (200,000 tonnes)

17,500 m^3 concrete	(42,000 tonnes)
30,500 m^3 binder	(80,000 tonnes)

Allowing for building materials etc. and contingencies on overall amount of 400,000 tonnes of materials can be anticipated as the amount required to be transported to the site.

Materials transported from Bangor or beyond shall use the R313, the L1204, the L12044 and the R314 as the haul route to the site. Materials transported from Belmullet shall use the R313 the L12044, the L1204 and the R314 as the haul route to the site. The transport of the materials to the site is likely to be by four axle trucks carrying a gross vehicle weight of 32 tonnes and concrete trucks carrying a gross vehicle weight of 27 tonnes, resulting in approximately 21,000 HCV movements to the Bellanaboy site during the construction period.

The design of the road strengthening for the peat haulage route will also take into account the projected level of HCV movements importing material to the Bellanaboy site as well as the level of HCV movements associated with the peat haulage. In addition the R313 requires to be strengthened at the following locations in order to be capable of carrying the loads identified above to the site.

R313	Bangor - Muinhim	1.5km
R313	Glencastle	1.2km

The estimated cost of strengthening 2.7km of the regional road is €675,000 (€250,000/km). The Developer shall make a contribution of this amount towards the cost of same. The remainder of the R313 between Glencastle and Bangor has been strengthened by Mayo County Council in recent years and is in a reasonable condition to cater for the loading levels that will be generated by the proposed development.

6 Impact on roads from the Transport of Construction Materials to the Srahmore Site.

The Developer proposes to transport 20,000m^3 of fill (40,000 tonnes) to the peat deposition site. Materials transported to this site shall use the R313 which as mentioned above requires to be

upgraded at two locations to cater for the antic
movements generated by the proposed developn

7 Road Realignment Requirements

7(1) Main Entrance to Terminal at Ballanaboy

In order to cater for both the construction and operational phases of the proposed development at Bellanaboy the R314 shall be realigned in accordance with the attached Drawing (No. 3225/04/02). This realignment shall be carried out by the Developer to a design and specification to be agreed with Mayo County council. The cost of the realignment shall be borne completely by the Developer. The realignment works shall be carried out in advance of the peat haulage operation and before construction commences at the Bellanaboy site.

7(2) Entrance to Settlement Ponds at Bellanaboy

The existing road side boundary shall be set back in accordance with the attached Drawing (No. 3225/04/03), in order to allow for adequate visibility for traffic emerging from this location. The area between the edge of carriageway and the set back boundary shall be made level with the existing carriageway.

7(3) Junction of R313 and L12044

A right turning lane should be provided at this location in accordance with the attached Drawing (No. 3225/04/04), in order to allow for the free and safe flow of traffic at this location. This work should be carried out by Mayo County Council and be completed in advance of the peat haulage operation. The estimated cost of these works is €150,000. The Developer should make a contribution of this amount towards the cost of same.

8 Upkeep of Road Network

The principle haul route to or from the site is along the R313, L12044 L1204 and the R314 from Bellanaboy Bridge to the main terminal entrance. While it is intended to strengthen 15.2km of this specific network, given the nature of the ground these roads pass over, settlement of the pavement can be expected at various

location: throughout the various stages of development. The maintenance, repair and upkeep of these strengthened haul routes and all other roads in the region which are affected directly or indirectly by the proposed development shall be carried out by Mayo County Council and any costs incurred shall be paid by the Developer.

In addition an updated road and bridge condition survey of the road network in the Erris region shall be undertaken by Mayo County Council, at the cost of the Developer, before and after the haulage of materials to or from the sites. This survey shall determine the level of damage to the road network, if any, which would be attributable to the proposed development, and the cost of repairs required, if any, which shall be met by the Developer.

9. Environmental Impact of the Haul Road

The existing road bisects Carrowmore Lake cSAC and an assessment of the likely impacts of the work on the cSAC has been carried out. The assessment included discussions with the NPWS and the indications are that the proposed upgrading of the designated haulage route will have no adverse impact on the cSAC.

10. Response to Submissions

The submissions made relating the development and particularly to the Traffic Management Plan are concerned with the following main issues;

-
- inadequate road width of haul route, principally the L1204.
- the use of the Glengad Dooncarton road as a haul route.
- the impact on the SAC's through which the L1204 passes.
- delays on the L1204 due to the increased levels of traffic.
- the proposed road width of 5.5m not complying with relevant guidelines.

The L1204 is the principal haul route for the proposed developments at Ballinaboy and Srahmore. The proposal to widen and strengthen the route between both sites to a minimum width of 5.5m throughout will adequately cater for the levels of

transport associated with the development. It will also be possible to exceed the 5.5m width for a least 50% of the haul route between Ballinaboy and Srahmore. It is not anticipated that the widening and strengthening of the route would have any adverse imoact on the SAC's through which the road passes.

The proposed development does not involve the use of the Dooncarton-Glengad route. This route is proposed for some of the offshore works associated with the gas pipeline which does not form part of the application.

Delays on the haul route will be inevitable due to the increased level of traffic movements on this route generated by the proposed development. The traffic management Plan outlines proposals to mitigate against serious delays and issues such as delays which may occur will be addressed by the Monitoring Group.

The 5.5m width is identified in RT180 (Geometric Guidelines for Roads, issued by the Dept. of Environment) as a desirable pavement width for Local Roads. The L1203 Glenamoy to Carrowtigue road has been widened and strengthened to a minimum width of 5.5m in recent years in a manner which would be employed on the L1204.

P Mahon

P. Mahon Senior Engineer

Schedule of Costs

Road upgrade to facilitate the transportation of peat from the proposed gas terminal site at Bellanaboy to the Srahmore peat deposition site (Refer to Drawing No 3223/04/01).

Note:- Not including realignment of R314 at proposed terminal Entrance

Item	Item Description	Quality	Unit	Unit Rate Euro	Amount Euro
	Preliminary Works				
1.	Preliminary banking, localised widening, piping of drains etc.				
	Legend B	2.0	Km	35,000	70,000
	Legend C	0.5	Km	70,000	35,000
	Legend D	2.7	Km	50,000	135,000
	Legend E	0.1	Km	70,000	7,000
	Legend F	1.5	Km	1000,000	150,000
	Legend G	5.7	Km	50,000	285,000
2.	Junction Improvements		Item		100,000
3.	Upgrading of Bridges and Culverts		Item		400,000
	Regulating Course				
4.	Wet-mix Macadam regulating course to clause NG 806 of the specification. Road width 5.5 metres minimum	15,500	Tonne	22	341,000
	Wearing Course				
5.	Stabilised Wet-mix Macadam roadbase 200mm thick to Clause 942 of the Specification. Road width 5.5 metres minimum	68,750	Sq.m	17.5	1,203,125
	Pavement Reinforcement				
6.	Provide and lay Biaxial Geogrid for sub-base reinforcement	68,750	Sq.m	5	343,750
	Flexible Surfacing				
7.	Double Surface Dressing	68,750	Sq.m	5	343,750
	Road Markings				
8.	4.0mm Thick Reflective Thermoplastic Lines	12.5	Km	5,000	62,500
9.	Centre Line Studs	12.5	Km	2,000	24,000
				Total	3,500,125

Schedule of Conditions

Traffic Management plan
The developer shall comply with the commitments made in the Traffic Management Plan lodged with Mayo county Council as part of further information with respect to all aspects of transport which will be generated by the proposed development.

4(1) **Widening and Strengthening of the Route**
The estimated cost of carrying out the necessary widening and strengthening works to accommodate the transport of the peat is €3,500, 25.00. A breakdown of this figure is outlined in the schedule attached. The developer shall make a contribution of this amount to cover the cost of these works.

4(2) **Traffic management**
Having identified and considered possible alternatives, it is recommended that, the developer's proposal involving a maximum of 400 round trips per day (i.e. 800 traffic movements) be permitted and that a specific condition limiting the number of traffic movements to 800 per day be applied to the developer for the duration of the development.

4(3) **Signing**
A schedule of road signs, advance warning signs, information signs, etc., is included in the Traffic Management Plan. The locations of the signs shall be agreed with Mayo County Council before any haulage of materials commences.

4(4) **Traffic Monitoring**
A Monitoring Group shall be established to examine all issues relating to transport generated by the proposed development. This group shall meet on a weekly basis for the duration of the construction phase to review all aspects of the transport Plan. The group shall consist of representatives of Mayo County Council, the Developer, Gardai and Local Residents and shall be chaired by the Director of Services for the Westport/Belmullet area or his nominee.

4(5) **Traffic Co-ordinator**
Mayo County council will need to appoint a traffic co-ordinator to

monitor the transport plan for the duration of the proposed development. The estimated cost of same is E100,000 and the cost of same should be borne by the developer

Materials transported from Bangor or beyond shall use the R313, the L1204, the L12044 and the R314 as the haul route to the site. Materials transported from Belmullet shall use the R313 the L12044, the L1204 and the R314 as the haul route to the site. In addition the R313 requires to be strengthened at the following locations in order to be capable of carrying the loads identified above to the site.

R313	Bangor - Muinhim	1.5km
R313	Glencastle	1.2km

The estimated cost of strengthening 2.7km of the regional road is €675,000 (€250,000/km). The Developer shall make a contribution of this amount towards the cost of same.

4(6) **Agreed Haul Routes**

Mayo County Council anticipates that the L1204 and L12044 shall be the only haul route to or from the Bellanaboy site along with the section of the R314 from Bellanaboy Bridge to the main entrance to the terminal.

Mayo County Council is not aware of any alternative routes being considered by the Developer and, in any event, would be unlikely to consider favourably such alternatives. The haul route and schedule of haulage for the construction phase of the development should be clearly documented and made available to the public in a manner to be agreed with Mayo County Council. In addition all vehicles hauling materials to the Bellanaboy or Srahmore sites should have a clear notice visible to the public identifying that they are involved with the development.

7(1) **Main Entrance to Terminal at Ballanaboy**

In order to cater for both the construction and operational phases of the proposed development at Bellanaboy the R314 shall be realigned in accordance with the attached Drawing (No. 3225/04/02). This

realignment shall be carried out by the Developer to a design and specification to be agreed with Mayo County council. The cost of the realignment shall be borne completely by the Developer. The realignment works shall be carried out in advance of the peat haulage operation and before construction commences at the Bellanaboy site.

7(2) Entrance to Settlement Ponds at Bellanaboy

The existing road side boundary shall be set back in accordance with the attached Drawing (No. 3225/04/03), in order to allow for adequate visibility for traffic emerging from this location. The area between the edge of carriageway and the set back boundary shall be made level with the existing carriageway.

7(3) Junction of R313 and L12044

A right turning lane should be provided at this location in accordance with the attached Drawing (No. 3225/04/04), in order to allow for the free and safe flow of traffic at this location. This work should be carried out by Mayo County Council and be complete in advance of the peat haulage operation. The estimated cost of these works is €150,000. The Developer should make a contribution of this amount towards the cost of same.

8 Upkeep of Road Network

The principle haul route to or from the site is along the R313, L12044 L1204 and the R314 from Bellanaboy Bridge to the main terminal entrance. While it is intended to strengthen 15.2km of this specific network, given the nature of the ground these roads pass over, settlement of the pavement can be expected at various locations throughout the various stages of development. The maintenance, repair and upkeep of these strengthened haul routes and all other roads in the region which are affected directly or indirectly by the proposed development shall be carried out by

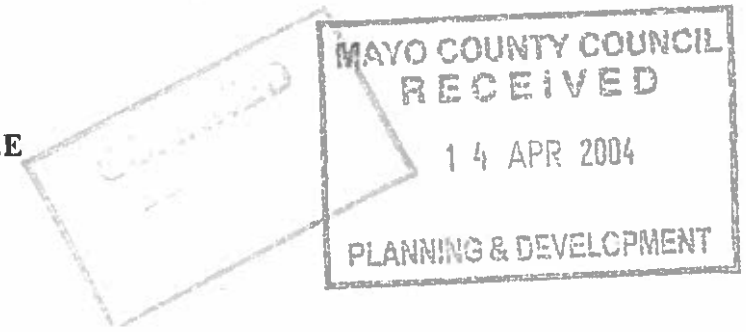
Mayo County Council and any costs incurred shall be paid by the Developer.

In addition an updated road and bridge condition survey of the road network in the Erris region shall be undertaken by Mayo County Council, at the cost of the Developer, before and after the haulage of materials to or from the sites. This survey shall determine the level of damage to the road network, if any, which would be attributable to the proposed development, and the cost of repairs required, if any, which shall be met by the Developer.

CO00MHAIRLE CONTAE MHAIGH EO

MAYO COUNTY COUNCIL

MEMO



To: **Iain Douglas**

From: **M. O'Boyle EE**

Date: **14/04/04**

Re: **P03/3343**

Taking into consideration the EIS and associated documentation in relation to this application it is my opinion that planning permission should be granted for this development. The operational life of the development will be subject to an IPPC licence that will be processed by the EPA in due course. My main concern in relation to the development is during the construction stage. It shall be a requirement that no deleterious material shall be allowed to enter the local water systems as a result of this construction and that during the construction stage atmospheric impacts such as dust and noise shall be kept to a minimum. The schedule of conditions as set out below will ensure the construction stage is undertaken in such a fashion as to ensure that the environmental impacts as set out in the EIS are adequately controlled. They will also ensure that any additional impacts that may arise during the construction will be identified as early as possible and controlled or the activity, giving rise to such impacts will cease. A regime of continuos monitoring where practicable shall be in place during construction phase to the satisfaction of Mayo County Council. The Environmental Management System will require that not alone are environmental standards met, but that a requirement for continuos improvement to the satisfaction of Mayo County Council is also achieved.

❖ Condition 1
Setting up of an Environmental Monitoring Committee

1.1 No development shall commence until a monitoring committee is established comprising of senior personnel from the Developer, Contractor Mayo Co. Co. and the North Mayo Western Regional Fisheries Board to monitor earthworks and control of run off from site. The committee shall be chaired by Mayo Co. Co. and may co-opt other personnel as required

1.2 The monitoring committee shall meet at least monthly during the earthworks stage to monitor progress. Any member of the committee can request an urgent meeting at any time if they consider environmental damage has occurred or is likely to occur.

1.3 Mayo county council may at the request of the monitoring committee by notification in writing to the developer require on additional environmental controls where necessary to prevent environmental pollution.

1.4 Mayo County Council shall require the developer to cease certain activities during the construction stage if it deems these activities are giving rise to environmental pollution.

1.5 The developer shall provide an office and phone line on site for the duration of the construction stage to be used by staff of Mayo County Council.

❖ Condition 2
Construction activities

2.1 Blasting shall be designed and operated so that

2.1.1 Ground vibration arising from any blast carried out on the site shall not exceed a peak particle velocity of 12 mm/s in any one of three mutually orthogonal planes at the threshold of any house in the vicinity of the site.

2.1.2 The air over pressure arising from any blast carried out on the site shall not exceed 125 dB (linear) max peak level when measured outside the nearest house to the blast.

2.1.3 Blasting shall be confined to between the hours 1100 and 1700, Monday to Friday

2.2 Arrangements for warning signals in relation to quarry blasting shall be agreed in writing with Mayo Co. Co. A warning siren shall be sounded 30 minutes 10 minutes and 3 minutes prior to blasting and an all clear sirn afterwards. Details of advance notice of blasting to occupiers of properties in the vicinity of the site shall be agreed with Mayo Co. Co.

2.3 Dust levels shall not exceed 130 milligrams per square metre per day averaged over thirty days when measured at the site boundaries.

2.4 During the construction stage noise levels shall be kept to a minimum. The Monitoring group shall be advised of any activity, which will elevate the pre construction ambient noise levels by 5dB Leq at least two weeks prior to the commencement of such an activity. Mayo County Council may set noise limits or schedule these activities in such a way that will mitigate any impacts not less than one week prior to commencement of the activity.

2.5 With the exception of waste material being transferred to a licensed waste facility no material generated on site during the construction stage shall be removed off site unless agreed with Mayo County Council in advance.

2.6 Adequate sanitary arrangements to the satisfaction of Mayo County Council shall be installed for the duration of the construction period. All wastes generated from such arrangements shall be tankered off site.

2.7 No development shall commence on site until an adequate water supply is provided and agreed in writing with Mayo Co. Co.

2.8 All fuel storage areas and cleaning area, particularly cleaning areas of concrete trucks shall be rendered impervious to the materials stored there in or substances cleaned from. In addition, tank and drum storage areas shall as a minimum be bunded, either locally or remotely, to a volume not less than the greater if the following

2.8.1 100% of the capacity of the largest tank or drum within the bunded area ; or

2.8.2 25% of the total volume of substance which could be stored within the bunded area.

2.9 All surface water discharges from the disturbed area of the site shall be through the regime of settling ponds and silt traps as set out in p03/3343 and the accompanying EIS.

2.10 No deleterious matter shall be allowed to discharge to surface waters as defined in the Fisheries Consolidation Act.

❖ Condition 3

Management of the Site Construction Activities

3.1 The developer shall prior to commencement of construction works shall develop and submit to Mayo. Co. Co. an accredited environmental management system specific to the construction stage of the project and include all subcontractors involved.

3.2 This Environmental Management System shall be implemented for the duration of construction stage of the project

3.3 The EMS shall contain a requirement for continuos improvement to the satisfaction of Mayo County Council

3.4 The EMS shall include as a minimum those elements specified below

3.4.1 Schedule of environmental objectives and targets.

3.4.2 Environmental Management programme

3.4.3 Corrective Action procedures

3.4.4 Awareness and training programme

3.4.5 Management structure

3.4.6 Communications Programme

3.5 Mayo Co. Co. shall agree or amend the structure and makeup of the above at any time during the construction stage.

3.6 Mayo Co. Co May at any time during the construction stage request an environmental report

3.7 Mayo Co. Co May at any time during the construction stage request an environmental Audit

❖ Condition 4
Road Haulage Activities

4.1 All vehicles leaving the construction area of the site shall pass through a wheel wash.

4.2 The developer shall ensure that no material shall leak or fall from vehicles while in transit transporting waste from the terminal site.

❖ Condition 5
Notification and Record keeping

5.1 The developer shall appoint a Liaison officer during the construction stage of the project. He shall be suitably qualified and experienced. He shall contact the chairman of the monitoring committee in the event of one of the following happening

5.1.1 Any malfunction of any environmental system

5.1.2 Any occurrence with the potential for environmental pollution

5.1.3 Any emergency

5.2 Records shall be maintained by the developer during the construction stage as is deemed appropriate by the monitoring committee

5.3 The Developer shall maintain a written record of all complaints relating to all aspects of the construction stage of the project. Each such record shall give details of the following

5.3.1 Date and time of the complaint

5.3.2 The name of the complainant

5.3.3 Details of the nature of the complaint

5.3.4 Actions taken on foot of the complaint and results of such actions

5.3.5 The response made to each complainant

5.4 The Developer shall maintain a written record of all wastes leaving the site Each such record shall give details of the following

5.4.1 The name of the carrier

5.4.2 The vehicle registration number

5.4.3 Name of the waste collector

5.4.4 Description of the waste

❖ Condition 6
Environmental Monitoring

6.1 Surface water, ground water, dust and continuous noise monitoring should be carried out by the developer through out the construction phase of the project.

6.2 Prior to commencement of works a monitoring plan for each of the below should be submitted to Mayo County council and shall be agreed with the monitoring committee. Such plans shall include as a minimum those elements specified below

6.2.1 List of monitoring locations.

6.2.2 Equipment to be used.

6.2.3 Identity and qualifications of those carrying out the monitoring.

6.2.4 Parameters to be used.

6.2.5 Monitoring intervals.

6.2.6 Averaging times.

6.2.7 A proposal on how data observed is to be presented.

6.2.8 Codes of practice to be used.

6.3 Mayo County Council shall carry out monitoring checks on site or in the vicinity of the site, as it deems necessary other than the monitoring otherwise specified.

6.4 The Settling ponds and discharges from the settling ponds shall be monitored on a regular basis. The following parameters may be required and will be determined by the monitoring committee

6.4.1 Temperature

6.4.2 Turbidity

6.4.3 Dissolved oxygen

6.4.4 Electrical conductivity

6.4.5 Phosphate

6.4.6 Nitrate

6.4.7 Suspended solids

6.7 Silt traps and settling ponds shall be inspected by Mayo Co. Co. at any time.

6.8 Final lake survey may be required to be carried out after completion of the construction phase. Extent and duration will be agreed by the monitoring committee

6.9 Due to the large amount of data that will be collected and collated during the course of the construction stage a data management system shall be implemented by the developer consisting of a computerised data base to allow easy access and interpretation of data collected. Details of which shall be submitted to Mayo Co. Co. prior to commencement of works

6.10 Completion date for all monitoring shall be agreed with monitoring committee.

❖ Condition 7
Charges and financial provisions

7.1 Costs of monitoring, monitoring checks, inspections and environmental audits carried out by or for Mayo Co. Co. shall be charged to the developer.

SIGNED: _____

MICHAEL O'BOYLE E.E.

FEHILY TIMONEY & COMPANY

CONSULTANTS IN ENGINEERING & ENVIRONMENTAL SCIENCES

Our Ref: 2004/133/01/let002/KB

Mr. Iain Douglas
Planning Section
Mayo County Council
Áras an Chontae
The Mall
Castlebar
Co. Mayo

16 April 2004

RE: Supplementary Geotechnical Note on Response to Further Information Request for proposed Bellanaboy Bridge Gas Terminal

Dear Mr. Douglas

Please find enclosed a copy of our Supplementary Geotechnical Note on the FIR for the proposed Bellanaboy Bridge Gas Terminal, Co. Mayo.

If you have any queries on this matter, please do not hesitate to contact Ms. Fionna O'Regan.

Yours sincerely

Karen Byrne

Karen Byrne
for and on behalf of Fehily Timoney & Company

Encl.

CORE HOUSE POULADUFF ROAD CORK IRELAND
TEL: +353 21 4964133 FAX: +353 21 4964464 E-MAIL: info@ftco.ie Web Site: www.fehilytimoney.ie

Proposed Bellanaboy Bridge Gas Terminal
Bellanaboy Bridge
Bellagelly South, Co. Mayo

Supplementary Geotechnical Note on Response to Further Information Request

Prepared for:

Mayo County Council
Áras an Chontae
Castlebar
Co. Mayo

Prepared by:

Fehily Timoney & Company
Core House
Pouladuff Road
Cork

April 2004

Proposed Bellanaboy Bridge Gas Terminal
Bellanaboy Bridge
Bellagelly South, Co. Mayo

Supplementary Geotechnical Note
on Response to Further Information Request

User is Responsible for Checking the Revision Status of this Document

Rev. Nr.	Description of Changes	Prepared by	Checked by	Approved by	Date
0	Initial Document	MJC	[illegible]	[illegible]	05/04/04

Client: Mayo County Council, Áras an Chontae, Castlebar, Co. Mayo

Keywords: Mayo County Council, planning application, Bellanaboy Bridge Gas Terminal, geotechnical engineering, further information request, review

Abstract: This report reviews further information supplied by the application for planning permission for the gas terminal at Bellanaboy Bridge, Co. Mayo, where this information relates to geotechnical matters.

TABLE OF CONTENTS

Page

1. INTRODUCTION

This supplementary geotechnical note has been prepared by Fehily Timoney & Company, further to a request from Mayo County Council (MCC) to provide an independent commentary on geotechnical aspects of a response, dated 11 March 2004, to a further information request from Mayo County Council, relating to the proposed Bellanaboy Bridge Gas Terminal, at Bellanaboy Bridge, Bellagelly South, Co. Mayo. This note addresses just three of the items, on which further information was sought, on the basis that only these three items relate directly to the stability of peat deposits.

To facilitate the preparation of this geotechnical note, MCC has supplied Fehily Timoney & Company with a copy of the response, comprising two volumes, of which the first contains the responses to the requests and the second contains a detailed transport management plan.

2. ITEM ONE - TRAFFIC MANAGEMENT PLAN

The transport management plan recognizes the need to upgrade the existing public road network between the Bellanaboy Bridge site and the Srahmore site, to facilitate the transport of c. 450,000 m^3 of peat between the sites. The proposed road improvements are described in Chapter 4 of the plan. It is proposed to widen the existing pavement locally to provide a minimum paved width of 5.5m, to carry out minor horizontal re-alignment locally to improve sight distances, to replace two small bridges and a piped culvert and to strengthen the pavement using a geogrid reinforced overlay over the entire length of the route.

The plan recognizes that, where the pavement is widened, either by widening into existing verges or by constructing a low embankment on compressible soil, differential settlement may develop between the existing and new pavement during the course of the peat transportation. It is acknowledged that the ensuing difference in level may require maintenance during peat transportation and will in any event be made up on completion of the haulage works, as required.

The detailed proposal in Chapter 4.2 for the construction of the reinforced overlay has been agreed with MCC. It should result in an overall improvement in the road pavement in the longer term, following completion of the works.

3. ITEM TWO – STRUCTURAL STABILITY OF GAS PIPELINES

Item Two in the further information request required written confirmation from the relevant regulatory authority that the design of the proposed gas pipelines from the terminal compound to the site boundary is suitable to ensure the structural stability of the pipelines constructed in deep peat soil

The letters from the regulatory authorities relate primarily to environmental matters and make no reference to the structural stability of pipelines constructed in deep peat soil and, as such, do not provide the written confirmation requested under Item Two. The response refers to design details submitted to the relevant authorities, but does not include these details.

4. ITEM ELEVEN – ECOLOGICAL IMPACTS OF CEMENT BINDER

Item 11 required information on the possible impacts on water quality, aquatic ecology and surrounding peatlands arising from the use of the highly alkaline lime/cement binder to comparatively small parts of the site. The information was to include technical information and assessments to support the use and appropriateness of this method of peat improvement in this location.

The response to this request is comprehensive. It demonstrates an awareness of case histories of the successful use of deep soil mixing in the stabilisation of peaty soils and of the recent research work on the stabilisation of Irish peats at Trinity College, Dublin. It is quite explicit in stating that cement is the preferred binder, possibly with the addition of a small quantity of sand, depending on the outcome of ongoing laboratory testing and proposed field trials.

It is particularly significant that the advice of the Swedish Geotechnical Institute (SGI) has been obtained in the preparation of the response and that the SGI has been retained as a consultant to provide technical support for the proposed stabilisation works on the peat. The SGI is recognized as a world leader in the research and development of soil stabilisation by deep soil mixing and has a wealth of experience in the field.

The environmental impact of the proposed stabilisation works has been addressed in detail in the response. On the basis of U.K. and German sources, it is stated that leaching of cement from the stabilised peat will not occur. While environmental impacts are expected to be minimal, monitoring proposals have been outlined.

Office of
Environmental
Enforcement

PO Box 3000, Johnstown Castle Estate
County Wexford, Ireland
Bosca Poist 3000,
Eastát Chaisleán Bhaile Sheáin
Contae Loch Garman Éire

T: +353 53 60600
F: +353 53 60699
E: info@epa.ie
W: www.epa.ie

Call: 1890 33 55 99

Mr Ian Douglas
Senior Planner
Mayo County Council
County Buildings
The Mall
Castlebar

15/4/04 sd120/00329

Dear Sir,

Re: Planning Application Register P03/3343 – Shell E & P Ireland Ltd

I refer to my letter dated 11/2/04 concerning the Agency's observations in respect of the above planning application. Subsequent to that letter Mayo County Council submitted additional information to the Agency in relation to this application.

The Agency has examined this additional information and is satisfied, based on that examination, that there is no need to alter the conclusions reached in the letter issued on 11/2/04.

Without prejudice to any matters that may arise in the processing of Waste or IPPC licence applications for the activities involved we can say at this time that the EIS appears to comply with the requirements of the EIA regulations in so far as the risk of environmental pollution is concerned.

Yours sincerely,

Dr Padraic Larkin
Director
Office of Licensing & Guidance

MAYO COUNTY COUNCIL

ARCHITECTS SECTION

MEMO

TO:	Mr. Iain Douglas, S. Planner.	**DATE:**	20/04/04
FROM:	Ms. Geeta Keena, S.E.A.	**FILE:**	P03/3343
RE:	**Corrib Gas Field Development – Terminal Building at Bellanaboy.**		

The design proposals submitted by MV Cullinan Architects for the above facility refer.

The Architects approach in terms of scale and massing of the buildings is sensitive and respectful of its location and setting in the local landscape of Bellanaboy.

The external finishes and colour palette proposed for the buildings are also acceptable.

Geeta Keena

Geeta Keena, S.E.A.

1083. Ann SamminCrossKilladoon P.OWestportCo.Mayo
1084. Lizzie SamminCrossKilladoon P.OWestportCo.Mayo
1085. Allan KnoxSheeauneWestportCo.Mayo
1086. Jesse KennedyCarrowbawnWestportCo.Mayo
1087. Michelle McDonnellCrossKilladoon P.OWestportCo.Mayo
1088. Celine McDonnellCrossKilladoon P.OWestportCo.Mayo
1089. Michael McDonnellCrossKilladoon P.OWestportCo.Mayo
1090. Eileen V GibbonsCarrowniskey P.OWestportCo.Mayo
1091. David GibbonsCloonlauraCarrowniskey P.OWestportCo.Mayo
1092. David Gibbons JnrCloonlauraP.OWestportCo.Mayo
1093. Richard P Gibbons CloonlauraCarrowniskey P.OWestportCo.Mayo
1094. Patricia Gibbons CloonlauraCarrowniskey P.OWestportCo.Mayo
1095. Mrs Ann O'MalleyCrossKilladoonWestportCo.Mayo
1096. Margaret O'MalleyCrossKilladoonWestportCo.Mayo
1097. Vincent O'MalleyCrossKilladoon P.OWestportCo.Mayo
1098. Thomas Christopher JenningsCloonlaraCarrowniskey P.OWestportCo.Mayo
1099. Denise GibbonsCloonlaraCarrowniskey P.OWestportCo.Mayo
1100. Vivien GibbonsCloonlaraCarrowniskey P.OWestportCo.Mayo
1101. Ann T GibbonsRoonith HillCarrowniskey P.OWestportCo.Mayo
1102. James O'MalleyCurracconyKilladoon P.OWestportCo.Mayo
1103. Martin O'MalleyCurracconyKilladoon P.OWestportCo.Mayo
1104. Nora O'MalleyCurracconyKilladoon P.OWestportCo.Mayo
1105. Martin McGrealThallabawnKilladoon WestportCo.Mayo
1106. Ian CaveLecanveyCo.Mayo
1107. S ConwayKings HillWestportCo.Mayo
1108. Michael NoonenAughagowerWestportCo.Mayo
1109. Mrs Mary O'TooleArdoleyWestportCo.Mayo
1110. Seamus MoranBuckwarria RdWestportCo.Mayo
1111. P. PrendergastEmlaghRoonaghWestportCo.Mayo
1112. Thomas & Kathleen Duffy,Woodfield,Carrowniskey,Westport,Co.Mayo
1113. John & Bernadette Duffy,Woodfield,Carrowniskey,Westport,Co.Mayo
1114. Patrick McGreal,Derrygorrow,Carrowniskey P.O,Westport,Co.Mayo
1115. Anne McGreal,Derrygorrow,Carrowniskey P.O,Westport,Co.Mayo
1116. Mary Gallagher,Dadreen,Killadoon P.O,Westport,Co.Mayo
1117. James Bourke,Doouilra,Killadoon P.Owestport,Co.Mayo
1118. Seamus Henaghan,Thallabawn,Killadoon P.O,Westport,Co.Mayo
1119. Joe Armstorng,Althore,Carrowniskey P.O,Westport,Co.Mayo

MAYO COUNTY COUNCIL

Architects section

Memo

To: Iain Douglas, Senior Planner

From: Peter Gill, Horticulturist

Date: 21st April, 2004

RE: **PROPOSED BELLANABOY BRIDGE LANDSCAPE DEVELOPMENT**

I have examined the Shell E. & P. Ireland Limited Bellanaboy Bridge Terminal Environmental Impact Statement section thirteen 'Landscape and Visual Impact' and would like to make the following points.

Travelling east from Belmullet along the R314 toward Ballycastle, the proposed terminal site can be viewed for a distance of approximately 2.5 km, the additional land purchased by the applicant to the western boundary of the terminal site which forms part of this application will have a positive effect in screening the proposed development along this section of road as these plantations mature.

The landscape strategy will involve the removal of existing trees to accommodate the import and export pipeline route, the footprint of the terminal site, a lay down area and truck park. The strategy also allows for planting proposals that will see large amounts of coniferous planting, low deciduous scrub planting, aquatic and ground cover planting.

This additional planting I believe will provide effective screening on the vulnerable western side of the terminal site. The strategy allows for a five-year maintenance programme which covers all the necessary maintenance operations associated with such a scheme which is imperative to the success of the scheme in the long term. This should form part of the planning conditions.

Finally, I would ask that provision be made to inspect works at all stages of ground preparation and planting and the subsequent maintenance regime.

Peter Gill

Peter Gill,
Horticulturist

Re: Planning Registration No. P03/3343
Development: Gas Terminal at Bellanaboy Bridge, Bellagelly South, Co. Mayo and associated peat deposition site at Srahmore, Bangor-Erris, Co. Mayo
Applicant: Shell E & P Ireland Limited

26/04/04

Further to additional information supplied in response to the request for Further Information in connection with the above proposed development, I have noted receipt of same. Issues raised and concerns expressed by me appear to have been addressed.

Should permission be granted it is recommended that

- comments made by statutory bodies and mitigation measures outlined should be included.
- ecological and water quality monitoring and reporting be carried out at a scale and level of detail to be agreed with the Co. Council, National Parks and Wildlife and NWRFB and others to be agreed, prior to commencement of any work on the site, to ensure that all mitigation measures relating to the environmental considerations of the development are carried out.

Deirdre Cunningham
Heritage Officer

An Roinn Cumarsáide,
Mara agus Acmhainní Nádúrtha
Baile Átha Cliath 2.

Department of Communications,
Marine and Natural Resources
Dublin 2.

AO5/01 Vol 7

23 April 2004

Mr Iain Douglas
Senior Planner
Mayo County Council
Arus an Chontae
Castlebar
Co Mayo

Dear Mr Douglas

Re Additional material/Shell E&P Ireland Ltd
Corrib Gas Field Development Terminal Planning Application

The Minister for Communications, Marine and Natural Resources has seen the additional material forwarded to you by Shell E&P Ireland in connection with their terminal planning application

The Minister has no comments or observations to make in relation to this material.

Yours sincerely

Michael J. Daly

Petroleum Affairs Division
Beggars Bush
Haddington Road
Ballsbridge Dublin 4.
Tel: +353 1 6782690
Fax: +353 1 6604462

email: contact@dcmnr.gov.ie
GTN +1 18