APPENDIX H.1

REVIEW OF PEAT STABILITY RISK ASSESSMENT (PSRA)

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BYRNELOOBY

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BY E-MAIL

Ms. Susan Stack,
ESB International.

Re: **Grousemount Wind Farm – High Level Review**

Dear Susan,

ESB International (ESBI) have requested that ByrneLooby carry out a high level review of their Peat Stability Risk Assessment (PSRA) for the proposed Grousemount Wind Farm in County Kerry.

ESBI have requested a high level review of their PSRA, with ByrneLooby to review a selection of the proposed roads and turbines in areas deemed most onerous in terms of peat stability. ESBI have not assessed any of the areas where peat was found to be less than 0.5m deep during the trial pit investigations. The following defines the scope of the review which is presented in this letter:

- The basis of the Peat Stability Risk Assessment.
- Adequacy of the mitigation measures in relation to peat storage
- Comment on the conclusions and recommendations
- Comment on the factual information in the PSRA worksheets

Statement of Expertise:

ByrneLooby have over 15 years' experience of design and risk mitigation in upland peat environments on Wind Farms and other developments in Ireland and abroad. The site walkover survey for Grousemount Wind Farm was carried out by an engineer from ByrneLooby with more than 5 years similar experience of peat stability assessments for wind farms in Ireland. The project director for the works has over 20 years' experience of similar projects in both design and expert witness roles.

Initial Comment:

Following the high level review, ByrneLooby can confirm that ESBI's overarching approach to the preliminary stage PSRA has used industry best practice in line with the recommendations of the Scottish Executive document titled 'Peat Landslide Hazard and Risk Assessment: Best Practice Guide for Proposed Electricity Generation Developments' (2006). This included targeted site investigations which considered all the proposed infrastructure, site drainage considerations and minimisation of risk.

The preliminary work which has been carried will allow development of a geotechnical risk register and detailed design of the proposed wind farm while minimising risk of peat instability in line with industry best practice. This approach should be continued into the detailed design stage.

Information Provided:

In terms of ground investigations, the majority of the planned trial pits and a number of peat probes have been carried out and made available to ByrneLooby for the purposes of the review. Rotary coring is currently being carried out, with results not yet available for review.

Byrne Looby have been provided with the following information by ESBI for the purposes of carrying out the PSRA review:

- ESBI drawings as follows;
    - Barnastooka Wind Farm Site Location Map – W78035-F105-010-D-0002_0
    - Barnastooka Wind Farm Site Investigation Locations – W78035-F105-010-D-0003_1
    - Grousemount Wind Farm Site Location Map – W78035-F105-010-D-0004_0
    - Grousemount Wind Farm Site Investigation Locations – W78035-F105-010-D-0005_1
    - Grousemount Wind Farm Main Works Contract Site Layout Drawings Sheets 1 to 7 – QR320171-MWC-P-1003 (July 2015)
- IGSL Trial Pit records for Grousemount Wind Farm – Report No. 18312 (April 2015)
- ESBI Draft Peat Stability Risk Assessment Report – W78035-F105-018-R-0001 (August 2015)

The initial work undertaken to carry out this review involved a walkover survey and review of the available site investigation information to allow the PSRA's carried out by ESBI to be reviewed.

Following this, the draft PSRA report has been reviewed with a view to assessing the risk methodology adopted and to confirm that acceptably low risk proposals for storage of peat are proposed.

ByrneLooby have reviewed 25 of the PSRA's carried out by ESBI in detail (6 No. turbine locations and 19 No. access tracks). The selection was based on the most onerous locations in terms of the initial risk ratings that were assigned by ESBI. Most of the locations reviewed were given a 'significant' risk rating prior to mitigation measures.

Walkover Survey:

A site walkover survey was completed by two engineers from ByrneLooby on 22nd to 24th June 2015. During the survey all of the proposed turbine locations and access road routes were

walked and assessed, excluding those where ESBI had indicated peat depths were less than 0.5m and thus had not carried out PSRA's.

At the time of the walkover, only trial pits located in accessible areas had been completed on site and no further intrusive works had been undertaken on site. Therefore, Byrne Looby used GPS co-ordinates of the completed and proposed site investigations as well as the ESBI site layout maps to estimate the location of the roads and turbines.

The assessments completed by ByrneLooby included peat probing in selective areas and general visual assessments along roads and at turbines. This included noting topographical features such as slope characteristics, gradients and existing drainage ditches etc. Other parameters relevant to the PSRA's were also noted where evident.

It should be noted that the Everwind Wind Farm site was not assessed as part of the walkover survey. This is a small additional site not connected to the main Grousemount Wind Farm. For the purposes of the high level review at this preliminary stage, it was not required to review the entire site.

Existing Conditions:

No development has been undertaken on the proposed wind farm sites to date. The existing conditions on site are typically undisturbed upland peat and rock outcrops. The peat was typically underlain by a grey glacial till material which could be variously described as sandy gravelly Silt/Clay or very clayey/silty Sand and Gravel with occasional cobbles.

The peat was shallow and appeared to be relatively dry (moisture content <1000%) on most of the slopes, with deeper upland blanket bog on some of the flatter topographies. Terraces of peat which appeared to be held in place by the rock cleavage were also common on some slopes.

The bedrock on the site appeared to be Sandstone and Siltstone, based on inspection of outcrops.

Vegetation on the site was consistent throughout the proposed development areas of the site. Typically well-established grassland which was stocked with sheep was prevalent across the mountains in question. In some wetter areas, rushes and moss/spaghnum were more evident; however there was no significant change with grass dominant in all areas. Sparse heather was also found locally at higher elevations.

Drainage on the site consisted of man-made drainage ditches typically running downslope and small streams flowing towards the two main watercourses, both of which combined into the Roughty River before leaving the site.

Summary:

Conceptually, the basis of the proposed mitigation measures is deemed to be adequate and in line with industry best practice. However, some of the finer points of implementing these mitigation measures will need to be teased out during detailed design to ensure that the proposed solutions can be practically implemented at Grousemount during the construction phase.

For the purposes of the planning stage high level review, ByrneLooby are satisfied that the PSRA carried out by ESBI is generally adequate.

It should be noted that this is a high level review with spot checking of the factual information in some of the PSRA's only. We are not verifying the accuracy of all factual data.

If you have any questions on the information outlined above do not hesitate to contact me.

Yours sincerely,

for
Byrne Looby Partners

Paul Stephenson BEng. CEng. MIEI.
Senior Project Engineer