

Project Titles

Buckana wind farm Templetuohy Co. Tipperary,

Mount Lucas wind farm Daingean Co. Offaly

Client

P.J. Carey's and Bord Na Mona

Work Detail

September 2012 until August 2014 Both projects were ran in conjunction with one another .

The Buckana windfarm contract entailed 15Km of road construction through Bogland terrain, 14 crane stands, 14 turbine foundation excavations and preparations with associated drainage works, along with 38,000 meters of direct burry cabling.

The Mount Lucas windfarm contract entailed 32Km of road construction through Bogland terrain aswell, 28 crane stands, 28 turbine foundation excavations and preparations with associated drainage works, along with 102,000 meters of direct burry cabling.

All Turbine base construction consisting from 12 to 35 M3 of concrete blinding, ~58 tonnes of steel, 530m3 of in-situ concrete pour with associated formwork.

Site clearance

Site clearance was carried out and consisted the removal of large trees, scrub and bushes over an area of 40ha's.



Example of terrain after Site clearance, peat, Class U1 and rock.

Road Construction

Excavation was between 0.5 to 4 meter depth of peat, acceptable class U1 material and rock with disposal on site and used to form berms and embankments. Road widths were 5 meters with turning areas for delivery of turbines varying from 9 to 11 meters.

Road detail was placement and compaction of 450mm of 6f2 which was both imported and produced on site on both projects. Road finishing surface was 150mm of 804, which was produced on site at the Buckana windfarm, but imported at Mount Lucas.

Swales were constructed for roadside drainage with 450mm carrier piping used for road crossings. Also 600mm carrier drains were used for outlets for surface water from roads and hardstanding areas.



Typical road deep road detail with large boulders used as starter layer.



Road completion level at 804 formation level along with swales for drainage.

Crane Stands of Hardstands.

These areas were over 2650m² and construction detail was similar to the road construction, with extra areas constructed for blade lay down and turbine assembly points.

Foundations

Excavation was between 3 to 4 meter depth of acceptable class U1 material and loose rock with disposal on site which was used to form berms and embankments along with part back fill of foundations. Concrete blinding was installed at 0.5m to 2.5m for the erection and placement of steel. Underground drainage was installed for the disposal of ground water while construction of foundation took place.



Typical foundation excavated base and blinding before steel erection.

Formwork on foundations was over 62m² circular.



Turbine bolt assembly.



Surface preparation and underground drainage detail of foundation formation level.



Each base consisted of in-situ concrete pour of over 530m³ in a 12 hour period, after which installation was installed around formwork and top of base for the control of temperatures within the foundation.



Typical concrete pour and formwork.



Compaction and backfilling of foundations.

Cabling

Before turbine delivery and installation the windfarm connection grid of required cables were installed. These were direct buried and covered with fine acceptable excavated material. Over 102000 meters was installed in Mount Lucas and 38000 meters in Buckana. Number of cables per trench varied from 25 per trench to 3.



Example of all terrain machinery used for cabling.



Typical cable laid in trench, to be cover with fines.

