UWF Grid Connection
Environmental Management Plan (2019)

Volume D

October 2019

Contents

1. Introduction to the EMP 1

1.1. Objectives of the EMP 1

1.2. Purpose of the EMP 1

1.2.1. Scope of the EMP 1

1.3. Structure of the EMP 2

2. General Project Description 4

2.1. Overview & Purpose of UWF Grid Connection 4

2.2. Location of UWF Grid Connection 4

2.3. Main Construction Stage Activities 6

2.4. Other Elements of the Whole Upperchurch Windfarm Project 7

2.4.1. Cumulative Locational Context of all the Elements 7

2.5. Other Activities in the vicinity of the UWF Grid Connection works 7

3. Contractors & Personnel 8

3.1. Organisational Structure and Hierarchy 8

3.1.1. Construction Stage 8

3.2. Contact Details 9

3.2.1. Construction Stage Contact Details 9

3.3. Duties & Responsibilities 11

3.3.1. Project Promoter 11

3.3.2. Project Team Members – Construction Stage 11

3.4. Environmental Awareness Training 17

3.4.1. EMP and Contractual Requirements Briefing 17

3.4.2. Environmental Induction Training 17

3.4.3. Task Specific Training – Tool Box Talks 17

3.5. Communication 18

3.5.1. Internal Communication 18

3.5.2. External Communication with the Public 18

4. Environmental Commitments 19

4.1. Reference Documents 20

5. Monitoring 21

5.1.1. Environmental Clerk of Works 21

5.1.2. Compliance Auditing 21

5.1.3. Application of Environmental Protection Measures 21
5.1.4. Reporting 23
5.1.5. Corrective Actions 24
6. Records & Reporting 25
6.1. Non-Compliance Record Sheet 25
6.2. Register of Non-Compliance issued 26
6.3. Environmental Training Record Sheet 27
6.4. Register of Environmental Training 28
6.5. Environmental Incident Record Sheet 29
6.6. Register of Environmental Incidents 31
6.7. Environmental Complaint Record Sheet 32
6.8. Register of Environmental Complaints 33
6.9. Control of Spread of Invasive Species Record Sheet 34
7. Mapping & Figures 35

LIST OF TABLES

Table No.	Table Title	Pages
Table 1	Structure of the EMP	Page 2
Table 2	Project Promoters Contacts	Page 8
Table 3	Main Contractors Contacts	Page 8
Table 4	Third Party Contacts	Page 8
Table 5	List of Environmental Commitments (ECs)	Page 17
Table 6	List of Reference Documents	Page 18
Table 7	Application of Environmental Protection Measures during the Construction Stage	Page 24
Table 8	Colour Coding and identification Numbers for UWF Grid Connection Works Areas	Page 26

LIST OF FIGURES

Figure No.	Figure Title
Figure EMP 1	Location of the UWF Grid Connection on OSI Discovery Mapping
Figure EMP 2	Layout of the Mountphilips Substation site on Aerial Photography Mapping
Figure EMP 3	Layout of the 110kV UGC outside of the Mountphilips Substation Site (Overview & Maps 1 to 4)
Figure EMP 4	Location of UWF Grid Connection and the Other Elements of the Whole UWF Project on OSI Discovery Mapping
Figure EMP 5	UWF Grid Connection and the Other Elements of the Whole UWF Project in the vicinity of Upperchurch Windfarm
Figure EMP 6	UWF Grid Connection and the Other Elements of the Whole UWF Project in Knockmaroe, Knockcurraghbola Commons and Knockcurraghbola Crownlands
Figure EMP 7	Colour Coding and identification Numbers for UWF Grid Connection Works Areas (Overview & Maps 1 to 4)

LIST OF DOCUMENTS TABBED TO THIS EMP

Tab No.	Document Title
Tab 1	Project Design Measures
Tab 2	Traffic Management Plan
Tab 3	Surface Water Quality Management Plan
Tab 4	Invasive Species Management Plan
Tab 5	Waste Management Plan
Tab 6	Environmental Emergency Response Procedures
Tab 7	Scheduling & Timing of Works Measures
Tab 8	Environmental Surveying and Monitoring Measures
Tab 9	Best Practice Measures
Tab 10	Outline Construction Methodologies
Tab 11	An Bord Pleanála Order including Planning Conditions
Tab 12	Feedback from consultations with Statutory Bodies and Other Parties
Tab 13	Construction Contract Documents

1. Introduction to the EMP

This Environmental Management Plan (EMP) has been prepared for the UWF Grid Connection and describes the approach to environmental management during the construction and early operational stage.

1.1. Objectives of the EMP

The objectives of the EMP are to:

(a) identify management responsibilities and reporting requirements for environmental management;
(b) identify the relevant Environmental Commitments;
(c) set out the environmental protection measures to be implemented;
(d) Outline how compliance with the EMP will be achieved; and
(e) Promote best environmental practices for the duration of the development.

1.2. Purpose of the EMP

The purpose of this document is to communicate environmental protection measures that apply to the development of the UWF Grid Connection to those with responsibility for carrying out works on site so that any likely significant adverse effects of the development on the receiving environment can be prevented.

An Environmental Clerk of Works will be appointed and it will be their responsibility to ensure that the EMP is implemented through liaising with the Construction Site Manager and the Project Manager and by carrying out weekly audits on EMP compliance. The EMP will be an important contract document for the main construction contractor (Contractor) who will be contractually obliged to comply with the EMP and the requirements of the Environmental Clerk of Works.

1.2.1. Scope of the EMP

This EMP covers the construction and early operational stage (i.e. until the lands returned to agricultural use and the permanent berms at Mountphilips Substation site have revegetated) of the UWF Grid Connection.

1.2.1.1. Review and Update of the EMP

Planning consent for the UWF Grid Connection is currently being sought from An Bord Pleanála through a Strategic Infrastructure Development application. The planning application is accompanied by an EIA Report (2019) and an Appropriate Assessment Report (2019)[1] which contain environmental project measures. Additional environmental requirements and environmental protection measures may be included in the conditions attached to the planning consent, should it be granted.

The EMP will also be supported by detailed Method Statements developed in the subsequent construction and operation stages.

The EMP is considered a dynamic document and as such will be reviewed and updated as required at both the commencement and throughout each stage of the UWF Grid Connection development to ensure it contains the latest relevant information, environmental commitments and environmental control measures.

[1] This EMP is appended to both the EIA Report and the Appropriate Assessment Report.

1.3. Structure of the EMP

This EMP has been developed according to the NRA *Guidelines for the Creation and Maintenance of an Environmental Operating Plan* (2007), and is presented in distinct sections, as outlined in Table 1 below.

Table 1: Structure of the EMP

Section No.	Section Heading	Information provided in this section
Section 1	Introduction to the EMP	The objectives, purpose and scope of the EMP.
Section 2	General Project Description	An overview of the main elements of the UWF Grid Connection, including purpose and location, main construction activities and classification of works locations. An overview of the other elements of the Whole UWF Project and other Activities in the area is also included.
Section 3	Contractors & Personnel	An outline of the type of contractors and personnel who will be involved in the project, including duties and responsibilities of key personnel, the training which will be provided and communication procedures which will be put in place.
Section 4	Environmental Commitments	An outline of the Environmental Commitments for the project and the Reference Documents, from which the Environmental Commitments arise.
Section 5	Monitoring	Monitoring of construction works by the Environmental Clerk of Works, and specialist environmental and engineering consultants
Section 6	Records & Reporting	Record forms and registers for compliance auditing, environmental training, environmental incidents and complaints.

Section 7	Mapping & Figures	Mapping and layouts of the UWF Grid Connection, including a table of the classification of locations along the construction works areas.
Tabs 1 to 9	Environmental Project Measures	Environmental protection measures, set out in individual tabs: Tab 1: Project Design Environmental Protection Measures; Tab 2 to 5: Traffic, Surface Water, Invasive Species and Waste Management Plans; Tab 6: Environmental Emergency Response Procedures; Tab 7: Scheduling & Timing of Works Measures; Tab 8: Environmental Surveying and Monitoring Measures; Tab 9: Best Practice Measures;

2. General Project Description

An overview of the UWF Grid Connection is provided below, the full description of the project is provided in the EIA Report (Volume C2 EIAR Main Report, Chapter 5: Description of Development – UWF Grid Connection), and also in Section 3.2 of the Appropriate Assessment Report (Volume E).

The UWF Grid Connection proposal comprises of the following parts:

- Mountphilips Substation Site,
- Ancillary Works at the Mountphilips Substation site, and
- Mountphilips – Upperchurch 110kV Underground Cable (110kV UGC).

2.1. Overview & Purpose of UWF Grid Connection

Upperchurch Windfarm (UWF) has already received planning permission but is not yet constructed. This application is for grid connection works (UWF Grid Connection) to connect the windfarm to the national electricity system.

UWF Grid Connection comprises two main parts;

- the first part is the proposed '**110kV UGC'** which is a 30.5km long underground electrical cabling network at high voltage (110 kilovolts (kV)), to connect the already consented Upperchurch Windfarm substation at Knockcurraghbola Commons townland to a new proposed substation at Mountphilips townland;

- the second part is a proposed 110kV electrical substation '**Mountphilips Substation'**, which will manage and control the power coming (via the 110kV UGC) from the consented Upperchurch Windfarm, and from Mountphilips Substation the power will be transported to national electricity system, at an adjacent point on the existing Killonan to Nenagh 110kV overhead line.

2.2. Location of UWF Grid Connection

Mountphilips Substation: The new substation is proposed for a location adjacent to the existing Killonan - Nenagh 110kV overhead line in agricultural grassland in Mountphilips townland, 2km north of Newport, 4km south of Birdhill, 17km north east of Limerick City and 23km west of the Upperchurch Windfarm. The new electrical substation will be 160m east of the existing Killonan – Nenagh 110kV overhead line.

Mountphilips - Upperchurch 110kV UGC: The 110kV UGC will connect the new substation at Mountphilips to the already consented substation at Upperchurch Windfarm (Consented UWF Substation) by underground cabling (30.5km), mainly in the public road.

Starting at Mountphilips Substation, the route of the 110kV UGC follows the local road network through Rockvale and Ahane Cross, around Newport town, joining the Limerick to Thurles road (R503) on the east side of Newport town, at the GAA club. From that point, the 110kV UGC will be installed in R503 as far as the turnoff for Borrisoleigh at Knockmaroe. From there, the 110kV UGC uses the local road network and a private paved road to the Consented UWF Substation.

The route bypasses Newport; passes through the village of Rear Cross; passes through the Slieve Felim to Silvermines Mountain SPA for 8km (entirely on the R503); crosses the boundary of the Lower River Shannon SAC at 6 points (entirely on the public road and over existing bridges); and will be installed under or over 65 existing watercourse crossing structures.

The 110kV UGC will start at Mountphilips Substation; will be installed under the new access road for 0.5km as far as the Mountphilips Substation site entrance off the L2166-10 local road; then the 110kV UGC will be

installed in Local Road L2166-10 for 0.7km as far as Coole Crossroads, in Local Road L6013-0 for 1.2km; in the L2156-0 for 0.4km over Rockvale Bridge; in the L2157-0 for 0.8km as far as Ahane Crossroads and in the L6009-0 for 1.8km, joining the R503 at Newport GAA Club. The 110kV UGC is then routed under the R503 for 22.1km eastwards until the turn off at Knockmaroe townland, onto the L2264-50. The route to the consented Upperchurch Windfarm substation is along the local road network from the Knockmaroe junction - in the L2264-50 for 1.9km; then in the L6188-0 for 0.3km as far as the junction with a private paved road at Knockcurraghbola Commons. The final section of 110kV UGC will be installed in the private paved road for 0.7km and then in the Consented UWF Substation compound for the last 20m.

The 110kV UGC route is through the townlands of Mountphilips, Coole, Freagh, Foildarrig, Oakhampton, Rockvale, Mackney (O'Brien), Mackney (Bourke), Ahane, Newross, Castlewaller, Carrowkeale, Tullow, Cooldrisla, Derryleigh, Kilnacappagh, Scraggeen, Derrygareen, Inchadrinagh, Knockancullenagh, Fanit, Lackamore, Tooreenbrien Upper, Tooreenbrien Lower, Reardnogy Beg, Reardnogy More, Shanballyedmond, Baurnadomeeny, Coonmore, Foildarragh, Kilcommon, Loughbrack, Knocknabansha, Knockmaroe, Knockcurraghbola Crownlands and Knockcurraghbola Commons.

Ancillary Works at the Mountphilips Substation site will support the construction of the Mountphilips Substation for the UWF Grid Connection and includes the construction and use of a Temporary Compound at the Mountphilips Substation site; the construction of a new permanent Entrance at Coole townland (including the provision of sightlines) at an existing farm entrance; the construction of a permanent Access Road from the new entrance to the proposed substation at Mountphilips townland; the installation of drainage systems at Mountphilips Substation, around the Temporary Compound and along the new Access Road; construction of temporary and permanent watercourse crossing structures at Mountphilips; hedgerow/tree removal and hedgerow and tree replanting at the site Entrance and along the new Access Road; fencing at the Entrance, along the new Access Road and around the Substation Compound; provision of electricity supply to Mountphilips; excavation and storage of soils; reinstatement works.

The **'Mountphilips Substation site'** referred to in this EMP consists of the area from the End Masts to the Entrance from the public road in the townlands of Mountphilips and Coole, and includes the proposed Mountphilips Substation Compound, End Masts, new Access Road, permanent Entrance, and the ancillary works and also includes the western extent of the 110kV UGC between the Substation Compound and the site Entrance.

Relevant EMP Figures *(contained in Section 7 of this report: Mapping and Figures)***:**

Figure EMP 1: Location of the UWF Grid Connection on OSI Discovery Mapping

Figure EMP 2: Layout of the Mountphilips Substation site on Aerial Photography Mapping

Figure EMP 3: Layout of the 110kV UGC outside of the Mountphilips Substation Site (Overview & Maps 1 to 4)

2.3. Main Construction Stage Activities

- Construction stage activities will involve the following main works:
- Pre-Construction Activities
- Construction Works Area Preparation
- Mountphilips Substation Compound
- New End Masts at Mountphilips Substation
- New Permanent Access Road at Mountphilips Substation
- Temporary Access Road to End Masts
- Permanent Site Entrance at Mountphilips Substation Site
- Temporary Compound at Mountphilips Substation Site
- Formation of Overburden Storage Berms at Mountphilips Substation Site
- Reinstatement of Land at Mountphilips Substation Site
- 110kV Trenching and Ducting
- Instream Works Preparation and Reinstatement
- Installation of new culverts and replacing existing culverts
- Installation of temporary watercourse crossing W1
- Raising road level and parapet walls at Rockvale Bridge (W6), Tooreenbrien Bridge (W36) and Anglesey Bridge (W53)
- Horizontal Directional Drilling at W8 and W9
- 110kV Joint Bays and Associated Chambers
- 110kV Cable Pulling
- 110kV Cable Jointing

Individual Outline Construction Methodologies (OCMs) for all of the above listed main works and activities of UWF Grid Connection can be found at **Tab 10 of this EMP.** In the OCMs, a brief description of the work involved; the duration of this work; personnel, machinery, equipment and tools requirements; construction materials; details of the standard methodology for the construction activities are provided. These OCMs are specific to each distinct body of work or activity. The final Method Statements for the construction works will be developed by the appointed Contractor and will be based on these OCMs, prior to construction.

2.4. Other Elements of the Whole Upperchurch Windfarm Project

The UWF Grid Connection is one part of a whole project, which is made up of five individual elements – the UWF Grid Connection, along with the Upperchurch Windfarm (UWF), UWF Related Works, UWF Replacement Forestry, and UWF Other Activities. These are collectively referred to as the Whole UWF Project in this EMP.

The location of each element of the whole UWF project is illustrated on:

Relevant EMP Figures *(contained in in Section 7 of this report: Mapping and Figures)***:**

Figure EMP 4: Location of UWF Grid Connection and the Other Elements of the Whole UWF Project on OSI Discovery Mapping.

2.4.1. Cumulative Locational Context of all the Elements

The majority of the Whole UWF Project is located in County Tipperary with some minor activities along the Upperchurch Windfarm turbine component haul route and on the Killonan to Nenagh 110kV overhead line, in County Limerick (these activities are part of Element 5: UWF Other Activities).

The UWF Grid Connection is adjacent to and overlaps with Other Elements of the Whole UWF Project and in particular;

- It overlaps with Upperchurch Windfarm at the Consented UWF Substation,
- It is adjacent to the UWF Related Works and the Upperchurch Windfarm in Knocknabansha, Knockmaroe, Knockcurraghbola Commons and Knockcurraghbola Crownlands,
- At Mountphilips Substation**,** some fiber-wrapping and re-sagging activities (UWF Other Activities) will be carried out from the new End Mast.

Relevant EMP Figures *(contained in Section 7 of this report: Mapping and Figures)***:**

Figure EMP 5: UWF Grid Connection and the Other Elements of the Whole UWF Project in the vicinity of Upperchurch Windfarm

Figure EMP 6: UWF Grid Connection and the Other Elements of the Whole UWF Project in Knockmaroe, Knockcurraghbola Commons and Knockcurraghbola Crownlands

2.5. Other Activities in the vicinity of the UWF Grid Connection works

Other activities at and in the immediate vicinity of the UWF Grid Connection are:

- Agriculture – mainly cattle rearing and silage cutting
- Forestry – felling activities, forestry management
- Walking – presence of walkers along waymarked trails
- Traffic – on public and private roads

3. Contractors & Personnel

A typical organisational structure, a format for Contact Details Sheets for the construction stage of the UWF Grid Connection, along with the duties and responsibilities of various personnel and a description of environmental training and communication processes are outlined below.

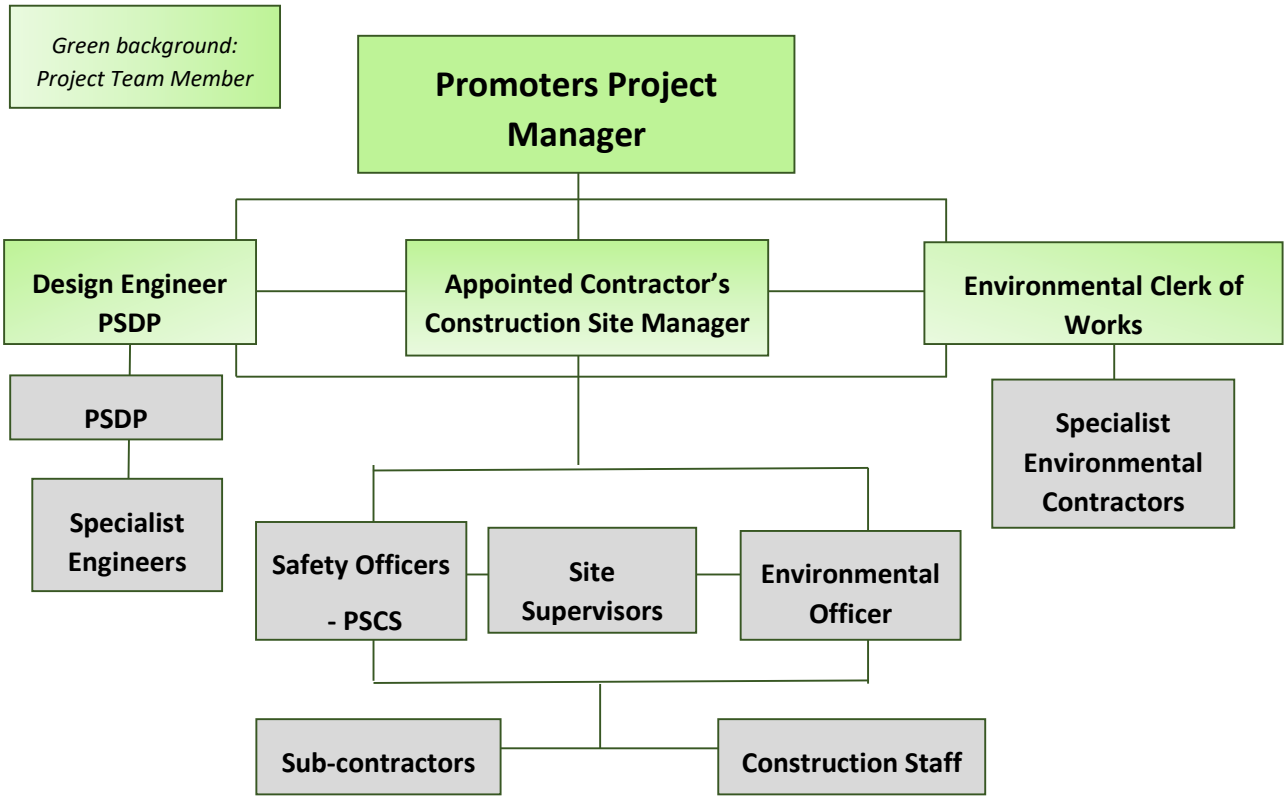
The construction Project Manager and Main Contractor will be appointed by the Promoter prior to commencement of the works. On appointment, the Project Manager and the Main Contractor will be required by the Project Promoter to update the outline organisational structure, the specific duties, roles and responsibilities of appointed personnel, contact details for these personnel, implement training programs and policies regarding communications.

It should be noted, that the contractors and personnel for the construction stage are also relevant to the pre-construction stage.

3.1. Organisational Structure and Hierarchy

The organogram below illustrates the typical reporting and hierarchal structures which will be implemented during the various stages of the UWF Grid Connection development. These organograms will inform the duties and responsibilities of all personnel under the EMP.

3.1.1. Construction Stage



3.2. Contact Details

Contact details of relevant personnel are provided in Tables 2 to 4 below to ensure the efficient reporting of environmental incidents. These tables will be populated following the appointment of the Contractor and the Project Team members, the details will be frequently reviewed by the Environmental Clerk of Works to ensure that they are up-to-date.

3.2.1. Construction Stage Contact Details

Table 2: Project Promoters Contacts

Position Title	Name	Mobile Phone Number	Email Address
Project Manager			
Design Engineer			
Environmental Clerk of Works			

Table 3: Main Contractors Contacts

Position Title	Name	Mobile Phone Number	Email Address
Construction Site Manager			
Environmental Officer			
Safety Manager – PSCS			
Safety Officers (24-hour number)			
Site Emergency Number (24-hour)			

Table 4: Third Party Contacts

Organisation	Position Title	Name	Phone Number	Email Address
Emergency Services				
Health & Safety Authority				
St Marys Health Centre, Thurles				
Newport Medical Centre				
Nenagh General Hospital				

University Hospital Limerick				
Tipperary County Council				
Inland Fisheries Ireland				
National Parks & Wildlife Service				
Environmental Protection Agency				
Emergency Spill Response Contact				
Acorn Recycling				
Kellys of Fantan, Waste Management				
Fogarty Concrete, Waste Management				
Kieran Kelly Haulage, Waste Management				
Enva Ireland, Waste Management, Portlaoise				
Enva Ireland, Hazardous Waste, Clare				
Enva Ireland, Waste Water, Cork				
Enva Ireland, Co. Laois				
Donohill Civic Amenity Centre				
Nenagh Recycling Centre				
Cashel Civic Amenity Site				

3.3. Duties & Responsibilities

3.3.1. Project Promoter

The Project Promoter (the 'Project Promoter' or 'Promoter') of the UWF Grid Connection has overall responsibility for the implementation of the environmental commitments and of environmental management of the works during construction.

3.3.2. Project Team Members – Construction Stage

The project team will be appointed prior to the commencement of the construction stage. The roles and responsibilities outlined below are indicative at this stage in the project and will be updated pending planning consent, conditions of planning and the appointment of the Main Contractor, details of the personnel involved along with their responsibilities will be added to the EMP. An outline of potential duties and responsibilities for various members of the project team is provided below. These details will require revision prior to the commencement of construction.

3.3.2.1. Project Promoters Project Manager

A Project Manager is appointed by the Project Promoter to manage and oversee the entire project.

The Project Manager's responsibilities include, but are not limited to, the following:

- management of the construction project, including the production of a construction schedule, procurement of construction materials, and maintaining a site project diary;
- liaison with the Project Promoter;
- liaison with the Main Contractor, Construction Site Manager and Project Team;
- liaison with the Environmental Clerk of Works
- implementing of the Environmental Management Plan;
- implementing the EMP sub-plans, such as the Traffic Management Plan etc.;
- Assigning duties and responsibilities in relation to the EMP.

3.3.2.2. Construction Site Manager

The Construction Site Manager manages all the works to construct the windfarm, on behalf of the Main Contractor. The Construction Site Manager reports to the Promoters Project Manager. In relation to the EMP, the Construction Site Manager is responsible for:

- Being aware of and familiar with all Environmental Commitments and Environmental Control Measures;
- Ensuring that all relevant information on project programming, scheduling, timing, construction methodology, etc., is communicated to the Promoters Project Manager and to the Environmental Clerk of Works, in a timely and efficient manner, in order to allow pre-emptive actions relating to the environment to be taken where required;
- Ensuring that the Environmental Commitments are implemented;
- Ensuring that adequate resources are provided to design and install any environmental interventions;
- Liaising with the Design Engineer and providing information on environmental management to the Design Engineer during the course of the construction phase;
- Liaising with the Project Team in assigning duties and responsibilities in relation to the EMP to individual members of the main contractor's project staff;

- Preparing site-specific Method Statements for all Works activities where there is a risk of environmental damage, by incorporating relevant Environmental Control Measures;
- Prepare and be in readiness to implement at all times environmental emergency response measures, see Tab 6 of this EMP.
- Liaising with the Environmental Clerk of Works in reviewing and updating site-specific Method Statements for all Works activities where Environmental Protection Measures had been altered, and
- Liaising with the Environmental Clerk of Works where third party agreement is required in relation to site-specific Method Statements and Environmental Control Measures.
- Liaising with the Community Liaison Officer regarding the development of a Local Employment and Sourcing Policy, and the setting up/managing of a local employment and resource database.

3.3.2.3. Design Engineer

The Design Engineer reports to the Promoters Project Manager and is responsible for:

- Design of the Works;
- Reviewing and approving relevant elements of the method statements – assisting the Construction Site Manager with the overall review;
- Consulting and liaising with Third Parties, where required;
- Updating/amending designs where required;
- Carrying out the role of PSDP, compiling the Health & Safety Plan, and liaising with the PSCS;
- Ensuring the UWF Grid Connection is constructed according to the planning drawings and consent.

3.3.2.4. Environmental Clerk of Works

The Environmental Clerk of Works is appointed by the Promoter and is independent of the Appointed Contractor. The Environmental Clerk of Works reports directly to the Promoters Project Manager. The duties and responsibilities of the Environmental Clerk of Works are outlined in the subsections below.

3.3.2.4.1. General

- Engage and manage a team of Environmental Managers and specialist environmental contractors and assigning duties and responsibilities in relation to the EMP to individual members
- Knowledgeable of the contents, environmental commitments and requirements, including within the Reference Documents, outlined in Section 4 of this EMP;
- Provision of information on environmental commitments to the Design Engineer during the course of the construction phase;
- Liaising with the Project Promoter in relation to environmental issues;
- Monitoring construction activities and auditing compliance of construction works with the Environmental Commitments and Environmental Control Measures; and
- Monitoring the implementation of the Environmental Commitments;
- Preparing weekly EMP Compliance Reports.
- Commissioning of the Environmental Surveying and Monitoring.

3.3.2.4.2. Compliance Auditing

- Carrying out daily documented inspections and audits of the site and construction works to check that work is being carried out in accordance with the Environmental Commitments and Environmental Control Measures set out in Section 4 and Tabs 1 to 9 of this EMP.

- Carrying out daily inspections of the fuel/oil storage area and the site drainage system at Mountphilips Substation site.
- Liaising with the Construction Site Manager so that any repairs or maintenance required are organised by the Construction Site Manager following the regular inspections of the site.
- Weekly reporting on the compliance of the construction works with the EMP to the Project Team
- Reporting to the Project Team on the environmental effects of the project against the predictions made during the EIA and AA process;
- Reporting to the Project Team on the effectiveness of the environmental management of the project;
- Reporting to the Project Team on the adequacy of the Promoters and Contractors response to any Corrective Action Requests
- Appending copies of the inspection reports to the EMP.

3.3.2.4.3. **Detailed Method Statements**

- Liaising with the Construction Site Manager regarding Method Statements for all works activities where there is a risk of environmental damage to ensure that these method statements incorporate the relevant Environmental Control Measures.
- Liaising with the Construction Site Manager in reviewing and updating the Method Statements where Environmental Control Measures have been altered.

3.3.2.4.4. **Third Party Consultations**

- Overseeing, ensuring coordination and playing a lead role in third party consultations required statutorily, contractually and in order to fulfil Environmental Commitments;
- Ensuring that the minutes of meetings, action lists, formal communications, etc., are well documented;
- Liaising with all prescribed bodies during any site visits, inspections and consultations;
- Where new Environmental Control Measures are agreed as a result of third party consultation, ensuring that the EMP is amended accordingly and liaising with the Construction Site Manager to ensure that any relevant Method Statements are updated;

3.3.2.4.5. **Licensing**

- Confirming that all relevant works have (and are being carried out in accordance with) the required, planning consents, permits, licences etc.;
- Where relevant, liaising with the designated licence holders with respect to licences granted pursuant to the Wildlife Act, 1976, as amended;
- Bringing to the attention of the Project Team any timing and legal constraints that may be imposed on the carrying out of certain tasks.

3.3.2.4.6. **Specialist environmental contractors**

- Identifying and engaging specialist environmental contractors (for example ecologists, hydrologists, mud engineers, conservation engineer, spill clean-up specialists etc.) before commencement of the project;
- Procuring the services of specialist environmental contractors when required and liaising with them with respect to site access and report production;
- Ensuring that the specialist environmental contractors are competent; and
- Co-ordinating the activities of all specialist environmental contractors, including surveying.

3.3.2.4.7. Environmental Induction Training and Environmental Tool Box Talks

- Confirming that Environmental Induction Training is carried out for all site personnel. No personnel will be allowed to work on the site without proof of attendance at an Environmental Induction.
- Confirming that toolbox talks on Environmental Control Measures associated with Site-specific Method Statements is carried out for all site personnel who will undertake the work.

3.3.2.4.8. Environmental Incidents/Spillages

- The Environmental Clerk of Works will have the authority to temporarily stop works over part of the site to avoid an environmental offence being committed, works will not recommence until the source of the effect (if it is from the project) has been remedied;
- Prepare and be in readiness to implement at all times environmental emergency response measures, see Tab 6 of this EMP.
- Notifying the relevant statutory authority of environmental incidents, and
- Carrying out an investigation and producing a report regarding environmental incidents. The report of the incident and details of remedial actions taken will be made available to the relevant authority, the Promoter and the Project Team.

3.3.2.5. Other Roles

3.3.2.5.1. Project Supervisor Construction Stage - PSCS

The PSCS for the construction project is appointed by the Main Contractor in line with the Construction Regulations:

- carrying out duty of Project Supervisor Construction Stage
- responsible for safety induction of all staff and personnel on site
- implementing the Health and Safety Plan
- auditing and updating the Health & Safety Plan
- all other relevant legal Safety duties
- implement and record the Waste Management Plan
- Holding copies of all permits and licences provided by waste contractors;
- Ensuring that any operations or activities that require certificates of registration, waste collection permits, waste permits, waste licences, etc., have appropriate authorisation, and
- Gathering and holding documentation with the respect to waste disposal.

3.3.2.5.2. Tipperary County Council Civil Engineer

The Tipperary County Council Civil Engineer, is a chartered civil engineer who will report to Tipperary County Council and is responsible for:

- Overseeing quality control and compliance with drawings for the Mountphilips - Upperchurch 110kV UGC,
- Ensuring the 110kV UGC is constructed according to the specifications and road opening conditions and are followed for the duration of site works;
- Consulting and liaising with the Construction Site Manager, Environmental Clerk of Works and Third Parties, where required;

3.3.2.5.3. Community Liaison Officer

The Community Liaison Officer is responsible for communicating with the local community and wider public during the construction stage, including;

- Responding to any concerns or complaints raised by the public in relation to the construction of the UWF Grid Connection;
- Liaising with the Environmental Clerk of Works on local community concerns relating to the environment;
- Keeping the local community, including the local Rear Cross and Lackamore National Schools, informed of project progress and any construction activities which may cause inconvenience to them;
- Developing the public communications strategy.
- Assisting the Construction Manager in developing a Local Employment and Local Sourcing Policy.
- Setting up and managing a local employment and resources database, engaging with local services businesses ahead of construction works, and monitoring the recruitment and training of local employees in line with the Local Employment and Local Sourcing Policy.

3.3.2.5.4. All construction site personnel

All site personnel are responsible for:

- Adhering to the relevant Environmental Control Measures and relevant site-specific Method Statements
- Reporting immediately, to the Construction Site Manager and the Environmental Clerk of Works, any incidents where there has been a breach of agreed procedures including any spillage of a potentially environmentally harmful substance; damage to a protected habitat, etc.

3.3.2.5.5. Specialist Environmental Contractors

Project Ecologist

An ecologist will be appointed by the Environmental Clerk of Works and will be responsible for:

- Advising the Environmental Clerk of Works, Project Manager, Construction Manager and Project Promoter on relevant wildlife/environmental legislation and aid in the development of practical solutions,
- Carrying out the habitat and species surveys during the appropriate periods,
- Aiding with the implementation of biodiversity related planning conditions,
- Monitoring and aiding with the implementation of biodiversity related Project Design Environmental Measures,
- Monitoring the implementation of the Invasive Plant Species Management Plan,
- Monitoring the implementation of the biodiversity related Best Practice Measures ,
- Monitoring vegetation clearance, tree root protection and
- Monitoring the success of the re-vegetation work.

Project Aquatic Ecologist – member of the CIEEM and of the Institute of Fisheries Management

A competent and experienced ecologist will be appointed by the Environmental Clerk of Works and will be responsible for:

- Monitoring instream works at W1, W2 and W3 at Mountphilips Substation site, and the culvert replacement works at the up to 13 no. locations on the public road,
- Monitoring the reinstatement of these watercourses following works, and
- Monitoring works within the boundary of the Lower River Shannon SAC;
- Advising the Environmental Clerk of Works and the Construction Manager on best practice techniques to be implemented.

Project Hydrologist

A competent and experienced hydrologist will be appointed by the Environmental Clerk of Works and will be responsible for:

- Monitoring the implementation of the Surface Water Management Plan (SWMP),
- Carrying out of site inspections in accordance with the SWMP,
- Monitoring water quality prior to, during and post construction.

Project Invasive Species Specialist

A competent and experienced invasive species specialist will be appointed by the Environmental Clerk of Works and will be responsible for:

- Carrying out of pre-construction surveys to confirm that location of any infestations in proximity to construction works areas;
- Monitoring the implementation of the Invasive Species Management Plan (ISMP),
- supervision of the implementation of all biosecurity control measures, such as the laying of grass carpet terram material over infestations which occur in roadside boundaries,
- Monitoring each infestation location during all critical stages of construction works,
- Supervising construction works adjacent to infestation locations.

Project Mud Engineer

A competent and experienced mud engineer will be appointed by the Environmental Clerk of Works and will be responsible for:

- Advising the Construction Manager on the selection of competent drillers for the HDD works,
- Monitoring of Horizontal Directional Drilling at the watercrossings W8 and W9, in particular monitoring monitor the watercourse bed and the drilling pressures,
- Supervising the implementation of any contingency measures, and
- Monitoring and advising on the implementation of the Environmental Emergency Procedure for Frac-Out, in the unlikely event of frac out.

Project Archaeologist

A competent and experienced archaeologist(s) will be appointed by the Environmental Clerk of Works and will be responsible for:

- Monitoring of groundworks and carrying out of surveys in accordance with Environmental Commitments,
- Communicating with the National Monument Service regarding licences etc.

Specialist architectural restoration stonemason and conservation engineer

The remedial works to the parapet walls at Anglesey Bridge will be carried by a specialist architectural restoration stonemason under the supervision of a suitably qualified conservation engineer, with completed works certified by a suitably qualified conservation engineer.

3.4. Environmental Awareness Training

Environmental Awareness Training will be provided to ensure that all of the appointed Contractors site personnel have the appropriate knowledge to successfully implement the EMP. The main objective of the training is to make sure that site personnel are aware of the relevant Environmental Commitments and Environmental Control Measures and that site personnel are aware of the steps to take in an environmental emergency situation.

3.4.1. EMP and Contractual Requirements Briefing

The Environmental Clerk of Works will regularly brief the relevant project team members on the compliance with the EMP and on the Environmental Commitments which must be met and the Environmental Control measures which must be implemented during the construction.

3.4.2. Environmental Induction Training

The Environmental Clerk of Works will provide Environmental Induction Training for all project team members. All other site personnel, including sub-contractor personnel, will receive relevant environmental induction training in conjunction with safety induction training.

Every member of the Main Contractors and sub-contractor's teams must have access to and have read the EMP prior to beginning works – this will be a strict requirement for all people working on this project.

No workers will be allowed to work on this project without having attended a formal Environmental Induction. The induction training will ensure that both Contractors employees and subcontractors are fully informed of their responsibilities regarding specific environmental commitments. The induction will outline the objectives for the environmental management of the site, identify the relevant environmental sensitivities and outline the environmental control measures to be put in place to prevent adverse impacts to the environment.

Copies of the signed training records will be kept by the Environmental Clerk of Works for all environmental training provided.

3.4.3. Task Specific Training – Tool Box Talks

Where a site-specific Method Statement (one which incorporates Environmental Control Measures) has been devised for a works activity, all site personnel involved in that activity will receive a toolbox talk outlining the Environmental Control Measures. The Site Supervisor will be responsible for providing the toolbox talk and will provide a copy of signed training records to the Environmental Clerk of Works.

3.5. Communication

Procedures for both internal and external communication of information regarding specific elements of the UWF Grid Connection will be implemented during the construction of the development.

3.5.1. Internal Communication

During construction, the Environmental Clerk of Works will be responsible for communicating the Environmental Commitments, Environmental Control Measures and Environmental Emergency Response Procedures to the Main Contractor, who will communicate them to the Site Supervisors, who in turn will bring the Environmental Control Measures to the attention of all site personnel.

Important environmental information on specific elements of the UWF Grid Connection will be communicated to contractors and site personnel through site inductions, site management meetings, safety meetings and tool-box talks. The Environmental Clerk of Works will attend and report on environmental issues at the site management meetings.

3.5.2. External Communication with the Public

Communications with the public will managed by a Community Liaison Officer (CLO), appointed by the Promoter. A two-way mechanism will be put in place whereby members of the public will be able to communicate with the CLO and also the CLO will be able to communicate important information on various aspects of the development to the general public.

A complaints register will form part of the public communications strategy. Any complaints will be handled by the Community Liaison Officer with the complainant receiving a response within one week after lodging the complaint.

All environmental complaints will be directed to the Environmental Clerk of Works.

4. Environmental Commitments

The Environmental Commitments are the obligations and requirements which will be implemented during the development of the UWF Grid Connection to avoid, prevent or minimise significant adverse impacts to the environment.

The current List of Environmental Commitments, listed in Table 5 below, arises from the UWF Grid Connection EIA Report (2019) and Appropriate Assessment Report (2019). This List will be updated with any additional environmental commitments arising from the Reference Documents in Section 4.1 below.

Table 5: List of Environmental Commitments (ECs) – *to be updated*

Environmental Commitment	Location in this EMP	Implemented By:	Method by which the EC will be met
The Project Promoter is committed to implementing the Project Design Measures as set out in Tab 1, and as per the EIA Report (2019), Main Report, Chapter 5, Section 5.2.3, and as per Section 3.5 of the Appropriate Assessment Reporting (2019).	EMP, Tab 1	Project Team, specialist environmental and engineering experts, all site personnel	Incorporation of PD's listed in Tab 1 into Method Statements, Management Plans, Scheduling & Timing of Works. and Surveying and Monitoring requirements.
The Project Promoter is committed to implementing the Traffic Management Plan.	EMP, Tab 2	Project Team, specialist environmental and engineering experts, all site personnel	Implementation of the Traffic Management Plan during construction works
The Project Promoter is committed to implementing the Surface Water Management Plan.	EMP, Tab 3	Project Team, specialist environmental and engineering experts, all site personnel	Implementation of the Surface Water Management Plan during construction works
The Project Promoter is committed to implementing the Invasive Species Management Plan.	EMP, Tab 4	Project Team ECoW, Invasive Species Specialist	Implementation of the Invasive Species Management Plan during construction works
The Project Promoter is committed to implementing the Waste Management Plan.	EMP, Tab 5	Project Team, ECoW,	Implementation of the Waste Management Plan during construction works
The Project Promoter is committed to implementing the Environmental Emergency Response Procedures as set out in Tab 6.	EMP, Tab 6	Project Team, specialist environmental and engineering experts, all site personnel	Implementation of the Emergency Response Procedures should an environmental emergency occur.
The Project Promoter is committed to implementing Best Practice Measures as set out in Tab 9.	EMP, Tab 9	Project Team, specialist environmental and engineering experts, all site personnel	Incorporation of BPM's listed in Tab 9 into Method Statements, Management Plans, Scheduling & Timing of Works Measures, and Surveying and Monitoring requirements.
The Project Promoter is committed to monitoring the development to check that	EMP, Section	ECoW, and specialist environmental and	Carrying out of audits of compliance, through the

Environmental Commitment	Location in this EMP	Implemented By:	Method by which the EC will be met
the project is in practice, conforming to the predictions made in the EIA Report and in the Appropriate Assessment Report.	5, and Tab 8	engineering experts	completion of EMP Compliance Record Sheets, and carrying out Environmental Surveying.

4.1. Reference Documents

The List of Environmental Commitments will be updated with any relevant changes to the Reference Documents, listed in Table 6.

Table 6: List of Reference Documents

Reference Document Title	Location
An Bord Pleanála Order including Planning Conditions	Tab 11
Feedback from consultations with Statutory Bodies and Other Parties	Tab 12
Construction Contract Documents	Tab 13

5. Monitoring

Adverse effects on the environment due to the development of the UWF Grid Connection for the most part relates to the construction stage. Monitoring of the construction works will check that the project in practice conforms to the predictions made in the EIA Report and Appropriate Assessment Report during the planning process. This audit of the conformity with the EIA Report and Appropriate Assessment Report will be carried out through the EMP by the Environmental Clerk of Works.

5.1.1. Environmental Clerk of Works

The Project Promoter of the UWF Grid Connection (the 'Promoter') will employ a suitably qualified Environmental Clerk of Works (minimum NEBOSH Certificate in environmental management) who will be independent of the Main Contractor. The Environmental Clerk of Works will be employed for the duration of the pre-construction, construction and early operational stages (i.e. until the lands returned to agricultural use and the permanent berms at Mountphilips Substation site have revegetated), and will have a full time presence during the construction stage. The Environmental Clerk of Works will be adequately resourced and will manage a team of Environmental Managers and specialist environmental and engineering experts, adequately staffed to ensure strict compliance with the EMP and all relevant planning conditions.

The Environmental Clerk of Works will monitor the compliance of the construction works with the EMP, and will engage specialist environmental consultants, such as ecologists, hydrologists and archaeologists, as required.

5.1.2. Compliance Auditing

On-going audits, will be carried out by the Environmental Clerk of Works, during the construction of the UWF Grid Connection. The audits will record the:

- compliance with this EMP;
- monitoring and reporting on the environmental effects of the project against the predictions made during the EIA and AA processes;
- monitoring and reporting on the effectiveness of the environmental management of the project; and
- reporting on the adequacy of the Promoters and Contractors response to any Corrective Action Requests.

5.1.3. Application of Environmental Protection Measures

The Environmental Clerk of Works will monitor the implementation of the Environmental Protection Measures (see Tabs 1 to 9) for the UWF Grid Connection.

In order to facilitate the monitoring and auditing of compliance with Environmental Commitments along various parts of the UWF Grid Connection during its construction, the Environmental Protection Measures applicable to each location or type of construction activity is presented below and is based on location or distinguishing features of the works, which are:

- Construction works at Mountphilips Substation site
- Cable Trench and Joint Bay works in roads along 110kV UGC outside the Mountphilips Substation site
- Bridge Works and Culvert Replacement Works along the 110kV UGC outside the Mountphilips Substation site

- Cable trenching over/under the other existing watercourse crossings along the 110kV UGC route

Table 7: Application of Environmental Protection Measures during the Construction Stage

Works Area	Relevant Project Design Environmental Protection Measure (PDs)	Relevant Management Plans	Relevant Best Practice Measures (BPMs)	Relevant Outline Construction Methodologies (OCMs)
Mountphilips Substation Site (includes works for Mountphilips Substation, ancillary works, and 110kV UGC works within the Mountphilips Substation site.	PD1, PD2, PD5, PD11, PD12, PD13, PD14, PD15, PD16, PD17, PD18, PD22, PD23, PD24, PD29, PD30, PD31, PD32, PD38, PD39, PD40, PD41, PD43, PD44, PD45, PD46, PD47, PD48, PD49, PD50, PD51, PD52, PD53, PD54, PD55, PD56, PD57, PD58, PD63, PD64, PE65, PD67, PD68	Surface Water Management Plan Traffic Management Plan Invasive Species Management Plan Waste Management Plan	BPM1, BPM3, BPM4, BPM5, BPM6, BPM7, BPM8, BPM9, BPM10, BPM11	OCM1, OCM2, OCM3, OCM4, OCM5, OCM6, OCM7, OCM8, OCM9, OCM10, OCM11, OCM12, OCM13, OCM14, OCM17, OCM18, OCM19
110kV UGC works outside the Mountphilips Substation site	PD1, PD3, PD4, PD5, PD6, PD7, PD8, PD9, PD10, PD11, PD12, PD13, PD16, PD19, PD20, PD21, PD22, PD23, PD25, PD26, PD27, PD28, PD30, PD31, PD32, PD33, PD34, PD35, PD36, PD37, PD38, PD39, PD40, PD41, PD42, PD43, PD44, PD45, PD46, PD47, PD48, PD49, PD50, PD51, PD52, PD53, PD54, PD55, PD57, PD59, PD60, PD61, PD62, PD63, PD66, PD67, PD69	Surface Water Management Plan Traffic Management Plan Invasive Species Management Plan Waste Management Plan	BPM2, BPM3, BPM5, BPM6, BPM8, BPM9, BPM10, BPM11	OCM1, OCM2, OCM12, OCM13, OCM14, OCM15, OCM16, OCM17, OCM18, OCM19

Table 8 below identifies colour coding for each Works Section along the UWF Grid Connection from proposed Mountphilips Substation, along the proposed 110kV UGC, to the consented Upperchurch Windfarm Substation and shown on:

Relevant EMP Figures *(contained in in Section 7 of this report: Mapping and Figures)*:

Figure EMP 7: Colour Coding and identification Numbers for UWF Grid Connection Works Areas.

Table 8: Colour Coding and identification Numbers for UWF Grid Connection Works Areas

Classification
Mountphilips Substation Site
110kV UGC - Cable Trench and Joint Bay Works in Roads
110kV UGC - Bridge Works and Culvert Replacement Works
110kV UGC - Cable Trenching Over/Under The Other Existing Watercourse Crossings

5.1.4. Reporting

An EMP Compliance Report will be prepared weekly during the construction stage, issued to the Project Manager for distribution and will be presented at all site management meetings to ensure that 'live' issues are dealt with in a timely and efficient manner.

The EMP Compliance Report will detail the findings and recommendations of the preceding monitoring and auditing activities and will include a detailed response from the Contractor to any of the recommendations contained in the previous report.

Template reporting and record sheets are included in Section 6 of this EMP for:

- Non-Compliance Report
- Register of Non-Compliance Reports Issued
- Environmental Training Record
- Register of Environmental Training
- Environmental Incident Record Sheet
- Register of Environmental Incidents
- Environmental Complaint Record
- Register of Environmental Complaints
- Control of Spread of Invasive Species Record Sheet

5.1.5. Corrective Actions

Where non-compliance is detected, a system of follow up and corrective action will be implemented. Corrective Action Requests (CARs) will be issued to the Contractor to ensure that prompt action is agreed and committed to, with a view to the effective resolution of any deviations from the EMP requirements.

Corrective Action Requests may be raised as a result of:

- A compliance audit; or
- A suggestion for improvement by a Statutory Body; or
- An incident or potential incident; or
- An internal or external communication.

All Corrective Action Requests will be numbered and logged.

6. Records & Reporting

6.1. Non-Compliance Record Sheet

Non-Compliance Record Sheet		
Date	Time	Logged By
Contractor or Subcontractor Details: Contractor Name: Contact Name: Telephone:		
Nature of Non-Compliance (specify Environmental Protection Measure breached)		
Time Specified for becoming compliant:		
Contractor or Subcontractor's confirmation of receipt of NCR Yes ☐ No ☐ Contractors or Subcontractors signature: _____ Date of Signing: _____		

6.2. Register of Non-Compliance issued

Register of Environmental Training											
Date Issued	Time	NCR Report No.	Contractor Name	Contact Name	Contact Telephone	Nature of Non-Compliance (Specify Procedure(s) contravened)	Time specified for becoming compliant	Contractor's Conformation of receipt of NCR (Y/N)	Date of Contractor's Conformation of receipt of NCR	Compliant within time given (Y/N)	If yes ---------- Nature of corrective / preventative action

6.3. Environmental Training Record Sheet

Environmental Training Record Sheet			
Training Title:			
Description			
External Trainers ☐	Name of Company:		
Internal Instruction ☐	Name and Signature of Trainer:		
Date:			
Duration of Training:			
Name	**Job Title**	**Signature** **(Employee receiving training)**	

6.4. Register of Environmental Training

Register of Environmental Training								
Date	Training Title	Training Description	External Trainers	Name of Training Company	Name of Trainer	Duration	Name of Trainee	Job Title of Trainee

6.5. Environmental Incident Record Sheet

Environmental Incident Record Sheet		
Date	Time	Logged By
How was Incident Detected?		
Nature of Incident (e.g. Water pollution/Dust/Noise/Fuel Spill)		
Investigation Findings		
Corrective/Preventative Action Taken/Contingency Measures Employed		

Follow up reporting:

EPA	Letter ☐	Phone ☐	Date:_____
Tipperary County Council	Letter ☐	Phone ☐	Date:_____
Office of Public Works	Letter ☐	Phone ☐	Date:_____
Inland Fisheries Ireland	Letter ☐	Phone ☐	Date:_____

Signed: _____

6.6. Register of Environmental Incidents

Register of Environmental Incidents								
Date	Time	How was Incident detected	Nature of Incident	Nature of Complaint	Investigation findings	Corrective / preventative action	Follow up Reporting	Incident logged by

6.7. Environmental Complaint Record Sheet

Environmental Complaint Record Sheet		
Date	Time	Logged By

Complainants Details *(if known)*

Name: _____ Address: _____

Telephone Number: _____

Mode of Complaint: _____ (e.g. telephone/letter/verbal/via statutory body)

Nature of Complaint (e.g. Water pollution/Dust/Noise/Fuel Spill)

Response to Complaint

(including investigation findings, corrective actions/preventative action taken if required)

Corrective/Preventative Action Taken/Contingency Measures Employed

Follow up correspondence:

To complainant/_____: Letter ☐ Phone ☐ Date:_____

Further correspondence from complainant: Letter ☐ Phone ☐ Date:_____

Signed: _____

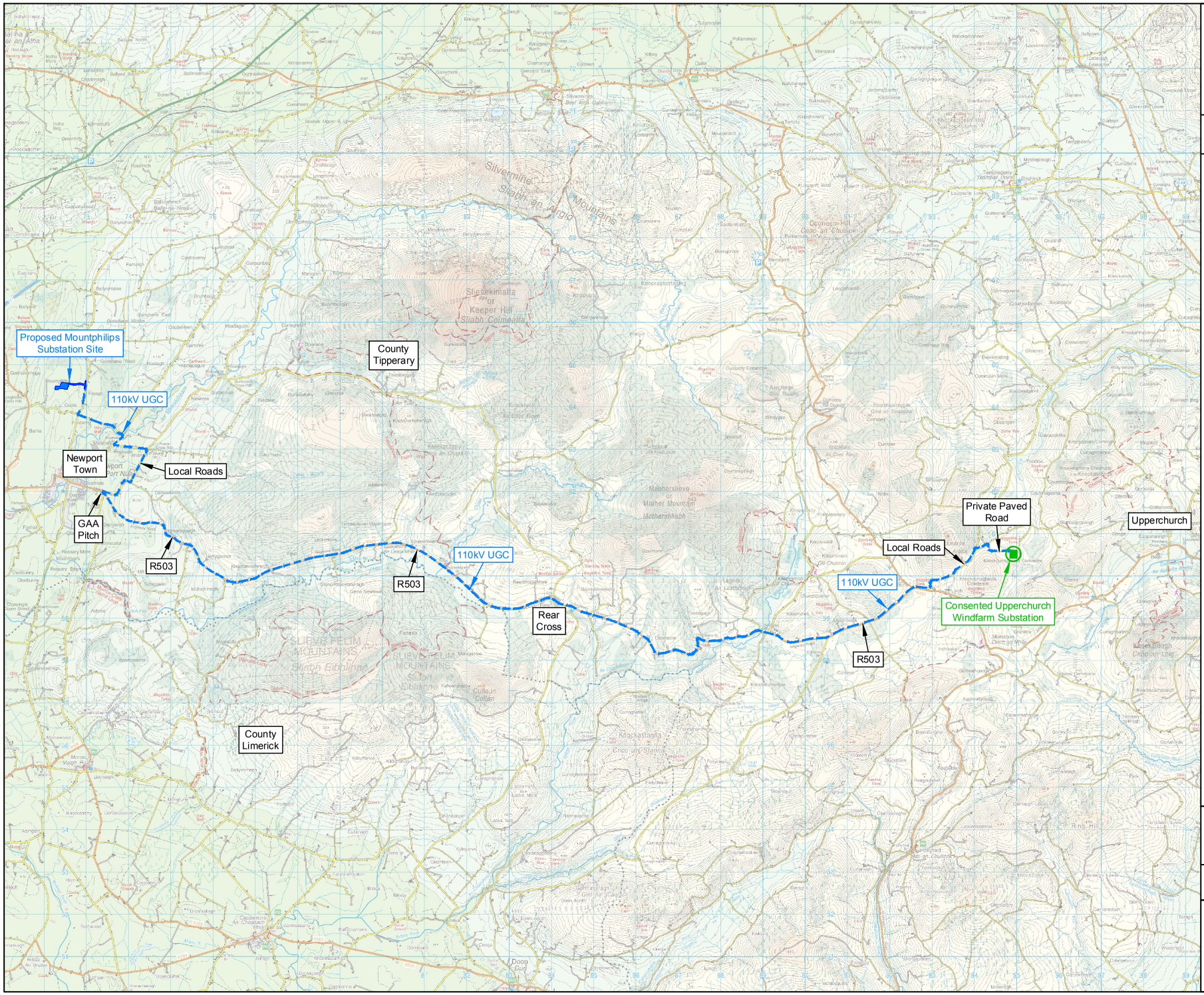
6.8. Register of Environmental Complaints

Register of Environmental Complaints								
Date	Time	Complainant's Details	Mode of complaint	Nature of Complaint	Responder to Complaint	Follow up correspondence	Complaint logged by	Date

6.9. Control of Spread of Invasive Species Record Sheet

Contractor/Employee Name:		
Contractor Equipment List: (list all main equipment cleaned)		
Construction Location: (tick as appropriate)	• • (Specify exact location)	☐ ☐
Cleaning Location (specify location where cleaning took place, e.g. name of garage)		
Method of Cleaning (Specify nature of cleaning e.g. High-pressure steam, manual removal of vegetation, high pressure power hose, disinfection etc.)		
Date of Cleaning:		
Contractor Declaration: I hereby declare that all equipment used at the construction location indicated above has been thoroughly cleaned in accordance with the cleaning methodology set out above before entering the construction site. The machine I am using has not left site and re-entered since it was cleaned. Signed: _____ Date:		

7. Mapping & Figures



EMP: Main Plan

Figure EMP 1

Location of the UWF Grid Connection on OSI Discovery Mapping

Map Number:

Overview Map

Legend:

- UWF Grid Connection - 110kV UGC
- UWF Grid Connection - Mountphilips Substation
- Consented Upperchurch Windfarm Substation

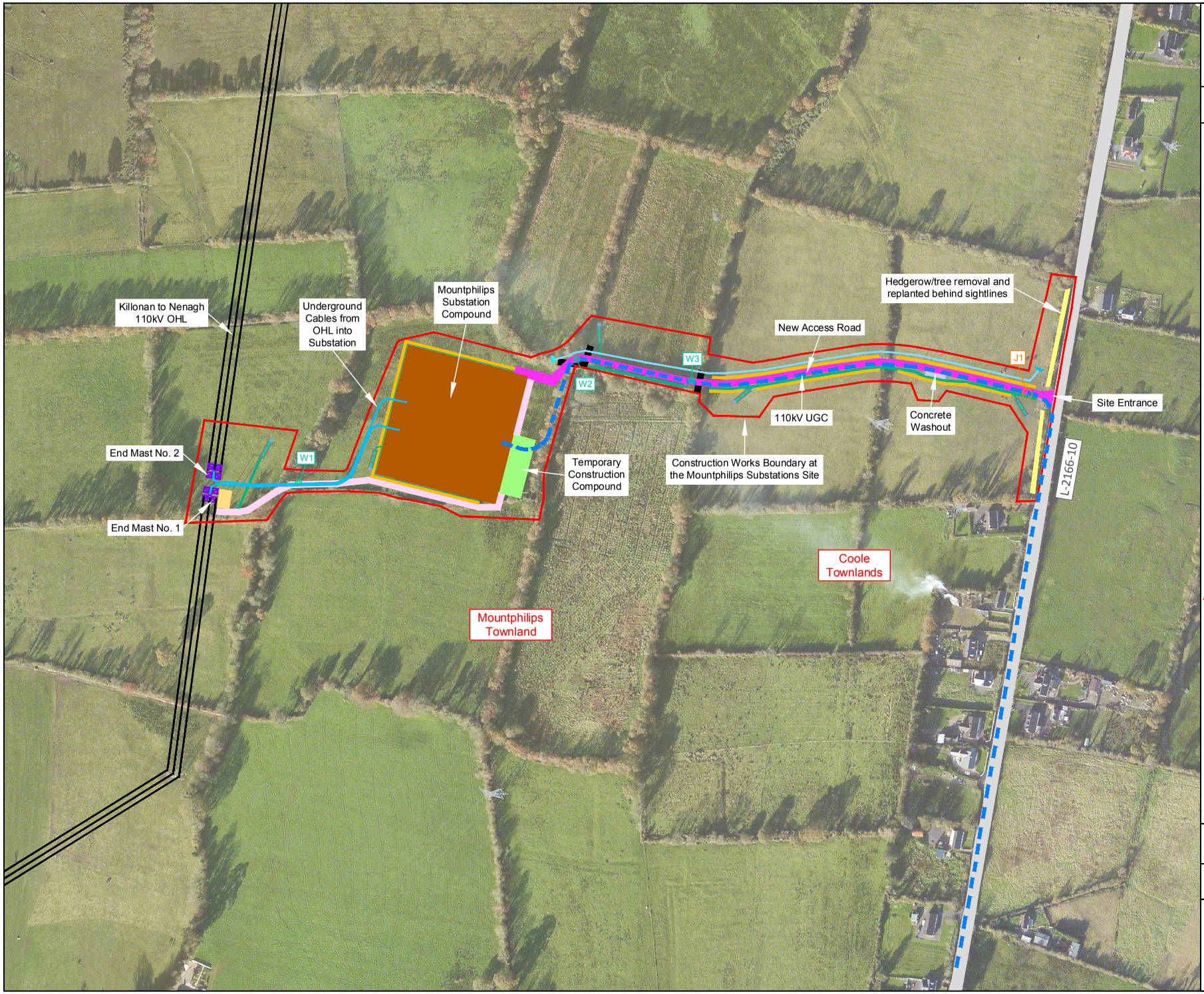
Project:

UWF Grid Connection (2019)

Drawn by:	Checked by:	Date:	Sheet Size:
AB	PK	October 19	A4

Aoife Butler
Ecopower Developments Ltd
Zetec House,
Purcellsinch Business Park, Kilkenny
TEL: +353 56 7750140
MOB: +353 83 8805644

ECOPOWER



EMP: Main Plan

Figure EMP 2

Layout of the Mountphilips Substation Site on Aerial Photography Mapping

Map Number:
Map 1 of 1

Legend:

PROPOSED

- UWF Grid Connection - 110kV UGC
- 110kV Substation Compound
- Joint Bay Locations
- New Permanent Access Roads
- Permanent Berms with new hedgerow planted
- Underground Cable from Killonan to Nenagh 110kV OHL into Mountphilips Substation
- End Masts
- End Masts temporary crane hardstands
- Water Crossing
- Concrete Washout
- Dirty water drain
- Settlement Pond
- Clean water drain
- Hedgerow/tree removal at site entrance within visual splay and replanted behind sightlines
- Permanent hedge/tree removal at watercourse crossings W2 and W3
- Temporary Construction Compound
- Temporary Access Road
- Mountphilips Substation Site Construction Works Boundary

EXISTING

- Existing Killonan to Nenagh 110kV OHL
- Public Road Identification Number
- Public Road
- Townlands

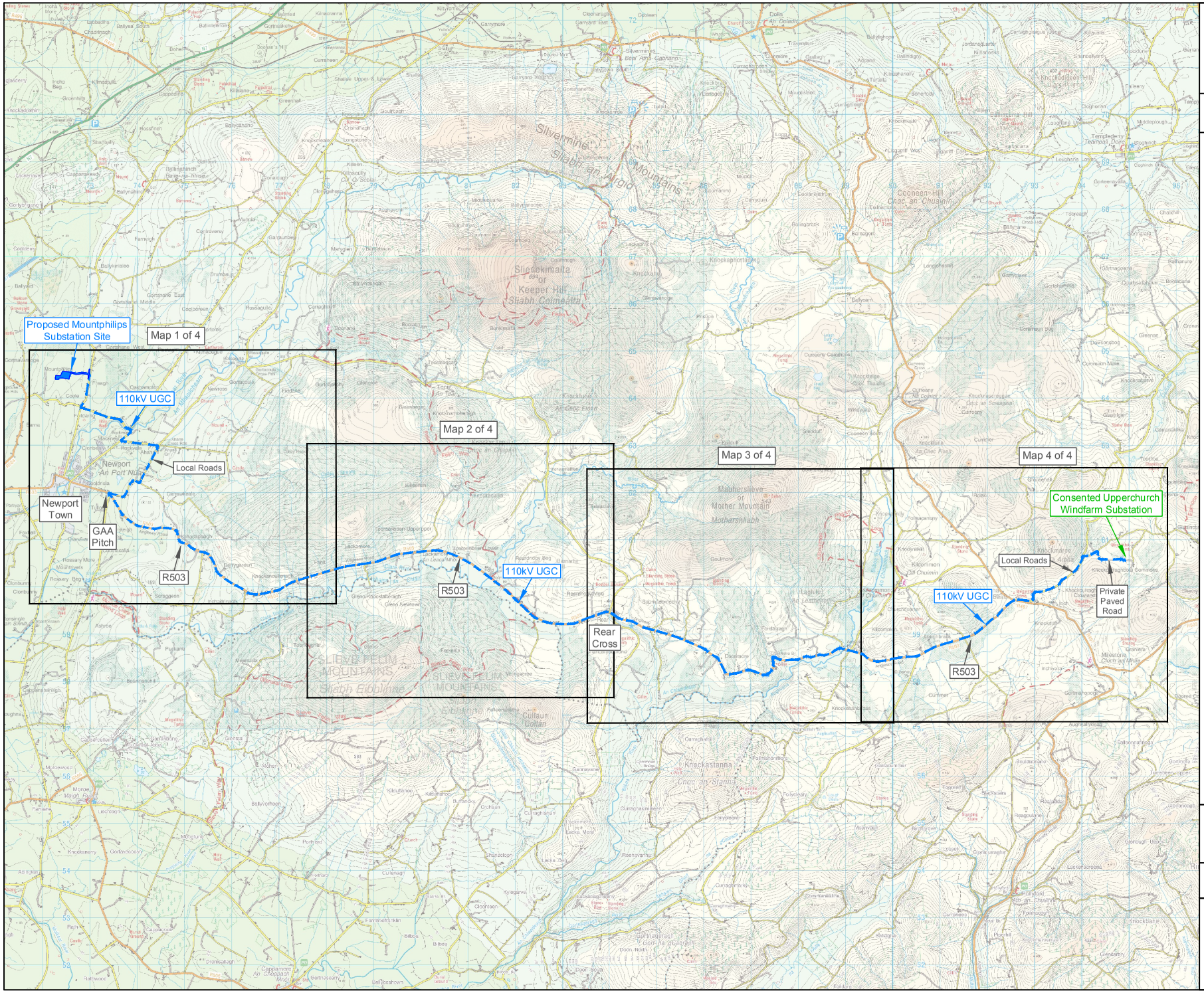
N

Project:
UWF Grid Connection (2019)

Drawn by:	Checked by:	Date:	Sheet Size:
AB	PK	October 19	A4

Aoife Butler
Ecopower Developments Ltd
Zetec House,
Purcellsinch Business Park, Kilkenny
TEL: +353 56 7750140
MOB: +353 83 8805644

ECOPOWER



EMP: Main Plan

Figure EMP 3

Layout of the 110kV UGC outside of the Mountphilips Substation Site

Map Number:

Overview Map

Legend:

- UWF Grid Connection - 110kV UGC
- UWF Grid Connection - Mountphilips Substation
- Consented Upperchurch Windfarm Substation
- Map 1 of 4 — Map 1 of 4

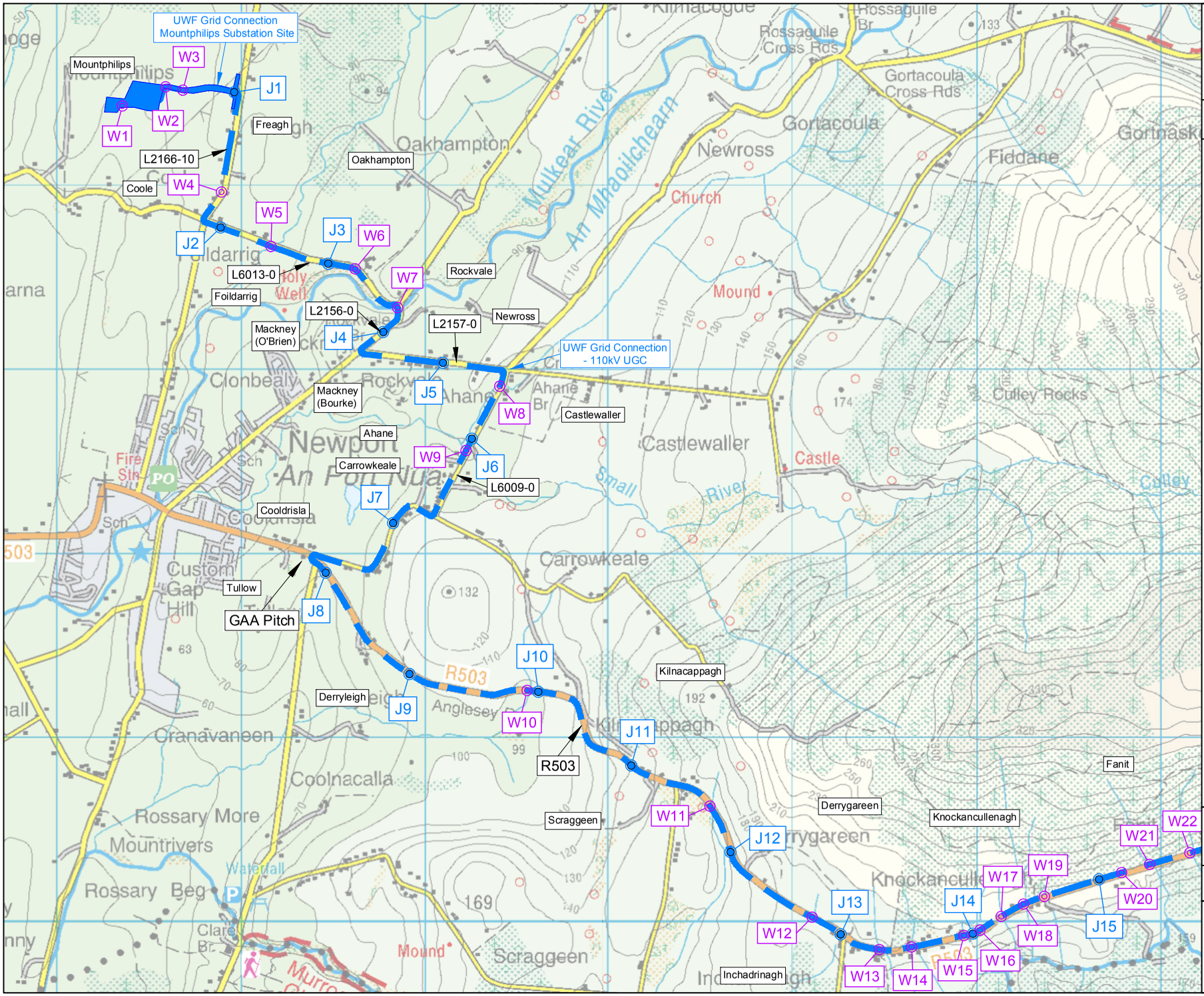
Project:

UWF Grid Connection (2019)

Drawn by:	Checked by:	Date:	Sheet Size:
AB	PK	October 19	A4

Aoife Butler
Ecopower Developments Ltd
Zetec House,
Purcellsinch Business Park, Kilkenny
TEL: +353 56 7750140
MOB: 1353 83 8805644

ECOPOWER



EMP: Main Plan

Figure EMP 3

Layout of the 110kV UGC outside of the Mountphilips Substation Site

Map Number:
Map 1 of 4

Legend:

- UWF Grid Connection - 110kV UGC
- UWF Grid Connection - Mountphilips Substation
- W62 Watercourse Crossing Locations
- J16 Joint Bay Locations
- Coole Townlands

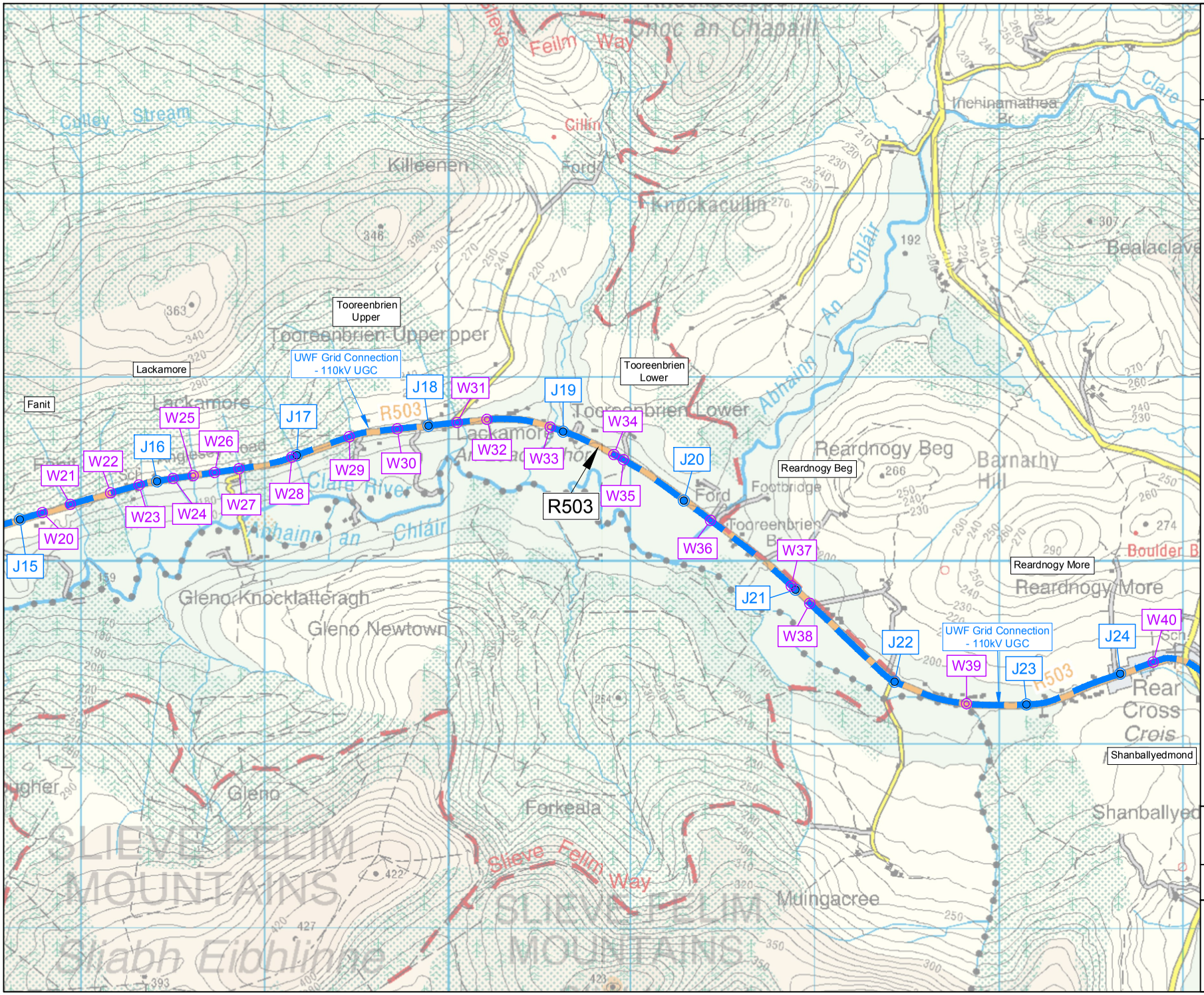
N

Project:
UWF Grid Connection (2019)

Drawn by:		Date:	Sheet Size:
AB	PK	October 19	A4

Aoife Butler
Ecopower Developments Ltd
Zetec House,
Purcellsinch Business Park, Kilkenny
TEL: +353 56 7750140
MOB: 1353 83 8805644

ECOPOWER



EMP: Main Plan

Figure EMP 3

Layout of the 110kV UGC outside of the Mountphilips Substation Site

Map Number:
Map 2 of 4

Legend:

- UWF Grid Connection - 110kV UGC
- W62 Watercourse Crossing Locations
- J16 Joint Bay Locations
- Coole Townlands

N

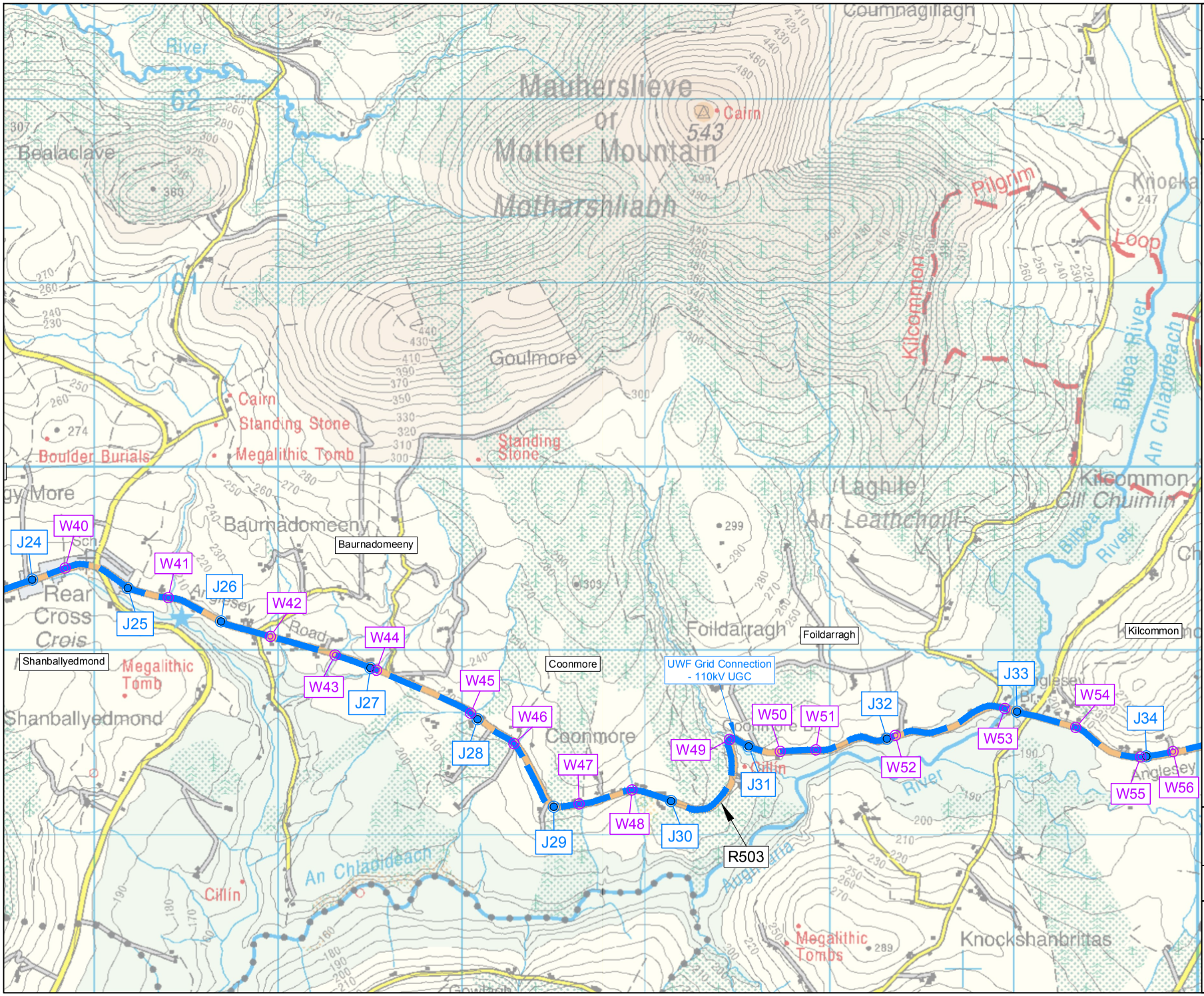
Project:

UWF Grid Connection (2019)

Drawn by:	Checked by:	Date:	Sheet Size:
AB	PK	October 19	A4

Aoife Butler
Ecopower Developments Ltd
Zetec House,
Purcellsinch Business Park, Kilkenny
TEL: +353 56 7750140
MOB: 1353 83 8805644

ECOPOWER



EMP: Main Plan

Figure EMP 3

Layout of the 110kV UGC outside of the Mountphilips Substation Site

Map Number:
Map 3 of 4

Legend:

- UWF Grid Connection - 110kV UGC
- W62 Watercourse Crossing Locations
- J16 Joint Bay Locations
- Coole Townlands

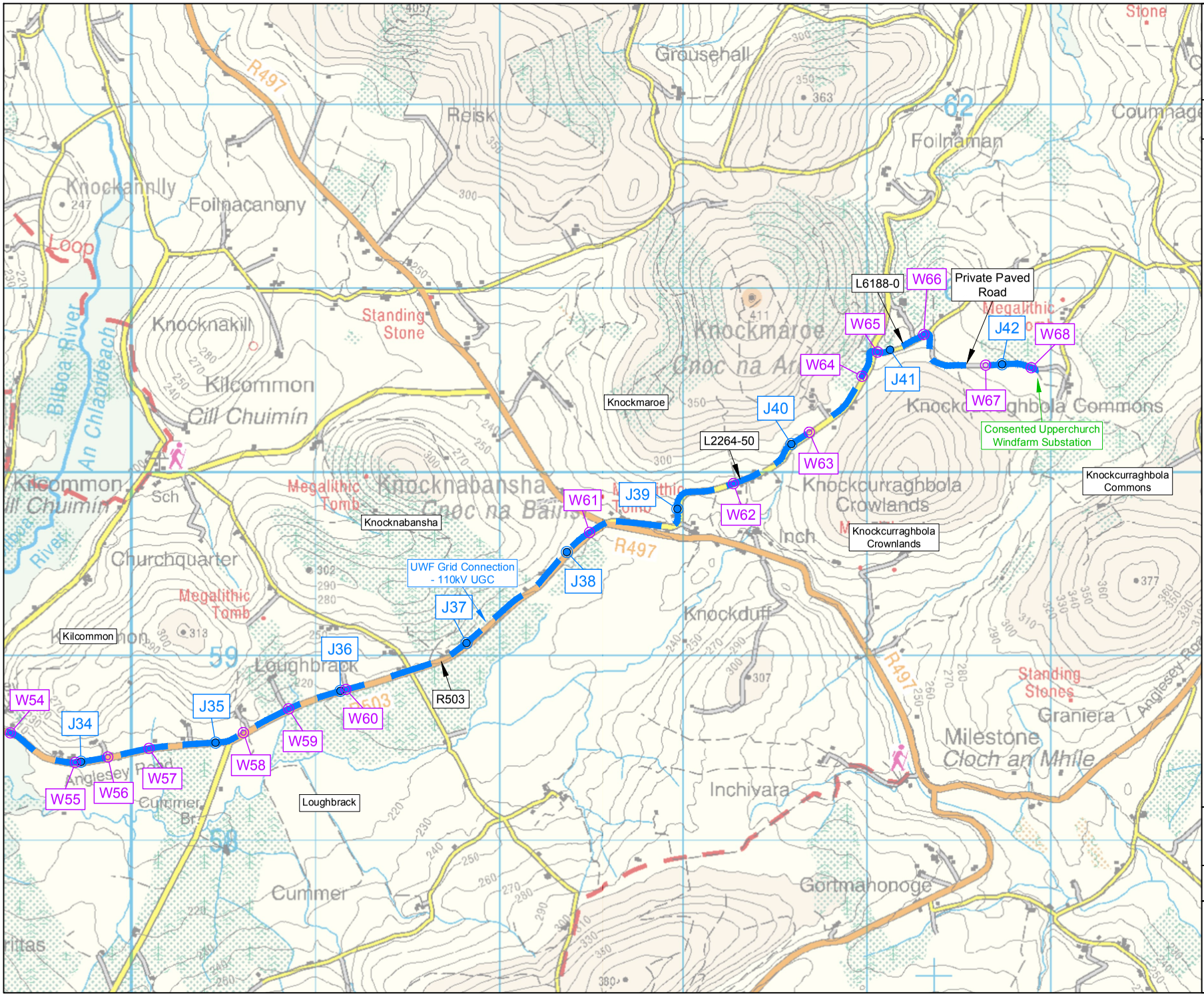
Project:

UWF Grid Connection (2019)

Drawn by:	Checked by:	Date:	Sheet Size:
AB	PK	October 19	A4

Aoife Butler
Ecopower Developments Ltd
Zetec House,
Purcellsinch Business Park, Kilkenny
TEL: +353 56 7750140
MOB: 1353 83 8805644

ECOPOWER



EMP: Main Plan

Figure EMP 3

Layout of the 110kV UGC outside of the Mountphilips Substation Site

Map Number:
Map 4 of 4

Legend:

- UWF Grid Connection - 110kV UGC
- W62 Watercourse Crossing Locations
- J16 Joint Bay Locations
- Coole Townlands

N

Project:

UWF Grid Connection (2019)

Drawn by:	Checked by:	Date:	Sheet Size:
AB	PK	October 19	A4

Aoife Butler
Ecopower Developments Ltd
Zetec House,
Purcellsinch Business Park, Kilkenny
TEL: +353 56 7750140
MOB: 1353 83 8805644

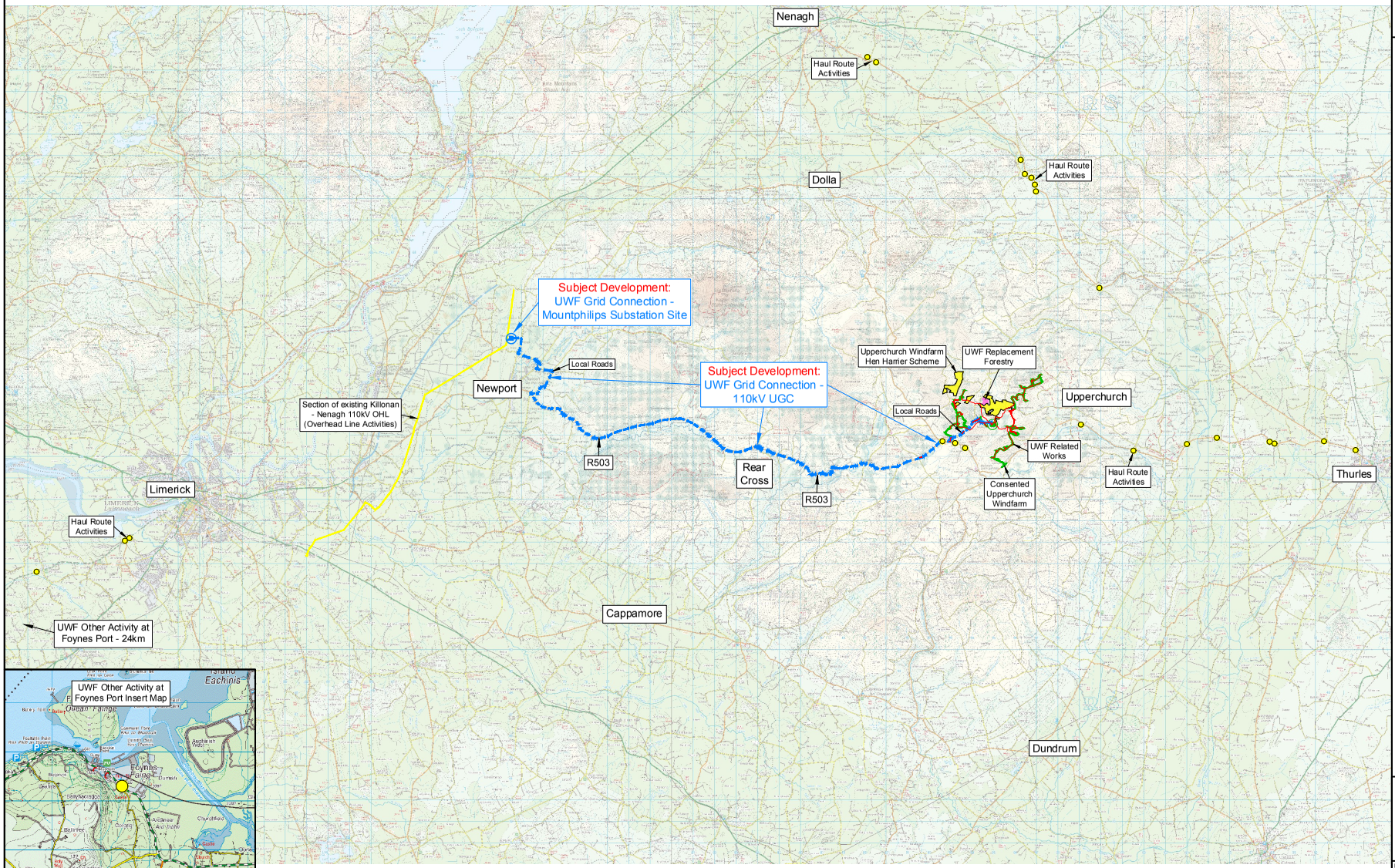
ECOPOWER

EMP: Main Plan

Figure EMP 4

Location of the UWF Grid Connection and the Other Elements of the Whole UWF Project on OSI Mapping

Map Number:
Map 1 of 1



Legend:

Subject Development:

- UWF Grid Connection - 110kV UGC
- UWF Grid Connection - Mountphilips Substation

Other Elements of the Whole UWF Project:

- UWF Related Works
- Upperchurch Windfarm
- UWF Replacement Forestry

UWF Other Activites

- Haul Route Activities
- UWF Hen Harrier Scheme
- Overhead Line Activities

N

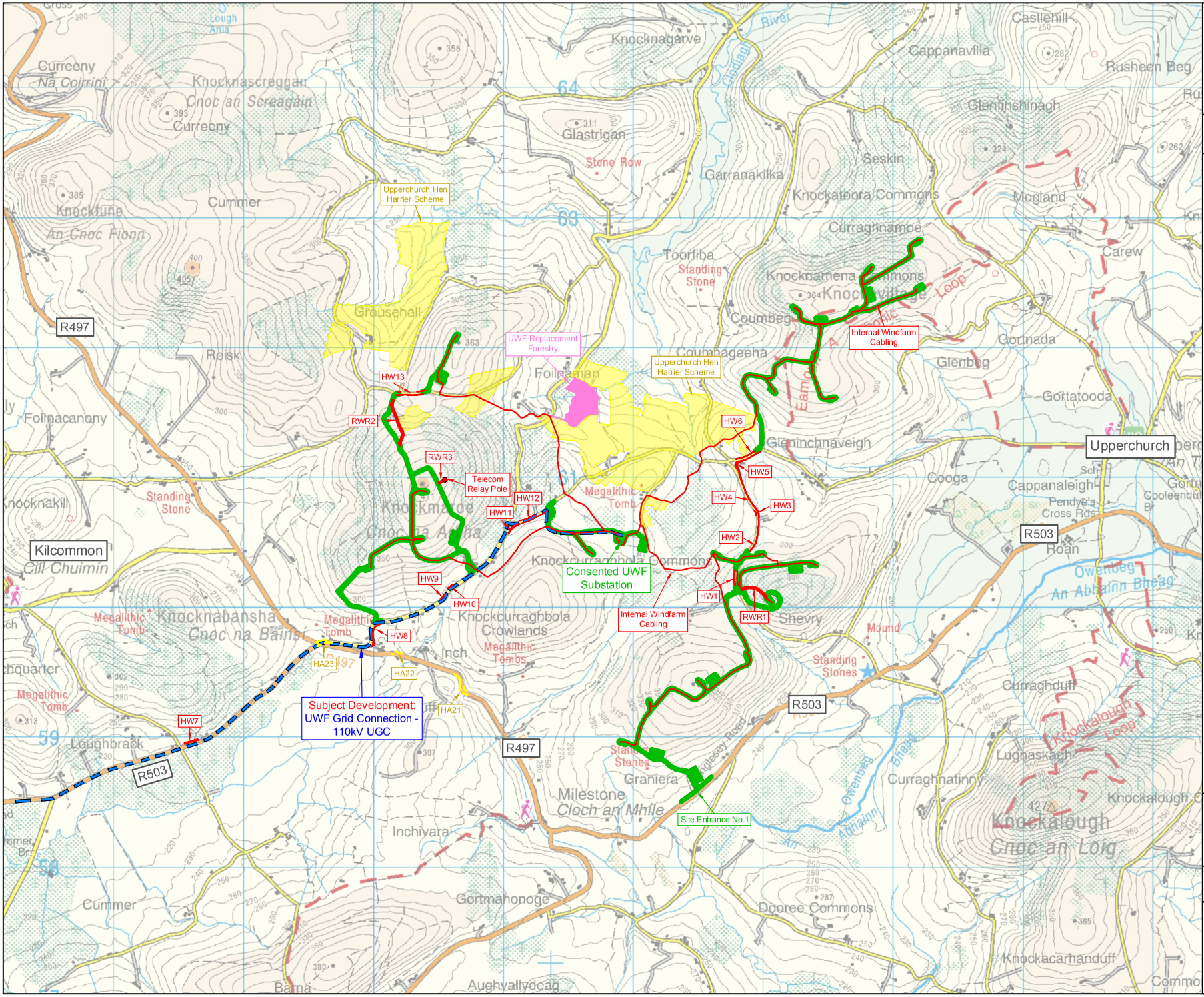
Project:

UWF Grid Conenction (2019)

Drawn by:	Checked by:	Date:	Sheet Size:
AB	PK	October 19	A4

Aoife Butler
Ecopower Developments Ltd
Zetec House,
Purcellsinch Business Pak, Kilkenny
TEL: +353 56 7750140
MOB: +353 83 8805644

ECOPOWER



EMP: Main Plan

Figure EMP 5

UWF Grid Connection and the Other Elements of the Whole UWF Project in the vicinity of Upperchurch Windfarm

Map Number:
Map 1 of 1

Legend:

UWF Grid Connection:(Subject Development)

- UWF Grid Connection - 110kV UGC

UWF Related Works:

- Haul Route Works
- HW1 Haul Route Works Numbers (HW1 - HW13)
- Realigned Windfarm Road
- RWR1 Realigned Windfarm Road Numbers (RWR1 - RWR3)
- Internal Windfarm Cabling
- Telecom Relay Pole

UWF Replacement Forestry:

- UWF Replacement Forestry

Upperchurch Windfarm:

- Upperchurch Windfarm
  - -Consented UWF Turbines
  - -Consented UWF Substation
  - -Consented UWF Roads

UWF Other Activities:

- Haul Route Activities
- HA22 Haul Route Activities Number
- Upperchurch Hen Harrier Scheme
- R503 Regional Road Number

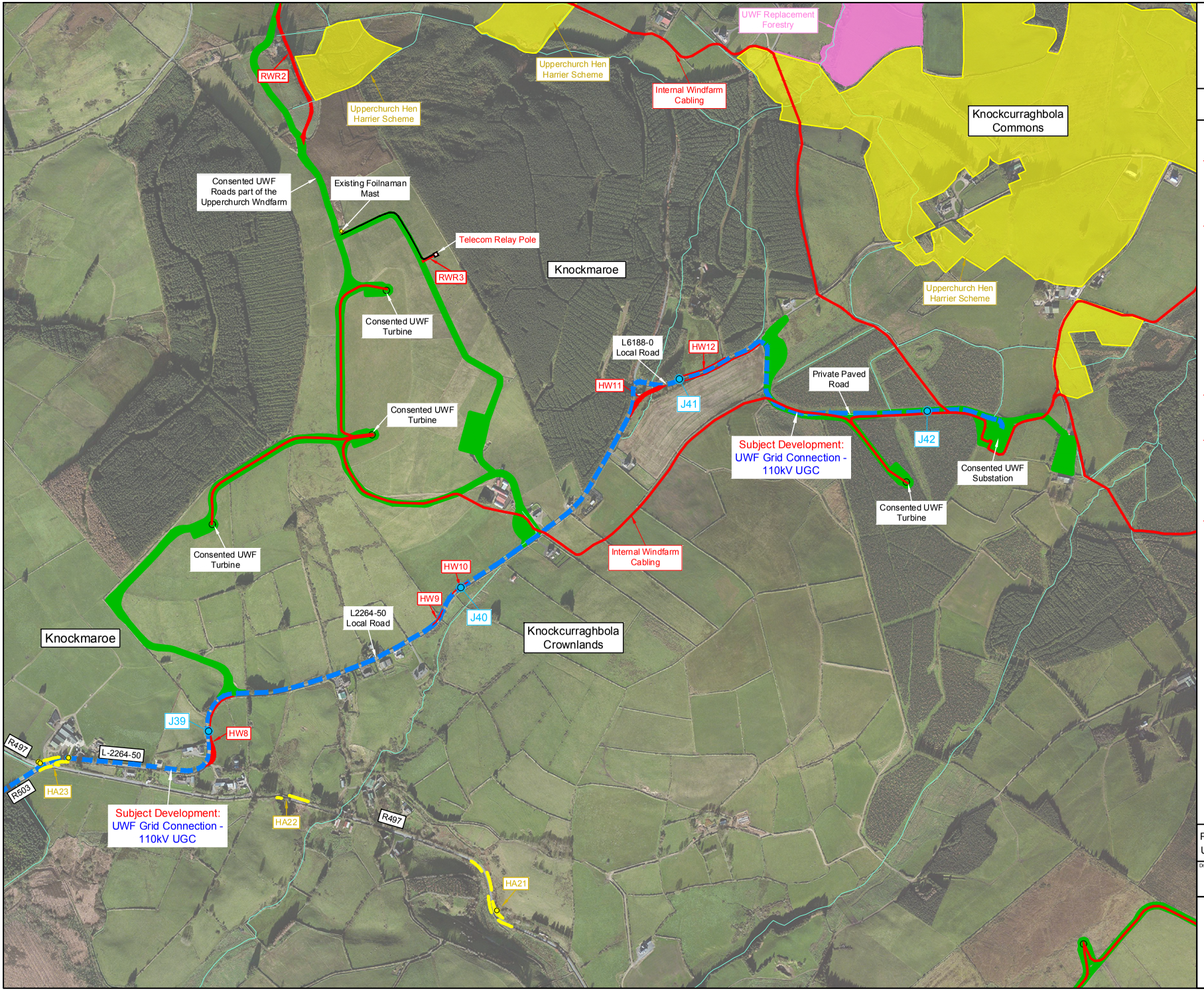
N

Project:

UWF Grid Conenction (2019)

Drawn by:	Checked by:	Date:	Sheet Size:
AB	PK	October 19	A4

Aoife Butler
Ecopower Developments Ltd
Zetec House,
Purcellsinch Business Park, Kilkenny
TEL: +353 56 7750140
MOB: +353 83 8805644
ECOPOWER



EMP: Main Plan

Figure EMP 6

UWF Grid Connection and the Other Elements of the Whole UWF Project in Knockmaroe, Knockcurraghbola Commons and Knockcurraghbola Crownlands

Map Number:
Map 1 of 1

Legend:

UWF Grid Connection:(Subject Development)
- UWF Grid Connection
- J42 Joint Bay Location

UWF Related Works:
- Haul Route Works
- HW1 Haul Route Works Numbers (HW8 - HW12)
- Realigned Windfarm Road
- RWR1 Realigned Windfarm Road Numbers (RWR2 - RWR3)
- Internal Windfarm Cabling
- Telecom Relay Pole

UWF Replacement Forestry:
- UWF Replacement Forestry

Upperchurch Windfarm:
- Upperchurch Windfarm
  -Consented UWF Turbines
  -Consented UWF Substation
  -Consented UWF Roads

UWF Other Activities:
- Haul Route Activity - Vegetation Trimming
- Haul Route Activity - Street Furniture Removal
- HA22 Haul Route Activities Number
- Upperchurch Hen Harrier Scheme

- Watercourse
- R503 Regional Road Number

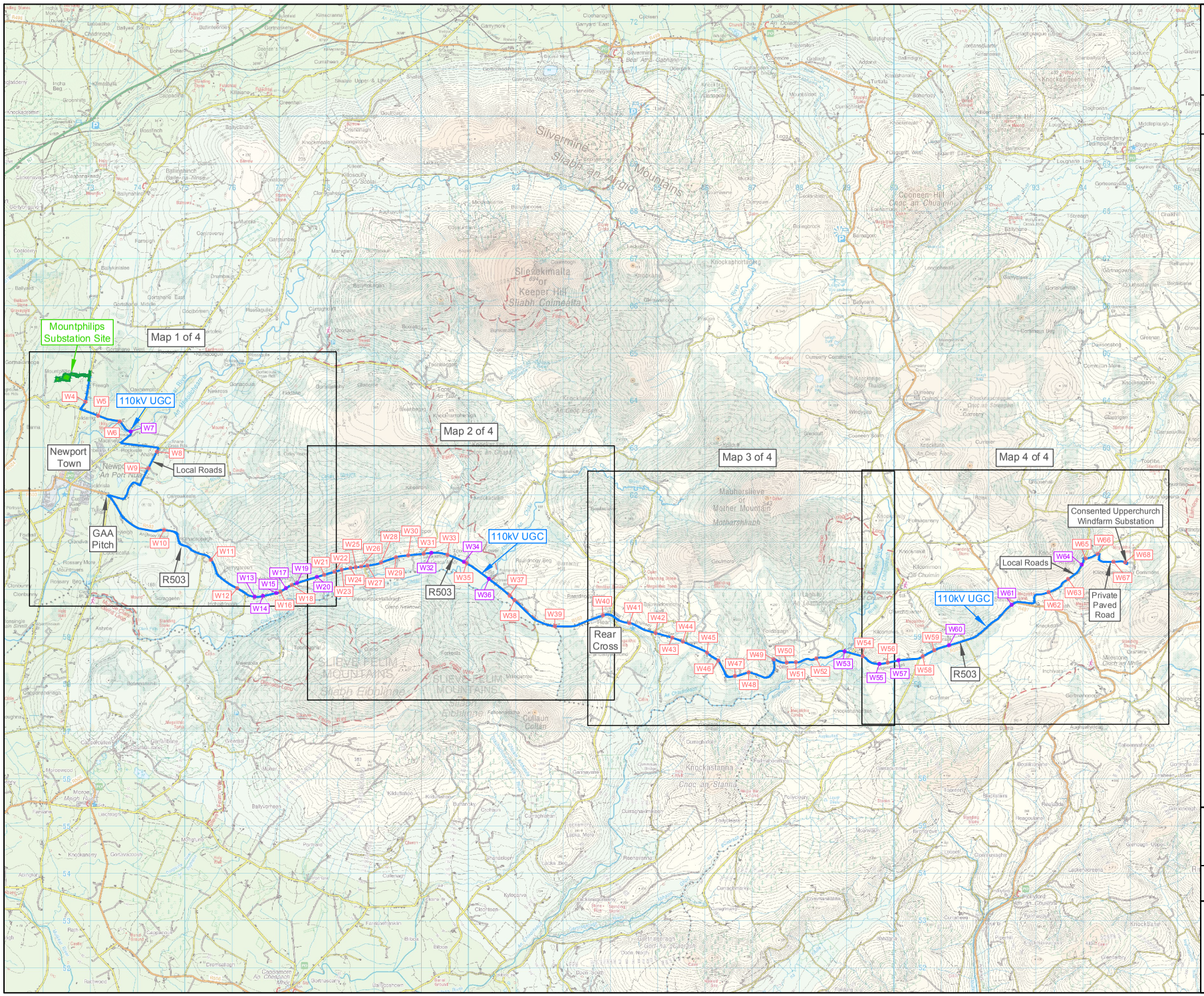
N

Project:
UWF Grid Conenction (2019)

Drawn by:	Checked by:	Date:	Sheet Size:
AB	PK	October 19	A4

Aoife Butler
Ecopower Developments Ltd
Zetec House,
Purcellsinch Business Pak, Kilkenny
TEL: +353 56 7750140
MOB: +353 83 8805644

ECOPOWER



EMP: Main Plan

Figure EMP 7

Colour Coding and identification Numbers for UWF Grid Connection Works Area

Map Number:

Overview Map

Legend:

- Mountphilips Substation Site
- 110kV UGC - Cable Trench
- 110kV UGC - Bridge Works and Culvert Replacement Works (W14)
- 110kV UGC - Cable Trenching Over/Under the Other Existing Watercourse Crossings (W16)

N

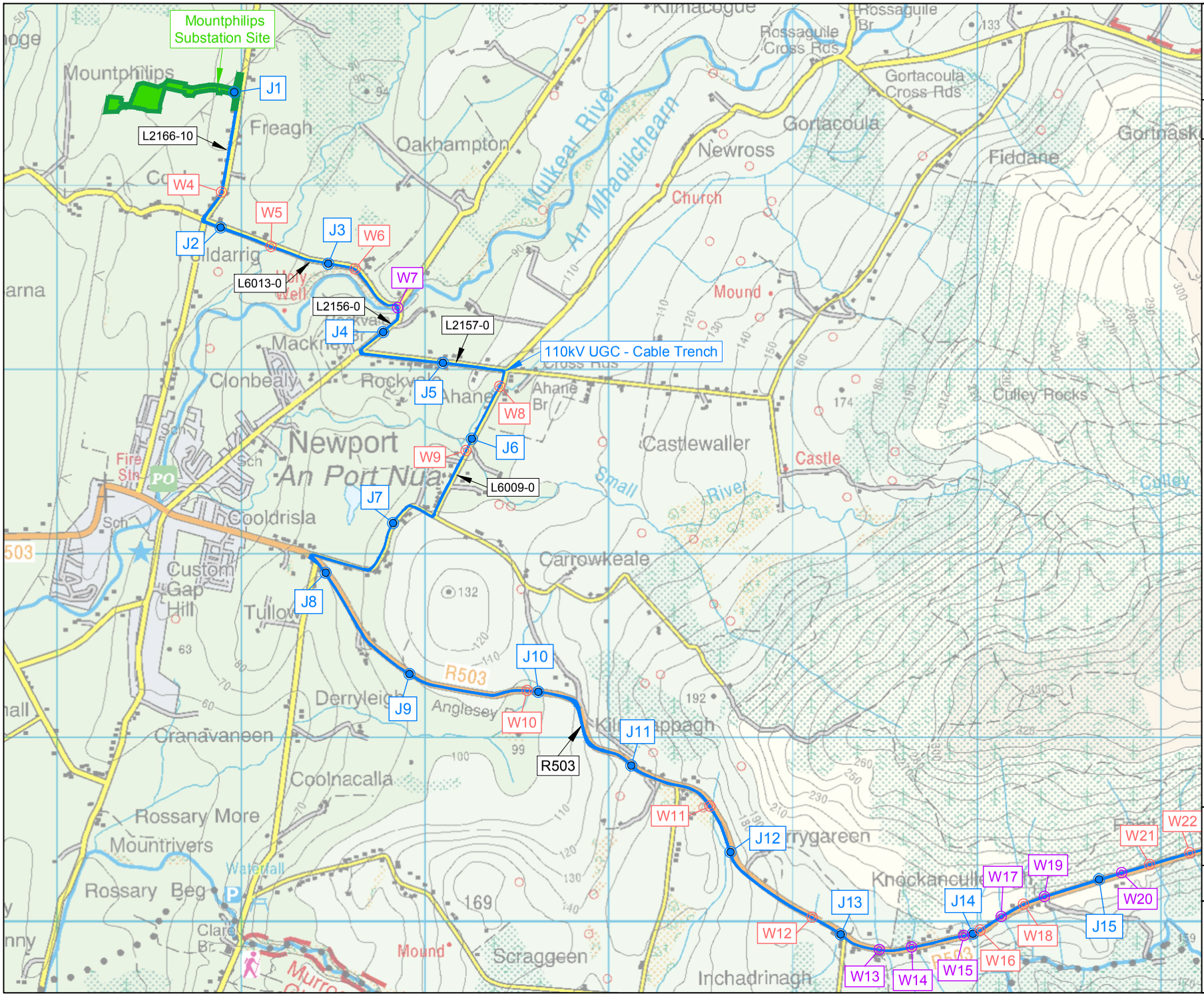
Project:

UWF Grid Connection (2019)

Drawn by:	Checked by:	Date:	Sheet Size:
AB	PK	October 19	A4

Aoife Butler
Ecopower Developments Ltd
Zetec House,
Purcellsinch Business Park, Kilkenny
TEL: +353 56 7750140
MOB: 1353 83 8805644

ECOPOWER



EMP: Main Plan

Figure EMP 7

Colour Coding and identification Numbers for UWF Grid Connection Works Area

Map Number:
Map 1 of 4

Legend:

- Mountphilips Substation Site
- 110kV UGC - Cable Trench and Joint Bay Works in Roads
- 110kV UGC - Bridge Works and Culvert Replacement Works
- 110kV UGC - Cable Trenching Over/Under the Other Existing Watercourse Crossings

N

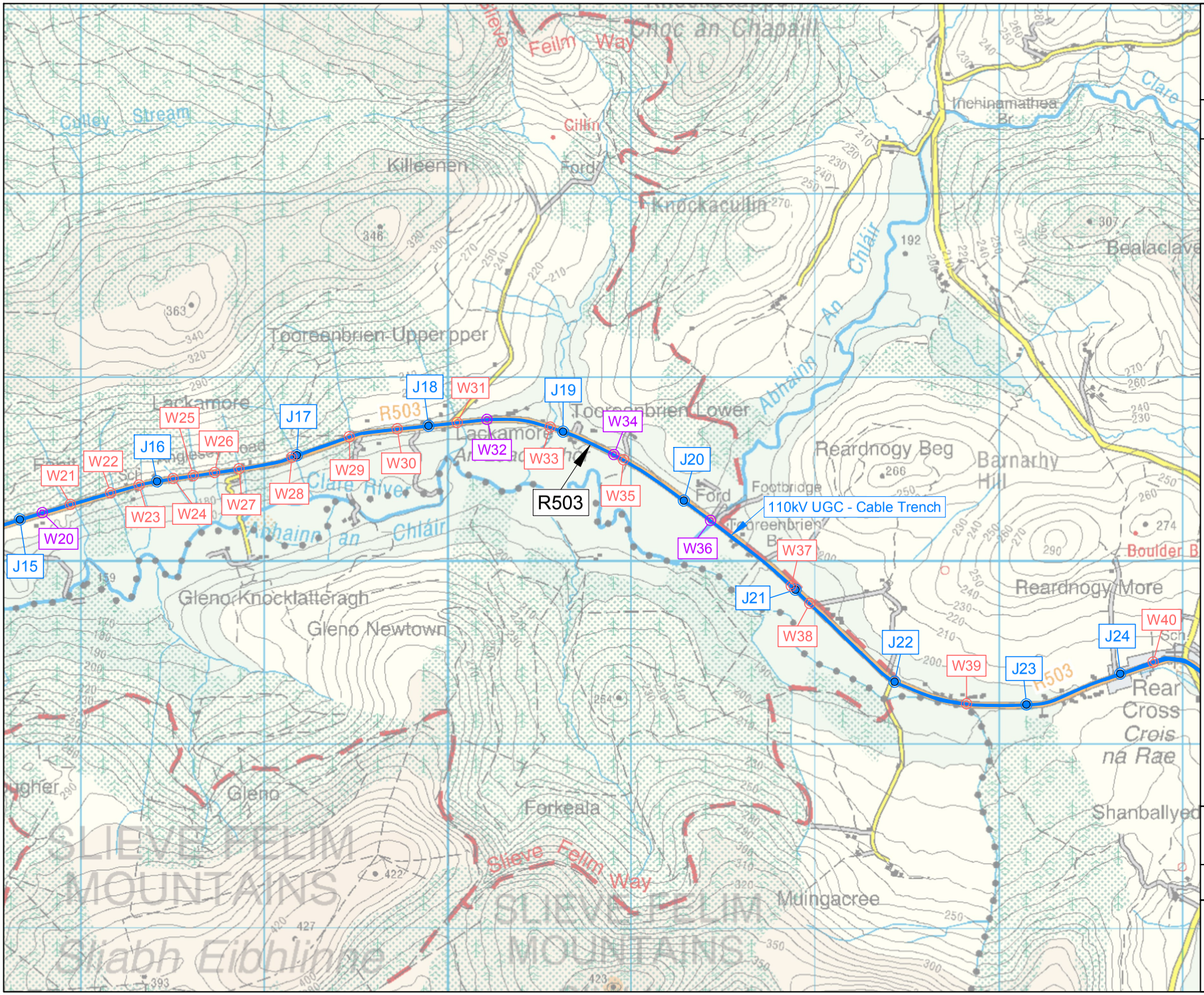
Project:

UWF Grid Connection (2019)

Drawn by:		Date:	Sheet Size:
AB	PK	October 19	A4

Aoife Butler
Ecopower Developments Ltd
Zetec House,
Purcellsinch Business Park, Kilkenny
TEL: +353 56 7750140
MOB: 1353 83 8805644

ECOPOWER



EMP: Main Plan

Figure EMP 7

Colour Coding and identification Numbers for UWF Grid Connection Works Area

Map Number:
Map 2 of 4

Legend:

- 110kV UGC - Cable Trench and Joint Bay Works in Roads
- 110kV UGC - Bridge Works and Culvert Replacement Works
- 110kV UGC - Cable Trenching Over/Under the Other Existing Watercourse Crossings

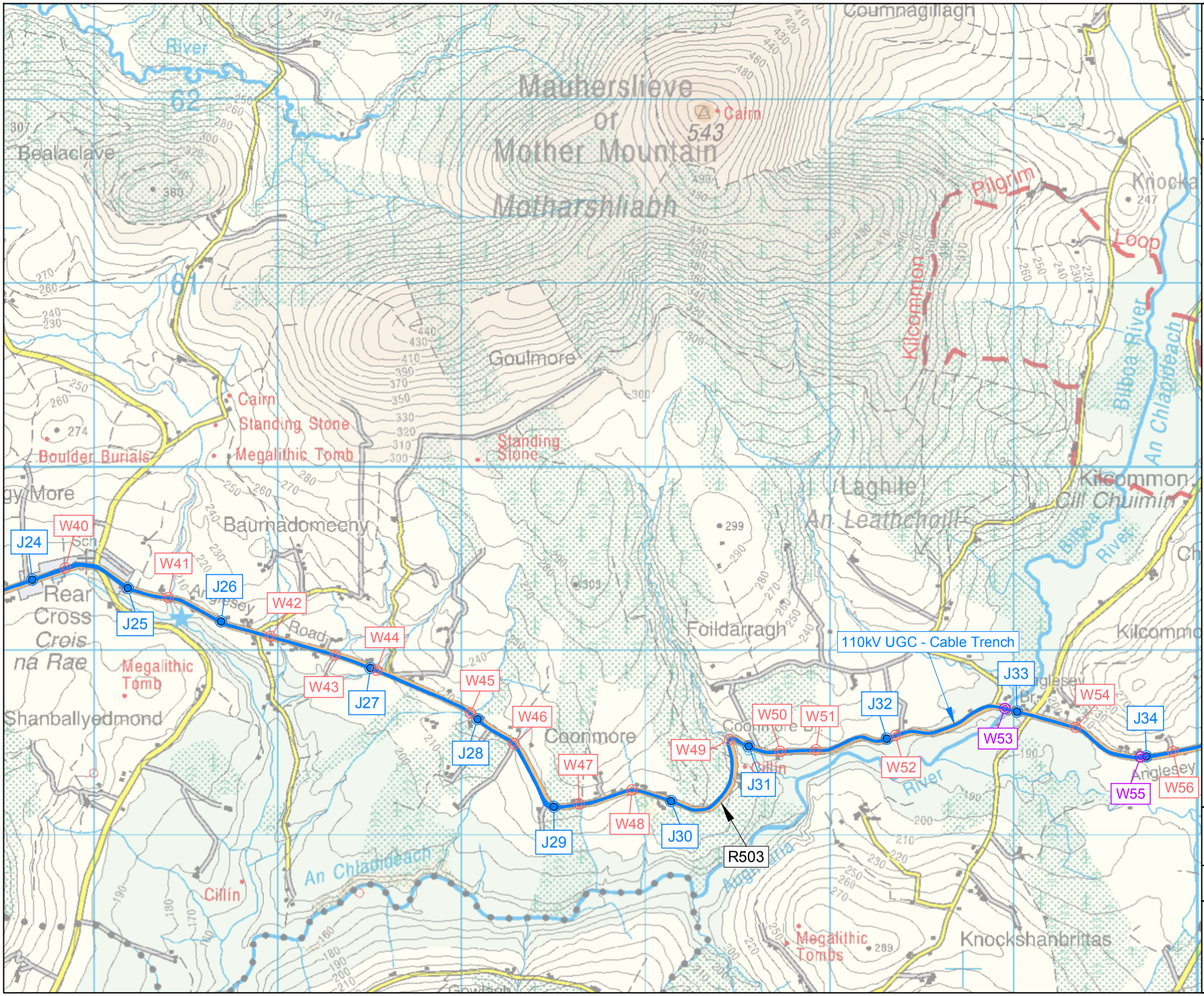
Project:

UWF Grid Connection (2019)

Drawn by:	Checked by:	Date:	Sheet Size:
AB	PK	October 19	A4

Aoife Butler
Ecopower Developments Ltd
Zetec House,
Purcellsinch Business Park, Kilkenny
TEL: +353 56 7750140
MOB: 1353 83 8805644

ECOPOWER



EMP: Main Plan

Figure EMP 7

Colour Coding and identification Numbers for UWF Grid Connection Works Area

Map Number:
Map 3 of 4

Legend:

- 110kV UGC - Cable Trench and Joint Bay Works in Roads (J16)
- 110kV UGC - Bridge Works and Culvert Replacement Works (W14)
- 110kV UGC - Cable Trenching Over/Under the Other Existing Watercourse Crossings (W16)

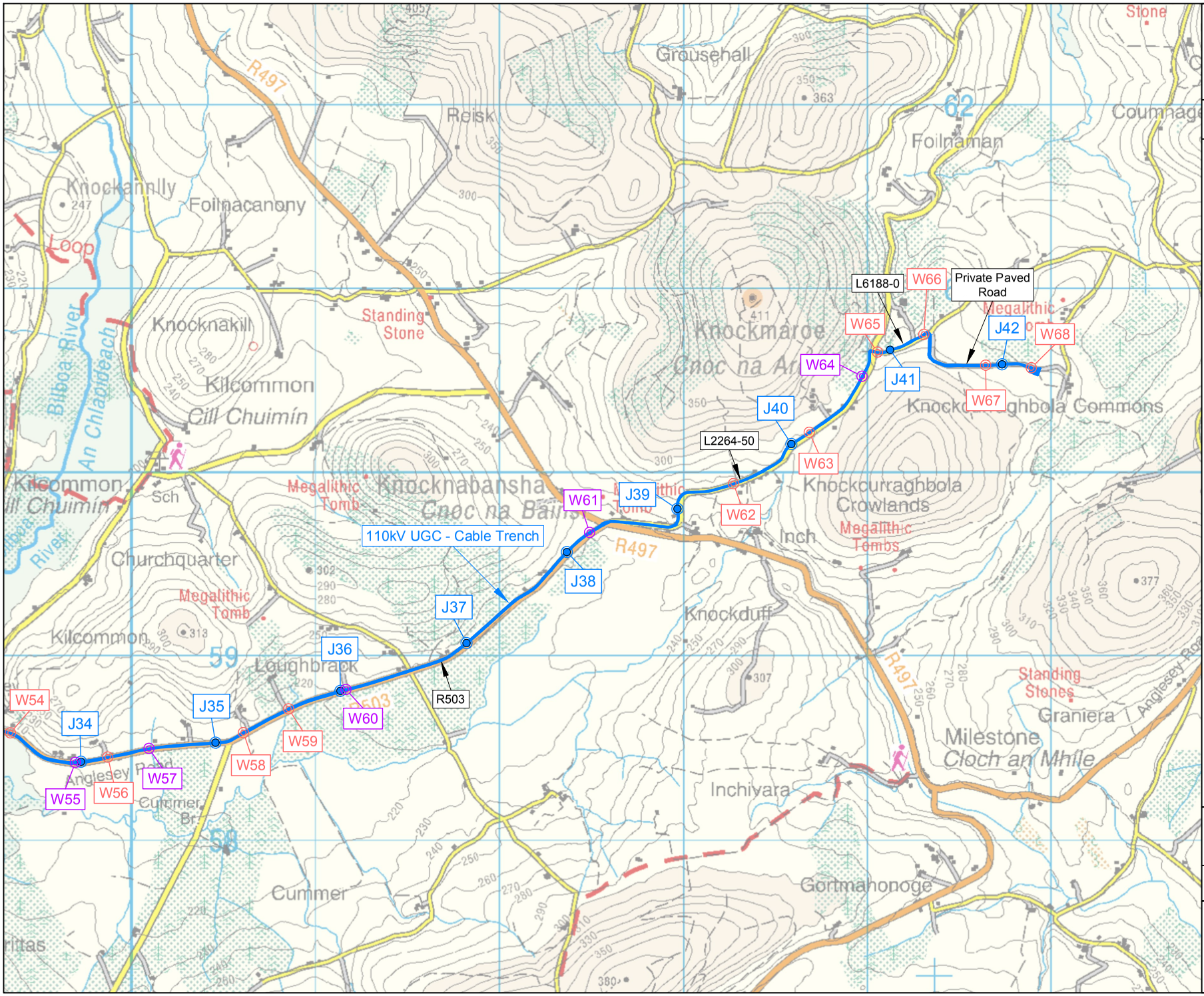
Project:

UWF Grid Connection (2019)

Drawn by:	Checked by:	Date:	Sheet Size:
AB	PK	October 19	A4

Aoife Butler
Ecopower Developments Ltd
Zetec House,
Purcellsinch Business Park, Kilkenny
TEL: +353 56 7750140
MOB: 1353 83 8805644

ECOPOWER



EMP: Main Plan

Figure EMP 7

Colour Coding and identification Numbers for UWF Grid Connection Works Area

Map Number:
Map 4 of 4

Legend:

- 110kV UGC - Cable Trench and Joint Bay Works in Roads
- 110kV UGC - Bridge Works and Culvert Replacement Works
- 110kV UGC - Cable Trenching Over/Under the Other Existing Watercourse Crossings

N

Project:

UWF Grid Connection (2019)

Drawn by:	Checked by:	Date:	Sheet Size:
AB	PK	October 19	A4

Aoife Butler
Ecopower Developments Ltd
Zetec House,
Purcellsinch Business Park, Kilkenny
TEL: +353 56 7750140
MOB: +353 83 8805644

ECOPOWER