

Sure Partners Limited

ARKLOW BANK WIND PARK
PHASE 2
**ONSHORE GRID
INFRASTRUCTURE**

**ENVIRONMENTAL IMPACT
ASSESSMENT REPORT**

VOLUME II

Chapter 21 Summary of Cumulative Effects

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Renewables

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21 Summary of Cumulative Effects

21.1 Introduction

The EIAR has considered and assessed cumulative effects arising from the construction, operation and decommissioning of the proposed development. A cumulative assessment has been undertaken based on best scientific knowledge in accordance with Part 5 of Annex IV of the 2014 EIA Directive (2014/52/EU):

“e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;”

21.2 Assessment Methodology

The assessment of cumulative effects has considered likely significant effects that may arise during construction, operation and decommissioning of the proposed development.

Cumulative effects were assessed to a level of detail commensurate with the information that was available at the time of assessment based on best scientific knowledge.

The assessment specifically considered whether any of the approved or proposed developments in the local or wider area have the potential to exacerbate (i.e. alter the significance of) effects associated with the proposed development based on best scientific knowledge. Developments which are already built and operating, and which are not identified in this chapter, are included in the baseline environment or have been assessed as not having the potential to exacerbate effects.

The cumulative effects addressed include the direct and indirect effects, caused by the interaction of environmental effects. These can cause more significant effects when combined with the effects of the proposed development.

A tiered approach to the cumulative assessment has been undertaken, in which the proposed development is considered cumulatively with other projects as follows:

Tier 1 -

- Arklow Bank Wind Park (ABWP) Phase 2 Offshore Infrastructure;
- ABWP Phase 2 Operations and Maintenance Facility;
- EirGrid Grid Upgrade Works; and
- Irish Water Upgrade Works.

Tier 2 -

- Other relevant projects currently under construction;

- Other relevant projects with consent;
- Other relevant projects in the planning process; and
- Other existing projects that were not operational when baseline data were collected.

This tiered approach was adopted to provide an assessment of the ABWP Phase 2 Project as a whole and cumulatively with other projects.

The sources of potential cumulative impact were considered. Existing and permitted projects and projects under construction were identified. Existing projects, which were operational at the time that the baseline studies were undertaken, were excluded, as their impacts are already included as part of the baseline. Existing projects, which were not operational at the time of the baseline studies, were included. A planning search was conducted to identify permitted projects. Permitted projects, the permits of which had expired, were excluded. Projects which, due to their nature or scale were unlikely to result in a cumulative impact, or to which there was no pathway, were excluded.

The wide range of existing, under construction and permitted projects in the general vicinity of the proposed development were screened to determine if there was a potential for cumulative effects. The projects which were screened are listed in **Appendix 21.1** of **Volume 3**.

A source – pathway – receptor model was used in the screening process, with the receptor being the proposed development. The pathways considered varied, depending on the environmental topic, and included air, climate, surface or ground waters, habitat or species linkages, road networks, landscape, cultural heritage linkages, resource and waste management facility capacities, population and human health linkages and major accident and disaster zones of risk. Similarly, the length of the pathways varied, depending on their characteristics.

The projects which were considered to have potential for cumulative effects with the proposed development (after the screening process) are listed in **Table 21.1**. The assessment of all environmental pathways for each project, is included in **Appendix 21.2** of **Volume 3**.

Three projects, which are in the planning process, were included in the cumulative assessment as they were considered to be significant projects in close proximity to the proposed development. These are Arklow Flood Relief Scheme, Crag Digital Avoca Ltd data centre new application and the Crag Digital Avoca Ltd data centre 110kV substation application.

For the purposes of this chapter, the environmental pathways for each project (listed in **Table 21.1**) were screened in **Table 21.3**. The results of this screening matrix are the projects and environmental pathways included in **Table 21.4**.

21.3 Planned and Proposed Projects

Table 21.1 lists the planned and proposed projects identified as having potential cumulative effects with the proposed development during the construction, operation or decommissioning phases. The source of information for the Tier 1 projects was the developer Sure Partners Limited (SPL). The sources of information for the Tier 2 projects were Wicklow County Council (WCC) and An Bord Pleanála (ABP)’s planning search websites.

Table 21.1 Planned and Proposed Developments

Project Number	Project	Consent Ref. No	Competent Authority	Project Description	Consent Status	Timeline
Tier 1						
1	ABWP Phase 2 Offshore Infrastructure	EIAR in relation to longstop date extension has been submitted	Department of Housing, Local Government and Heritage; EPA	<ul style="list-style-type: none"> The offshore infrastructure will be located on and around Arklow Bank, in the Irish Sea off the east coast of Ireland. The Foreshore Lease Area covers an area approximately 27km long and 2.5km wide. It is located approximately 6 to 13 km from the shore. The offshore infrastructure will comprise up to 62 wind turbines, with a maximum export capacity of 520 MW. The key components of the offshore infrastructure comprise: Up to 62 wind turbine foundations (monopiles or tripod jackets) attached to the seabed, plus ancillary equipment such as J-tubes, platforms, davit cranes and access facilities; 	Application for extension of Foreshore Lease longstop dates has been submitted; Dumping at Sea permit application to be submitted	Subject to Foreshore Lease longstop dates extension and Dumping at Sea permit approval; expected construction timing is over a maximum 5-year period to commence at same time as construction of proposed development

Project Number	Project	Consent Ref. No	Competent Authority	Project Description	Consent Status	Timeline
Tier 1						
				<ul style="list-style-type: none"> • Up to 62 wind turbines (each comprising a tower section, nacelle and three rotor blades); • Up to two OSP foundations (monopiles or tripod jackets) attached to the seabed, plus ancillary equipment such as J-tubes and access facilities; • Up to two OSP topsides housing electrical infrastructure (for the purposes of this EIAR, the term OSP is used to refer collectively to the platform structure and the topside equipment); • A network of inter-array cabling, including back-feeds between collector strings; • Two offshore export cable circuits; • Scour protection and cable protection, if required, and • Seabed preparation activities will be required in advance of installation activities. This will include boulder clearance and seabed feature clearance, followed by a pre-lay grapnel run. 		

Project Number	Project	Consent Ref. No	Competent Authority	Project Description	Consent Status	Timeline
Tier 1						
				<ul style="list-style-type: none"> • Indicative wind turbine layouts have been provided for the EIAR with the worst-case assessed throughout. • The final wind turbine layout will adhere to the following layout principles: <ul style="list-style-type: none"> - Principle 1: all surface infrastructure will be located within the Lease Area boundary. No blade overfly or structural overhang is permitted outside of the Lease Area boundary; - Principle 2: A minimum spacing of 500 m will be maintained between blade tip to blade tip of all surface infrastructure (for OSPs, this will be taken as the outermost point of the infrastructure); - Principle 3: wind turbines and OSPs will be located such that there is no overfly or structural overhang within the Arklow Bank Wind Park Phase 1 sublease boundary. • Construction of the offshore infrastructure may take place over a duration of five years, however it is anticipated that timescales will be less in practice. 		

Project Number	Project	Consent Ref. No	Competent Authority	Project Description	Consent Status	Timeline
Tier 1						
				<ul style="list-style-type: none"> • It is likely that the offshore Infrastructure components will be fabricated at a number of manufacturing sites across Europe or elsewhere. • Suitable ports will be selected which have appropriate existing facilities to handle and process offshore wind farm components. • Construction personnel will transit to the location of the offshore infrastructure on installation vessels. Crew transfers may also take place via Crew Transfer Vessels or helicopter. • The Arklow Bank Wind Park Phase 2 Offshore Infrastructure will have a lifetime of 35 years. 		
2	ABWP Phase 2 Operations and Maintenance Facility (OMF)	Pending submissions	WCC, Department of Housing, Local Government and Heritage, EPA	<p>The Arklow Bank Wind Park Phase 2 will require an operations and maintenance facility (OMF) for servicing the offshore wind farm, and as a base for employees working on its operation. The OMF will comprise onshore infrastructure, located off South Quay Road, Arklow, and on the quayside, and nearshore infrastructure in Arklow South Dock.</p> <p>The OMF onshore infrastructure will include:</p>	Applications pending	Subject to planning permission and grant of Foreshore lease, expected construction timing is 2023-2025

Project Number	Project	Consent Ref. No	Competent Authority	Project Description	Consent Status	Timeline
Tier 1						
				<ul style="list-style-type: none"> • Three to four-storey building (up to 3,050m² Gross Floor Area) with stores, offices, mess facilities, and warehousing; and • Up to 40m high communication mast; <p>The OMF quayside infrastructure will include:</p> <ul style="list-style-type: none"> • Davit cranes for equipment lifting; • Pontoon brow attachments; • Storage tanks, including fuel (100,000l) and oil (5000l) storage; • Associated services and connections including water, wastewater and fuel; and • Fencing, security gates and cameras. <p>The OMF nearshore infrastructure will include:</p> <ul style="list-style-type: none"> • One pontoon to provide berthing facilities for four Crew Transfer Vessels; • Up to eight Circular Hollow Section (CHS) piles of maximum diameter of 914mm; 		

Project Number	Project	Consent Ref. No	Competent Authority	Project Description	Consent Status	Timeline
Tier 1						
				<ul style="list-style-type: none"> • Installation of a new quay wall and/or local refurbishment to the existing quay wall; and • Associated services and connections including water, wastewater and fuel. <p>Enabling works for the OMF nearshore infrastructure will include:</p> <ul style="list-style-type: none"> • Onshore demolition of an existing two-storey office building; • Nearshore geotechnical investigation up to six boreholes; <p>Removal of an existing synchrolift and sunken vessels;</p> <ul style="list-style-type: none"> • Dredging of up to 6,000m³ of material from the nearshore area; and <p>The dredged material will require dewatering, depending on the disposal option chosen, with a discharge of up to 4,200m³ into Arklow Harbour.</p> <p>The OMF will be the subject of separate applications for planning approval to Wicklow County Council (for the onshore and nearshore infrastructure) and for a</p>		

Project Number	Project	Consent Ref. No	Competent Authority	Project Description	Consent Status	Timeline
Tier 1						
				foreshore lease to the Department of Housing, Local Government and Heritage for nearshore infrastructure required in the marine environment.		
3	Eirgrid Grid Upgrade Works	Pending submission	ABP	<p>In order to connect 520MW of offshore wind generation to the National Electricity Transmission Network in the Arklow area, it will be necessary to change the operating voltage of the existing Arklow-Ballybeg-Carrickmines overhead 110kV circuit to 220kV.</p> <p>In order to operate this circuit at 220kV, a new connection for the existing Ballybeg 110kV substation will be required.</p> <p>A new Ballybeg 220 kV substation could be “looped” into the existing Arklow-Carrickmines 220 kV circuit. There is enough space to construct this new 220kV station as a GIS station adjacent to the existing 110kV substation at Ballybeg.</p> <p>The Arklow Bank Onshore Grid Infrastructure proposed 220kV substation will ‘loop-in’ to the existing 220kV Lodgewood-Arklow-Carrickmines Overhead Line (OHL). As part of the grid upgrade works, EirGrid will consider stringing new conductors</p>	Pending submission	Duration and timing of work not yet known. To be assessed as though the construction duration were to coincide with the proposed development works

Project Number	Project	Consent Ref. No	Competent Authority	Project Description	Consent Status	Timeline
Tier 1						
				<p>on the currently unused side of the 220kV pylons, between the new 220kV loop-in transmission substation of this proposed development and the existing Arklow 220kV substation. This 220kV OHL circuit would either terminate in the existing Arklow 220kV substation or this circuit would be connected to an existing circuit at the Arklow 220kV substation and ‘by-pass’ the substation. There may be the need for an additional tower to bypass the Arklow 220kV substation with the new 220kV OHL circuit.</p> <p>In an initial study, EirGrid highlighted that further network studies would be required to ensure that there would be no system stability issues associated with connecting 800MW to this part of the network in the Arklow area. Subsequent to the study, SPL engaged EirGrid to perform grid stability studies which confirmed that the issues can be managed operationally. This result stands for the Project at its proposed 520MW capacity.</p>		
4	Irish Water Upgrade Works	Pending submission	WCC	To connect the proposed development to Irish Water’s water network approximately 2.3km of existing 2inch watermain is required to be upsized to 100mm. The watermain runs from Arklow town in a north-westerly	Pending submission	Duration and timing of work not known. To be assessed as though the

Project Number	Project	Consent Ref. No	Competent Authority	Project Description	Consent Status	Timeline
Tier 1						
				direction towards Shelton Abbey. The works will be carried out by Irish Water.		construction duration were to coincide with the proposed development works

Project Number	Project	Consent Ref. No	Competent Authority	Project Description	Consent Status	Timeline
Tier 2 - Permitted						
5	Arklow Wastewater Treatment Plant	SI 201801 PL27. 302556	ABP, EPA	Demolition and site clearance of existing structures on a ca. 2.9 hectare site - the 'Old Wallboard Site', Mill Road, in the townland of Ferrybank, Arklow, County Wicklow Development of a WwTP at the Old Wallboard Site, to provide for 36,000 Population Equivalent (PE) wastewater treatment capacity, with preliminary and secondary treatment processes, stormwater storage and storm water overflow (SWO), including <i>inter alia</i> the following:	Planning approval granted, discharge licence pending	Construction expected to commence in Q3 2021 and is expected to take 3.5-4 years to complete.

Project Number	Project	Consent Ref. No	Competent Authority	Project Description	Consent Status	Timeline
Tier 2 - Permitted						
				<p>An Inlet Works Building (ca. 2,448 sq m gross floor area (gfa)); the building will have a maximum height of ca. 16.5 m;</p> <p>A Process Building (ca. 2,576 sq m gfa), containing a number of photovoltaic (PV) panels on its roof and located at the southern end of the site. The building will have a maximum height of ca. 14.5m. Treated effluent flows will be discharged to the Irish Sea from the Process Building via a long sea outfall;</p> <p>A Sludge Tank Enclosure (ca. 867m² gfa). The enclosure will have a maximum height of ca. 8.5m. An Odour Control Unit (OCU) will be located within the Sludge Tank Enclosure;</p> <p>An Administration Building (ca. 174m² gfa), located at the site entrance on Mill Road. The building will have a maximum height of ca. 10.1m;</p> <p>Provision of a ca. 3,150 m³ stormwater holding tank within the Inlet Works Building of the proposed WwTP;</p> <p>Provision of a storm water overflow (SWO) to discharge excess flows from the stormwater holding tank and to act as an emergency relief for excess storm flows in the sewered catchment, discharging to the</p>		

Project Number	Project	Consent Ref. No	Competent Authority	Project Description	Consent Status	Timeline
Tier 2 - Permitted						
				<p>Irish Sea (through the toe of the revetment). The overflow will be screened and fitted with appropriate non-return valves;</p> <p>2 No. vent stacks at the Inlet Works Building and at the Process Building respectively, extending ca. 1m higher than the building structures (the overall height of the vent stacks would be ca. 17.5m (stack at Inlet Works Building) and ca. 15.5m (stack at Process Building) respectively);</p> <p>Vehicular and pedestrian access to the WwTP via a security gate from the existing entrance on Mill Road;</p> <p>Landscaping and ancillary works including an area of ca. 0.34 hectares at the northern end of the site, between Mill Road and the coastal revetment which will become part of the public realm.</p> <p>Boundary fence, ca. 2.1m high surrounding the site.</p> <p>Provision of the following infrastructure to serve the WwTP:</p> <ul style="list-style-type: none"> • ca. 20 car parking spaces; • Loading bays; • Internal circulation roads and associated hard standing; 		

Project Number	Project	Consent Ref. No	Competent Authority	Project Description	Consent Status	Timeline
Tier 2 - Permitted						
				<ul style="list-style-type: none"> • Site lighting; • all ancillary connections to electricity, telecommunications and water supply networks and site drainage; • Upgrade of a section of the coastal revetment over a distance of approximately 360m along the coastal side of the Old Wallboard site boundary. The revetment crest height will be ca. 7.5mOD and will have a crest width ranging from ca. 9m to 10.1m. The total revetment width (from landward toe to seaward toe) will be approximately 50m. • 1 No. temporary construction compound to be located within the Old Wallboard site including associated site works, access to public roads, associated 2.4m high boundary in the form of hoarding or fencing and associated ancillary staff facilities and parking. <p>A wastewater discharge authorisation licence will be required for the proposed development in accordance with the requirements of the Wastewater Discharge (Authorisation) Regulations 2007, as amended.</p>		

Project Number	Project	Consent Ref. No	Competent Authority	Project Description	Consent Status	Timeline
Tier 2 - Permitted						
6	BNRG Neon Holdings Limited Solar Farm Johnstown North	171497	WCC	The development at Johnstown North Co. Wicklow will consist of a solar wind farm on a site area of approximately 39 hectares consisting of solar photovoltaic panels covering an area of up to 27.2ha on ground mounted steel frames, an onsite substation, 8 transformer stations, underground cables and ducts, boundary security fence, new internal tracks, CCTV cameras and all associated site services.	Permitted	Construction expected to commence in 2021. BNRG Neon Holdings Limited plan to phase their construction works in Ireland from 2021-2024. To be assessed on the basis that construction timelines will overlap
7	BNRG Neon Holdings Limited Solar Farm Ballymoney	19627	WCC	The solar farm development in the townland of Ballymoney Co. Wicklow will consist of solar photovoltaic panels covering an area of up to 9.8ha within a 19ha site, on-site substation, 3 no. inverter stations; underground cables and ducts; boundary security fencing; new internal tracks; CCTV cameras and all associated site services.	Permitted	Construction expected to commence in 2021. BNRG Neon Holdings Limited plan to phase their construction works in Ireland from 2021-2024. To be

Project Number	Project	Consent Ref. No	Competent Authority	Project Description	Consent Status	Timeline
Tier 2 - Permitted						
						assessed on the basis that construction timelines will overlap
8	Highfield Solar Limited Ballinlea, Lower	171440	ABP	The development at Ballinlea, Ballyrichard and Templerainy Arklow, Co. Wicklow is a Solar PV Energy development within a total site area of up to 58.9ha to include one single storey electrical substation building, electrical transformer station modules, battery storage modules, solar PV panels ground mounted on steel support structures, access roads, fencing and associated electrical cabling, ducting and ancillary infrastructure.	Permitted	Currently under construction, commissioning date Q4 2021
9	Highfield Solar Limited Templerainy East	161285	WCC	The development at Coolboy and Templerainy Arklow, Co. Wicklow is a Solar PV Energy development within a total site area of up to 21.5ha to include one single storey electrical substation building, electrical transformer station modules , solar PV panels ground mounted on steel support structures, access roads, fencing and associated electrical cabling, ducting and ancillary infrastructure.	Permitted	Currently under construction, commissioning date Q2 2021

Project Number	Project	Consent Ref. No	Competent Authority	Project Description	Consent Status	Timeline
Tier 2 - Permitted						
10	Rappel Enterprises Limited	138823	WCC	Construction of a single storey industrial unit with ancillary office accommodation at ground and mezzanine floor level (floor area 1611sqm), wastewater treatment plant and associated site works and drainage at the Avoca River Park (former IFI facility), Shelton Abbey, Arklow.	Permitted (duration extended)	Duration and timing of work not known. To be assessed as though the construction duration were to coincide with the proposed development works
11	MaZo Architecture	191171	WCC	Housing estate on a 1.6744ha site, on the north side of Coolgreany Road, Arklow, comprising of 31 units in total. The application involves the construction of two no. 4 bedroom, semi-detached 2 storey houses, 24 no. 3 bedroom semi-detached 2 storey houses and five no. 2 bedroom, detached 2 storey house; the construction of a new access road and footpaths (cul-de-sac) and pedestrian access off Coolgreaney Road and all associated boundary treatment works; provision of usable public open space suitable for recreational use; and all associated ancillary site development works.	Permitted	Duration and timing of work not known. To be assessed as though the construction duration were to coincide with the proposed development works.

Project Number	Project	Consent Ref. No	Competent Authority	Project Description	Consent Status	Timeline
Tier 2 - Permitted						
12	Crag Digital Avoca Limited Data Centre	18940	WCC	<p>Demolition of buildings and structures on site, construction of Data Storage Facility comprising 3 data storage buildings and all associated site infrastructure, including: a data storage facility 1 (6 Pod Data Centre) located to north of site served by 1 gas generator compound to south of Data Storage building including 5 flues & 2 bunded fuel tanks located to south east & south west of Data Storage building and powered by (part grid / part gas) with emergency diesel fuel backup. Data storage facility 2 (8 pod data centre) located to south of Data Storage Facility 1 served by 1 gas generator compound to the south of building including 6 flues and 2 bunded fuel tanks located to south east and south west of Data Storage building and powered by (part grid / part gas) with emergency diesel fuel backup. Data storage 3 (8 pod data centre) located to south of site served by 1 diesel generator compound to north of building including 8 flues and 2 bunded fuel tanks, located to north east & north west of Data Storage building & powered by grid.</p> <p>If the proposed development (ABWP Phase 2 OGI) is granted approval and proceeds to construction, one</p>	Permitted	The construction duration is expected to be 25-30 months. The start date is not yet known. To be assessed as though the construction duration were to coincide with the proposed development works.

Project Number	Project	Consent Ref. No	Competent Authority	Project Description	Consent Status	Timeline
Tier 2 - Permitted						
				<p>data hall from the permitted development, located on the substation site, will not be built.</p> <p>Note: Another application has been made by Crag Digital Avoca Limited for this site, (Planning Reference 201285, Refer to project no. 17 below).</p>		
13	Ardale Properties Limited Housing Estate	19373	WCC	<p>Residential development comprising a creche; 185 houses with 4 house types; 8 duplex units over 8 apartments; new access/relief road and infrastructure linking Vale Road to Lamberton Avenue; all services and ancillary site development works; relocation of part of existing overhead ESB lines; with temporary effluent treatment plant and sewerage pumping station at Yardland Td.</p> <p>The development commenced construction in 2018. The applicant was granted permission to extend application under WCC Ref 13/35 in order to complete construction works.</p>	Permitted	Currently under construction. Construction commenced in 2018 and is due to be completed by the 31 st December 2021
14	Harmony Timber Solutions	1954	WCC	<p>Detached two storey office building (249m²) detached timber factory building with canteen, wcs and 1st floor office (1432m²) and detached timber factory building with mezzanine office / wcs / canteen (1476m²), site layout to include 3 no yard areas, 30 no car parking</p>	Permitted	Construction is expected to commence in Q4 2021 and take

Project Number	Project	Consent Ref. No	Competent Authority	Project Description	Consent Status	Timeline
Tier 2 - Permitted						
	Office and Factory			spaces, 20 no cycle spaces, 2 no bin storage area, 3 no vehicular entrance gates, boundary fence, wastewater treatment system and associated site works.		between 25-30 months with construction works expected to be complete by Q4 2023
15	Sigma Aldrich Ireland Limited	20662	WCC	<p>The development consists of a portal frame structure 20m long by 14m wide by 7.5m high. The building will be used as a store to house spare parts and maintenance equipment. A single-storey office 5.0m by 3.5m within the proposed store to keep records and specification details of the spare parts and equipment stored. There will be associated site works.</p> <p>The proposed building will be used purely as a store to house spare parts and maintenance equipment to serve the production plants on the site. There will be no process activities carried out in the store. No chemicals or hazardous material will be stored in the building at any time.</p>	Permitted	Duration and timing of work not known. To be assessed as though the construction duration were to coincide with the proposed development works
16	Wexford Bus and Stoneleigh	141234	WCC	The development consists of a Park and Ride Facility, construction of 170 space car park with turning access lane, internal bus pickup area, bicycle storage, revised	Permitted	Duration and timing of work not known. However, it is

Project Number	Project	Consent Ref. No	Competent Authority	Project Description	Consent Status	Timeline
Tier 2 - Permitted						
	Development Limited Park and Ride Facility			road markings including extension of existing bicycle lane to site, footpaths, fencing, landscaping including screening and fencing, public lighting, drainage and ancillary works at Templerainy Northern Access Road Arklow. The applicant was granted an extension of the permission until 26/10/2023 (Planning Reference: 20946)		expected the works will be complete by Q4 2023 as planning permission expires 26/10/2023 (to be assessed on this basis)

Project Number	Project	Consent Ref. No	Competent Authority	Project Description	Consent Status	Timeline
Tier 2 – Other relevant projects in the planning process						
17	Crag Digital Avoca Limited Data Centre new application	201285	WCC	<p>Demolition of existing industrial building units totalling (c.2784.4m²) comprising of a c.7.1m high Overall Main Building (c.2460m²), a c.4.2m high Substation (c. 107.3m²), a c.3.6m high Guardhouse (c.106.2m²), a c.3.6m high East-Building (c.39.1m²), c.5m high Water Tank (c.56.8m²) &c.2.6m high Pump House Building (c.15.1m²), associated works.</p> <p>Development of 3 no. Data Centre Buildings, ancillary offices & plant comprising of: Data Centre Building A, - a single storey Data Centre Building, with mezzanine 1st floor level offices (GFA c.10,564m², building height c.13,658m & structures c.15,137m), made up of 2 no. Data Halls & loading areas with associated 2 no. Dock Levellers & including 10 no. c.14m high flues, & adjacent 1 no. Standby Power Generation Compounds, consisting of 10 no. IIV Diesel Generators and belly tanks (GFA c.530m²), 1 no. storage fuel tank (GFA c.15m²). Data Centre Building B - a single storey data centre building with mezzanine 1st floor level offices (GFA c.18,508m², building height c.13,658m & structures c.15,137m), made up of 4 no. Data Halls and loading areas with associated 2 no. Dock Levellers & including 20 no. c.14m high</p>	Received notification of grant subject to appeal.	The construction duration is expected to be circa 25 – 30 months. The construction start date is not yet known. To be assessed as though the construction duration were to coincide with the proposed development works.

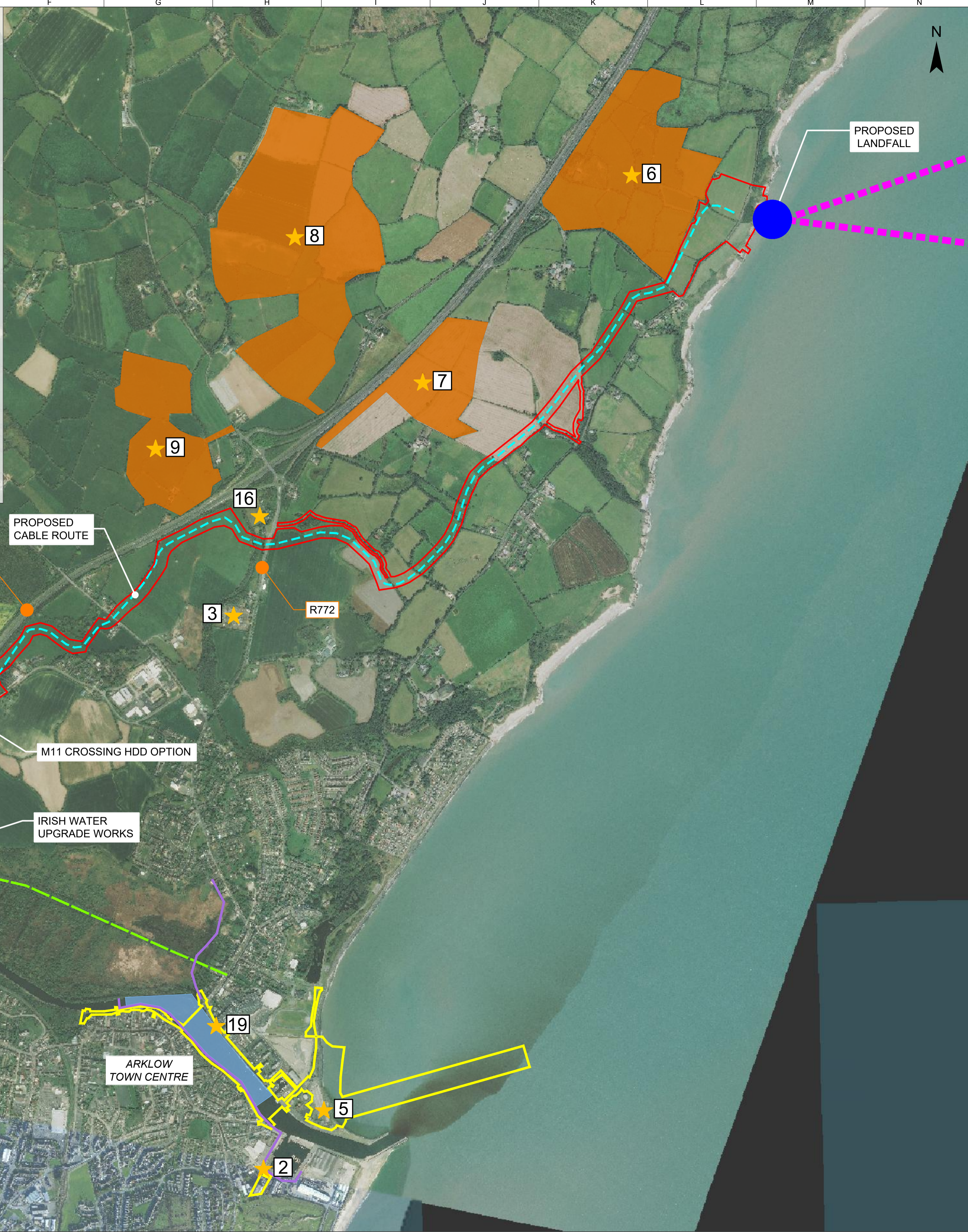
Project Number	Project	Consent Ref. No	Competent Authority	Project Description	Consent Status	Timeline
Tier 2 – Other relevant projects in the planning process						
				<p>flues, and adjacent 2 no. Standby Power Generation Compounds, consisting of 20 no. HV diesel Generators & belly tanks (GFA c.1,060m²), 2 no. storage fuel tanks (GFA c.30m²). Data Centre Building C - a single storey data centre building with mezzanine 1st floor level offices (GFA c.18,508m², building height c.13,658m & structures c.15,137m), made up of 4 no. Data Halls & loading areas with associated 2 no. Dock Levellers & including 20 no. c.14m high flues, & adjacent 2 no. Standby Power Generation Compounds, consisting of 20 no. Diesel Generators and belly tanks (GFA c.1,060 m²), 2 no. storage fuel tanks (GFA c.30m²)</p> <p>Upgrading of existing 110 kV Substation to comprise of Compound (c. 8539m²) consisting of 110kV GIS Switch Room (GFA c.708m²), and 4 no. External Transformers (GFA c.550m²), a grid connection, security fence & all associated works & services.</p> <p>Development of 1 no. Fire Hydrant Pump Hose (GFA c.129m²) with Sprinkler Tank (c.49m²), 1 no. single storey Security Guard House (GFA c.48m²) and 2 no. vehicular accesses, internal access roads & 224 no. surface car parking spaces.</p>		

Project Number	Project	Consent Ref. No	Competent Authority	Project Description	Consent Status	Timeline
Tier 2 – Other relevant projects in the planning process						
				<p>An upgraded attenuation basin, a proposed wastewater treatment plant and polishing filter.</p> <p>All associated site services, with c. 2.7m high palisade fence, landscaping, boundary & all associated site development works above & below ground. An EIAR has been prepared in respect of the proposed dev at Avoca River Park Shelton Abbey & Kilbride Arklow.</p> <p>If the proposed development (ABWP Phase 2 OGI) is granted approval and proceeds to construction, one data hall from the data centre development, located on the substation site, will not be built.</p>		
18	Crag Digital Avoca Limited 110kV Substation	PL27.3072 56; VA 309252	ABP	Provision of a 110kV gas insulated switchgear (GIS) substation, double circuit 110kV underground transmission line and associated site works within the Avoca River Park	Pending approval	Duration and timing of work not known. To be assessed as though the construction duration were to coincide with the proposed development works.

Project Number	Project	Consent Ref. No	Competent Authority	Project Description	Consent Status	Timeline
Tier 2 – Other relevant projects in the planning process						
19	Arklow Flood Relief Scheme	PL27.3003 04	ABP	Arklow Flood Relief Scheme in Arklow town, which would comprise of flood defence walls along the River Walk and South Quay, widening of the river channel downstream of Arklow Bridge, including works to the quays and slipway, dredging of the river channel upstream and downstream, provision of debris trap and gravel trap upstream of Arklow Bridge, lowering of floor of Arklow Bridge, underpinning of bridge piers and abutments and scour protection, provision of flood embankment on the north side of the river channel.	Pending submission	Subject to approval, construction is expected to commence in Q1 of 2022 and will continue until 2025.
20	Maintenance and/or repair of Avoca River Business Park Flood Embankment	None	WCC	<p>The entire Avoca River Business Park relies on the existing embankment for fluvial flood protection. As a result, these embankments need to be appropriately inspected, maintained and repaired, to prevent the risk of flooding. Investigations are to be undertaken to confirm the existing embankment composition, permeability and stability, so as to inform the required inspection, maintenance and repair programme.</p> <p>Should this investigation determine that works are required to maintain or reinforce the existing embankments, these works will be undertaken in advance of the substation construction, with ongoing maintenance and repair thereafter, subject to regular inspection and monitoring.</p>	Pending any required approvals	The construction duration will not overlap with the construction of the proposed development, with any repair works done in advance of the development construction and ongoing maintenance and repairs thereafter

Project Number	Project	Consent Ref. No	Competent Authority	Project Description	Consent Status	Timeline
Tier 2 – Other relevant projects in the planning process						
				<p>While a range of approaches could be applied and a targeted approach (where only certain areas of the embankment might require works), in a reasonable worst case scenario, the full length of the embankment may require to be reinforced, similar to the works proposed as part of the proposed development (localised reinforcement of the embankment, using either cohesive soils, placed and suitably compacted in layers and/or sheet piling).</p>		<p>(during the operation of the proposed development).</p>

- PROJECT NUMBERS:**
- TIER 1**
- PROJECT 1 - ABWP PHASE 2 OFFSHORE INFRASTRUCTURE
 - PROJECT 2 - ABWP PHASE 2 OPERATIONS AND MAINTENANCE FACILITY (OMF)
 - PROJECT 3 - EIRGRID GRID UPGRADE WORKS
 - PROJECT 4 - IRISH WATER UPGRADE WORKS
- TIER 2**
- PROJECT 5 - ARKLOW WASTEWATER TREATMENT PLANT
 - PROJECT 6 - BNRG NEON HOLDINGS LIMITED SOLAR FARM JOHNSTOWN NORTH
 - PROJECT 7 - BNRG NEON HOLDINGS LIMITED SOLAR FARM BALLYMONEY
 - PROJECT 8 - HIGHFIELD SOLAR LIMITED BALLINCLEA, LOWER
 - PROJECT 9 - HIGHFIELD SOLAR LIMITED TEMPLERAINEY EAST
 - PROJECT 10 - RAPPEL ENTERPRISES LIMITED
 - PROJECT 11 - MAZO ARCHITECTURE
 - PROJECT 12 - CRAG DIGITAL AVOCA LIMITED DATA CENTRE
 - PROJECT 13 - ARDALE PROPERTIES LIMITED HOUSING ESTATE
 - PROJECT 14 - HARMONY TIMBER SOLUTIONS OFFICE AND FACTORY
 - PROJECT 15 - SIGMA ALDRICH IRELAND LIMITED
 - PROJECT 16 - WEXFORD BUS AND STONELEIGH DEVELOPMENT LIMITED PARK AND RIDE FACILITY
- TIER 2 - NOT PERMITTED**
- PROJECT 17 - CRAG DIGITAL AVOCA LIMITED DATA CENTRE NEW APPLICATION
 - PROJECT 18 - CRAG DIGITAL AVOCA LIMITED 110kV SUBSTATION
 - PROJECT 19 - ARKLOW FLOOD RELIEF SCHEME
 - PROJECT 20 - MAINTENANCE/REPAIR WORKS TO THE AVOCA RIVER BUSINESS PARK



- LEGEND:**
- RED LINE BOUNDARY
 - PROPOSED CABLE ROUTE
 - PROPOSED M11 CROSSING HDD OPTION
 - PROPOSED OFFSHORE CABLE ROUTE
 - PROPOSED LANDFALL
 - IRISH WATER UPGRADE WORKS
 - WASTE WATER TREATMENT PLAN EXTENTS
 - FLOOD RELIEF SCHEME WALLS & EMBANKMENTS
 - FLOOD RELIEF SCHEME RIVER DREDGING
 - MAINTENANCE/REPAIR WORKS TO THE AVOCA RIVER BUSINESS PARK
 - SOLAR FARM
 - PROJECT LOCATIONS

Rev	Date	By	Chkd	Appd

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Client
 Sure Partners Ltd.

Project Title
 ARKLOW BANK WIND PARK PHASE 2

Drawing Title
 Cumulative Projects

Scale at A1
 1:10,000

Role
 CIVIL

Suitability
 FOR INFORMATION

Arup Job No
 271715

Rev
 P1

Name
 FIGURE 21.1

21.4 Summary of Construction Timelines

A summary of the construction timelines of each project is summarized in **Table 21.2**. Where timelines or construction duration are not in the public domain, the project will be assessed as though the construction duration will coincide with the proposed development works.

Table 21.2 Summary of Construction Timelines

Project	Project	Construction Timelines
1	ABWP Phase 2 Offshore Infrastructure	Expected construction timing is over a maximum 5-year period to commence at same time as construction of proposed development
2	ABWP Phase 2 Operations and Maintenance Facility (OMF)	Expected construction timing is 2023-2025
3	EirGrid Grid Upgrade Works	Duration and timing of work not yet known. To be assessed as though the construction duration were to coincide with the proposed development
4	Irish Water Upgrade Works	Duration and timing of work not yet known. To be assessed as though the construction duration were to coincide with the proposed development works
5	Arklow Wastewater Treatment Plant	Construction expected to commence in Q3 2021 and is expected to take 3.5-4 years to complete.
6	BNRG Neon Holdings Limited Solar Farm Johnstown North	Construction expected to commence in 2021. To be assessed on the basis that construction timelines will overlap

Project	Project	Construction Timelines
7	BNRG Neon Holdings Limited Solar Farm Ballymoney	Construction expected to commence in 2021. To be assessed on the basis that construction timelines will overlap
8	Highfield Solar Limited Ballinaclea, Lower	Currently under construction, commissioning date Q4 2021
9	Highfield Solar Limited Templerainy East	Currently under construction, commissioning date Q2 2021
10	Rappel Enterprises Limited	Duration and timing of work not known. To be assessed as though the construction duration were to coincide with the proposed development
11	MaZo Architecture	Duration and timing of work not known. To be assessed as though the construction duration were to coincide with the proposed development works
12	Crag Digital Avoca Limited Data Centre	The construction duration is expected to be 25-30 months. The start date is not yet known. To be assessed as though the construction duration were to coincide with the proposed development works.
13	Ardale Properties Limited Housing Estate	Currently under construction. Construction commenced in 2018 and is due to be completed by the 31 st December 2021
14	Harmony Timber Solutions Office and Factory	Construction is expected to commence in Q4 2021 and take between 25-30 months with construction works expected to be complete by Q4 2023
15	Sigma Aldrich Ireland Limited	Duration and timing of work not known. To be assessed as though the construction duration were to coincide with the proposed development

Project	Project	Construction Timelines
16	Wexford Bus and Stoneleigh Development Limited Park and Ride Facility	Duration and timing of work not known. However, it is expected the works will be complete by Q4 2023 as planning permission expires 26/10/2023 (to be assessed on this basis)
17	Crag Digital Avoca Limited Data Centre new application	The construction duration is expected to be circa 25 – 30 months. The construction start date is not yet known. To be assessed as though the construction duration were to coincide with the proposed development
18	Crag Digital Avoca Limited 110kV Substation	Duration and timing of work not known. To be assessed as though the construction duration were to coincide with the proposed development works
19	Arklow Flood Relief Scheme	Subject to approval, construction is expected to commence in Q1 of 2022 and will continue until 2025.
20	Maintenance and/or repair of Avoca Business Park Flood Embankment	Subject to any required approvals, any works to reinforce the existing embankments will be undertaken in advance of the construction of the proposed substation, with ongoing maintenance during the operational phase of the proposed development.

21.5 Cumulative Impact Screening

All Tier 1 projects and all environmental pathways were screened in for Tier 1, as part of the overall Project, and are included in **Table 21.4**.

The environmental pathways for Tier 2 projects were screened in a matrix, **Table 21.3**, which examines the potential for the project in the left-hand column to have a significant cumulative effect with the proposed development by the environmental pathway listed in the top row of the matrix. If there is the potential for likely significant cumulative effects during construction, operation or decommissioning the relevant box is checked.

Refer to the individual assessment chapters and **Appendix 21.2** for the full cumulative assessment. The potential for significant effects has been ruled out in some instances based on the full cumulative assessment.

The greatest impact from either the construction or operational phase for the proposed development in combination with either the construction or operational phase of the selected projects is considered in **Table 21.4**.

Table 21.3 Screening Matrix

No.	Project	Air Quality	Climate	Land and Soils	Water	Noise and Vibration	Biodiversity	Traffic and Transport	Landscape and Visual	Archaeology, Architectural and Cultural Heritage	Resource and Waste Management	Material Assets	Population and Human Health	Major Accidents and Disasters
5	Arklow Wastewater Treatment Plant				✓			✓	✓		✓		✓	
6	BNRG Solar Farm Johnstown North		✓		✓			✓					✓	
7	BNRG Solar Farm Ballymoney		✓		✓			✓					✓	
8	Highfield Solar Limited Ballinlea,		✓		✓			✓					✓	
9	Highfield Solar Limited		✓		✓			✓					✓	
10	Rappel Enterprises Limited			✓				✓						
11	MaZo Architecture													
12	Crag Digital Data Centre	✓		✓		✓	✓	✓	✓			✓	✓	✓
13	Ardale Properties Limited Housing													
14	Harmony Timber Solutions			✓				✓						
15	Sigma Aldrich Ireland Limited													
16	Park and Ride Facility							✓						
17	Crag Digital Data Centre New	✓		✓		✓	✓	✓	✓			✓	✓	✓
18	Crag Digital 110kV Substation	✓		✓		✓	✓	✓	✓			✓	✓	✓
19	Arklow Flood Relief Scheme				✓		✓	✓	✓		✓			
20	Maintenance and/or repair of Avoca Business Park Flood Embankment		✓		✓						✓			✓
	All Tier 2 projects	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓

21.6 Cumulative Impact Assessment

The cumulative effects of each project listed in **Table 21.1**, and the proposed development during the construction phase, operational phase and decommissioning phase, where a potential cumulative effect was identified by the screening process, are described in **Table 21.4**.

Table 21.4 Cumulative Impact Assessment

Tier 1 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
<p>Project 1: ABWP Phase 2 Offshore Infrastructure <i>EIAR in relation to longstop date extension has been submitted</i></p> <p>Project 2: ABWP Phase 2 Operations and Maintenance Facility (OMF) <i>Pending Submission</i></p> <p>Project 3: EirGrid Grid Upgrade Works <i>Pending Submission</i></p>	<p>Air Quality: Considering the distance from the Arklow Bank Wind Park Phase 2 Offshore Infrastructure works and the Arklow Bank Wind Park Phase 2 Operations and Maintenance Facility (OMF) to the proposed development, no significant cumulative effects are predicted during the construction phase. There will be maintenance trips carried out for the offshore infrastructure which may have potential for operational emissions offshore (as outlined in the Arklow Bank Wind Park Phase 2 Offshore Infrastructure EIAR), however, considering there are no significant operational emissions associated with the proposed development and given the distance to the offshore infrastructure and OMF, there are no significant cumulative air quality effects predicted during the operational phase.</p> <p>Given the nature and scale of the construction activities and construction traffic associated with the EirGrid Grid upgrade works and the Irish Water connection upgrade works (in proximity to the proposed development), no significant cumulative air quality effects are predicted during the construction phase. There are no air emission sources or operational traffic associated with the upgrade works or the proposed development, therefore no significant cumulative air quality effects are predicted during the operational phase.</p>
<p>Project 4: Irish Water Upgrade Works</p>	<p>Climate: When operational, the ABWP Phase 2 Offshore Infrastructure, ABWP Phase 2 OMF and the EirGrid Grid upgrade works in combination with the proposed development will facilitate the generation of 520MW of renewable energy. This will offset 530,225 tonnes of annual carbon emissions, reduce the reliance on fossil fuels, and help to meet national and international renewable energy targets including EU ETS obligations. It will offset the potential negative cumulative effect during the construction phase and the operational emissions associated with the maintenance of the offshore infrastructure (outlined in the Arklow</p>

Tier 1 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
	<p>Bank Wind Park Phase 2 Offshore Infrastructure EIAR). Therefore, there will be a significant positive cumulative effect on climate.</p> <p>Land and Soils: As outlined in the EIAR for the Arklow Bank Wind Park Phase 2 Offshore Infrastructure, the development is the subject of an existing foreshore lease, which does not overlap (in terms of area) with either the proposed development or the proposed Operations and Maintenance Facility. The Developer for each of these projects will be Sure Partners Limited ensuring co-ordination between the developments, for which the appropriate land acquisition and foreshore consent will be obtained in advance of the works. Considering the distance between the offshore infrastructure, the OMF and the proposed development it is not expected there will be a cumulative demand on land and soils with the proposed development. Therefore, it is not expected that there will be cumulative effects on land and soils for the Tier 1 projects.</p> <p>The proposed EirGrid grid upgrade works and Irish Water watermain upgrade works will result in the loss of a small quantity of soil and geology. However, the cumulative loss is still considered small on a local scale. Thus, there are no likely significant cumulative effects in combination with the proposed development on land, soils and geology. The development is located within a sand and gravel aquifer, excavations and some dewatering may be required at the substation site, these will not interact with the impacts identified for the proposed development. Thus, there are no likely significant cumulative effects in combination with the proposed development on hydrogeology.</p> <p>There are no likely significant cumulative effects to land and soils during the operational phase. From a hydrogeological perspective this is due to the location of the EirGrid upgrade works and Irish Water watermain upgrade works relative to the proposed development (i.e. distant or downgradient of the proposed development), the nature and extent of the development and the interaction with impacts identified for the proposed development.</p> <p>Water: As outlined in the EIAR for the Arklow Bank Wind Park Phase 2 Offshore Infrastructure, the development is the subject of an existing Foreshore Lease, which does not overlap (in terms of area) with</p>

Tier 1 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
	<p>either the proposed development or the proposed Operations and Maintenance Facility. The Developer for each of these projects will be Sure Partners Limited ensuring co-ordination between the developments, for which the appropriate land acquisition and foreshore consent will be obtained in advance of the works.</p> <p>Considering the EIAR for the Arklow Bank Wind Park Phase 2 Offshore Infrastructure considers that there will be imperceptible impact on water and the distance between each of these developments, it is not expected there will be any cumulative effect on water with the proposed development.</p> <p>It is expected that the EirGrid grid upgrade works and the Irish Water watermain upgrade works have the potential to impact water quality in surface waters as a result of surface water runoff washing contaminants and silt into surface water bodies. However, the CEMP for the proposed development includes surface water management measures, which outlines how surface water will be managed during construction and the measures to be taken to prevent any potentially polluting activities from occurring. As a result, no significant cumulative effects in relation to water and hydrology have been identified for the proposed development, in combination with the EirGrid upgrade works and Irish Water upgrade works. This will ensure there are no cumulative effects on water associated with Tier 1 projects during the construction phase.</p> <p>As the effect of the proposed development on water and hydrology during the operation phase will not be significant, any potential cumulative effects arising, in combination with the EirGrid upgrade works and Irish Water upgrade works are not expected to be significant.</p> <p>Noise and Vibration: The ABWP Phase 2 Operations and Maintenance Facility (OMF) is approximately 2.5 km from the nearest receptor considered in the assessment of the proposed development. Noise and vibration emissions from the OMF are unlikely to result in a negative effect at receptors near to the proposed development. Consequently, the ABWP Phase 2 OMF is not considered to cause any cumulative construction noise or vibration effects greater than the residual construction noise and vibration effects identified for the proposed development.</p>

Tier 1 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
	<p>The ABWP Phase 2 Offshore Infrastructure will be located approximately 6 to 13 km from the shore. There is likely to be overlap with the construction programmes for this scheme and the proposed development such that there will be interactive construction noise effects at common receptors, in particular during night-time offshore piling and onshore HDD activities affecting residential properties near to the landfall site at Johnstown.</p> <p>Cumulative noise levels are equal to but do not exceed the night-time ambient noise levels at the nearest receptor or the night-time noise threshold for construction works, and therefore are also below the evening and daytime thresholds. Under upwind conditions the noise from offshore piling will be up to 10 dB lower and under crosswind conditions up 5 dB lower. Measurements have shown that upwind and crosswind conditions usually occur more than 90% of the time. There will be no negative cumulative effect from these activities.</p> <p>Daytime construction noise levels for the ABWP Phase 2 Offshore Infrastructure are constrained to a limit of 65 dB $L_{Aeq, 8 \text{ hour}}$. Daytime construction noise levels at nearby receptors from onshore works are predicted to be lower than this at the nearest receptor (48dB L_{Aeq}). Should offshore piling noise levels of up to 65 dB L_{Aeq} be experienced at the nearest onshore receptor, the addition of onshore piling noise would not result in any additive effect to this limit. There will be no negative cumulative effect from these activities.</p> <p>Construction works required for the EirGrid Grid Upgrade Works that will occur in proximity to the proposed development will not involve significant noise sources due to the nature of the work (stringing of overhead lines). Consequently, EirGrid Upgrade works are not considered to cause any cumulative construction noise or vibration effects greater than the residual construction noise and vibration effects identified for the proposed development.</p> <p>The small-scale construction works required for the Irish Water watermain upgrade will not involve significant noise and vibration effects due to the nature of the work. Therefore, it is not expected that the Irish Water upgrade works will cause any significant cumulative noise or vibration effects in combination with the proposed development during the construction phase.</p>

Tier 1 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
	<p>Given that the only operational noise from the EirGrid Grid Upgrade Works will be an intensification of noise from overhead lines, and this is unlikely to change the character or magnitude of noise in the area, these works are unlikely to result in any cumulative effect to the operational noise at selected receptors of the proposed development. There will be no operational noise associated with the Irish Water upgrade works, therefore there is no cumulative operational noise and vibration effects expected in combination with the proposed development.</p> <p>Biodiversity: Potential effects relate primarily to marine habitats and species. The proposed development will not impact on marine habitats or species. However, if construction activities associated with the proposed development occur at the same time as construction activities associated with the ABWP Phase 2 Offshore Infrastructure in proximity to the landfall location, and accidental pollution events were to occur at the same time and in proximity to each other, there is a risk of cumulative accidental pollution effects. With the application of the mitigation measures set out in the CEMP, significant cumulative effects will not occur. Therefore, there is no pathway for cumulative impacts on biodiversity.</p> <p>If the Eirgrid Grid upgrade works are concurrent with the bulk excavation works on the site of the substation, there is potential for cumulative effects, as parts of each project are located close to each other. Should this situation arise, construction activities will be planned and phased, in consultation with the construction management team for the EirGrid Grid Upgrade Works.</p> <p>If the Irish Water upgrade works are concurrent with the bulk excavation works on the site of the substation, there is potential for cumulative effects, as the sites are located close to each other. Should this situation arise, construction activities will be planned and phased, in consultation with the construction management team for the scheme.</p> <p>Given the location of these projects (in areas of relatively low habitat and species value), together with the implementation of good practice construction environmental measures, the CEMP for the proposed development as detailed, no significant cumulative effects on biodiversity will result.</p>

Tier 1 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
	<p>Traffic and Transport: The construction port for the storage, fabrication and delivery for the ABWP Phase 2 Offshore Infrastructure has not yet been confirmed. Therefore, no detail relating to anticipated traffic movements or the port is available for this project. However, it is assumed that Arklow Port will be used as port for storage. It is likely that the majority of traffic generated from this project will access the port through Junction 21 on the M11 and will not be permitted to travel through the town centre but directed along the R772. Given the distance, it is not likely for this project to fall within the zone of influence of the proposed development. No significant cumulative traffic impact effect is expected.</p> <p>No detail relating to anticipated traffic movements is available for this ABWP Phase 2 OMF project to be located at Arklow Port. It is likely that the majority of traffic generated from this project will access the port through Junction 21 on the M11 and will not be permitted to travel through the town centre but directed along the R772. Given the distance, it is not likely for this project to fall within the zone of influence of the proposed development. No significant cumulative traffic impact effect is expected.</p> <p>No detail relating to anticipated traffic movements is available for the works associated with the EirGrid Grid Upgrade Works project. It is anticipated that there will only be minor works associated with overhead lines in the vicinity of the proposed development, with more significant substation works required at existing substations within the network (likely Ballybeg substation at a distance of 20km). The cumulative effects are therefore considered imperceptible.</p> <p>No detail relating to anticipated traffic movements is available for the Irish Water upgrade works. The upgrade is approx. 2.3km from R772 to Shelton Abbey. It is likely that the majority of traffic generated from this project will access the construction area through Junction 21 on the M11 and will not be permitted to travel through the town centre but directed along the R772. No significant cumulative traffic impact effect is expected.</p> <p>Landscape and Visual: The proposed ABWP Phase 2 Offshore Infrastructure will have a negligible or minor cumulative effect by virtue of distance between sites during the construction phase. Where views may encompass both landscape and seascape, any visible elements of the onshore development will be substantially</p>

Tier 1 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
	<p>absorbed within the more complex visual context of the rural landscape and will be substantially less noticeable than the more distinctive offshore development. The proposed development will have a negligible or minor cumulative effect by virtue of distance between sites and the offshore and onshore nature of the developments during the operational phase.</p> <p>Archaeology, Architecture and Cultural Heritage: From an archaeological, architectural and cultural heritage perspective, no negative likely significant direct, indirect cumulative impacts have been identified in relation to the proposed ABWP Phase 2 Offshore Infrastructure and the ABWP Phase OMF in combination with the proposed development. This is due to the distance of the development from this project and the fact that any negative impacts upon the archaeological, architectural and cultural heritage resource arising from the proposed development will be fully mitigated.</p> <p>From an archaeological, architectural and cultural heritage perspective, no negative likely significant direct, indirect cumulative impacts have been identified in relation to the proposed EirGrid Grid Upgrade Works or the Irish Water watermain upgrade works in combination with the proposed development. This is due to the fact that any negative impacts upon the archaeological, architectural and cultural heritage resource arising from the proposed development will be fully mitigated.</p> <p>Resource and Waste Management: Given the likely overlap between the construction phases of the proposed development, the Arklow Bank Wind Park Phase 2 Offshore Infrastructure and the OMF there is potential for a cumulative resource and waste management effect during the construction of the proposed development. This could give rise to short term, slight resource and waste management effects due to an increased demand on waste recovery and/or disposal sites. The developer for each of these projects will be Sure Partners Limited ensuring co-ordination between the developments with regards to selecting a suitable waste recovery and/or disposal site.</p> <p>It is assumed for the purposes of this assessment that the EirGrid grid upgrade works will be undertaken in parallel with the proposed development works which would have the potential for cumulative effects to resource and waste management. However, considering the nature and scale of the construction works</p>

Tier 1 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
	<p>involved, the cumulative effects to resource and waste management are expected to be not significant during the construction phase.</p> <p>It is assumed for the purposes of this assessment that the Irish Water upgrade works will be undertaken in parallel with the proposed development works which would have the potential for cumulative effects to resource and waste management. However, considering the nature and scale of the construction works involved, the cumulative effects to resource and waste management are expected to be not significant during the construction phase.</p> <p>Having regard to the imperceptible resource and waste management effect of the proposed development during the operational phase, no likely negative significant cumulative resource and waste management effects are identified during the operational phase of the proposed development.</p> <hr/> <p>Material Assets: As outlined in the EIAR for the Arklow Bank Wind Park Phase 2 Offshore Infrastructure, the development is the subject of an existing foreshore lease, which does not overlap (in terms of area) with either the proposed development or the proposed Operations and Maintenance Facility. The developer for each of these projects will be Sure Partners Limited ensuring co-ordination between the developments, for which the appropriate land acquisition and foreshore consent will be obtained in advance of the works.</p> <p>Considering the distance between each of these developments it is not expected there will be a cumulative demand on services and utilities with the proposed development. Therefore, it is not expected that there will be significant cumulative effects on material assets during the construction phase for the above Tier 1 projects.</p> <p>It is assumed for the purposes of this assessment that the EirGrid grid upgrade works and the Irish Water watermain upgrade works will be undertaken in parallel with the proposed development works. The EirGrid grid upgrade works and the Irish Water watermain upgrade works to provide the potable water connection to the proposed development will ensure there is enough capacity to meet the demands of the proposed development. This will ensure there are no cumulative effects on material assets associated with Tier 1 projects during operation.</p>

Tier 1 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
	<p>The overall Project will have a significant long-term positive cumulative effect on renewable energy generation, during the operational phase, by providing an additional supply and reducing reliance on fossil fuels.</p> <p>Population and Human Health: Given the scale of the Offshore Infrastructure and OMF developments, there is potential for cumulative effects to population and human health. However, considering that there will be no significant effects from construction traffic generated from the other proposed developments, as well as the distance between the works associated with these developments, there are no significant negative cumulative effects from construction traffic to population and human health predicted during the construction phase.</p> <p>The cumulative noise effects at the landfall from the combination of onshore HDD works and offshore piling works will not exceed noise thresholds for construction works during daytime or night-time. Therefore, there will be no significant cumulative effects in terms of noise and vibration and population and human health.</p> <p>Given the nature and scale of the EirGrid Upgrade Works and the Irish Water Upgrade Works projects, in terms of both construction activities and duration, there is minimal potential for cumulative effects on population and human health with the proposed development. No significant negative cumulative effects are predicted during the construction phase.</p> <p>With respect of electromagnetic fields, the additional contribution from the proposed development to the EirGrid grid upgrade works, when both are operational, can be regarded as having a negligible effect on the cumulative levels.</p> <p>The Tier 1 projects and the proposed development will create employment opportunities and associated economic and social benefits, which will have a positive cumulative effect on population and human health during both the construction and operational phases.</p> <p>When operational, the Tier 1 elements of the overall Project in combination with the proposed development will facilitate the generation of 520MW of renewable energy. This will increase supply, while reducing the reliance on fossil fuels and help to meet national and international renewable energy targets. This will have a significant positive cumulative effect on population and human health.</p>

Tier 1 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
	<p>Major Accidents and Disasters: The EIAR for the Arklow Bank Wind Park Phase 2 Offshore Infrastructure describes the major accident and disaster risks from the offshore infrastructure works and the vulnerability of it to major accident and disaster risks. The EIAR also describes the measures in place to minimise these risks and mitigate their consequences.</p> <p>Considering the distance between the proposed development, the Arklow Bank Wind Park Phase 2 Offshore Infrastructure and the Operations and Maintenance Facility, the potential low risk scenarios associated with the proposed development and the robust mitigation measures to be implemented for the proposed development and the offshore infrastructure works, no plausible potential major accidents and disasters have been identified, to which the proposed development together with the offshore infrastructure works and the Operations and Maintenance Facility will be vulnerable. The interface between the offshore and onshore infrastructure is the HDD at the landfall. There could be potential for cumulative effects in the vicinity of the High-Water Mark. However, the offshore works to seaward of the HDD will not increase the risks due to cliff collapse or bentonite spillage.</p> <p>Considering the nature of the works required for the EirGrid grid upgrade works and the Irish Water watermain upgrade works and the potential low risk scenarios associated with the proposed development, no plausible potential major accidents and disasters have been identified, to which the proposed development together with the EirGrid and Irish Water watermain upgrade works will be vulnerable. The proposed development together with the EirGrid grid upgrade works and the Irish Water upgrade works is not expected to increase the risk of a major accident or disasters.</p> <p>The Developer will ensure coordination between the Tier 1 projects. No potential incidents have been identified, which would result in the proposed development, together with the Tier 1 projects, causing a major accident or disaster on or outside the proposed development area during the construction or operational phase.</p> <p>No major accidents and disaster risks have been identified, which would result in a cumulative increase in the vulnerability of the Tier 1 projects and the proposed development to major accidents and disasters.</p>

Tier 1 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
	No likely risks of a major accident/disaster occurring are identified in respect of the proposed development. Thus, no cumulative effects are identified for Tier 1 projects.
Tier 2 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
<p>Project 5: <i>Arklow Wastewater Treatment Plant (WwTP)</i></p> <p><i>Permitted</i></p>	<p>Water: The Arklow WwTP project and the proposed development will both maintain and implement a site-specific Construction Environmental Management Plan (CEMP) during the construction phase. The CEMPs outline how surface water will be managed during construction and the measures to be taken to prevent any potentially polluting activities from occurring. As a result, no significant cumulative effects in relation to water and hydrology have been identified for the proposed development, in combination with the Arklow WwTP project.</p> <p>The proposed Arklow WwTP would significantly improve the Avoca River water quality during operation and is therefore considered to have a long term significant positive effect on surface water quality. The substation site of the proposed development will be capped with hard standing and site buildings and as part of the remedial strategy a Geosynthetic Clay Liner (GCL) will be installed across the site associated with contaminated made ground. This will prevent rainwater from infiltrating into the contaminated material located beneath the footprint of the site and therefore limit the mobilisation of any contamination from the substation site to adjacent surface waterbodies, namely the Avoca River and Shelton Abbey watercourse. As a result, the operational phase is considered to have a long term slight positive effect on water quality.</p> <p>Therefore, the cumulative effects arising from the operation phases of the Arklow Wastewater Treatment Plant and the proposed development on water quality will be positive.</p> <p>Biodiversity: The proposed new Arklow WwTP will discharge the treated effluent to sea, via a 900m long sea outfall. Given that no significant effect on water quality is predicted from the proposed project, no significant cumulative effects on water quality, habitats and species are expected to occur. Therefore, there is no significant cumulative effect to biodiversity predicted in combination with the proposed development.</p>

Tier 2 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
	<p>Traffic and Transport: The construction of Arklow WwTP is expected to increase traffic flows on the Ferrybank Road in Arklow town (R772 Dublin Road river crossing connecting Arklow to Junction 20 on the M11) by less than 5% during the peak hour periods, and by less than 3% on an all-day basis. The temporary increase in cumulative traffic volumes from this project will have limited impact on the performance of roads located within the zone of influence of the proposed development and will be not significant. There is no operational cumulative effect expected as there will be no significant operational traffic from the proposed development.</p> <p>Landscape and Visual: The permitted Arklow WwTP project is located within the urban area of Arklow town at a distance of c. 1.5km to 3.0km east of the M11 motorway. It is considered that potential cumulative landscape or visual effects will be negligible by virtue of relative locations of both development sites.</p> <p>Resource and Waste Management: Given the likely overlap between the construction phases of the Arklow WwTP and the proposed development there is potential for a cumulative resource and waste management effect during the construction of the proposed development. This could give rise to short term, slight resource and waste management effects due to an increased demand on waste recovery and/or disposal sites. Considering the imperceptible resource and waste management effect of the proposed development during the operational phase, no negative likely significant cumulative resource and waste management effects are identified during the operational phase of the proposed development.</p> <p>Population and Human Health: Given the scale of this project, in terms of construction activities, there is potential for cumulative effects on population and human health. However, given the distance from the proposed development, no significant negative cumulative effects are predicted. The construction phase of both developments will create employment opportunities in Arklow and the associated economic and social benefits, which will have a positive cumulative effect on population and human health. The operation of the proposed development is expected to have a positive effect on population and human health in terms of increasing energy supply in the local area. The operation of Arklow WwTP will increase the capacity for foul wastewater treatment in the area, to 36,000 population equivalent (PE). Both developments will allow for further expansion and growth in the area, which will help to meet the objectives of the Arklow</p>

Tier 2 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
	<p>Local Area Plan (LAP) 2018-2024. Therefore, there is potential for a significant positive cumulative effect on population and human health in combination with the proposed development.</p>
<p>Project 6: <i>BNRG Neon Holdings Limited Solar Farm Johnstown North</i></p> <p><i>Permitted</i></p>	<p>Climate: When operational, the solar farm in combination with the proposed development, as well as a number of new solar farms that are in development in the area, will facilitate additional renewable energy sources which will reduce the reliance on fossil fuels, and help to meet national and international renewable energy targets. It will offset the potential negative cumulative effect during the construction phase and will therefore have a significant positive cumulative effect on climate.</p> <p>Water: The BNRG Neon Holdings Limited Solar Farm Johnstown North borders the landfall site of the proposed development. The solar farm is located to the north west of the watercourse which flows through the landfall site. Therefore, it has been noted that the Solar farm at Johnstown North and the proposed development sites are hydrologically linked. Considering the mitigation measures to be applied during the construction phase of the proposed development, no significant cumulative effects in relation to water and hydrology have been identified during the construction phase of the solar farm in combination with the proposed development.</p> <p>As the effect of the proposed development on water and hydrology during the operation phase will not be significant, any potential cumulative effects arising, in-combination with the BNRG Neon Holdings Limited Solar Farm at Johnstown North, are not expected to be significant.</p> <p>Traffic and Transport: The construction of both BNRG Neon Holdings Ltd solar farms are expected to result in 48 LV trips/day (96 LV trips during peak construction) and 31 HGV trips/day. These trips will be divided almost evenly between the existing cul-de-sac on Junction 20 on the M11 and R772 Dublin Road connecting junction 20 and the L95115 Road. Considering the traffic volumes on these links, the temporary increase in cumulative traffic from these projects will be not significant. There is no operational cumulative effects predicted as there will be no significant operational traffic from the proposed development.</p> <p>Population and Human Health: Given the nature and scale of the BNRG Neon Holdings Ltd Solar Farm in Johnstown North, in terms of both construction activities and construction traffic, it is not likely there will be significant potential for cumulative effects on population and human health in combination with the proposed development. The construction and operational phases of both developments will create employment</p>

Tier 2 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
	<p>opportunities in Arklow and the associated economic and social benefits, which will have a positive cumulative effect on population and human health in the local area.</p> <p>When operational, the solar farm in combination with the proposed development, as well as a number of new solar farms that are in development in the area, will facilitate renewable energy generation which will reduce the reliance on fossil fuels, helping to meet national and international targets in line with Arklow LAP and Wicklow County Development Plan 2016-2022. As such, there is the potential for a significant positive cumulative effect on population and human health.</p>
<p>Project 7: <i>BNRG Neon Holdings Limited Solar Farm Ballymoney</i> <i>Permitted</i></p>	<p>Climate: When operational, the solar farm in combination with the proposed development, as well as a number of other new solar farms that are in development in the area, will facilitate additional renewable energy sources which will reduce the reliance on fossil fuels, and help to meet national and international renewable energy targets. It will offset the potential negative cumulative effect during the construction phase and will therefore have a significant positive cumulative effect on climate.</p> <p>Water: The BNRG Neon Holdings Limited Solar Farm Ballymoney lies within 200m of the proposed cable route. It has been noted that the Solar farm at Ballymoney and the proposed development are hydrologically linked through their proximity to the Johnstown North watercourse. Considering the mitigation measures to be applied during the construction phase of the proposed development, no significant cumulative effects in relation to water and hydrology have been identified during the construction phase of the solar farm in combination with the proposed development.</p> <p>As the effect of the proposed development on water and hydrology during the operation phase will not be significant, any potential cumulative effects arising, in-combination with the BNRG Neon Holdings Limited Solar Farm development at Ballymoney, are not expected to be significant.</p> <p>Traffic and Transport: The construction of both BNRG Neon Holdings Ltd solar farms are expected to result in 48 LV trips/day (96 LV trips during peak construction) and 31 HGV trips/day. These trips will be divided almost evenly between the existing cul-de-sac on Junction 20 on the M11 and R772 Dublin Road connecting junction 20 and the L95115 Road. Considering the traffic volumes on these links, the temporary increase in cumulative traffic from these projects will be not significant. There is no operational cumulative effects predicted as there will be no significant operational traffic from the proposed development.</p>

Tier 2 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
	<p>Population and Human Health: Given the relatively small scale of the BNRG Neon Holdings Ltd Solar Farm in Ballymoney, in terms of both construction activities and construction traffic, it is not likely there will be significant potential for negative cumulative effects on population and human health in combination with the proposed development. The construction and operational phases of both developments will create employment opportunities in Arklow and the associated economic and social benefits, which will have a positive cumulative effect on population and human health in the local area.</p> <p>When operational, the solar farm in combination with the proposed development, as well as a number of other new solar farms that are in development in the area, will facilitate renewable energy generation which will reduce the reliance on fossil fuels, helping to meet national and international targets in line with Arklow LAP and Wicklow County Development Plan 2016-2022. As such, there is the potential for a significant positive cumulative effect on population and human health.</p>
<p>Project 8: <i>Highfield Solar Limited Ballinaclea Lower</i> <i>Permitted</i></p>	<p>Climate: When operational, the solar farm in combination with the proposed development, as well as a number of other new solar farms that are in development in the area, will facilitate additional renewable energy sources which will reduce the reliance on fossil fuels, and help to meet national and international renewable energy targets. It will offset the potential negative cumulative effect during the construction phase and will therefore have a significant positive cumulative effect on climate.</p> <p>Water: The proposed Highfield Solar Limited development lies adjacent to the proposed cable route. It has been noted that the solar farm and the proposed development are hydrologically linked as the Templerainy watercourse flows through both Highfield Solar Limited developments. Considering the mitigation measures to be applied during the construction phase of the proposed development, no significant cumulative effects in relation to water and hydrology have been identified during the construction phase of the solar farm in combination with the proposed development.</p> <p>As the effect of the proposed development on water and hydrology during the operation phase will not be significant, any potential cumulative effects arising, in-combination with the Highfield Solar Development, are not expected to be significant.</p>

Tier 2 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
	<p>Traffic and Transport: No detail relating to anticipated traffic movements is available for this Highfield Solar Limited projects. However, based on the description of the works and the level of traffic generation anticipated for the BNRG solar farm above (with a similar size of development), the level of traffic generated during construction works will be negligible. The traffic attributed to this project is most likely to use the R772 Dublin Road. Considering the traffic volumes on this link, the temporary increase in cumulative traffic from this project will be not significant. There is no operational cumulative effect predicted as there is no significant operational traffic from the proposed development.</p> <p>Population and Human Health: Given the relatively small scale of the Highfield Solar Ltd in Ballinlea Lower, in terms of both construction activities and construction traffic, it is not likely there will be significant potential for negative cumulative effects on population and human health in combination with the proposed development. The construction and operational phases of both developments will create employment opportunities in Arklow and the associated economic and social benefits, which will have a positive cumulative effect on population and human health in the local area.</p> <p>When operational, the solar farm in combination with the proposed development, as well as a number of other new solar farms that are in development in the area, will facilitate additional renewable energy sources which will increase supply as well as reduce the reliance on fossil fuels, helping to meet national and international targets. As such, there is the potential for a significant positive cumulative effect on population and human health.</p>
<p>Project 9: <i>Highfield Solar Limited Templerainy East</i> <i>Permitted</i></p>	<p>Climate: When operational, the solar farm in combination with the proposed development, as well as a number of other new solar farms that are in development in the area, will facilitate additional renewable energy sources which will reduce the reliance on fossil fuels, and help to meet national and international renewable energy targets. It will offset the potential negative cumulative effect during the construction phase and will therefore have a significant positive cumulative effect on climate.</p> <p>Water: The proposed Highfield Solar Limited development lies adjacent to the proposed cable route. It has been noted that the solar farm and the proposed development are hydrologically linked as the Templerainy watercourse flows through both Highfield Solar Limited developments. Considering the mitigation measures to be applied during the construction phase of the proposed development, no significant cumulative effects in</p>

Tier 2 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
	<p>relation to water and hydrology have been identified during the construction phase of the solar farm in combination with the proposed development.</p> <p>As the effect of the proposed development on water and hydrology during the operation phase will not be significant, any potential cumulative effects arising, in-combination with the Highfield Solar Development, are not expected to be significant.</p> <p>Traffic and Transport: No detail relating to anticipated traffic movements is available for this Highfield Solar Limited projects. However, based on the description of the works and the level of traffic generation anticipated for the BNRG solar farm above (with a similar size of development), the level of traffic generated during construction works will be negligible. The traffic attributed to this project is most likely to use the R772 Dublin Road. Considering the traffic volumes on this link, the temporary increase in cumulative traffic from this project will be not significant. There is no operational cumulative effect predicted as there is no significant operational traffic from the proposed development.</p> <p>Population and Human Health: Given the relatively small scale of the Highfield Solar Ltd in Templarainey East, in terms of both construction activities and construction traffic, it is not likely there will be significant potential for negative cumulative effects on population and human health in combination with the proposed development. The construction and operational phases of both developments will create employment opportunities in Arklow and the associated economic and social benefits, which will have a positive cumulative effect on population and human health in the local area.</p> <p>When operational, the solar farm in combination with the proposed development, as well as a number of other new solar farms that are in development in the area, will facilitate additional renewable energy sources which will increase supply as well as reduce the reliance on fossil fuels, helping to meet national and international targets. As such, there is the potential for a significant positive cumulative effect on population and human health.</p>

Tier 2 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
<p>Project 10: <i>Rappel Enterprises Limited</i></p> <p><i>Permitted</i></p>	<p>Land and Soils: Rappel Enterprises Ltd is one of a number of developments within the vicinity of the Avoca River Business Park. The substation works that are to be carried out are on a raised platform level with only localised excavation. This, together with the nature and scale of the other projects within the vicinity of the Avoca River Business Park, means that these projects in combination with the proposed substation will have no likely significant cumulative effect on land and soils during the construction phase.</p> <p>Traffic and Transport: The Rappel Enterprises Limited facility is part of multiple projects planned at the Avoca River Business Park. No detail relating to anticipated traffic movements is available for this proposed office development however, based on the description of the works and standards provided by Wicklow County Council for the operational phase, traffic during operation is expected to be higher than traffic during construction. Based on the project floor area, this project is assumed to result in roughly 65 LV trips/day during its operational phase.</p> <p>At a wider level, the construction of this project simultaneously with projects planned at the same location will result in greater traffic flows, including heavy goods vehicles on the R772 Dublin Road, the L2180 Beech Road and the L6179 Kilbride road. The developments with overlapping construction durations within the vicinity of the Avoca River Business Park will co-ordinate construction traffic management plans which will be prepared and agreed with Wicklow County Council. This will result in short-term, negative but not significant cumulative effects.</p>
<p>Project 11: <i>MaZo Architecture</i></p> <p><i>Permitted</i></p>	<p>There are no significant cumulative effects predicted in combination with the proposed development.</p>
<p>Project 12: <i>Crag Digital Avoca Limited Data Centre</i></p> <p><i>Permitted</i></p>	<p>Air Quality: As outlined in the Crag Digital Avoca Ltd data centre EIAR, there is potential for cumulative effects to arise due to the construction works which have the potential to generate construction dust. However, considering the dust mitigation measures outlined for both the Crag Digital Avoca Ltd development (as included in the EIAR) and the proposed development, it is not likely to give rise to any significant effects. During the operational phase there will be gas engines and diesel-fuelled back-up generator sets in the data</p>

Tier 2 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
	<p>centre. However, as there are no air emissions associated with the operation of the proposed development, no significant cumulative effects are predicted.</p> <p>Land and Soils: The substation works that are to be carried out are on a raised platform level with only localised excavation. The developer will ensure co-ordination with Crag Digital Avoca Ltd for the duration of the construction works to minimise any potential effects. This, together with the nature and scale of the other proposed developments in the vicinity of the Avoca River Business Park, means that there is no likely significant cumulative effect with the proposed development on land and soils during the construction phase. There are no significant cumulative effects on land and soils predicted during operation.</p> <p>Noise and Vibration: The Crag Digital Avoca Ltd Data Centre will be part of Avoca River Business Park so cumulative construction effects may affect receptors that are also located in the Avoca River Business Park. The EIAR noise chapter prepared for the permitted data centre concludes that construction phase noise and vibration will result in no significant effects on nearby sensitive receptors. The use of the mitigation measures detailed within the noise chapter and those proposed for the proposed development would reduce any cumulative effects as far as is reasonably practicable. Consequently, it is considered that cumulative effects due to construction noise and vibration are unlikely to be greater than the residual construction noise and vibration effects identified for the proposed development.</p> <p>To address cumulative operational noise effects with the Crag Digital Avoca Ltd Data Centre permitted application, noise mitigation is required as part of the onshore 220kV substation. A proposed reduction of sound power levels for the harmonic filters and the 33kV STATCOM reactors (e.g. selection of quieter plant; enclosures; louvres; sound shields, reactor top hats; dynamic vibration absorbers; or active noise cancelling) will be employed by the manufacturer as part of the onshore 220kV substation detailed design so as to avoid cumulative noise levels exceeding the NG4 criteria at surrounding receptors. Noise generated from the operational substation site will be periodically reviewed. It is proposed that operational noise emissions due to the proposed development are subject to a planning condition that covers the most onerous cumulative assessment.</p> <p>Biodiversity: If the Crag Digital Avoca Ltd Data Centre works are concurrent with the bulk excavation works on the site of the proposed substation, there is potential for cumulative effects, as the sites are located close to</p>

Tier 2 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
	<p>each other. Should this situation arise, construction activities will be planned and phased, in consultation with the construction management team for the scheme.</p> <p>During the construction and operational phases, the Data Centre project has sufficient physical separation from the site of the proposed development to reduce the potential for cumulative noise and vibration effects and surface water effects to a negligible level.</p> <p>Discharges from both this project and the proposed development are governed by strict limits to ensure compliance with quality standards. No long-term cumulative impact on water quality will occur.</p> <p>Given the location of these projects (in areas of relatively low habitat and species value), together with the implementation of good practice standard construction environmental measures, the CEMP for the proposed development as detailed, no significant cumulative effects on biodiversity will result.</p> <p>Traffic and Transport: The Crag Digital Avoca Limited Data Centre is part of multiple projects planned at the Avoca River Business Park. The construction phase of this project will result in a maximum of 320 LV trips/day and a maximum of 46 HGVs trips/day. This will only be for one month and then the total number of site operatives will reduce significantly during the remaining months of construction.</p> <p>At a wider level, the construction of this project simultaneously with projects planned at the same location will result in greater traffic flows, including heavy goods vehicles on the R772 Dublin Road, the L2180 Beech Road and the L6179 Kilbride road. The developments with overlapping construction durations within the vicinity of the Avoca River Business Park will co-ordinate construction traffic management plans which will be prepared and agreed with Wicklow County Council. This will result in short-term, negative but not significant cumulative effects.</p> <p>Landscape and Visual: The Crag Digital Avoca Ltd data centre development will have a substantially larger footprint than the substation and will be characterised as a large scale and enclosed high-tech building facility with smaller scale ancillary components. The proposed data centre development will represent a greater intensification of industrial development at the Avoca River Business Park as perceived and viewed primarily from along the Vale Road and from the M11 overbridge.</p>

Tier 2 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
	<p>The Crag Digital Avoca Ltd data centre will have a negligible cumulative effect to landscape and visual amenity in combination with the proposed development by virtue of relative locations of both development sites within the established industrial lands within the low lying and generally secluded valley setting.</p> <p>Material Assets: Given the scale of the Crag Digital Avoca Ltd Data Centre and the proximity to the proposed development, there is potential for cumulative effects to material assets in combination with the proposed development and a number of permitted and proposed developments within the vicinity of the Avoca River Business Park. There is potential for an increase in demand on services and utilities. However, given the existing capacity of local services, the proposed upgrade works and the limited demand from the developments individually, no significant cumulative effects on services and utilities are predicted during construction. The substation works that are to be carried out are on existing artificial surfaces in the Avoca River Business Park which is in an area zoned for ‘employment.’ The Developer will ensure co-ordination with Crag Digital Avoca Ltd for the duration of the construction works to minimise any potential effects. Therefore, no significant cumulative effects to material assets are expected during the construction phase.</p> <p>Taking into consideration the low demand from the proposed development on services and utilities during the operational phase and the other proposed developments, as well as the increased electricity capacity from the operation of the overall Project, there are no significant cumulative effects on services and utilities predicted during operation.</p> <p>Population and Human Health: Given the proximity to the proposed development, there is potential for cumulative effects to population and human health. However, given the nature of the construction works and the mitigation measures for air quality, noise, vibration and traffic, that will be implemented by both developers, as outlined in their relevant EIARs, there are no significant cumulative effects to population and human health predicted. The construction phase of both developments will create employment opportunities and the associated economic and social benefits, which will have a positive cumulative effect on population and human health during the construction phase.</p> <p>However, there is potential for cumulative operational effects, with the proposed Crag Digital Avoca Ltd data centres. Mitigation is required, in the form of additional noise reduction on plant/equipment, to ensure that cumulative operational noise levels are below the NG4 criteria at all receptors. The cumulative operational</p>

Tier 2 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
	<p>noise predictions show that noise levels are likely to be at or below the NG4 criteria at all receptors during all periods and therefore are unlikely to lead to a significant negative effect.</p> <p>The operation of the proposed development, in combination with the permitted and proposed Crag Digital Avoca Ltd developments, is expected to have an overall positive, long-term effect on the immediate area through continued employment opportunities and the associated economic and social benefits.</p> <p>Major Accidents and Disasters: During the construction phase of the Crag Digital Avoca Ltd data centre there is potential for cumulative effects in relation to major accidents and disasters, due to the proximity to the proposed substation and the permitted data centre, on the assumption that there will be some overlap in the construction durations. During the operational phase there is potential for cumulative effects to major accidents and disasters, considering the data centre’s close proximity to the proposed substation. There is potential for cumulative effects caused by gas explosion, fire and /or explosion for which the risks and consequences may be exacerbated due to the proximity of both developments.</p> <p>While the EIAR for the permitted data centre did not include an assessment in relation to major accidents and disasters, the EIAR which accompanied the new data centre planning application identified the potential risk of fire from diesel storage or electrical equipment. This risk is mitigated, by the proposed firewater storage tank and pump house located on the site which would supply the water mist suppression system in the data halls, the sprinkler systems in the emergency generator and a ring main with hydrant connections covering all site areas (as included in the EIAR). A similar system will be implemented for the permitted data centre.</p> <p>Due to the low likelihood of such an event occurring, the stringent protective measures in place for the proposed development, and the protective measures in place for both the permitted and the proposed Crag Digital Avoca Ltd data centres (as included in the EIAR); the potential for a significant cumulative effect to occur is low.</p>

Tier 2 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
<p>Project 13: <i>Ardale Properties Limited Housing Estate</i></p> <p><i>Permitted</i></p>	<p>There are no significant cumulative effects predicted in combination with the proposed development.</p>
<p>Project 14: <i>Harmony Timber Solution Limited Office and Factory</i></p> <p><i>Permitted</i></p>	<p>Land and Soils: Harmony Timber Solutions Ltd is one of a number of developments within the vicinity of the Avoca River Business Park. The substation works that are to be carried out are on a raised platform level with only localised excavation. This, together with the nature and scale of the other projects within the vicinity of the Avoca River Business Park, means that these projects in combination with the proposed substation will have no likely significant cumulative effect on land and soils during the construction phase.</p> <p>Traffic and Transport: The Harmony Timber Solution Limited Office and Factory is part of multiple projects planned at the Avoca River Business Park. No detail relating to anticipated traffic movements is available for this proposed Harmony Timber Solutions Office and Factory development. However, based on the description of the works and standards provided by Wicklow County Council for the operational phase, traffic during operation is expected to be higher than traffic during construction. Based on the project floor area, this project is assumed to result in roughly 75 LV trips/day during its operational phase.</p> <p>At a wider level, the construction of this project simultaneously with projects planned at the same location will result in greater traffic flows, including heavy goods vehicles on the R772 Dublin Road, the L2180 Beech Road and the L6179 Kilbride road. The developments with overlapping construction durations within the vicinity of the Avoca River Business Park will co-ordinate traffic management plans which will be prepared and agreed with Wicklow County Council. This will result in short-term, negative but not significant cumulative effects.</p> <p>Population and Human Health: Given that most of the construction works for the Harmony Timber Solutions Ltd development are expected to be completed prior to commencement of the construction works for the proposed development, there are no cumulative effects on population and human health predicted during the construction phase. The construction phase of both developments will create employment opportunities</p>

Tier 2 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
	<p>and the associated economic and social benefits, which will have a positive cumulative effect on population and human health during the construction phase.</p> <p>Considering the relatively small scale of the Harmony Timber Solutions Ltd development and the distance vis a vis the proposed development there are no cumulative effects to population and human health predicted during the operational phase.</p>
<p>Project 15: <i>Sigma Aldrich Ireland Limited</i></p> <p><i>Permitted</i></p>	<p>There are no significant cumulative effects predicted in combination with the proposed development.</p>
<p>Project 16: <i>Wexford Bus and Stoneleigh Development Limited Park and Ride Facility</i></p> <p><i>Permitted</i></p>	<p>Traffic and Transport: No detail relating to anticipated traffic movements is available for this Park and Ride facility. However, based on the description of the works, the level of traffic generation anticipated for this project will be greatest during operation. The daily trip generation by the facility is expected to be in the region of 340 LVs which will lead to a 3% increase in traffic along the R772 Dublin Road. Considering the traffic volumes on this link, the cumulative increase in traffic from this project will be not significant.</p>
<p>Project 17: <i>Crag Digital Avoca Limited Data Centre - new application</i></p> <p><i>Conditional approval</i></p>	<p>Only one Crag Digital data centre development will be built – either the permitted one or the one described in this application. The cumulative effects, outlined for Project 12 Crag Digital Avoca Limited permitted data centre, apply to this new application, with specific cumulative operational noise effects and landscape and visual character noted below.</p> <p>Noise: The cumulative operational noise predictions above show that noise levels are likely to be at or below the NG4 criteria at all receptors at all times during the day and therefore are unlikely to lead to a significant</p>

Tier 2 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
	<p>negative effect. There are some cases where the cumulative level is higher than the pre-existing background noise level, notably during night-time and therefore may lead to an adverse impact on nearby residential receptors. Given the context of low background levels, low ambient noise levels, and low predicted operational noise levels, the negative effect is not considered to be significant.</p> <p>Landscape and Visual: The data centre development will have a substantially larger footprint than the substation and will be characterised as a large scale and enclosed high-tech building facility with smaller scale ancillary components. The currently proposed revised data centre development occupies substantially the same site area as the permitted scheme. While its buildings are not as high as the permitted scheme, it nonetheless presents as being similar in character and magnitude.</p>
<p>Project 18: <i>Crag Digital Avoca Limited 110kV Substation</i> <i>Pending approval</i></p>	<p>Air Quality: The proposed Crag Digital Avoca Ltd 110kV Substation EIAR details the potential dust impacts associated with the construction activities. Considering the close proximity to the proposed development (immediately adjacent to the substation site) there is potential for cumulative effects from dust during the construction phase. However, there are stringent mitigation measures in place for the Crag Digital Avoca Ltd 110kV Substation (as included in the EIAR), the permitted and proposed Crag Digital data centres and the proposed development in order to control dust emissions during the construction phase. Therefore, there are no significant cumulative effects predicted.</p> <p>There are no significant operational effects on air quality associated with the proposed Crag Digital 110 kV substation, so no significant cumulative operational effects on air quality are predicted, with the proposed development and with the proposed and permitted data centre developments</p> <p>Land and Soils: The proposed Crag Digital Avoca Ltd 110kV Substation is proposed in an area of made ground. It is possible that some made ground material may need to be disposed of to a suitably licenced waste facility. The substation works that are to be carried out are on a raised platform level with only localised excavation. The developer will ensure co-ordination with Crag Digital Avoca Ltd for the duration of the construction works to minimise any potential effects. This, together with the nature and scale of the other proposed developments in the vicinity of the Avoca River Business Park, means that there will be no likely significant cumulative effects with the proposed development on land and soils during the construction phase.</p>

Tier 2 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
	<p>There are no significant cumulative effects on land and soils predicted during operation.</p> <p>Noise and Vibration: A new 110kV GIS Substation has been included in the modelling and cumulative assessment as part of the Crag Digital Avoca Ltd Data Centre (ref. 18940) permitted development. The location of the new proposed alternate location for this substation is a location to the west of what is assessed in this model and this alternate location will not notably change noise levels experienced at noise receptors. Consequently, it is considered that cumulative effects due to operational noise will not be greater than the residual operational effects identified for the proposed development.</p> <p>Biodiversity: If works are concurrent with the bulk excavation works on the site of the substation, there is potential for cumulative effects, as the sites are located close to each other. Should this situation arise, construction activities will be planned and phased, in consultation with the construction management team for the scheme. During the construction and operational phases, the project has sufficient physical separation from the site of the proposed development to reduce the potential for cumulative noise and vibration effects and surface water effects to a negligible level. Discharges from both this project and the proposed development are governed by strict limits to ensure compliance with quality standards. No long-term cumulative impact on water quality will occur.</p> <p>Given the location of these projects (in areas of relatively low habitat and species value), together with the implementation of good practice standard construction environmental measures, the CEMP for the proposed development as detailed, no significant cumulative effects on biodiversity will result.</p> <p>Traffic and Transport: The Crag Digital Avoca Limited 110kV substation is part of multiple projects planned at the Avoca River Business Park. No detail relating to anticipated traffic movements is available for this proposed Crag Digital Avoca Ltd 110kV Substation project. However, based on the description of the works, the project is assumed to result in the same number of trips expected during the construction phase of the proposed development's substation.</p>

Tier 2 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
	<p>A total of 103 LV and 259 HGV trips/day are therefore anticipated for this project (refer to Table 13.8). There is no OHL construction work associated with this project. However, the same level of traffic generation is assumed for a robust evaluation.</p> <p>At a wider level, the construction of this project simultaneously with projects planned at the same location will result in greater traffic flows, including heavy goods vehicles on the R772 Dublin Road, the L2180 Beech Road and the L6179 Kilbride road. The developments with overlapping construction durations within the vicinity of the Avoca River Business Park will co-ordinate traffic management plans which will be prepared and agreed with Wicklow County Council. This will result in short-term, negative but not significant cumulative effects.</p> <p>Landscape and Visual: The proposed 110kV substation development associated with the permitted and proposed data centre developments will be located to the immediate northwest of the data centre and immediately west of the proposed 220kV substation. It is of modest scale relative to the 220kV substation and the data centre developments and will be visually absorbed within the industrial setting. The proposed development will have a minor or moderate negative cumulative effect to landscape and visual amenity by virtue of relative scale, adjacency and similarity in nature of both developments.</p> <p>Material Assets: Considering the proximity of the Crag Digital Avoca Ltd 110kV substation to the proposed development, there is potential for cumulative effects to material assets in combination with the proposed development and a number of permitted and proposed developments within the vicinity of the Avoca River Business Park. There is potential for an increase in demand on services and utilities. However, given the existing capacity of local services, the proposed upgrade works and the limited demand from the developments individually, no significant cumulative effects on services and utilities are predicted during construction. The substation works are to be carried out on existing artificial surfaces in the Avoca River Business Park which is in an area zoned for ‘employment.’ The Developer will ensure co-ordination with Crag Digital Avoca Ltd for the duration of the construction works to minimise any potential effects. Therefore, no significant cumulative effects to material assets are expected during the construction phase.</p> <p>Taking into consideration the low demand from the proposed development on services and utilities during the operational phase and the other proposed developments, as well as the increased electricity capacity from the</p>

Tier 2 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
	<p>operation of the overall Project, there are no significant cumulative effects on services and utilities predicted during operation.</p> <p>Population and Human Health: Given the proximity to the proposed development, there is potential for cumulative effects to population and human health. However, given the nature of the construction works and the mitigation measures for air quality, noise, vibration and traffic, that will be implemented by both developers, as outlined in their relevant EIARs, there are no significant cumulative effects to population and human health predicted. The construction phase of both developments will create employment opportunities and the associated economic and social benefits, which will have a positive cumulative effect on population and human health during the construction phase.</p> <p>The operation of the proposed development, in combination with the permitted and proposed Crag Digital Avoca Ltd developments, is expected to have an overall positive, long-term effect on the immediate area through continued employment opportunities and the associated economic and social benefits.</p> <p>Major and Accidents and Disasters: Considering the proximity to the proposed development, there is potential for a cumulative effect in relation to major accidents and disasters during the construction phases of the proposed development, the 110kV substation and the permitted data centre facility. The cumulative effects identified for the permitted data centre and the proposed development have the potential to be further exacerbated, if the 110kV substation receives permission and is constructed at the same time. Notwithstanding, due to the low likelihood of such an event occurring and the stringent protective measures in place for the proposed development, the potential for a cumulative effect of this nature to occur is very low.</p> <p>The operational risks associated with the Crag Digital Avoca Ltd 110kV substation are considered similar to those of the proposed substation. Considering its close proximity and the proximity of the permitted data centre there is potential for cumulative effects during the operational phase caused by fire and /or explosion. The risks and consequences may be exacerbated due to facilities being side by side. If such an event were to occur at more than one facility at the same time, the associated consequence would also be increased. However, due to the low likelihood of such an event occurring and the stringent protective measures in place for the proposed development the potential for a cumulative effect of this nature to occur is low.</p>

Tier 2 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
	<p>It is assumed that SF6 gas will be utilised in the proposed 110kV substation, similar to the proposed development with the same potential to leak in small amounts. The proposed Crag Digital Avoca Ltd datacentre (new application) EIAR notes the use of SF6 and concludes a leak is not considered a significant major accident. Consequently, considering the stringent mitigation measures in place for the proposed development and the imperceptible overall effects to climate from a single leak, no significant cumulative effects have been identified which would result in the proposed development, together with the Crag Digital 110kV substation and the Crag Digital Avoca Ltd datacentre causing major climate effects due to SF6 leaks.</p>
<p>Project 19: <i>Arklow Flood Relief Scheme</i> <i>Pending submission</i></p>	<p>Water: It is possible that the construction of the proposed Arklow Flood Relief Scheme may take place in parallel with the construction of the proposed development (should the proposed Arklow Flood Relief Scheme be submitted, receive consent and commence construction in a timely manner). The concurrent construction of both developments may exacerbate effects on the hydrology and flooding. Mitigation measures will be implemented to mitigate any significant flood risk during construction of works in and around the Avoca River. The construction works to the existing flood defence embankment and nearby construction of the proposed Arklow Flood Relief Scheme may generate the potential for direct and indirect short term significant negative effects on the hydrology of the Avoca River during construction for those reasons outlined above. No significant impacts are likely following the implementation of appropriate mitigation measures and adherence to the CEMP for the proposed development. Thus, there are no likely significant cumulative effects from the proposed Arklow Flood Relief Scheme in combination with the proposed development in relation to water and hydrology.</p> <p>As the effect of the proposed development on water and hydrology during the operation phase will not be significant, any potential cumulative effects arising, in combination with the Arklow Flood Relief Scheme, are not expected to be significant.</p> <p>Biodiversity: The flood relief scheme has sufficient physical separation from the site of the proposed development to reduce the potential for cumulative noise and vibration effects and surface water effects to a negligible level. If the flood relief works are concurrent with the bulk excavation works on the site of the substation, there is potential for cumulative effects, as the sites are located close to each other. Should this</p>

Tier 2 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
	<p>situation arise, construction activities will be planned and phased, in consultation with the construction management team for the flood relief scheme.</p> <p>Given the location of these projects (in areas of relatively low habitat and species value), together with the implementation of good practice construction environmental measures, the CEMP for the proposed development as detailed, no significant cumulative effects on biodiversity will result.</p> <hr/> <p>Traffic and Transport: The construction of Arklow Flood Relief Scheme is expected to result in a maximum of 358 trips daily (LV+HGV). This is translated in an increase in traffic flows on the R772 Dublin Road of less than 2.2% on an all-day basis. The temporary increase in traffic volumes from this project will have limited impact on the performance of the R772 Dublin Road and will therefore be not significant. As there is no significant operational traffic associated with the proposed development there will be no significant cumulative effect predicted.</p> <hr/> <p>Landscape and Visual: The proposed Arklow Flood Relief Scheme project is located within the urban area of Arklow town at a distance of c. 1.5km to 3.0km east of the M11 motorway. It is considered that potential cumulative landscape or visual effects will be negligible by virtue of relative locations of both development sites.</p> <hr/> <p>Resource and Waste Management: Given the likely overlap between the construction phases of the Arklow Flood Relief Scheme and the proposed development there is potential for a cumulative resource and waste management effect during the construction of the proposed development. This could give rise to short term, slight resource and waste management effects due to an increased demand on waste recovery and/or disposal sites.</p> <p>Considering the imperceptible resource and waste management effect of the proposed development during the operational phase, no negative likely significant cumulative resource and waste management effects are identified during the operational phase of the proposed development.</p>

Tier 2 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
<p>Project 20: <i>Maintenance and/or repair of Avoca River Business Park Flood Embankment</i></p> <p><i>Pending submission of any required approvals</i></p>	<p>Climate: The cumulative effect of any additional maintenance and repair works to the additional flood defence embankment works in combination with the proposed development will ensure that the Avoca River Business Park (including the proposed development) remain resilient to climate change, with protection to the 0.1% AEP 1 in 1000 years plus Mid-Range Future Scenario allowance for climate change as detailed in the Flood Risk Assessment. This will help to meet the objectives of the Wicklow County Development Plan 2016-2022 and the Arklow Local Area Plan 2018-2024, contributing to a significant positive effect to climate in terms of climate resilience.</p> <p>Water: As the construction of any required maintenance or reinforcement works will be completed ahead of the proposed development, and, as the proposed development is not expected to result in any significant effects on water quality, no significant cumulative effects are expected, during the construction phase.</p> <p>In relation to flood risk, the cumulative effect of any additional maintenance and repair works to the overall Avoca Business Park flood defence embankment works in combination with the proposed development is that any residual flood risk, associated with a potential breach of the embankment or groundwater seepage will be minimised, in advance of the substation construction. There will also be an ongoing inspection, monitoring and maintenance programme for the Avoca River Business Park. This is considered a long term, positive cumulative effect in terms of flood risk.</p> <p>Resource and Waste Management: There is potential for an increase in demand on resource and waste management as a result of both the proposed development and the potential maintenance and repair works, although as noted, any embankment works will be completed in advance of the proposed development. However, given the existing capacity of waste recycling and/or disposal facilities and the availability of construction materials in the region the cumulative effects to resource and waste management are expected to be minor, temporary, negative during the construction phase.</p> <p>Major Accidents and Disasters: The inspection, maintenance and repair programme for the flood defence embankment at the Avoca River Business Park, in combination with the proposed development flood protection works will ensure that the Avoca River Business Park (including the proposed development) remain resilient to climate change, with protection to the 0.1% AEP 1 in 1000 years plus Mid-Range Future Scenario allowance for climate change as detailed in the Flood Risk Assessment. This will ensure that the Avoca River</p>

Tier 2 Plan/Project Ref No	Potential Cumulative Impacts on Environmental Factors
	Business Park and the proposed development are protected from future flood events and as a result reduces the vulnerability of the proposed development to major accidents and disasters. This results in a positive effect to major accidents and disasters in terms of vulnerability.

21.6.1 Summary of Tier 1 Developments (the Project)

The combination of all of the Tier 1 developments and the proposed development results in the potential for cumulative effects across the different environmental pathways.

There will be a combined significant positive long-term effect to climate for the Tier 1 developments in combination with the proposed development due to facilitating an additional renewable energy supply, reducing reliance on fossil fuels. This results in a combined significant positive long-term effect to population and human health.

The ABWP Phase 2 OMF and EirGrid Grid Upgrade Works have the potential for cumulative noise effects during construction, but given distance from the proposed development, no significant cumulative effects were identified. There is also likely to be overlap with the construction programmes for the ABWP Offshore Infrastructure and the proposed development such that there will be interactive construction noise effects at common receptors, in particular during night-time offshore piling and onshore HDD activities affecting residential properties near to the landfall site at Johnstown. Both onshore and offshore noise was modelled at the nearest onshore receptor (landfall) and it has been concluded that significant cumulative construction noise and vibration effects are unlikely. The EirGrid Grid Upgrade Works were screened into the cumulative operational noise assessment, but there is unlikely to be a cumulative effect from noise with the proposed development.

While the construction stages of Tier 1 projects may overlap with the proposed development, having assessed the proposed works and the distance from the proposed development, no significant cumulative effects are expected.

There is the potential for cumulative effects in relation to resource and waste management, due to the increased demand in waste recovery and/or disposal facilities in the region during the construction phase. However, there are a number of waste recovery and/or disposal facilities with capacity in the region and the Developer will liaise with the other developments with regards to selecting a suitable waste recovery and/or disposal site. Therefore, this cumulative effect not expected to be significant.

No major accidents and disaster risks have been identified, which would result in a cumulative increase in the vulnerability of the Tier 1 projects and the proposed development to major accidents and disasters. No likely risks of a major accident/disaster occurring are identified in respect of the proposed development. Thus, no cumulative effects are identified for Tier 1 projects.

21.6.2 Summary of Tier 2 Developments

As can be seen from the screening matrix in **Table 21.3**, the combination of all of the Tier 2 developments and the proposed development results in the potential for cumulative effects across the various environmental pathways.

There will be a combined significant positive long-term effect to climate from the development of the solar farms in combination with the proposed development facilitating additional renewable energy supply in Arklow, reducing reliance on fossil fuels and helping to meet government targets. This also results in a combined significant positive long-term effect to population and human health.

There will be a combined significant positive effect to climate and water in terms of climate resilience and flooding, as any additional maintenance and repair works to the additional flood defence embankment works in combination with the proposed development will ensure that the Avoca River Business Park (including the proposed development) remain resilient to future flood events with protection for climate change.

The substation works that are to be carried out are on a raised platform level with only localised excavation. The Developer will ensure co-ordination with Crag Digital Avoca Ltd for the duration of the construction works to minimise any potential effects. This, together with the nature and scale of the other proposed developments, means that the Tier 2 projects within the vicinity of the Avoca River Business Park and the proposed development will have no likely significant cumulative effect on land and soils during the construction phase. There are no significant cumulative effects on land and soils predicted during operation.

Given the hydrological connection with a number of permitted Tier 2 projects, there is the potential for cumulative effects during construction. However, with the implementation of mitigation measures and adherence to the CEMP, no significant cumulative effects are anticipated. The capping of the substation site as part of the remediation strategy will limit the mobilisation of contamination from the substation site to adjacent waterbodies, during operation, and will therefore result in a long term slight positive effect on water quality.

The cumulative landscape and visual effects of the permitted and proposed data centre developments and 110kV substation have been included in the photomontage views in **Appendix 14.1**. Cumulative effects on landscape character and on visual amenity range from none to minor or moderate and negative.

There will be a combined positive effect to population and human health from the development of Tier 2 projects in combination with the proposed development from the economic and social benefits in the local area associated with increased employment opportunities due to construction and operation of the developments.

The combination of Tier 2 developments and the proposed development will result in the potential for cumulative effects in relation to resource and waste management and material assets due to the increased demand for services and waste recovery and/or disposal facilities in the region during the construction phase. However, there is capacity in local supply for utilities and services with capacity increasing due to new infrastructure and upgrade works. There is also a number of waste recovery and/or disposal facilities with capacity in the region. Therefore, the cumulative effect is not expected to be significant.

The combination of the Tier 2 developments in the vicinity of the Avoca River Business Park and the proposed development will result in in the potential for

cumulative effects for traffic and transport, due to an increase in traffic. However, the developments with overlapping construction durations within the vicinity of the Avoca River Business Park will co-ordinate traffic management plans which will be prepared and agreed with Wicklow County Council. Therefore, the cumulative effect is not expected to be significant.

The potential for cumulative operational noise effects due to projects in the area has been considered. Cumulative operational noise due to the interaction of the onshore 220kV substation with the Crag Digital Avoca Ltd Data Centre (ref. 18940 – permitted and ref. 201285 – new) is unlikely to lead to a significant negative effect.

No major accidents and disaster risks have been identified, which would result in a cumulative increase in the vulnerability of the Tier 2 projects and the proposed development to major accidents and disasters. No likely risks of a major accident/disaster occurring are identified in respect of the proposed development. Due to the stringent protective measures in place for the proposed development, and the protective measures in place for both the permitted and the proposed Crag Digital Avoca Ltd data centres (as included in the EIAR); the potential for a significant cumulative major accidents and disasters effect to occur is low.

21.6.3 Summary of Tier 1 and Tier 2 Developments

The combination of the Tier 1 and Tier 2 developments with the proposed development will result in the potential for cumulative effects.

However, given the distance between the projects, and the implementation of mitigation measures and adherence to the CEMP, no significant cumulative effects, between Tier 1 and Tier 2 development, are anticipated.

The cumulative landscape and visual effects of the Tier 1 and Tier 2 developments with the proposed development have been included in the photomontage views in **Appendix 14.1**. Cumulative effects on landscape character and on visual amenity range from none to minor or moderate and negative.

There will be a significant long term positive cumulative effect to climate due to the increase in renewable energy supply which will result in a significant long-term positive effect to population and human health.

Any required maintenance and repair works to the existing flood embankment around the Avoca River Business Park, will ensure that there is no residual risk of the embankment being breached during operation, which will result in a cumulative long term, positive effect on flooding, for the proposed development and other developments in the vicinity.

There will be potential for cumulative effects in relation to resource and waste management and material assets due to the increased demand for services and waste recovery and/or disposal facilities in the region during the construction phase. However, considering the different nature of the projects (with varying wastes and resource requirements) and the distance between the projects, this is not likely to be significant.

21.7 References

Arup (2021) *Arklow Flood Relief Scheme Environmental Impact Assessment Scoping Report*

AWN Consulting (2020) *Proposed 110 kV GIS Substation Compound and Associated Ancillary Works Crag Digital Avoca Limited Environmental Impact Assessment Report*

Aecom (2020) *Avoca River Park Proposed Data Centre Development Crag Digital Avoca Limited Environmental Impact Assessment Report*

Aecom (2018) *Avoca River Park Crag Digital Avoca Limited Environmental Impact Assessment Report*

Arup (2017) *Arklow Wastewater Treatment Plan Environmental Impact Assessment Report*

Environmental Protection Agency (2017) *Draft Guidelines on the Information to be contained in Environmental Impact Assessment Reports (Draft August 2017)*

European Commission (2017) *Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report*

Wicklow County Council Planning Search Website [online] Available at: <http://www.eplanning.ie/WicklowCC/searchtypes> [Accessed: 22/03/2021]

An Bord Pleanála Planning Search Website [online] Available at: <http://www.pleanala.ie/search/quicksearch.php> [Accessed: 22/03/2021]

An Bord Pleanála Planning [online] Available at: <http://www.pleanala.ie/casenum/309252.htm> [Accessed 22/03/2021]

An Bord Pleanála Planning [online] Available at: <http://40.127.167.5/casenum/302556.htm> [Accessed 22/03/2021]