



APPENDIX 4-6

WATERCOURSE CROSSINGS

Table 1 Underground Electrical Cabling Route – Culvert and Manmade Drain Crossings Methodology as shown in Figure 1

Culvert/Drain Crossing Reference No.	Culvert/ Drain Type	Cover from Road Level to Top of Culvert (m)	Width of Drain Channel (m)	Crossing Option Description	Crossing Option
1	Culvert not visible	Culvert not visible	Culvert not visible	Where no crossing currently exists, the cable will pass over the watercourse over a bottomless box culvert or pre-cast concrete slab in a standard trefoil arrangement.	Option A/Option C
2	Drain	-	0.5	Where no crossing currently exists, the cable will pass over the watercourse over a bottomless box culvert or pre-cast concrete slab in a standard trefoil arrangement.	Option A/ Option C
3	Drain	-	0.5	Where no crossing currently exists, the cable will pass over the watercourse over a bottomless box culvert or pre-cast concrete slab in a standard trefoil arrangement.	Option A/ Option C
4	Drain	-	0.4	Where no crossing currently exists, the cable will pass over the watercourse over a bottomless box culvert or pre-cast concrete slab in a standard trefoil arrangement.	Option A/ Option C
5	Drain	-	0.5	Where no crossing currently exists, the cable will pass over the watercourse over a bottomless box culvert or pre-cast concrete slab in a standard trefoil arrangement.	Option A/ Option C

Culvert/Drain Crossing Reference No.	Culvert/ Drain Type	Cover from Road Level to Top of Culvert (m)	Width of Drain Channel (m)	Crossing Option Description	Crossing Option
6	Drain	-	1.5	Where no crossing currently exists, the cable will pass over the watercourse over a bottomless box culvert or pre-cast concrete slab in a standard trefoil arrangement.	Option A/ Option C
7	300mm Concrete Pipe	-	0.3	Where cable ducts are to be installed over an existing culvert and sufficient cover cannot be achieved, the ducts will be laid in a much shallower trench, the depth of which will be determined by the cover available at the culvert crossing location. The ducts within the shallow formation trench will be encased in 6mm thick steel galvanized plates and backfilled with 35N concrete.	Option C
8	2 x 300mm diameter plastic pipe	1.5		Where cable ducts are to be installed over an existing culvert and sufficient cover cannot be achieved, the ducts will be laid in a much shallower trench, the depth of which will be determined by the cover available at the culvert crossing location. The ducts within the shallow formation trench will be encased in 6mm thick steel galvanized plates and backfilled with 35N concrete.	Option C
9	300mm diameter plastic pipe	1.5		Where cable ducts are to be installed over an existing culvert and sufficient cover cannot be achieved, the ducts will be laid in a much shallower trench, the depth of which will be determined by the cover	Option C

Culvert/Drain Crossing Reference No.	Culvert/ Drain Type	Cover from Road Level to Top of Culvert (m)	Width of Drain Channel (m)	Crossing Option Description	Crossing Option
				available at the culvert crossing location. The ducts within the shallow formation trench will be encased in 6mm thick steel galvanized plates and backfilled with 35N concrete.	
10	Drain	-	0.4	Where no crossing currently exists, the cable will pass over the watercourse over a bottomless box culvert or pre-cast concrete slab in a standard trefoil arrangement.	Option A/ Option C
11	300mm Concrete pipe	-	0.3	Where cable ducts are to be installed over an existing culvert and sufficient cover cannot be achieved, the ducts will be laid in a much shallower trench, the depth of which will be determined by the cover available at the culvert crossing location. The ducts within the shallow formation trench will be encased in 6mm thick steel galvanized plates and backfilled with 35N concrete.	Option C
12	600mm diameter concrete pipe	1	-	Where cable ducts are to be installed over an existing culvert and sufficient cover cannot be achieved, the ducts will be laid in a much shallower trench, the depth of which will be determined by the cover available at the culvert crossing location. The ducts within the shallow formation trench will be encased in 6mm thick steel galvanized plates and backfilled with 35N concrete.	Option C

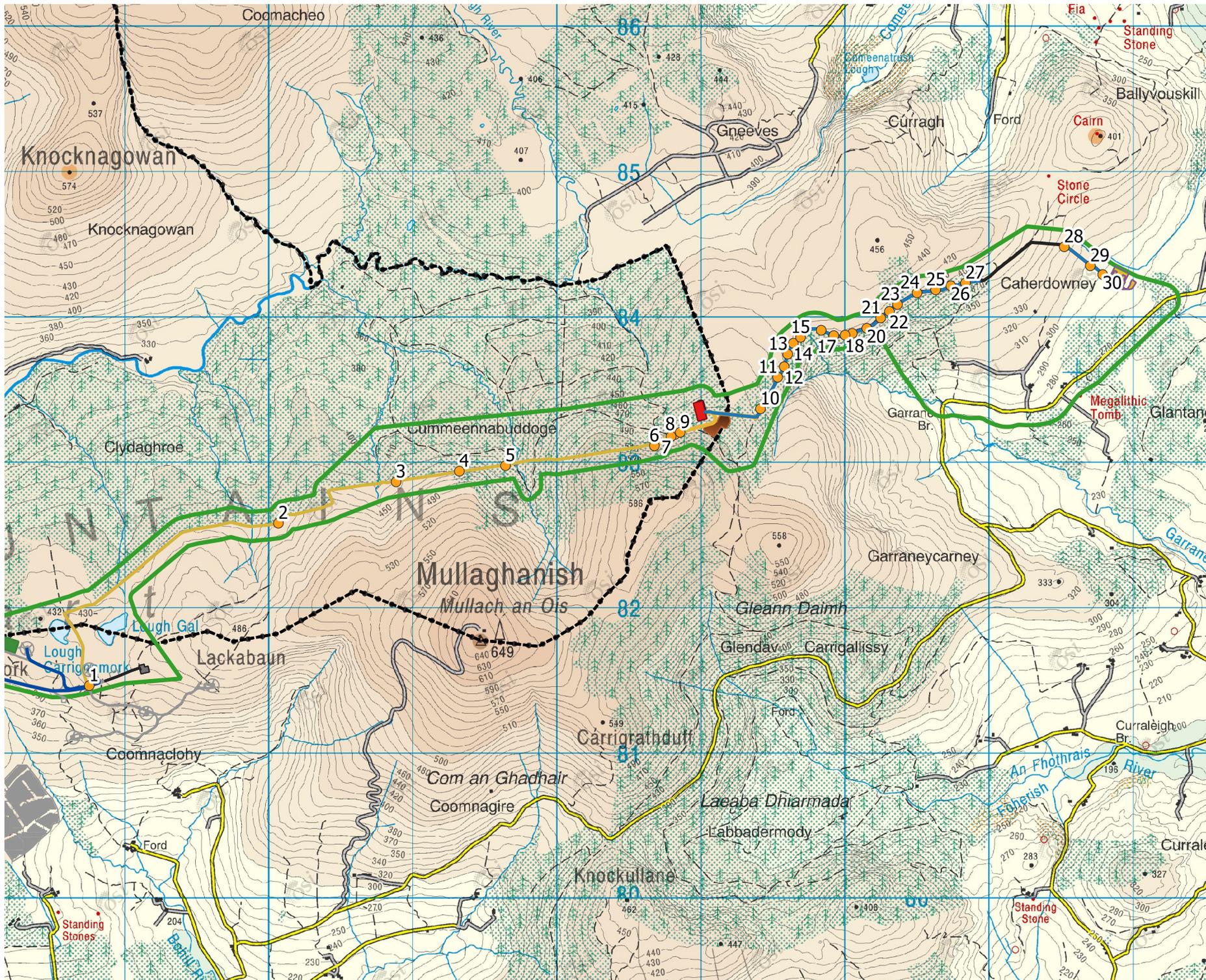
Culvert/Drain Crossing Reference No.	Culvert/ Drain Type	Cover from Road Level to Top of Culvert (m)	Width of Drain Channel (m)	Crossing Option Description	Crossing Option
13	450mm diameter concrete pipe	1.6	-	Where cable ducts are to be installed over an existing culvert and sufficient cover cannot be achieved, the ducts will be laid in a much shallower trench, the depth of which will be determined by the cover available at the culvert crossing location. The ducts within the shallow formation trench will be encased in 6mm thick steel galvanized plates and backfilled with 35N concrete.	Option C
14	300mm diameter corrugated pipe	0.6	-	Where cable ducts are to be installed over an existing culvert and sufficient cover cannot be achieved, the ducts will be laid in a much shallower trench, the depth of which will be determined by the cover available at the culvert crossing location. The ducts within the shallow formation trench will be encased in 6mm thick steel galvanized plates and backfilled with 35N concrete.	Option B
15	450mm diameter concrete pipe	1.6	-	Where cable ducts are to be installed over an existing culvert and sufficient cover cannot be achieved, the ducts will be laid in a much shallower trench, the depth of which will be determined by the cover available at the culvert crossing location. The ducts within the shallow formation trench will be encased in 6mm thick steel galvanized plates and backfilled with 35N concrete.	Option C

Culvert/Drain Crossing Reference No.	Culvert/ Drain Type	Cover from Road Level to Top of Culvert (m)	Width of Drain Channel (m)	Crossing Option Description	Crossing Option
16	450mm diameter concrete pipe	-	0.45	Where adequate cover exists above a culvert, the standard aforementioned trench arrangement will be used where the cable ducts pass over a culvert without any contact with the existing culvert or water course.	Option A
17	230mm diameter corrugated pipe	2	-	Where adequate cover exists above a culvert, the standard aforementioned trench arrangement will be used where the cable ducts pass over a culvert without any contact with the existing culvert or water course.	Option A
18	450mm diameter concrete pipe	-	0.45	Where adequate cover exists above a culvert, the standard aforementioned trench arrangement will be used where the cable ducts pass over a culvert without any contact with the existing culvert or water course.	Option A
19	300mm diameter corrugated pipe	2	-	Where adequate cover exists above a culvert, the standard aforementioned trench arrangement will be used where the cable ducts pass over a culvert without any contact with the existing culvert or water course.	Option A
20	450mm diameter concrete pipe	2	-	Where adequate cover exists above a culvert, the standard aforementioned trench arrangement will be used where the cable ducts pass over a culvert	Option A

Culvert/Drain Crossing Reference No.	Culvert/ Drain Type	Cover from Road Level to Top of Culvert (m)	Width of Drain Channel (m)	Crossing Option Description	Crossing Option
				without any contact with the existing culvert or water course.	
21	300mm diameter concrete pipe	1.6	-	Where cable ducts are to be installed over an existing culvert and sufficient cover cannot be achieved, the ducts will be laid in a much shallower trench, the depth of which will be determined by the cover available at the culvert crossing location. The ducts within the shallow formation trench will be encased in 6mm thick steel galvanized plates and backfilled with 35N concrete.	Option C
22	300mm diameter plastic pipe	1.9	-	Where adequate cover exists above a culvert, the standard aforementioned trench arrangement will be used where the cable ducts pass over a culvert without any contact with the existing culvert or water course.	Option A
23	300mm diameter plastic pipe	1.5	-	Where cable ducts are to be installed over an existing culvert and sufficient cover cannot be achieved, the ducts will be laid in a much shallower trench, the depth of which will be determined by the cover available at the culvert crossing location. The ducts within the shallow formation trench will be encased in 6mm thick steel galvanized plates and backfilled with 35N concrete.	Option C

Culvert/Drain Crossing Reference No.	Culvert/ Drain Type	Cover from Road Level to Top of Culvert (m)	Width of Drain Channel (m)	Crossing Option Description	Crossing Option
24	450mm diameter plastic pipe	2	-	Where adequate cover exists above a culvert, the standard aforementioned trench arrangement will be used where the cable ducts pass over a culvert without any contact with the existing culvert or water course.	Option A
25	Culvert pipe not visible	1.5		Where cable ducts are to be installed over an existing culvert and sufficient cover cannot be achieved, the ducts will be laid in a much shallower trench, the depth of which will be determined by the cover available at the culvert crossing location. The ducts within the shallow formation trench will be encased in 6mm thick steel galvanized plates and backfilled with 35N concrete.	Option C
26	Culvert pipe not visible	1.5		Where cable ducts are to be installed over an existing culvert and sufficient cover cannot be achieved, the ducts will be laid in a much shallower trench, the depth of which will be determined by the cover available at the culvert crossing location. The ducts within the shallow formation trench will be encased in 6mm thick steel galvanized plates and backfilled with 35N concrete.	Option C
27	280mm diameter plastic pipe	2	-	Where adequate cover exists above a culvert, the standard aforementioned trench arrangement will be used where the cable ducts pass over a culvert	Option A

Culvert/Drain Crossing Reference No.	Culvert/ Drain Type	Cover from Road Level to Top of Culvert (m)	Width of Drain Channel (m)	Crossing Option Description	Crossing Option
				without any contact with the existing culvert or water course.	
28	150mm diameter corrugated pipe	No cover	-	Where the culvert consists of a socketed concrete or sealed plastic pipe and sufficient depth is not available over the crossing, a trench will be excavated beneath the culvert and cable ducts will be installed in the standard formation 300mm below the existing pipe.	Option B
29	450mm diameter concrete pipe	0.5	-	Where the culvert consists of a socketed concrete or sealed plastic pipe and sufficient depth is not available over the crossing, a trench will be excavated beneath the culvert and cable ducts will be installed in the standard formation 300mm below the existing pipe.	Option B
30	2 x concrete pipes	0.5	-	Where the culvert consists of a socketed concrete or sealed plastic pipe and sufficient depth is not available over the crossing, a trench will be excavated beneath the culvert and cable ducts will be installed in the standard formation 300mm below the existing pipe.	Option B



Map Legend

- EIAR Study Boundary
- Access Road (Upgrade & New)
- 33kV Underground Cabling in the Permitted
- 110kV Underground Cabling
- 110kV Cabling and Access Road
- Ballyvouskil 220kV Substation
- Proposed 110kV Substation Location
- Proposed Borrow Pit
- Permitted Borrow Pit Extension
- Omitted 38kV Electrical Substation and Batts
- County Boundary
- Culvert Crossings

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Drawing Title	
Culvert and Drain Crossings	
Project Title	
Proposed Substation, Underground Cabling & Access Roads to Knocknamork Renewable Energy Development	
Drawn By	Checked By
NMCh	EOS
Project No. 210732	Drawing No. Figure 1
Scale 1:8000	Date 14.07.2022

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