Appendix 7.1

Watercourse Crossings and Buffers

Appendix 7.1: Glenmuckloch to Glenglass Reinforcement Project (GGRP) Watercourse Crossings and Buffers

Watercourse Crossings

1.1 The watercourse crossings of the proposed and existing access tracks have been identified from a combination of Ordnance Survey mapping, Bing aerial imagery and hydrology field surveys.

1.2 Data for each crossing are provided in **Table 1** below, based on field data. Culvert dimensions at existing crossings on the existing access tracks are provided. It is assumed that some existing crossings may need to be upgraded during track upgrades as part of the GGRP. A representative photograph is provided for each crossing (proposed and existing).

1.3 The GGRP infrastructure will cross 18 watercourses on existing tracks (which may need to be upgraded) and will require 21 new crossings for new tracks.

1.4 Catchment areas upstream of each watercourse crossing were calculated in GIS software based on watershed analysis using the LiDAR DTM data, supplemented by field observations. The catchment areas upstream of the track crossing locations range from less than 0.01 to 1.2km^2, with the largest catchment being upstream of the existing crossing of the Polbroc Burn (crossing ID24).

1.5 The locations of the watercourse crossings are illustrated on **Figure 7.2** of the EIA Report.

Watercourse Buffers

1.6 The Scottish Environment Protection Agency (SEPA) recommended a minimum buffer of 50m around each loch/ watercourse in their initial scoping consultation (**Table 7.1** of the EIA Report). This was achieved for the larger watercourses on the site (e.g. River Nith and Kello Water). However, given the constraints of the site and after further consultation, SEPA agreed in principle that the applicant can use smaller buffers for smaller watercourses (as per the guidelines and table in SEPA (2017[1])) for the GGRP infrastructure.

1.7 There are 28 locations where a 50m buffer could not be achieved; these are detailed in **Table 2**, along with photographs and details of potential effects and additional mitigation required. These locations are shown on **Figure 7.2** of the EIA Report. The majority of the locations where the 50m buffer was encroached are on small, unnamed watercourses or drains. Ancillary temporary works (e.g. scaffolding for OHL crossings, working areas or temporary access tracks) are within 50m of some of the larger watercourses as described below.

Table 1: Watercourse Crossings

ID	Name	Easting	Northing	Width (m)	Sediment	Slope	Erosion	Crossing Type	Field Notes/ Comments	Catchment (km^2)	Minor Watercourse (yes/no)[2]	CAR Engineering Authorisation Required (yes/no)	Photo
Existing Track Crossings													
37	Unnamed	272982	607177	<1	Silt to cobble	Gentle	Unknown	Existing	Land drain (crossing 1) (viewed ~150m upstream of 37 crossing location)	0.08	Yes	No	

[1] SEPA (2017) Background Paper on the Water Environment, LUPS-BP-GU2b

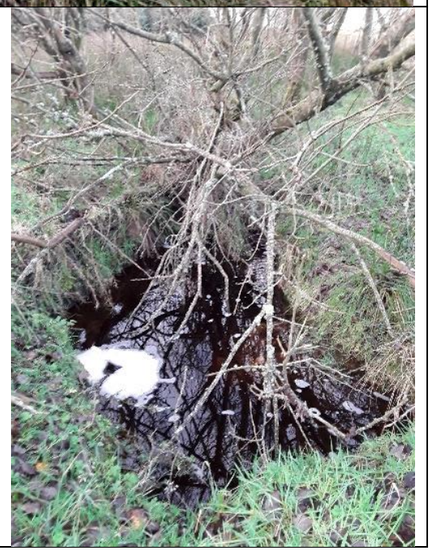
[2] A minor watercourse is defined by SEPA as one that is not shown on 1:50,000 scale Ordnance Survey maps. SEPA do not normally require an authorisation for engineering activities on minor watercourses with the exception of culverting for land-gain, dredging and permanent diversions/realignments.

ID	Name	Easting	Northing	Width (m)	Sediment	Slope	Erosion	Crossing Type	Field Notes/ Comments	Catchment (km^2)	Minor Watercourse (yes/no)[2]	CAR Engineering Authorisation Required (yes/no)	Photo
38	Unnamed	273140	607307	0.8	Soil to cobble	Gentle	Not observed	Existing	Peat drain (crossing 2) (viewed ~500m upstream of 38 crossing location)	0.05	Yes	No	
13	Unnamed	272446	609892	0.7	Silt/soil	Gentle	None observed	Existing	Drains alongside track and then under in an assumed 300mm culvert	0.01	Yes	No	

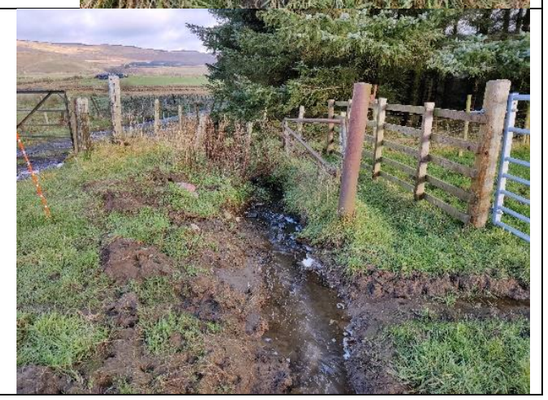
ID	Name	Easting	Northing	Width (m)	Sediment	Slope	Erosion	Crossing Type	Field Notes/ Comments	Catchment (km^2)	Minor Watercourse (yes/no)[2]	CAR Engineering Authorisation Required (yes/no)	Photo
14	Unnamed	272421	609937	1	Silt/soil	Gentle	None observed	Existing	Re-routed forest drainage channel	0.01	Yes	No	
15	Unnamed	272288	610007	0.3	Silt/soil	Gentle	None observed	Existing	Forest drainage channel	0.03	Yes	No	

ID	Name	Easting	Northing	Width (m)	Sediment	Slope	Erosion	Crossing Type	Field Notes/ Comments	Catchment (km^2)	Minor Watercourse (yes/no)[2]	CAR Engineering Authorisation Required (yes/no)	Photo
16	Unnamed	272240	610048	1.0	Silt/soil	Gentle	None observed	Existing	Drain at side of existing track, drains alongside of track	0.03	Yes	No	
17	Unnamed	272191	610122	2.5	Silt/soil	Gentle	None observed	Existing	Forest drainage channel	<0.01	Yes	No	

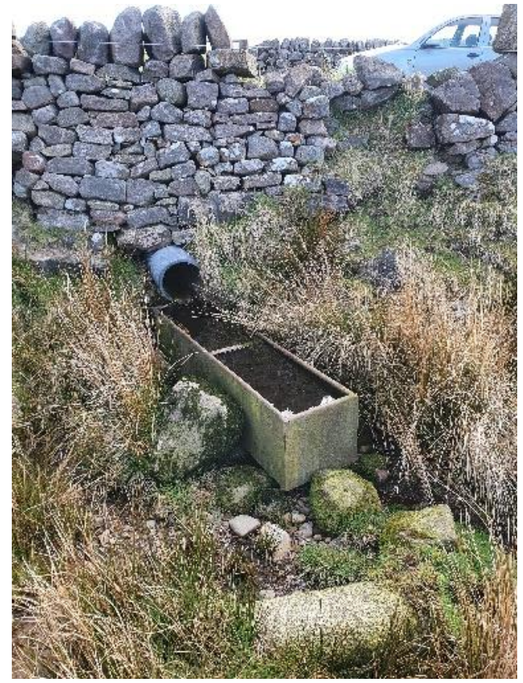
ID	Name	Easting	Northing	Width (m)	Sediment	Slope	Erosion	Crossing Type	Field Notes/ Comments	Catchment (km^2)	Minor Watercourse (yes/no)[2]	CAR Engineering Authorisation Required (yes/no)	Photo
19	Unnamed Tributary of Guttie Burn	272089	610193	0.6	Pebble to cobble	Moderate	None observed	Existing	Joins Guttie Burn immediately upstream of track crossing	0.56	No	Possible if upgrade required	
20	Guttie Burn	272096	610195	1.4	Gravel to cobble	Moderate	Erosion US of existing crossing	Existing	-	0.75	No	Possible if upgrade required	

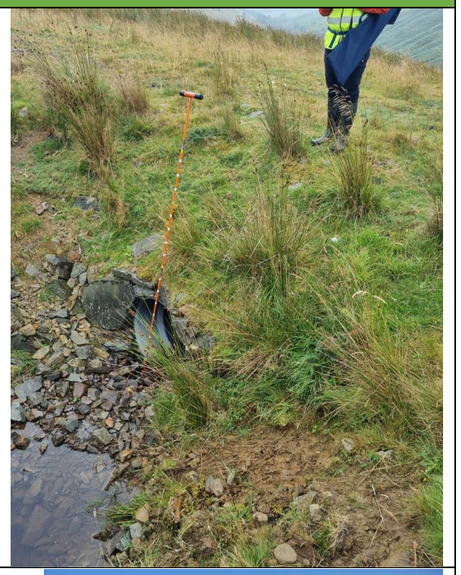
ID	Name	Easting	Northing	Width (m)	Sediment	Slope	Erosion	Crossing Type	Field Notes/ Comments	Catchment (km^2)	Minor Watercourse (yes/no)[2]	CAR Engineering Authorisation Required (yes/no)	Photo
21	Unnamed	272000	610262	0.7	Silt/soil	Gentle	None observed	Existing	Forest drainage channel	<0.01	Yes	No	
22	Unnamed	271878	610418	1.6	Silt/soil	Gentle	None observed	Existing	Wider area of marsh/bog upstream	0.03	Yes	No	

ID	Name	Easting	Northing	Width (m)	Sediment	Slope	Erosion	Crossing Type	Field Notes/ Comments	Catchment (km^2)	Minor Watercourse (yes/no)[2]	CAR Engineering Authorisation Required (yes/no)	Photo
24	Polbroc Burn	271823	610455	1.4	Gravel to cobble	Moderate	None US, bank erosion DS	Existing	Existing access track crossing	1.2	No	Possible if upgrade required	
29	Unnamed	271289	611395	3.2	Silt/ soil with boulders at edge	Gentle	Not observed	Existing	Larger forest drain channel with many sub-catchments of forest drains joining adjacent to access track upstream	<0.01	Yes	No	

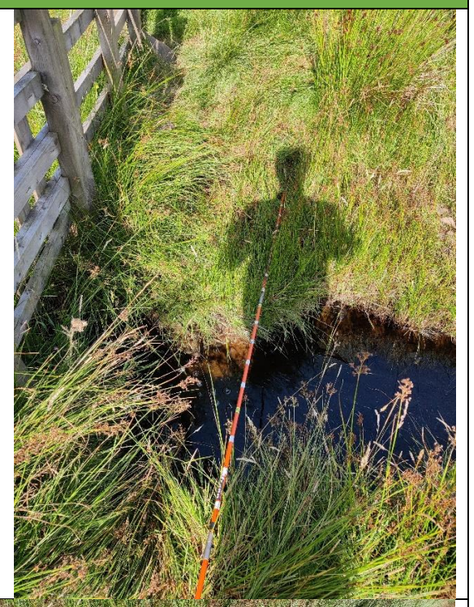
ID	Name	Easting	Northing	Width (m)	Sediment	Slope	Erosion	Crossing Type	Field Notes/ Comments	Catchment (km^2)	Minor Watercourse (yes/no)[2]	CAR Engineering Authorisation Required (yes/no)	Photo
31	Unnamed	270454	611909	1.3	Silt/soil	Gentle	Not observed	Existing	Field drain	0.02	Yes	No	
32	Unnamed	270547	612101	0.7	Gravel/ pebble/ silt	Gentle	Not observed	Existing	Ford into field through gate. Field drain	0.08	Yes	No	

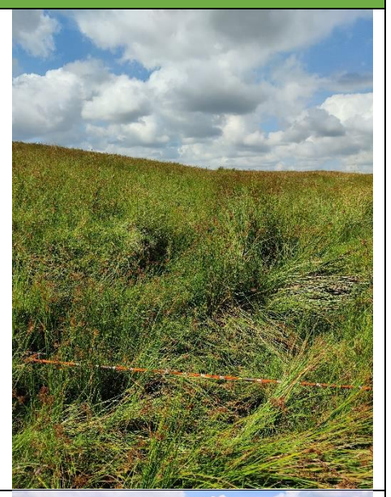
ID	Name	Easting	Northing	Width (m)	Sediment	Slope	Erosion	Crossing Type	Field Notes/ Comments	Catchment (km^2)	Minor Watercourse (yes/no)[2]	CAR Engineering Authorisation Required (yes/no)	Photo
33	Birk Burn	271214	612628	0.75	Silt to cobble	Gentle	Not observed	Existing	Existing farm track	0.22	No	Possible if upgrade required	
34	Unnamed	271483	613292	2	Silt/soil	Moderate	None	Existing	Field drainage ditch	0.10	Yes	No	

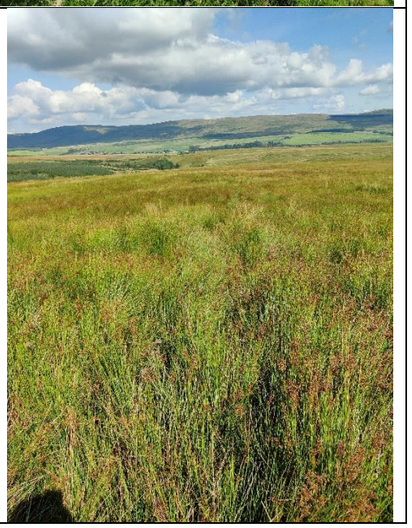
ID	Name	Easting	Northing	Width (m)	Sediment	Slope	Erosion	Crossing Type	Field Notes/ Comments	Catchment (km^2)	Minor Watercourse (yes/no)[2]	CAR Engineering Authorisation Required (yes/no)	Photo
35	Unnamed	271374	613542	250mm culvert	Silt/soil	Moderate	None	Existing	Road and field drain	0.04	Yes	No	
New Crossings													
0	Unnamed	272802	607201	0.6	Silt/soil	Gentle	None, incised channel	New	Land drain in peat	0.02	Yes	No	

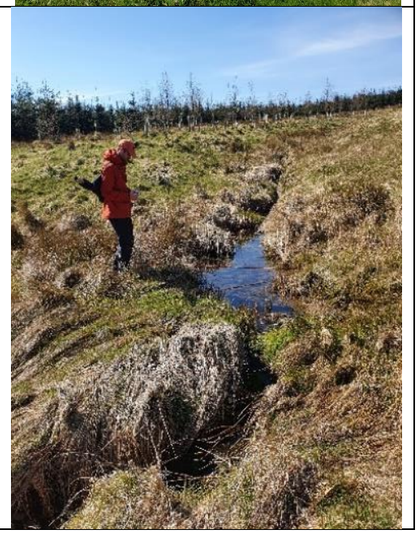
ID	Name	Easting	Northing	Width (m)	Sediment	Slope	Erosion	Crossing Type	Field Notes/ Comments	Catchment (km^2)	Minor Watercourse (yes/no)[2]	CAR Engineering Authorisation Required (yes/no)	Photo
1	Unnamed	272820	607231	0.45	Silt to cobble	Gentle	Incision into bed	New	Land drain, existing 750mm culvert 30m downstream	0.07	Yes	No	
2	Unnamed	272861	607298	0.8	Soil to cobble	Gentle	None	New	Partially blocked peat drain	0.03	Yes	No	

ID	Name	Easting	Northing	Width (m)	Sediment	Slope	Erosion	Crossing Type	Field Notes/ Comments	Catchment (km^2)	Minor Watercourse (yes/no)[2]	CAR Engineering Authorisation Required (yes/no)	Photo
3	Unnamed	272928	607354	0.95	Silt to cobble	Gentle	Not observed	New	Land drain	<0.01	Yes	No	
4	Unnamed	273162	608229	0.5	Sand/Silt	Moderate	None	New	Artificial Drain	0.10	Yes	No	

ID	Name	Easting	Northing	Width (m)	Sediment	Slope	Erosion	Crossing Type	Field Notes/ Comments	Catchment (km^2)	Minor Watercourse (yes/no)[2]	CAR Engineering Authorisation Required (yes/no)	Photo
5	Thwarter Burn	273163	608622	1.3	Cobble	Gentle	None	New	-	0.28	No	No	
6	Unnamed	273132	608765	0.5	Sand/Silt	Gentle	None	New	Empty Drain	0.02	Yes	No	

ID	Name	Easting	Northing	Width (m)	Sediment	Slope	Erosion	Crossing Type	Field Notes/ Comments	Catchment (km^2)	Minor Watercourse (yes/no)[2]	CAR Engineering Authorisation Required (yes/no)	Photo
7	Quintin's Burn	273112	608883	2.0	Silt/soil	Moderate	None	New	Dry	<0.01	No	No	
8	Unnamed	273093	608998	1.5	Silt/soil	Gentle	None	New	Dry drain	<0.01	Yes	No	

ID	Name	Easting	Northing	Width (m)	Sediment	Slope	Erosion	Crossing Type	Field Notes/ Comments	Catchment (km^2)	Minor Watercourse (yes/no)[2]	CAR Engineering Authorisation Required (yes/no)	Photo
9	Unnamed	273076	609101	1.5	Dry drain	Moderate	None	New	Dry drain	0.01	Yes	No	
10	Unnamed	273068	609144	1.0	Silt/soil	Moderate	None	New	Dry drain	<0.01	Yes	No	

ID	Name	Easting	Northing	Width (m)	Sediment	Slope	Erosion	Crossing Type	Field Notes/ Comments	Catchment (km^2)	Minor Watercourse (yes/no)[2]	CAR Engineering Authorisation Required (yes/no)	Photo
11	Unnamed	273057	609213	1.0	Sand/silt	Moderate	None	New	Drain	<0.01	Yes	No	
12	Unnamed	272717	609702	1.7	Pebble to Cobble/ Rock	Gentle	None	New	Forded channel	0.04	No	No	

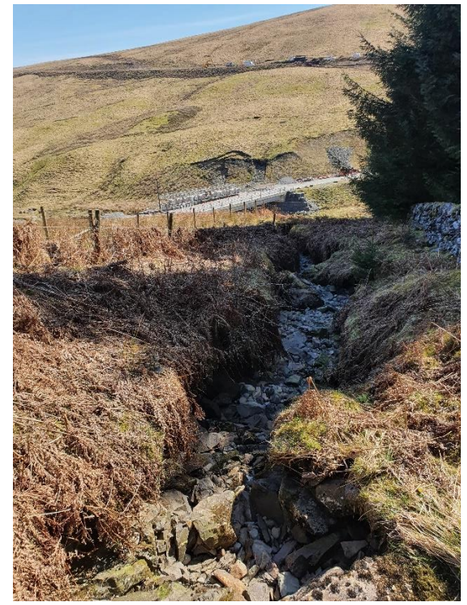
ID	Name	Easting	Northing	Width (m)	Sediment	Slope	Erosion	Crossing Type	Field Notes/ Comments	Catchment (km^2)	Minor Watercourse (yes/no)[2]	CAR Engineering Authorisation Required (yes/no)	Photo
18	Unnamed	272030	610138	0.6	Silt/soil	Gentle	None	New	Confluence of small channel with evidence of out of bank flow	0.35	No	No	
23	Unnamed	271470	610426	1.2	Silt/soil	Gentle	Not observed	New	Forest drainage channel	<0.01	Yes	No	

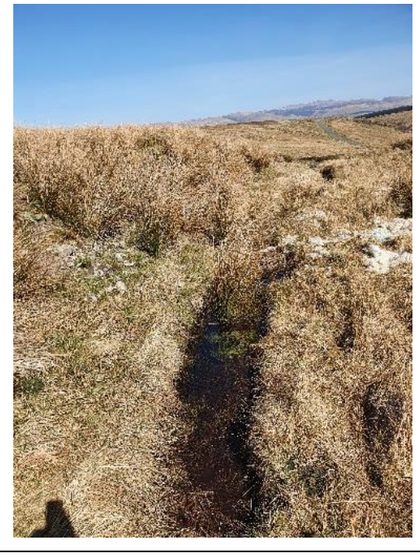
ID	Name	Easting	Northing	Width (m)	Sediment	Slope	Erosion	Crossing Type	Field Notes/ Comments	Catchment (km^2)	Minor Watercourse (yes/no)[2]	CAR Engineering Authorisation Required (yes/no)	Photo
25	Unnamed	271515	611094	2.5	Silt/soil	Gentle	Not observed	New	Forest drainage channel	<0.01	Yes	No	
26	Unnamed	271141	611095	1.1	Silt/soil	Gentle	Not observed	New	Three channels merge immediately upstream of crossing. Forest drainage channel	0.06	Yes	No	
27	Unnamed	271502	611095	0.8	Silt/soil	Gentle	Not observed	New	Forest drainage channel	<0.01	Yes	No	

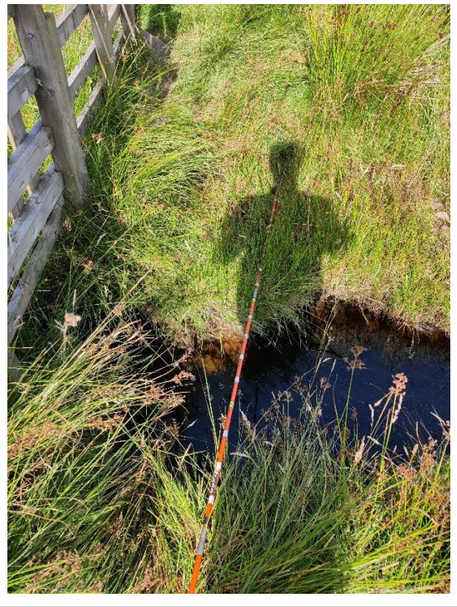
ID	Name	Easting	Northing	Width (m)	Sediment	Slope	Erosion	Crossing Type	Field Notes/ Comments	Catchment (km^2)	Minor Watercourse (yes/no)[2]	CAR Engineering Authorisation Required (yes/no)	Photo
28	Unnamed	271033	611379	0.4	Silt/soil	Moderate	Not observed	New	Drains area that is forested. Likely disrupted upstream	0.03	Yes	No	
30	Unnamed	270579	611644	2.3	Silt/soil	Gentle	Bank erosion	New	Peat drain	<0.01	Yes	No	
36	Unnamed	271199	613982	0.9	Sand/Silt	Gentle	None	New	-	0.03	Yes	No	

Table 2: Watercourses/ Drains where a 50m buffer to infrastructure was not achieved

ID	Name	Width of watercourse (top of bank)	Watercourse Description	Infrastructure and Ancillary Works Description	Temporary or Permanent	Width of buffer strip achieved	Water feature upgradient or downgradient of proposed infrastructure	Potential Effect/ Comment	Additional Mitigation	Photo
A	Unnamed	0.4m	Artificial drainage ditch associated with Glenglass substation	T1 working area T1	Temporary Permanent	10m 14m	Slightly upgradient	This is an artificial drainage diversion ditch to divert natural drainage round Glenglass substation. It discharges to the Euchan Water Embedded mitigation (i.e. SuDS) around the construction area will be included in the design. Buffer width is considered adequate for size of water feature.	Additional mitigation (e.g. silt fences, settlement ponds) will be installed between the working area and the ditch to reduce the risk of sediment/silt run-off to the ditch during construction	
B	Unnamed	1.0m	Small watercourse/ drain through heavily modified forestry.	T2 working area T3 working area T3 Access track to T3	Temporary Temporary Permanent Temporary	38m 15m 36m 20m	Upgradient Downgradient Downgradient Downgradient	Embedded mitigation (i.e. SuDS) around the construction area will be included in the design. Buffer width is considered adequate for size of water feature.	Additional mitigation (e.g. silt fences, settlement ponds) will be installed between the working area and the drain to reduce the risk of sediment/silt run-off during construction	

ID	Name	Width of watercourse (top of bank)	Watercourse Description	Infrastructure and Ancillary Works Description	Temporary or Permanent	Width of buffer strip achieved	Water feature upgradient or downgradient of proposed infrastructure	Potential Effect/ Comment	Additional Mitigation	Photo
C	Unnamed	1.3m	Small tributary of Euchan Water	T4 working area	Temporary	46m	Downgradient	Embedded mitigation (i.e. SuDS) around the construction area will be included in the design. Buffer width is considered adequate for size of water feature.	None	
D	Unnamed	0.6m	Artificial drains	T5 working area T5 Access track to T5	Temporary Permanent Temporary	10m 15m 10m	Upgradient	Limited effect as artificial drainage and upgradient of infrastructure. Embedded mitigation (i.e. SuDS) around the construction area will be included in the design. Buffer width is considered adequate for size of water feature.	None	

ID	Name	Width of watercourse (top of bank)	Watercourse Description	Infrastructure and Ancillary Works Description	Temporary or Permanent	Width of buffer strip achieved	Water feature upgradient or downgradient of proposed infrastructure	Potential Effect/ Comment	Additional Mitigation	Photo
E	Unnamed	0.45m	Artificial drains	T6 working area T6 laydown area	Temporary Temporary	33m 30m	Upgradient Downgradient	Limited effect as artificial drainage and upgradient of infrastructure. Embedded mitigation (i.e. SuDS) around the construction area will be included in the design. Buffer width is considered adequate for size of water feature.	None	
E E	Unnamed	<1m	Drain	Access track to T7	Temporary	36m	Downgradient	Embedded mitigation (i.e. SuDS) around the access track will be included in the design. Buffer width is considered adequate for size of water feature.	None	

ID	Name	Width of watercourse (top of bank)	Watercourse Description	Infrastructure and Ancillary Works Description	Temporary or Permanent	Width of buffer strip achieved	Water feature upgradient or downgradient of proposed infrastructure	Potential Effect/ Comment	Additional Mitigation	Photo
F	Barr Burn	~10m wide marshy channel area	Upstream reach of Barr Burn. There is no defined channel, but a wider marshy area within peatland.	T9 working areas T9	Temporary Permanent	25m 45m	Downgradient	Proposed tower/working area is on higher ground (~4m higher than the burn). The tower is at location of surveyor in photo, which shows the marshy channel on right side of photo. There is a very small catchment upstream and the tower is not predicted to be at flood risk. Embedded mitigation (i.e. SuDS) around the construction area will be included in the design. Buffer width is considered adequate for size of water feature.	Additional mitigation (e.g. silt fences, settlement ponds) will be installed between the working area and the burn to reduce the risk of sediment/silt run-off to the burn during construction.	
G	Thwarter Burn	1.3m	Thwarter Burn	T12 working area	Temporary	23m	Downgradient	The edge of the working area is ~5m higher than the burn and is not considered to be at flood risk. Embedded mitigation (i.e. SuDS) around the construction area will be included in the design. Buffer width is considered adequate for size of water feature.	Additional mitigation (e.g. silt fences, settlement ponds) will be installed between the working area and the burn to reduce the risk of sediment/silt run-off to the burn during construction.	

ID	Name	Width of watercourse (top of bank)	Watercourse Description	Infrastructure and Ancillary Works Description	Temporary or Permanent	Width of buffer strip achieved	Water feature upgradient or downgradient of proposed infrastructure	Potential Effect/ Comment	Additional Mitigation	Photo
H	Quintin's Burn	2.0m	Quintin's Burn	T14 working area	Temporary	45m	Downgradient	The edge of the working area is ~4m higher than the burn and is not considered to be at flood risk. Embedded mitigation (i.e. SuDS) around the construction area will be included in the design. Buffer width is considered adequate for size of water feature.	Additional mitigation (e.g. silt fences, settlement ponds) will be installed between the working area and the burn to reduce the risk of sediment/silt run-off to the burn during construction.	
I	Unnamed	1.7m	Unnamed tributary of Kello Water	T17 working area	Temporary	41m	Downgradient	The edge of the working area is over 5m higher and 41m away from the watercourse and is not considered to be at flood risk. Embedded mitigation (i.e. SuDS) around the construction area will be included in the design. Buffer width is considered adequate for size of water feature.	None	

ID	Name	Width of watercourse (top of bank)	Watercourse Description	Infrastructure and Ancillary Works Description	Temporary or Permanent	Width of buffer strip achieved	Water feature upgradient or downgradient of proposed infrastructure	Potential Effect/ Comment	Additional Mitigation	Photo
J	Guttie Burn	1.3m	The small active channel is ~1.3m wide and set within a wider incised valley of 15-20m wide.	T21 working area T21 Access track to T21	Temporary Permanent Temporary	15m 24m 10m	Downgradient	The tower and working areas are outside of the wider valley and ~2m higher than the active channel. Embedded mitigation (i.e. SuDS) around the construction area will be included in the design. Buffer width is considered adequate for size of water feature.	Additional mitigation (e.g. silt fences, settlement ponds) will be installed between the working area/ temporary access track and the burn to reduce the risk of sediment/silt run-off to the burn during construction.	
K	Unnamed	1.6m	Unnamed watercourse	Access track to T22	Temporary	10m	Downgradient	Access is upstream of the upstream reach of a small watercourse. Embedded mitigation (i.e. SuDS) around the construction area will be included in the design. Buffer width is considered adequate for size of water feature.	Additional mitigation (e.g. silt fences, settlement ponds) will be installed between the temporary access and the watercourse to reduce the risk of sediment/silt run-off to the burn during construction	

ID	Name	Width of watercourse (top of bank)	Watercourse Description	Infrastructure and Ancillary Works Description	Temporary or Permanent	Width of buffer strip achieved	Water feature upgradient or downgradient of proposed infrastructure	Potential Effect/ Comment	Additional Mitigation	Photo
L	Polbroc Burn	1.5m	The active channel is ~1.5m wide and set within a wider incised valley (~30m wide and ~11m deep).	Access track to T22 Scaffolding required for OHL stringing across public road	Temporary Temporary	27m 12m	Downgradient.	The access track is set outside the valley banks and is ~11m higher than the burn level and 27m away. Embedded mitigation (i.e. SuDS) around the track and scaffolding works will be included in the design. Buffer width is considered adequate for size of water feature.	Additional mitigation (e.g. silt fences, settlement ponds) will be installed between the scaffolding works and the burn to reduce the risk of sediment/silt run-off to the burn during construction	
M	Unnamed	1.2m	Drainage ditches within Libry Moor forestry	T23 T23 working areas and access tracks	Permanent Temporary	17m 10m	Downgradient	Embedded mitigation (i.e. SuDS) around the construction area and access tracks will be included in the design. Buffer width is considered adequate for size of water feature.	Additional mitigation (e.g. silt fences, settlement ponds) will be installed between the working area and accesses and the drains to reduce the risk of sediment/silt run-off during construction	

ID	Name	Width of watercourse (top of bank)	Watercourse Description	Infrastructure and Ancillary Works Description	Temporary or Permanent	Width of buffer strip achieved	Water feature upgradient or downgradient of proposed infrastructure	Potential Effect/ Comment	Additional Mitigation	Photo
N	Unnamed	1.0m	Two drainage ditches within Libry Moor forestry. The ditches are ~20m apart.	T24 T24 working areas and access track	Permanent Temporary	17m 10m	Downgradient	Embedded mitigation (i.e. SuDS) around the construction area and access tracks will be included in the design. Buffer width is considered adequate for size of water feature.	Additional mitigation (e.g. silt fences, settlement ponds) will be installed between the working area and accesses and the drains to reduce the risk of sediment/silt run-off during construction.	
O	Unnamed	0.5m	Roadside drainage ditch within Libry Moor forestry	T25 T25 working area	Permanent Temporary	22m 16m	Upgradient	Ditch is on opposite side of public road from infrastructure Embedded mitigation (i.e. SuDS) around the construction area and access tracks will be included in the design. Buffer width is considered adequate for size of water feature.	None	

ID	Name	Width of watercourse (top of bank)	Watercourse Description	Infrastructure and Ancillary Works Description	Temporary or Permanent	Width of buffer strip achieved	Water feature upgradient or downgradient of proposed infrastructure	Potential Effect/ Comment	Additional Mitigation	Photo
P	Unnamed	0.95 to 1.1m	Drainage ditches within Libry Moor forestry	T26 T26 working area	Permanent Temporary	28m 10m	Downgradient	Embedded mitigation (i.e. SuDS) around the construction area and access tracks will be included in the design. Buffer width is considered adequate for size of water feature.	Additional mitigation (e.g. silt fences, settlement ponds) will be installed between the working area and the drains to reduce the risk of sediment/silt run-off during construction	
Q	Polmeur Burn	2.5m	The active channel is ~2.5m wide and set within a wider valley (~40m wide and ~10m deep)	T27 T27 working area Access track to T27	Permanent Temporary Temporary	34m 25m 10m	Downgradient.	The tower and access track are set above the wider valley banks and are ~10m and 5m higher than the burn level, respectively. They are not considered to be at flood risk. Embedded mitigation (i.e. SuDS) around the construction area and access tracks will be included in the design. Buffer width is considered adequate for size of water feature.	Additional mitigation (e.g. silt fences, settlement ponds) will be installed between the working area and accesses and the burn to reduce the risk of sediment/silt run-off during construction.	

ID	Name	Width of watercourse (top of bank)	Watercourse Description	Infrastructure and Ancillary Works Description	Temporary or Permanent	Width of buffer strip achieved	Water feature upgradient or downgradient of proposed infrastructure	Potential Effect/ Comment	Additional Mitigation	Photo
R	Unnamed	<2m	Drainage ditches	T28 T28 working area	Permanent Temporary	31m 16m	Downgradient.	Embedded mitigation (i.e. SuDS) around the construction area and access tracks will be included in the design. Buffer width is considered adequate for size of water feature.	Additional mitigation (e.g. silt fences, settlement ponds) will be installed between the working area and the drains to reduce the risk of sediment/silt run-off during construction	
S	Unnamed	<0.8m	Unnamed tributary/ditch of Polmeur Burn	T30 working area Scaffolding required for OHL stringing across A76	Temporary Temporary	38m 20m	Downgradient.	Embedded mitigation (i.e. SuDS) around the construction area and scaffolding works will be included in the design. Buffer width is considered adequate for size of water feature.	Additional mitigation (e.g. silt fences, settlement ponds) will be installed between the scaffolding works and the watercourse to reduce the risk of sediment/silt run-off during construction	

ID	Name	Width of watercourse (top of bank)	Watercourse Description	Infrastructure and Ancillary Works Description	Temporary or Permanent	Width of buffer strip achieved	Water feature upgradient or downgradient of proposed infrastructure	Potential Effect/ Comment	Additional Mitigation	Photo
T	Birk Burn	2.2m	Small active channel sits in a much wider valley (~40m wide)	T33 working area Access track to T32	Temporary Temporary	36m 30m	Downgradient.	The T33 working area is over 1.5m higher than the active channel and is not considered to be at flood risk. The track is over 3m higher than the active channel and not at flood risk. Embedded mitigation (i.e. SuDS) around the construction area and will be included in the design. Buffer width is considered adequate for size of water feature.	Additional mitgation (e.g. silt fences, settlement ponds) will be installed between the working area and the watercourse to reduce the risk of sediment/silt run-off during construction	
U	Unnamed	1.4m	Drainage ditch through localised area of peatland	T34 T34 working area	Permanent Temporary	25m 10m	Downgradient	Artificial drainage ditch. Embedded mitigation (i.e. SuDS) around the construction area and will be included in the design. Buffer width is considered adequate for size of water feature.	None	

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V	River Nith	10m	River Nith	Scaffolding required for OHL stringing across River Nith	Temporary	35m	Downgradient	Embedded mitigation (i.e. SuDS) around the scaffolding works will be included in the design. Buffer width is considered adequate for size of water feature	Additional mitigation (e.g. silt fences) will be installed between the scaffoding working area and the watercourse to reduce the risk of sediment/silt run-off during construction	
W	Unnamed	2m	Unnamed tributary of River Nith	T35 working area	Temporary	31m	Downgradient	Working area is over 10m higher than the small watercourse and over 31m away. Embedded mitigation (i.e. SuDS) around the working area will be included in the design. Buffer width is considered adequate for size of water feature	None	

ID	Name	Width of watercourse (top of bank)	Watercourse Description	Infrastructure and Ancillary Works Description	Temporary or Permanent	Width of buffer strip achieved	Water feature upgradient or downgradient of proposed infrastructure	Potential Effect/ Comment	Additional Mitigation	Photo
X	Unnamed	2.0m	Unnamed tributary of River Nith. Field drainage ditch along north and then south side of public road. Passes under road via 250mm culvert. Ditch width varied from 0.3m at culvert under road to 2m downstream	T36 T36 working area T37 T37 working area T38 working area	Permanent Temporary Permanent Temporary Temporary	25m 15m 21m 12m 30m	Upgradient	Minor drainage ditch upgradient of proposed works. The public road is located between T38 and the ditch. Embedded construction SUDS will minimise any sedimentation/pollution runoff during construction.	None	
Y	Unnamed	0.9m	Unnamed tributary/ditch of River Nith within forestry	T39 T39 working area and access track	Permanent Temporary	13m 10m	Upgradient	Minor ditch within forestry slightly upgradient of proposed works Embedded mitigation (i.e. SuDS) around the working area will be included in the design. Buffer width is considered adequate for size of water feature	None	

ID	Name	Width of watercourse (top of bank)	Watercourse Description	Infrastructure and Ancillary Works Description	Temporary or Permanent	Width of buffer strip achieved	Water feature upgradient or downgradient of proposed infrastructure	Potential Effect/ Comment	Additional Mitigation	Photo
Z	Stank Burn	1.0m	Upstream reach of Stank Burn	Access track to T40	Temporary	17m	Downgradient.	Embedded mitigation (i.e. SuDS) around the access tracks will be included in the design. Buffer width is considered adequate for size of water feature	Additional mitigation (e.g. silt fences) will be installed between the track and the watercourse to reduce the risk of sediment/silt run-off during construction	
AA	Unnamed	0.4m to 1.6m downstream	Unnamed watercourse within forestry fire break	Glenmuckloch Substation and access track to substation	Permanent	17m	Upgradient	The watercourse is small, with very little flow at time of survey. The proposed drainage layout for the substation does not drain to the watercourse, drainage is to tie into existing road drainage to the south. Embedded mitigation (i.e. SuDS) around the access tracks will be included in the design. Buffer width is considered adequate for size of water feature	Additional mitigation (e.g. silt fences, settlement ponds) will be installed between the substation and the watercourse to reduce the risk of sediment/silt run-off during construction