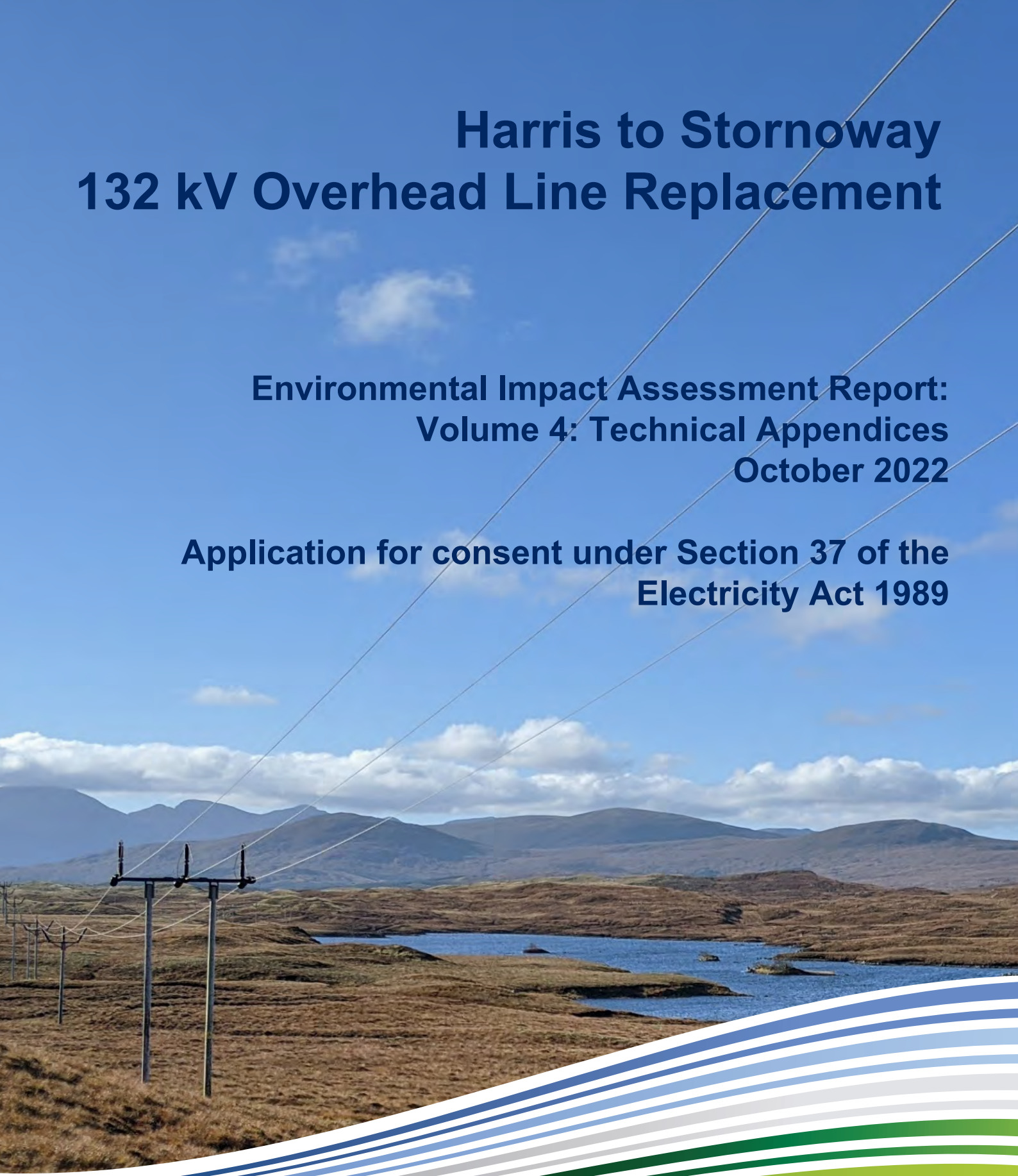
Harris to Stornoway 132 kV Overhead Line Replacement

Environmental Impact Assessment Report: Volume 4: Technical Appendices October 2022

Application for consent under Section 37 of the Electricity Act 1989



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Technical Appendix 1.1: Technical Team

1. TECHNICAL APPENDIX 1.1: TECHNICAL TEAM

1.1.1 In accordance with regulation 5(5) of the EIA Regulations, the EIAR has been prepared by 'competent experts'. Table 1.1.1 below presents the technical leads within the project team and their relevant qualifications and experience.

Table 1.1.1: Technical Team Experience

Company Name	Roles & Responsibilities	Team Lead	Qualifications & Professional Memberships	Experience
Ramboll UK Ltd	EIA Project Director	Peter Bruce	• MSc (Distinction) Environmental Protection and Management • BSc (Hons) Geography - First Class • Institute of Environmental Management and Assessment (MIEMA) • Society of the Environment • Chartered Environmentalist (CEnv)	Peter Bruce is a Senior Managing Consultant (Director) and Global Sector Lead for Renewable Energy with Ramboll's Environment and Health division. Peter leads Ramboll's impact assessment sector and is a Chartered Environmentalist with over 16 years' experience in Impact Assessment. He has taken a lead role in the delivery of complex environmental impact assessments (EIA) and consents in the power, renewables, transmission, urban development and offshore oil and gas decommissioning sectors.
	EIA Project Manager	Catherine Mackenzie	• MSc, Environment and Development • MA, International Relations and German • Practitioner member of Institute of Environmental Management and Assessment (PIEMA)	Catherine Mackenzie is a Principal Consultant within Ramboll's Impact Assessment team, with over 15 years' experience in environmental consulting. Catherine has taken a lead role the co-ordination and management of numerous complex environmental impact assessments (EIA) in renewables and transmission development. She has extensive experience in route/site selection and EIA, including facilitation of design workshops, liaising and leading discussions with statutory bodies, and in engaging with local communities through public consultation events.
	Landscape and Visual Impact Assessment	Robert Bainsfair	• BLA - Bachelor of Landscape Architecture • BA (Hons) Landscape Design	Robert Bainsfair is a Chartered Landscape Architect with over 27 years of experience working across a wide range of sectors including energy, utilities, industrial, leisure, commercial, minerals and waste.

Table 1.1.1: Technical Team Experience				
			• Chartered Member of the Landscape Institute • Affiliate Member IEMA	He has extensive experience of managing and undertaking: • Feasibility studies and risk assessments for wind farms; • Landscape due diligence and decommissioning bond appraisals; • Landscape and visual impact assessments (LVIAs); • Cumulative assessments (CLVIAs); • Seascape assessments (SLVIAs); • Residential visual amenity studies (RVASs); and • Night time/lighting impact assessments.
	Ecology and Ornithology	Adam Fitchet	• BSc (Hons), Environmental Science with Biology • Full Member of the Chartered Institute of Ecology and • Environmental Management (CIEEM)	Adam Fitchet is an ecology and biodiversity specialist with 18 years' experience of professional consultancy work. Adam has worked on a variety of developments including in the energy sector including overhead power lines, wind farms, solar farms, oil and gas pipelines, as well as mining and others such as roads and housing developments. Adam specialises in survey, assessment and development of robust and sustainable mitigation and enhancement for protected species. A particular specialism is ornithology for which he has extensive experience of both survey and assessment (including collision risk modelling).
	Hydrology, Hydrogeology and Geology	Christopher Day	• MSc Flood Risk • BSc, Marine Geography • Chartered Institution of Water and Environmental Management - UK (CIWEM)	Chris Day has over 12 years' experience in environmental consultancy with particular expertise in hydrological impact assessment of renewable energy and transmission infrastructure projects, flood risk assessment, hydraulic modelling, and conceptual surface water drainage design. Also experienced in the use of geographical information systems (GIS) and remote sensing, statistics, river and coastal hydraulics.

Table 1.1.1: Technical Team Experience				
	Peat	Jeff Turner	• BSc (Hons) Marine and Freshwater Biology • CEnv Chartered Environmentalist (Society for the Environment); • MIEnvSc Member of Institute of Environmental Science; • PIEMA Insitute of Environmental Management and Assessment	Jeff Turner is a Chartered Environmentalist and member of the Institute of Environmental Science, and Institute of Environmental Management and Assessment (CEnv, MIEnvSc, PIEMA, BSc (Hons)). Jeff has over 20 years' experience in the co-ordination and management of Environmental Impact Assessments, with over 15 years in renewable energy developments. As part of this experience, Jeff has been responsible for managing the potential effects of wind farms and transmission lines on peat, and identification of suitable avoidance and mitigation measures to minimise the effects on carbon rich soils from development.
CFA Archaeology	Cultural Heritage	George Mudie	• MA (Hons) Geography and Archaeology, Edinburgh, • Member of the Chartered Institute for Archaeologists (MCIfA) • Fellow of the Society of Antiquaries of Scotland (FSA Scot)	George Mudie is the Principal Heritage Consultant with CFA Archaeology Ltd (CFA), based in their head office in Musselburgh, East Lothian. He has 22 years' post graduate experience in commercial archaeology and 22 years full-time experience as an archaeological consultant, producing EIAs for a range of projects and clients in both Scotland and England. George has particular experience in the renewable energy sector, having provided input to more than 50 Environmental Statements for such projects, including s36 applications, and project managing the cultural heritage assessments for numerous others.
Pell Frischmann	Traffic and Transport	Gordon Buchan	• B.Eng. (Hons) Civil & Transport Engineering • MSc Transport Engineering & Planning • CMILT • MCIHT	Gordon Buchan is a Divisional Director in the Transport Planning team and has over 24 years' experience and has provided abnormal load route survey, Transport Assessment and traffic impact review advice on over 500 wind farm sites across the UK, Ireland and Scandinavia.
Jones Lang Lasalle	Planning Policy	Steven Black	• Masters of Science in Urban & Regional Planning	Steven Black leads JLL's Planning and Development Department in Scotland. Steven has an in depth

Table 1.1.1: Technical Team Experience				
			• Member of the Royal Town Planning Institute	knowledge of the planning process and Local Government procedure and his experience has involved the preparation of detailed analysis on a range of proposals from initial site feasibility through to advising on strategic issues for planning applications and section 36 and 37 proposals to tactical rebuttal and preparation of evidence for appeals and Inquiries. Steven often takes the lead role in review and coordination of Environmental Impact Assessment submissions with associated supporting information, negotiations with statutory bodies, campaigning of applications, and local representations.

Technical Appendix 2.1: Detailed Pole Schedule

Structure Number	X Easting (m)	Y Northing (m)	Structure Height (mAOD)
Harris GSP	113524	894241	
1	113531	894258	11.08
2	113512	894335	12.08
3	113495	894434	14.18
4	113475	894543	11.18
5	113461	894627	10.08
6	113504	894702	10.08
7	113528	894741	11.08
8	113579	894789	10.18
9	113637	894841	8.18
10	113715	894912	13.08
11	113727	895004	8.18
12	113737	895081	12.08
13	113798	895135	12.18
14	113881	895207	12.18
15	113960	895276	12.18
16	114045	895350	8.18
17	114112	895409	10.08
18	114133	895502	12.08
19	114087	895594	9.18
20	114041	895687	10.18
21	114005	895760	10.08
22	113996	895843	10.18
23	113990	895895	12.18
24	113982	895970	10.08
25	113986	896049	14.08
26	113958	896126	8.18
27	113924	896216	11.18
28	113894	896297	12.18
29	113869	896364	12.08
30	113869	896437	13.08
31	113852	896517	10.18
32	113834	896603	11.18
33	113816	896687	11.08
34	113837	896795	10.18
35	113857	896895	10.18
36	113877	896993	8.18
37	113900	897105	10.18
38	113920	897207	12.08
39	113960	897280	12.18
40	114002	897358	11.08
41	114030	897449	8.18
42	114055	897532	11.18
43	114081	897617	11.18

44	114107	897702	10.08
45	114153	897784	10.18
46	114200	897866	10.08
47	114224	897969	10.18
48	114240	898036	11.18
49	114255	898101	12.08
50	114318	898191	14.08
51	114382	898285	13.08
52	114428	898351	12.08
53	114489	898439	12.08
54	114541	898515	11.18
55	114580	898572	13.08
56	114654	898614	10.18
57	114691	898722	8.18
58	114722	898811	12.18
59	114758	898918	9.18
60	114793	899020	11.18
61	114822	899105	8.18
62	114856	899205	11.18
63	114884	899285	11.18
64	114906	899351	12.08
65	114893	899463	12.08
66	114912	899558	12.18
67	114932	899660	13.18
68	114944	899718	10.08
69	114958	899788	13.08
70	115013	899865	12.18
71	115052	899920	10.18
72	115092	899977	10.08
73	115129	900066	10.08
74	115197	900232	12.08
75	115237	900329	10.08
76	115227	900404	8.18
77	115216	900488	10.08
78	115150	900552	12.18
79	115103	900598	10.08
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81	114944	900661	9.18
82	114864	900693	10.18
83	114788	900724	12.08
84	114682	900777	10.18
85	114578	900828	10.18
86	114471	900882	11.18
87	114370	900932	10.08
88	114285	900983	12.18
89	114194	901037	10.18
90	114095	901096	10.18
91	114019	901141	12.08

92	113938	901207	10.18
93	113867	901265	13.18
94	113803	901316	10.18
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97	113607	901475	12.18
98	113544	901526	9.18
99	113489	901571	11.08
100	113429	901654	10.18
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103	113279	901866	9.18
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105	113181	902004	10.18
106	113116	902095	10.18
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111	113016	902412	11.18
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115	113059	902686	11.18
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119	113057	902985	11.18
120	113033	903085	11.08
121	113044	903170	12.08
122	113105	903238	12.08
123	113176	903265	10.18
124	113256	903297	10.18
125	113333	903328	12.08
126	113419	903350	10.18
127	113492	903369	11.18
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129	113668	903354	12.08
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131	113795	903359	11.18
132	113863	903362	10.08
133	113933	903415	12.18
134	113995	903461	12.08
135	114034	903559	11.08
136	114001	903650	10.18
137	113968	903740	11.08
138	113932	903838	11.08
139	113956	903906	10.18

140	113982	903982	10.18
141	114010	904067	10.18
142	114039	904151	10.18
143	114067	904232	9.18
144	114097	904320	12.18
145	114128	904413	11.08
146	114164	904517	10.08
147	114243	904556	10.18
148	114320	904594	8.18
149	114400	904634	12.18
150	114486	904676	11.18
151	114569	904717	12.08
152	114610	904747	12.08
153	114694	904809	10.18
154	114784	904876	11.18
155	114834	904913	9.18
156	114904	904966	9.18
157	114965	905010	11.18
158	115048	905072	12.08
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161	115288	905250	11.08
162	115362	905250	10.18
163	115441	905250	11.08
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165	115587	905251	9.18
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167	115749	905252	10.18
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170	115991	905253	11.08
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172	116150	905217	10.08
173	116243	905196	11.08
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175	116418	905156	8.18
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177	116557	905085	10.18
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180	116798	904983	11.08
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184	117143	905028	10.18
185	117216	905038	10.08
186	117277	905111	9.18
187	117342	905189	9.18

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189	117457	905325	8.18
190	117507	905386	9.18
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192	117604	905501	10.18
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195	117752	905678	9.18
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197	117850	905796	10.18
198	117903	905858	12.18
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201	118110	905960	10.18
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205	118479	906052	10.18
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255	118908	909711	10.18
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263	118565	910250	9.18
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285	118925	911842	10.18
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292	119455	912098	10.18
293	119519	912094	9.18
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343	121530	915322	9.18
344	121564	915399	10.18
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427	126359	920173	12.18

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442	127599	920636	11.18
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670	140077	932383	10.18
671	140168	932362	12.185
SS Gantry	140186	932344	
Stornoway SS	140191	932339	

Technical Appendix 2.2: SSEN Transmission General Environmental Management Plans (GEMP)

Scottish & Southern Electricity Networks

TG-NET-ENV-510

Environmental

General Environmental Management Plan (GEMP)

- Oil Storage and Refuelling

	Name	Title
Author	Dan Thomas	Environmental Project Manager
Checked by	Simon Hall	Environmental Project Manager
Approved by	Richard Baldwin	Head of Environment

Contents

1 Introduction

1.1 Oil and fuel inappropriately used, stored or disposed of can give rise to pollution of the environment.

1.2 Oil and fuel can be released into the environment through:

- Spillages during delivery or use
- Spillages during refuelling operations
- Loss during attempted theft or vandalism
- Spillages from hose bursts
- Spillages from mechanical failure of plant and their components
- Inadequate or damaged storage facilities, or
- Being poured directly to drains or gullies or being burned

1.3 Petrol, diesel and oil are all highly harmful to plants, animals and humans. If pollution is caused, prosecution may follow. The resultant cost of clean-up and legal proceedings following an incident is likely to far exceed the cost of putting proper control measures in place.

2 Legislation

2.1 The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) apply to any kind of oil including petrol, diesel, mineral oil, heating oil, lubricating oil, waste oil, vegetable and plant oil (except uncut bitumen) stored above ground at premises such as construction sites.

2.2 The relevant provisions of Waste Management Licensing Regulations 1994 (as amended) also apply to handling and storage of waste oil.

2.3 The carriage of diesel, kerosene and petrol by road is regulated by The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (CDG 2009), as amended.

3 General Compliance Requirements

3.1 General

3.1.1 Compile a protocol for oil and fuel storage & operations on site, including but not limited to, bulk fuel delivery procedure, refuelling procedure, fuel storage inspections (including spill kit & plant nappy provision and condition) & emergency response procedures.

3.1.2 All those undertaking or involved in refuelling operations should be nominated on the project as Refuelling Marshals and trained in the approved refuelling procedure.

3.1.3 Suitably sized and fully stocked spill kits of the appropriate type are to be located and maintained at all oil & fuel storage locations, refuelling locations and in all site vehicles. Plant nappies must also be available at all refuelling locations for use during refuelling procedure.

3.1.4 Used spill kit materials should be removed as Special Waste. Stocks of spares are required to be held on site to ensure restocking and replacement can occur in a timely manner.

3.1.5 Where a plant nappy is of two part design the use of plant nappy liners without plant nappy base, or plant nappy base without liner is not acceptable as their performance will be compromised.

3.1.6 All oil loss events such as spillages, hose bursts etc must be reported in line with Scottish and Southern Electricity Networks (SSEN) reporting procedures.

3.2 Deliveries & Storage

3.2.1 Oil and fuel storage areas should be clearly designated and shown on site layout and drainage plans clearly presented on site and briefed during site inductions. Tool Box Talks are to be used to communicate changes and periodically remind operatives on oil and fuel storage, refuelling procedures and emergency response requirements.

3.2.2 During delivery of fuel or oils by a supplier to site, the delivery vehicle must be supervised by a suitably trained Refuelling Marshal when on site. Volume and type of fuels delivered and stored on site should be recorded along with dates of delivery.

3.2.3 The following will be considered as a minimum when identifying the location for fuel storage:

- Maintaining a minimum of 30m from sensitive environmental receptors such as surface waters, surface drainage systems, wetlands, Groundwater Dependent Terrestrial Ecosystems (GWDTEs), drinking water or private water supply catchments
- Fuel stores must be sited away from where they could be hit by moving vehicles and plant whilst ensuring ease of access to proposed storage area for oil deliveries / refuelling
- Ensuring suitability of ground conditions e.g. can the area be protected against flood damage / inundation / subsidence
- Use existing oil interceptor facilities, bunded storage areas or suitable areas of hardstanding , and
- Locate areas to prevent risk of theft or vandalism

3.2.4 Clear signage should be provided at oil storage areas and designated fuelling areas.

3.2.5 Clearly identify any areas where fuelling or fuel storage is not permitted on site plans (e.g. within close proximity to watercourses). Where appropriate consider additional signage highlighting and defining exclusion zones.

3.3 Fuel and Oil Storage Containers

3.3.1 All fuel or oil storage containers must:

- Adhere to all and any conditions of the Controlled Activities Regulations (CAR)
- Be of suitable type for that fuel or oil
- Be appropriately labelled identifying the contents
- Be of enough strength and structural integrity to ensure that it is unlikely to burst or leak in its ordinary use
- Be maintained in good condition
- Not filled beyond design capacity
- Be impermeable to oil or water, and
- Positioned, or other steps taken to minimise any risk of damage by impact so far as reasonably practicable

3.3.2 Storage of fuel within 50 gallon/ 200 litre drums is not permitted on site. Where waste oil is stored in this equipment it should be for minimal duration and the drum should be placed within a suitably sized bund.

3.3.3 For fuel storage containers of 200 litres or greater these must be checked for compliance with General Binding Rule 28 of the Controlled Activity Regulations.

3.3.4 Secondary containment or bunds are required where storage of oil or fuel is within containers over 200 litres. This secondary containment must be checked and maintained regularly, with any liquid or materials within emptied/ removed and suitably disposed of to retain required volume.

3.3.5 The storage of oil or fuel in a portable container with a capacity of less than 200 litres must:

- Be securely sealed when not in use so as to contain the fuel in event of tipping of the container
- Be secured during transit within a vehicle so as not to slide, tip or otherwise be put at risk of damage
- Where being stored for any period longer than a day between use, be placed within suitable bunded Control of Substances Hazardous to Health (COSHH) containment when not in use, and
- When not stored within a bunded COSHH container, the container should be stored securely on a plant nappy, away from any sensitive receptors such as watercourses

3.4 Refuelling

3.4.1 The following must be adhered to for refuelling operations:

- Refuelling operations are to be included within the preparation of a protocol for oil and fuel storage & operations on site

- Undertake refuelling at appropriately sited and set up designated refuelling bays
- Where this is not possible for operational reasons, refuelling should not be undertaken within 30m of surface waters and should follow the above guidance regarding location of any fuel related activities
- Suitably sized spill kits must be easily accessible for all re-fuelling operations and drip trays / plant nappies used during refuelling operations to catch drips and splashes

3.5 Construction plant

3.5.1 Plant nappies should be placed under stationary plant and equipment such as oil powered pumps, generators, winches, hydraulic presses, compressors, lighting rigs (where these items are not "integrally bunded"). Hydraulic powered plant such as presses, winches or tensioners may require additional mitigation such as further plant nappies or impervious drip trays.

3.5.2 Whilst plant nappies do not provide significant containment capacity, they are easier to manage than impervious drip trays which require increased maintenance to ensure rain water is not contaminated and require to be regularly emptied of rainwater to ensure effectiveness.

3.5.3 Static plant should be located at least 30m from any watercourse (or other identified sensitive receptor). Where it is not possible, mitigation should be put in place to reduce the risk or impacts of a pollution incident occurring (including additional capture methods for losses, increased inspection visits of the plant or placement of oil booms).

3.5.4 Plant nappies are to be placed under mobile plant on site when parked up, for example during breaks, overnight or longer periods. A plant nappy will be assigned to each piece of plant and placed under the area of the plant considered the greatest risk, for example this may be under the engine bay (if unbunded) or under the hydraulic pumps or flexi hoses. Stones maybe placed on the plant nappy to prevent it being blown away in strong winds.

3.5.5 Plant nappies should be regularly inspected as part of plant pre-use checks and during other site inspections and should be replaced (or their liners replaced) when deterioration and/ or contamination is evident.

3.6 Further information

3.6.1 Further information is available from (but not limited to):

- SEPA The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) - A Practical Guide
- CIRIA (2005) C650 - Environmental Good Practice – site guide
- CIRIA (2006) C648 - Control of water pollution from linear construction sites – Technical Guidance
- https://www.hse.gov.uk/cdg/commonproblems/bowsers.htm

- https://www.gov.uk/government/publications/carriage-of-dangerous-goods-guidance-note-23

4 Revision History

No	Overview of Amendments	Previous Document	Revision	Authorisation
01	New document created	N/A	1.00	Richard Baldwin
02				

Scottish & Southern Electricity Networks

TG-NET-ENV-511

Environmental

General Environmental Management Plan (GEMP)

- Soil Management

	Name	Title
Author	Dan Thomas	Environmental Project Manager
Checked by	Simon Hall	Environmental Project Manager
Approved by	Richard Baldwin	Head of Delivery

Contents

1 Introduction

1.1 Soil is a precious resource and can provide the following functions:

- Supports a diverse ecological system and provide the growing medium for crops and timber;
- Provides a carbon sink and plays an important role in carbon sequestration;
- Absorbs rainfall, delaying its movement into watercourses;
- Filters or transforms chemicals that pass through it, preventing them from ending up in water or air.

1.2 Any damage to soil quality affects the long-term functioning of the soils and has an impact not only on ecological diversity, performance and visual amenity, but can have impacts off-site such as on flooding, aquifer recharge and water quality.

1.3 It is therefore essential that impacts to the resource are reduced to the minimum necessary for the works and that all work is undertaken in accordance with best practice. The methods of stripping, storage, reuse and disposal of soil can have significant impacts on both the soil resource and other environmental receptors.

2 General Compliance Requirements

2.1 General Principles of Soil Management Process

2.1.1 All stripping should follow this process, except in agricultural fields whereby the method should be informed by landowner requirements, or where archaeological concerns exist and smooth buckets maybe preferable:

- Turfs stripped to 300mm using large toothed bucket;
- Turfs stored vegetation side up and watered if drying out;
- Any remaining top soil and all subsoil layers to be removed and stored separately;
- Subsoil, topsoil and turfs replaced in same order as removed;
- Turfs reinstated vegetation side up;
- The toothed bucket should not be used to smooth over the excavation as it results in greater initial damage and slower recovery of the vegetation.

2.2 Stripping

2.2.1 Plan soil stripping carefully in advance.

2.2.2 Check whether the project archaeologist should be on site during the soil stripping.

2.2.3 Check all necessary pre-construction surveys have been completed prior to stripping (e.g. preconstruction protected species surveys in line with Species Protection Plans).

2.2.4 Follow all identified mitigation requirements for the location and method of stripping.

2.2.5 Where possible, strip soil during drier periods. Do not strip soil during periods of very heavy rainfall.

2.3 Storage

2.3.1 Topsoil should be stripped and stored within the pre-identified and agreed areas to ensure safe storage and swift and successful reinstatement.

2.3.2 If soil storage is being carried out on sensitive habitats, consideration should be given to storage on top of a geotextile mat with duration of storage minimised.

2.3.3 Topsoil must not be mixed with subsoil or other layers with a requirement for separate storage areas for each.

2.3.4 Record and 'signpost' where all removed soils are stored including the different subsoil layers (this is important as individual subsoil layers should be reinstated in the order in which they were removed).

2.3.5 If the storage is likely to be for an extended period (for example >6 months) it may be appropriate to store topsoil layered on top of subsoil bunds. Underlying turfs (and topsoil) at the storage location should be removed in advance with turfs stored on surface of the bund.

2.3.6 Soil storage areas should be located away from watercourses (minimum 10m) and protected from run-off from adjacent areas.

2.3.7 Storage bunds should be designed so the material is stable and unlikely to slip, slide or slump. Consider the risk of any adjoining topography, (e.g. avoiding storing soils near steep slopes or banks, or in areas at high risk of flooding.

2.3.8 Best practice should be applied in order to minimise the amount of compaction or other disturbance of the general structure of the superficial deposits.

2.3.9 Other site works should not impact on stored soil (e.g. Construction traffic must not track over stored soils).

2.3.10 Careful planning of storage areas and required works must be undertaken to avoid multiple handling of stored material and moving of stockpiles.

2.3.11 The surface of material storage bunds (not turfed as detailed above) can be smoothed with bucket to aid surface water run off to reduce potential for erosion. If significant soil erosion is occurring from storage piles during periods of heavy rain, consideration should be given to covering the stockpiles, with terram or other suitable material.

2.3.12 In periods of dry weather check the need for dampening down to reduce dust and potential nuisance.

2.3.13 If any stored soil is contaminated it should be managed in accordance with the Contaminated Land GEMP.

2.3.14 After removal of stored material, storage areas should be reinstated to the pre-existing condition.

2.4 Reinstatement

2.4.1 Stripped soil should be reinstated as close to where it was removed as possible. This will help to maintain a local seed base and the local geological/ hydrological characteristics.

2.4.2 Unless otherwise agreed, turfs should be reinstated following the works and orientated vegetation side up.

2.4.3 Where turfs are not available, areas would be left to revegetate naturally unless circumstances require otherwise, or vegetation is unlikely to establish within a reasonable timescale. Any seeding or replanting must be agreed in advance, including details of seed mixes and management regimes. Other techniques maybe more appropriate depending on the habitat to be reinstated.

2.4.4 The reinstatement of the construction area is to be undertaken to a high standard, using the existing soil and vegetation material wherever possible, in accordance with best practice.

3 Revision History

No	Overview of Amendments	Previous Document	Revision	Authorisation
01	New document created	N/A	1.00	Richard Baldwin
02				

Scottish & Southern Electricity Networks
TRANSMISSION

TG-NET-ENV-512

Environmental

General Environmental Management Plan (GEMP) – Working in or Near Water

	Name	Title
Author	Jeremy Mcisaac	Project Coordinator
Checked by	Ian Williams	Environmental Project Manager
Approved by	Richard Baldwin	Head of Environmental

Contents

1 Introduction

1.1 Construction activities in or near water have the potential to cause serious pollution or impact on the bed and banks of a watercourse and on the quality and quantity of the water.

1.2 Engineering works can cause damage to the habitat within rivers, lochs and wetlands, with associated impacts on invertebrates, plants, birds and mammals. Engineering works can also block the passage of migrating fish and damage spawning habitats during sensitive times.

1.3 Major causes of environmental harm associated with working in or near watercourses include:

- Silt e.g. disturbance of river bed or bank, dewatering and pumping of excavations, runoff from exposed ground, plant washing, roads and river crossings
- Cement and concrete – which is very alkaline and corrosive and can cause serious pollution
- Chemicals and solvents – oil storage, refuelling, trade materials etc
- Herbicides – aerial and non-aerial applications; and
- Waste materials (including special waste) e.g. oily wastes, spent acids and solvents

2 References

The document detailed below in Table 2.1 - Scottish and Southern Electricity Networks Documents, should be used in conjunction with this document.

Table 2.1 - Scottish and Southern Electricity Networks Documents

Reference	Title
SM-NET-ENV-500	Consents and Environment Manual

3 Legislation

3.1 There are a number of activities which pose a risk to the water environment including:

- Discharges to the water environment
- Abstractions; and
- Physical works within, and in proximity to controlled

3.2 The Water Environment (Controlled Activities) (Scotland) Regulations 2011 – more commonly known as the Controlled Activity Regulations (CAR) sets out authorisations that are required for different activities in or near the water environments (including rivers, lochs, estuaries and groundwater).

3.3 Levels of authorisation include General Binding Rules (GBR), Registrations and Licences the most significant of which is a Construction Site Licence (CSL). A CSL is required for any project that:

- Exceeds 4 hectares in area
- Contains a road or track length in excess of 5km, or
- Includes any area of more than 1 hectares or any length of more than 500 metres on ground with a slope in excess of 25 degrees

4 General Compliance Requirements

4.1 General

4.1.1 Plan all works in accordance with best practice, giving cognisance to the potential for extreme weather events. The plan should provide for appropriate pollution incident emergency response in respect of resource required and mitigation materials / equipment (e.g. availability of Silt Buster units, suitably equipped Emergency Response Trailers at, or near to, the point of work, etc.)

4.1.2 Ensure all necessary authorisations under the Controlled Activities Regulations (CAR) are in place.

4.1.3 Identify all activities that will be undertaken in or near watercourses (including all identifiable drainage paths).

4.1.4 Avoid works within 10m of a watercourse unless no other practical options exist and leave a vegetated buffer strip.

4.1.5 Where works are undertaken within 10 m of any watercourse or drain, ensure specific pollution prevention controls are in place.

4.1.6 Communicate risks associated with working in or near watercourses to all personnel and include control measures in the site-specific construction method statements.

4.1.7 Keep site tidy and do not store materials too close to watercourses or surface water features.

4.1.8 Ensure that all watercourses are routinely monitored for changes in water quality, particularly during significant rainfall events. If water quality deteriorates, stop works, identify the source of the problem and implement appropriate mitigation measures.

4.2 Watercourse Engineering

4.2.1 Seek to avoid or minimise watercourse engineering works wherever possible.

4.2.2 Vehicles should not work within the water unless no other reasonable options exist.

4.2.3 All construction machinery operating in-stream should be mechanically sound to avoid leaks of oils, hydraulic fluid, etc.

4.2.4 Machinery should be thoroughly cleaned and checked prior to commencement of instream works.

4.2.5 All reasonable steps shall be taken to prevent the transport of sediments or other matter disturbed by the works.

4.2.6 Ensure all required pre-construction surveys have been completed before starting works (these will include, where appropriate, fresh water pearl mussels, otter, water vole).

4.2.7 Check if there are any timing restrictions to works because of protected species (e.g. spawning salmonids, otter, water vole etc) or landowner commitments.

4.2.8 Any temporary dams used should be designed to accommodate periods of high watercourse discharge and dried out sections of bed should be check for stranded fish. Any stranded fish or other wildlife must be immediately translocated to suitable nearby habitat.

4.2.9 Pumps should also be fitted with screens to prevent fish mortalities and ingress of debris, and the outfall to pumps be designed to prevent erosion of the receiving waters (i.e. by dissipating the flow). Back up pumps should be available.

4.2.10 Where stock has access to the works fencing may be necessary to allow the regeneration of native riparian and aquatic marginal vegetation.

4.3 Surface Water Control

4.3.1 Locate areas of high-risk activities away from watercourses and drainage paths. Areas of high risk include:

- Fuel and chemical storage
- Refuelling areas
- Material stockpiles
- Vehicle and equipment washing areas
- Site compounds / parking areas

4.3.2 Minimise the volume of contaminated run-off being created:

- Diverting clean surface water away from areas using cut-off drains, catch pits and bunds (where necessary these can be lined)
- Do not allow water to drain down the length of a haul road. Roads should have adequate cambers to shed water quickly and if necessary cut-off drains installed across the road
- Minimise erosion of exposed soils and working areas
- Reduce the exposed working area through phased construction
- Reinstate exposed soil as soon as practical

- Roughen exposed surfaces to reduce rate of water run off
- Prevent water from leaving site prior to treatment
- Ensure adequate buffer zones are identified between working areas and surface waters
- Diversion drains should be used to catch sediment laden run-off and direct it to treatment facilities such as settlement ponds (where necessary these can be lined), silt fences, settlement tanks etc (see CIRIA C6848)
- Maintain all mitigation measures regularly to ensure their effectiveness. It is recommended that maintenance records are kept to record remedial measures taken to ensure the effectiveness of the mitigation measures installed
- Depending on the level of contamination, silty water can be pumped over land to filter through vegetation and infiltrate into the ground provided it is carried out in line with the CAR regulations. An appropriate buffer distance must be agreed to allow sufficient distance for the vegetation to filter the silty water prior to reaching a watercourse
- Ensure construction works minimise disturbance to the current run-off regimes

4.4 Vegetation Removal

4.4.1 Trees and shrubs should not be removed without agreement.

4.4.2 Avoid un-necessary vegetation removal.

4.4.3 Where necessary leave a vegetated buffer distance of 10m between works and a watercourse.

4.4.4 Only break the ground surface when works are required and initiate a phased approach.

4.4.5 Comply with agreed buffer zones of vegetation as this will allow further treatment of surface water.

4.4.6 Do not dispose of cleared vegetation into the watercourse and avoid debris from clearance.

4.4.7 Vegetation removal can impact on bank stability and increase erosion. Ensure that all banks are restored to a condition prior to works commencing and assess what further protection may be required.

5 Revision History

No	Overview of Amendments	Previous Document	Revision	Authorisation
01	New Document Created	N/A	1.00	Richard Baldwin
02	Updated text, and reference doc added.	TG-NET-ENV-512 (Rev1.00)	1.01	Richard Baldwin

Scottish & Southern Electricity Networks

TG-NET-ENV-513

Environmental

General Environmental Management Plan (GEMP)

- Working in Sensitive Habitats

	Name	Title
Author	Dan Thomas	Environmental Project Manager
Checked by	Simon Hall	Environmental Project Manager
Approved by	Richard Baldwin	Head of Environment

Contents

1 Working in Peatland and Sensitive Habitats

1.1 Introduction

1.1.1 This General Environmental Management Plan concentrates on sensitive habitats associated with Peat, Blanket Bog, Wet Heath and Dry Heath habitats.

1.1.2 Section 3 of this General Environmental Management Plan includes guidance specific to peat management and the preparation of Peat Management Plans where on-site activities impact on peat. Site specific measures should be developed before construction begins at any location where working in peat is a constraint.

1.2 Legislation

1.2.1 Sensitive habitats may include those Scheduled under Annex 1 of the Habitats Directive. The Habitats Directive is more formally known as Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, a European Union Directive adopted in 1992. Sensitive habitats may more widely be defined as habitats where additional care is required to avoid permanent damage or to reinstate to the previous condition.

2 General Compliance Requirements

2.1 General

2.1.1 Whilst working within sensitive habitats or peatlands follow best practice from SNH and SEPA.

2.1.2 When working in areas with sensitive habitats, the hierarchy of avoid, minimise, mitigate and manage must be applied.

2.1.3 Where possible areas of development such as cable routes, access tracks and tower positions should be micro-sited within permissible limits to minimise impacts on areas of sensitive habitat and areas of deep peat.

2.1.4 Stripping areas of sensitive habitat and peatland should be kept to an absolute minimum and done in consultation with the environmental representative.

2.1.5 During planning and implementation consider how the site will be restored or reinstated on completion of the works.

2.1.6 Ensure adequate corridors / areas are allowed for water management and reinstatement works which may include sourcing donor material from adjoining areas in some instances.

2.1.7 Consider effects of local hydrology factors (drainage, watercourses, flushes, bog pools, peatlands etc) on established habitats and seek to maintain hydrology regimes during the works.

2.1.8 If hydrological impacts cannot be avoided, or significantly mitigated through design and implementation, ensure hydrological connectivity is re-established as soon as possible. Ensure development or reinstated areas do not form preferential drainage.

2.1.9 Areas where rain water has been flowing over the ground surface should be identified in advance of works.

2.1.10 Design drainage channels or pipe systems to conduct water across cable trenches (or areas where tracks have been removed and ground reinstated. This will minimise post-construction damage and to allow better opportunities for re-vegetation and successful reinstatement. Any drainage pipes should be removed once vegetation and stabilisation of original drainage has been established.

2.1.11 Undertake post-installation inspections to identify any areas where surface water flow is causing soil erosion.

2.2 Access

2.2.1 Access across sensitive habitats must be done as efficiently as possible, avoiding unnecessary movements back and forth.

2.2.2 Agree an Access Strategy and details of all access routes with the environmental representative ahead of works, avoiding impacts on peatland or sensitive habitats as far as possible. Where All Terrain Vehicles (ATVs) are proposed consider the trade-off of changing access route as ground becomes damaged, to maintaining one access that subsequently requires reinstatement / restoration.

2.2.3 Where no existing access tracks exist, seek to use temporary trackway solutions including trackway panels (E.g. Terrafirma Dura-Base or Trackway), timber log mats or bog mats when transiting sensitive habitats or peatlands. Where plant and terrain do not suit the use of temporary access panels type solutions, temporary floating stone roads may be needed.

2.2.4 Access across unprotected peatland or other sensitive habitats should be restricted to low ground pressure vehicles and plant only (i.e. suitable ATV- argocat or Soft track, or wide spread tracked machines), and should avoid rutting.

2.3 Access Track Construction

2.3.1 Design of works should avoid the potential for concentrated discharges of water onto the hill slopes. In particularly susceptible areas, the use of drainage ditches may be necessary upstream of the construction corridor. These should be installed following advice from hydrological specialists and in agreement with project environmental resource.

2.3.2 Ensure adequate drainage is installed upfront across tracks upfront (temporary or permanent access tracks) through use of culverts at regular intervals (including where there may not be obvious watercourses). Culverts should be installed in compliance with Controlled Activities Regulations (CAR) requirements.

2.3.3 Working in areas of peatland should be avoided, as far as practicable during times of the year with the highest rainfall. Stripping of peat and reinstatement works should stop during periods of sustained heavy rainfall.

2.3.4 During the reinstatement of sensitive habitats, it may be necessary to utilise living donor turfs from land either side of the development and to reworked acrotelm from land adjoining the works corridor to prevent formation of preferential drainage.

2.3.5 Across areas of deep peat and other sensitive habitats, floating roads are generally preferable, especially where temporary. The formation of temporary access tracks should be underlaid with geotextile and geogrids. This should exceed the width of the track formation to avoid overspill of stone onto adjoining habitat and to assist in separation of the track construction materials from the underlying soils.

2.3.6 Where excavation is required, a tracked excavator should first remove turfs to a depth of 300 mm using as large a toothed bucket wherever possible. (This may not be appropriate where archaeological interest exists, and smooth buckets are specified).

2.3.7 Turfs, peat and subsoil should be stored separately in line with Soil Removal, Storage and Reinstatement General Environment Management Plan.

2.3.8 Turfs and soil should be stored to the side of the excavation. Where this is on good quality blanket bog storage should be on top of a geotextile membrane.

2.3.9 Turfs should be stored root side down and should remain in the storage location until required for reinstatement (this is to avoid multiple handling and reduce the potential for turfs becoming unstable).

2.3.10 Subsoil layers and peat layers should be reinstated in the order they were removed, and the turfs should be reinstated root side down.

3 Peat Management

3.1 General peat management requirements

3.1.1 In addition to the unique habitats provided by peatlands, areas of deep peat have a significant global role in carbon sequestration. Disturbing peat can release CO_2 to the atmosphere as the peat is oxidised when exposed to air or dried out. Through proper management of peat these impacts can be reduced

3.1.2 It is important to ensure the hydrological regime of peatland is maintained and that peat is not left unprotected to avoid erosion and degradation. Avoid unnecessary drainage of peatlands. Any temporary cut off ditches should be back filled as soon as practical on completion of works.

3.1.3 Ensure that large loads do not compress peat and create a barrier to water movement which could cause ponding at one side of the corridor and drying out at the other, or cause peat slump by displacement. Peat Slide risk assessments may also be required by the project.

3.1.4 Existing degraded peatland can often be stabilised or re-established to active peatland with minimal effort and opportunities to undertake such works should be investigated where possible.

3.2 Peat Management Plans

3.2.1 Where significant impacts on peat are identified, or peat depth is greater than 0.5 metres, a site or project specific Peat Management Plan (PMP) may be required and should be agreed prior to the construction phase. The PMP must be developed with input from the environmental representative and may require stakeholder input.

3.2.2 In certain circumstances a Peat Management plan may be required as a condition of consent or specifically specified as a contract deliverable. In these circumstances the content must reflect that required by the consent or contract.

3.2.3 The Peat Management Plan, as a minimum should:

- Include and adhere to principles set out in best practice and guidance notes from SNH and SEPA, including SEPA's guidance note WST-G-052 -Developments on Peat and Off-Site Uses of Waste Peat
- Include detailed OS background-based plans with site location insets, detailing peat depth maps, highlighting areas of deep peat, storage areas and any areas suitable for restoration / reinstatement
- Reference peat depth maps, identify how impacts on peat have been minimised and quantify types and volumes of peat anticipated to be disturbed by the project
- Identify appropriate storage of peat for reuse (during reinstatement for example). In line with Soil Removal, Storage and Reinstatement GEMP
- Identify suitable areas for separate storage of excavated strata, including for example, turfs, peat and subsoil. It may also be appropriate to implement different management and storage strategies for the various strata of deep peat, including top vegetative layer and acrotelm, where fibrous living organic matter is still evident, separate to the catotelm, where the structure of the peat is more homogenous and loses its structure more easily
- Detail how the works have been planned to ensure minimal handling of peat. (In moving and reworking peat, the structure can easily be lost making storage and reuse more challenging. Turfs and other peat materials should be stored as close to origin as possible
- Detail inspection regime to ensure peat is regularly checked for signs of drying out and detail planned measures to prevent this occurrence. (If drying out is occurring the storage areas may require to be sprayed with water. Any water abstraction associated with this activity needs to be compliant with the Controlled Activities Regulations (CAR).)
- Identify opportunities for reuse on and off site if required (in peatland restoration for example). Detail plans for reinstatement of stored material, including potential peatland restoration works. During implementation ensure that no bare (unvegetated) peat is exposed as this may take a long time to re-establish, and will be a high risk of degradation and erosion; and
- Include a water management strategy for minimising impacts of construction activities on the peatland

3.2.4 The Peat Management Plan should then be followed during the construction phase, with any required changes agreed as the project progresses

4 Revision History

No	Overview of Amendments	Previous Document	Revision	Authorisation
01	New document created	N/A	1.00	Richard Baldwin
02				

Scottish & Southern Electricity Networks

TG-NET-ENV-514

Environmental

General Environmental Management Plan (GEMP)

- Working with Concrete

	Name	Title
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Checked by	Simon Hall	Environmental Project Manager
Approved by	Richard Baldwin	Head of Environment

Contents

1 Working with Concrete

1.1 Background

1.1.1 The chemical reactions that enable fresh concrete to cure are complex. A by-product of these reactions is the production of calcium hydroxide, a highly alkaline chemical that has a pH in excess of 12.

1.1.2 There are a number of sources of alkaline water on construction sites, which include:

- Concrete wash water from cleaning of machinery and tools used with fresh concrete – e.g. chutes, drums, pumps, hand tools
- Cutting or coring of concrete structures
- Hydro-demolition (high pressure water cutting)
- Surface water runoff from newly concreted areas
- The storage or use of Concrete Bound Sand (CBS) in backfilling of cable works
- Leaching form installed cabling works utilising CBS backfill
- Crushed demolition materials, and
- Concrete installed below groundwater level (e.g. piled foundations)

1.1.3 The release of untreated highly alkaline water into the environment from any of the sources described above, can have a significant environmental impact, including on the ecology of receiving waters. The following are potential impacts of concrete and cement born contamination if not properly treated:

- Increase in pH of the water environment to toxic levels
- Kill invertebrate and other aquatic life including plants
- Particles can impact the turbidity of receiving waters
- Smother the bed and kill aquatic life
- Block gills of fish
- Impact directly and indirectly protected species which may be present e.g. otters, freshwater pearl mussels, or salmon
- Increase flood risk or agricultural drainage by blocking of drains and other structures

1.2 Legislation

1.2.1 Under the Controlled Activities Regulations, it is on offence to discharge polluting substances to controlled waters (surface water and groundwater) without prior approval from the Regulator (SEPA). This includes any discharge of concrete/ cementitious materials or contaminated water.

2 General Compliance Requirements

2.1 General use

2.1.1 Concrete shall not be used within 10m of any watercourse or loch. Should there be the requirement to use concrete and cement within 10m of a waterbody, this should be fully risk assessed and agreed in advance of the works.

2.1.2 Store bulk and bagged cement and concrete additives at least 30 metres away from watercourses, gullies and drains in properly secured, covered and bunded areas.

2.1.3 Ensure dust from storage areas is controlled.

2.1.4 Ensure all staff are briefed on the potential environmental risks of working with concrete.

2.1.5 Ensure that any residue from cutting/ coring/ hydro-demolition activities is correctly contained and treated where necessary.

2.1.6 Consider the materials being used e.g. recycled concrete aggregate may cause elevated pH levels as a result of run-off.

2.1.7 Recirculating systems should be used where possible to minimise the use of water resources.

2.2 Washout

2.2.1 Areas should be established for concrete washout which avoid important habitats and species.

2.2.2 Surplus concrete should be removed from equipment by scraping before washing down in order to minimise the volume of water required.

2.2.3 All concrete wash water should be contained for treatment on site or disposal off site. None shall be allowed to enter any drains, ditches or watercourses or land.

2.2.4 Discharge of small volumes to land should only take place where there is no connectivity to surface and ground waters and can be demonstrated to be fully compliant with legislative requirements.

2.3 Treatment Options on site

2.3.1 The pH scale is a logarithmic scale which means that each unit change in pH for example pH 7 to 8 represents a tenfold increase in alkalinity. Because of this, attempting to treat concrete washout by dilution alone has the potential to increase the risk of a serious pollution incident.

2.3.2 Dilution of high pH water is ineffective due to the logarithmic scale of pH. (For example, to dilute one IBC of concrete wash water at pH 12, the equivalent of four Olympic swimming pools of fresh water would be needed to bring it back to neutral (pH 7).

2.3.3 In order to adjust high pH wash water in line with acceptable levels, a process of neutralisation using controlled amounts of reagent may be required. Typical reagents include mineral acid (either sulphuric or hydrochloric acid), citric acid, carbon dioxide (CO_2) and self-buffering solutions. Propriety units for treatment of high pH water on site are available, some of which use CO_2 diffusers to neutralise the high pH water.

3 Revision History

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01	New document created	N/A	1.00	Richard Baldwin
02				

Scottish & Southern Electricity Networks

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Environmental

General Environmental Management Plan (GEMP)

- Watercourse Crossings

	Name	Title
Author	Dan Thomas	Environmental Project Manager
Checked by	Simon Hall	Environmental Project Manager
Approved by	Richard Baldwin	Head of Delivery

Contents

1 Introduction

1.1 The installation of structures for the purpose of crossing watercourses presents potential risks to the environment. These include:

- Obstruction to fish migration and spawning;
- Obstruction to mammal access;
- Impacts on aquatic flora and fauna;
- Loss or degrading of aquatic and riparian habitats;
- Alteration of the hydrological regime with associated impacts on habitats; and
- Releases of substances to the water environment during construction and operation e.g. suspended solids, oils etc;
- Impacts alternating the natural geomorphological balance of the watercourse, leading to erosion and bank stability issues.

2 Legislation

2.1 All watercourse crossings will require some level of authorisation under The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) (CAR). Levels of authorisation include General Binding Rules (GBR), Registrations and Licences.

2.2 It is essential that these legislative requirements are considered in the early stages of the planning and design process of a project.

3 General Compliance Requirements

3.1 General

3.1.1 Seek to avoid watercourse engineering works wherever possible.

3.1.2 Where this is not possible, seek to use existing crossings, upgrading as required (e.g. installation of a bridge at a fording point).

3.1.3 Plan all works in accordance with best practice, referring to SEPA guidance document 'WAT-SG-25 Engineering in the water environment: Good Practice Guide, River crossings'.

3.1.4 Design crossing to account for maximum flow conditions.

3.1.5 Culverts should be dug into bed of watercourse, allowing for natural strata in the watercourse to form the new bed of the culverted watercourse (Note: This may reduce the hydraulic capacity of the culvert and should be allowed for when specifying diameter of culvert).

3.1.6 Ensure crossing or associated works do not impede fish passage through the system.

3.1.7 Do not use multi piped culverts.

3.1.8 If the watercourse is wider than 1.5 m (measured top of bank to top of bank) use a bridge as opposed to a culvert.

3.1.9 Ensure all necessary authorisations under the Controlled Activities Regulations (CAR) are in place and adhered to.

3.1.10 Ensure all required pre-construction protected species surveys have been completed before starting works (these will include, where appropriate, fresh water pearl mussel (FWPM), otter, and water vole).

3.1.11 Consult with Scottish Natural Heritage (SNH) for advice on the presence of fish in the catchment.

3.1.12 Establish if the watercourse is used for fish spawning (through consultation with SNH, the local Fishery Board or Fisheries Trust), and if so, avoid periods in which spawning occurs and the subsequent emergence of the juvenile fish.

3.1.13 Pump intakes must be fitted with screens to prevent fish mortalities and ingress of debris.

3.1.14 Where possible flume pipes should be used for temporary works in areas where migratory fish are present, as an alternative to pumps.

3.2 Construction

3.2.1 Where possible works should be undertaken during drier periods (subject to other ecological timing conditions) and avoid periods of high rainfall. The weather forecast should be consulted 3 days in advance of works commencing the water crossing.

3.2.2 Vehicles should not work within the water unless no other reasonable options exist. If working within the watercourse, then plant must be thoroughly cleaned prior to use and vegetable based hydraulic oils specified in the plant.

3.2.3 During construction and use of the crossing, measures must be taken to prevent the transport of sediments or other materials into the watercourse, for example using correctly installed silt fencing.

3.2.4 Access across the watercourse crossing should be constructed of suitable material and in a manner that will not give rise to rutting, ponding or silt run-off (use of silt fencing along edges may be appropriate).

3.2.5 Vegetation removal should be minimised wherever possible. Any vegetation removed shall not be disposed of into any inland surface water;

3.2.6 Any length of bank with bare earth shall be re-established with an appropriate and agreed mix of riparian vegetation or with a fully biodegradable geotextile.

3.2.7 Any storage of material should be far enough away from the watercourse so as to prevent wash off entering the watercourse.

3.2.8 Any temporary dams used should be designed to accommodate periods of high flows.

3.2.9 Where pumps are used, back up pumps should be available.

3.2.10 Any engine used to drive a pump must be located as far away from a watercourse as possible.

3.2.11 Any stranded fish or other wildlife should be immediately removed from de-watered sections of bed and translocated to suitable habitat.

3.2.12 All temporary crossings must be reinstated to a condition that existed prior to the works as soon as possible.

3.3 Fording of Watercourses

3.3.1 Fording of watercourses is generally not acceptable and should be avoided if possible. However, depending on the activity it may be appropriate for limited access.

3.3.2 If fording is required, access should be restricted to one crossing point, using an existing / previous crossing point if available.

3.3.3 Scottish Environment Protection Agency (SEPA) must be consulted in order to obtain the relevant agreement or authorisations (as required).

3.3.4 A method statement for the use of the ford should be agreed ahead of works, identifying the crossing point, surveys undertaken ahead of crossing, frequency of use, and any required mitigation measures.

3.3.5 If the crossing point is not an established ford, measures to protect the bed and bank should be implemented as appropriate.

3.3.6 After use, the watercourse must be reinstated to a condition that existed prior to the works as soon as possible.

4 Revision History

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01	New document created	N/A	1.00	Richard Baldwin
02				

Scottish & Southern Electricity Networks

TG-NET-ENV-516

Environmental

General Environmental Management Plan (GEMP)

- Waste Management

	Name	Title
Author	Dan Thomas	Environmental Project Manager
Checked by	Simon Hall	Environmental Project Manager
Approved by	Richard Baldwin	Head of Delivery

Contents

1 Introduction

1.1 Waste is defined in the in the Waste Framework Directive (75/442/EEC) as "any substance or object which the holder discards, intends to discard or is required to discard". This includes materials that other people want, or for which they can find a beneficial use i.e. material that is to be recovered / recycled.

1.2 In any construction project, there may be a variety of different wastes, from office and canteen waste to construction materials, waste aggregate from temporary tracks, waste oils, asbestos and clinical waste that will require management.

2 Legislation

2.1 Waste legislation and guidance is extensive, complex and works must comply with all the obligations they impose. Key guidance from the Scottish Environment Protection Agency (SEPA), can be found on their waste website (www.sepa.org.uk/regulations/waste). This includes information on core legislation including:

- Environmental Protection Act 1990 (as amended)
- Waste Management Licensing (Scotland) Regulations 2011 (as amended)
- The Waste (Scotland) Regulations 2012 (as amended)

3 General Compliance Requirements

3.1 Principles of Waste Management

3.1.1 Waste management priorities and practical actions that can be undertaken on site should follow the principles of the waste hierarchy as illustrated below:

- Eliminate - Design out waste
- Reduce - Minimise waste generation
- Reuse - Reuse materials on site if possible
- Recycle - Reprocess materials for off-site use
- Recover - Recovery of energy from waste sent off site
- Dispose - Least desirable option – last resort

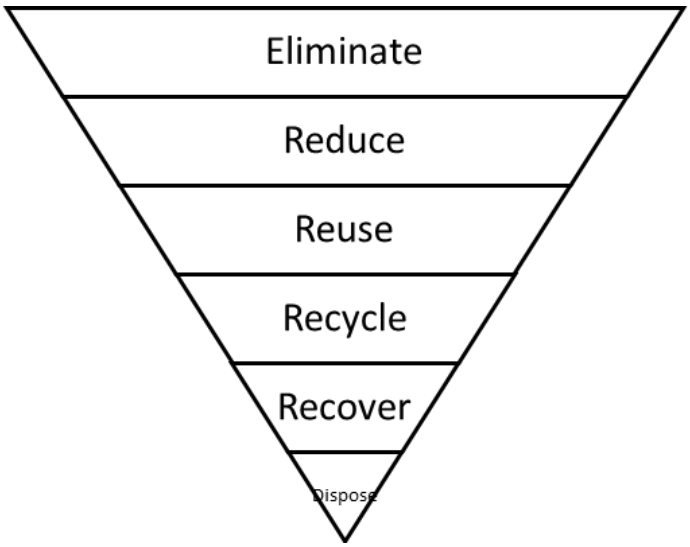

Figure 3.1 – Waste Hierarchy

3.1.2 A Site Waste Management Plan (SWMP) is required to be prepared agreed prior to construction works starting. This plan should be based on the above principles and include the following minimum requirements:

- Waste minimisation;
- Allocate a waste champion – who is responsible for the SWMP;
- Record types and quantities of waste that will be produced during the project;
- Decide how waste arising will be managed in line with the waste hierarchy;
- Plan for efficient materials and waste handling and set reduction targets (KPIs);
- Measure quantities and types of waste produced and compare against targets;
- Monitor the implementation of the SWMP and update as necessary; and
- Compile a waste budget.

3.2 Duty of Care

3.2.1 All those who produce or handle waste have legal responsibilities, a “Duty of Care”, for its safe keeping, transport and subsequent recovery or disposal.

3.2.2 Failure to comply the “Duty of Care” is an offence as it is a legal requirement under Section 34 of the Environmental Protection Act 1990 (as amended).

3.2.3 ‘Duty of Care’ requires the producer to:

- Ensure those transporting waste are registered with SEPA;
- Ensure the waste is being treated, re-used or disposed of at a suitably licensed site in line with current legislation;
- Keep a waste transfer slip for all waste being transported off site;
- Ensure that all waste on site is properly stored and secured;

- Take all reasonable steps to prevent unauthorised handling or disposal by others;
- If you are dealing with hazardous / special wastes, such as asbestos, chemicals, oils or contaminated soils, you have extra legal responsibilities and may be required to complete detailed 'special waste consignment notes'; and
- Should there be uncertainty over whether a waste is hazardous or special, advice should be sought.

3.3 Storage

3.3.1 The site should be kept tidy and free from litter at all times.

3.3.2 Segregation of waste (including metal, plastic, glass, paper and card) at the point of generation should be provided for site offices / welfare facilities and for construction activities by the use of designated storage areas / containers to ensure cross-contamination is reduced.

3.3.3 All storage areas / containers should be clearly labelled to identify the waste type and properties.

3.3.4 Waste storage areas should be appropriately secured to ensure to prevent pollution.

3.3.5 Controls should be in place to prevent wind blow (e.g. covered skips).

3.3.6 All wastes that could leach or be entrained in water should be stored in a sealed container or on an impervious surface with barriers to lateral flow.

3.3.7 Storage of liquid wastes should be stored in a sealed container within a secondary containment system (bund) with 110% capacity of the container.

3.3.8 Keep the duration of storage to the minimum required.

3.4 Special Waste Storage

3.4.1 Containers used for storage of special waste should be inspected weekly for leaks and corrosion.

3.4.2 Take care to separate different types of special waste, e.g. different chemicals that, if mixed, could react.

3.4.3 Written instructions should be available on site for storing and disposing of each type of special waste.

3.4.4 An inventory should be maintained of all special wastes stored on site, detailing quantities and locations.

3.5 Movement

3.5.1 All movement of waste should be undertaken in line with the relevant waste regulations.

3.5.2 Any waste being transported off site should be done so by a registered waste carrier.

3.5.3 A waste transfer note / special waste consignment note should be completed and retained prior to waste leaving the site.

3.5.4 Before waste is allowed to leave site, the producer should ensure that the site it is being transported to is appropriately licensed.

3.5.5 Vehicles transporting waste should be suitably secured so as not to allow waste to escape.

3.6 Reuse, Treatment, Disposal

3.6.1 All re-use, treatment and disposal of waste must be undertaken in line with an appropriate waste management licence (WML) or an exemption to require a waste management licence (WMX), under the Waste Management Licensing (Scotland) Regulations 2011 (as amended).

3.6.2 If it can be proven that the material is not waste, it will not fall within these requirements.

3.6.3 A WML and WMX must be obtained from SEPA prior to undertaking the activity.

3.6.4 No burning of waste is permitted on site.

3.6.5 No fly-tipping is permitted.

4 Further information

4.1.1 Some useful sites on waste management are:

- www.sepa.org.uk
- www.zerowastescotland.org.uk
- www.wrap.org.uk
- www.bre.co.uk
- www.smartwaste.co.uk
- www.ciria.org.uk
- www.netregs.org.uk

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01	New document created	N/A	1.00	Richard Baldwin
02				

Scottish & Southern Electricity Networks

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Environmental

General Environmental Management Plan (GEMP)

- Contaminated Land

	Name	Title
Author	Dan Thomas	Environmental Project Manager
Checked by	Simon Hall	Environmental Project Manager
Approved by	Richard Baldwin	Head of Environment

Contents

1 Introduction

1.1 Previous land use can lead to ground becoming contaminated with substances which may be hazardous to health or the environment. During construction works there is potential for these materials to be exposed, disturbed and mobilised. It may be possible to identify this as a risk during appropriate assessments at the planning stage, or it may be encountered unexpectedly during site works.

2 Legislation

2.1 Investigation and management of any potentially contaminated land must be undertaken in compliance with relevant Environmental and Health and Safety Legislation.

3 General Compliance Requirements

3.1 Planning the works

3.1.1 Plan works taking account of recognised best practice and all relevant waste regulations.

3.1.2 Key stakeholders for Contaminated land issues often include landowners / tenants, the local authority, and the Scottish Environment Protection Agency (SEPA).

3.1.3 Assess the risk of contaminated land issues at a site using historical land use checks and information from site walkovers, hydrological and geological mapping and other relevant data sources (sometimes referred to as Phase 1 Contaminated land assessments).

3.1.4 Where a risk of contamination is identified, further site investigations may be appropriate, including analysis of soil and water samples for specific suites of potential contaminants and more detailed contaminated land assessments (which may consider source, pathway, receptor models).

3.1.5 Identified, high risk or known areas of contaminated land should be recorded and identified clearly in project documentation, including clear scaled plans with inset showing location context of plan.

3.1.6 Contamination could however be encountered in areas where it has not been expected and checks must be undertaken to ensure that any risks to the environment are identified and controlled.

3.2 During works

3.2.1 During works keep a careful lookout for any signs of contamination during boring, excavating, soil stripping and similar operations.

3.2.2 Signs of potential contamination may include discoloured soil, unexpected odours, a fibrous texture to the soils (e.g. asbestos), or presence of foreign objects (e.g. chemical/oil, containers/waste).

3.2.3 Increased risks of contamination may exist if there is any evidence of previous soil workings, underground structures or waste pits, evidence of made ground, or old drain runs.

3.3 If contamination is encountered

3.3.1 Stop work immediately.

3.3.2 Report the discovery to the site manager and project environmental representative within 30 minutes. A SEAR may be raised to track the occurrence and expert advice and guidance on required measures / mitigation should be implemented. Ensure the landowner / occupier is informed.

3.3.3 Seal off the area to contain spread of contaminants.

3.3.4 Undertake risk assessment to minimise the risk to health and safety of site workers. This should identify acceptable working methods, PPE, contact, and other required procedures.

3.3.5 Clear site to ensure there is nothing that could cause fire or explosion.

3.3.6 Ensure that the suspected contamination is tested and characterised, including any Waste Acceptance Criteria required if waste is to be disposed offsite and agree changes to the existing site proposals and method statements.

3.3.7 Avoid causing or spreading contamination.

3.3.8 Do not stockpile contaminated soil unless it cannot be avoided. If it is necessary, stockpile only on an area of hard standing to prevent contamination of the underlying area. If possible, place material on non-permeable geotextile or membrane.

3.3.9 Cover the stockpile with plastic sheeting to prevent infiltration of precipitation and spread of soluble contaminants and to prevent potentially contaminated wind-blown dust.

3.3.10 Control surface drainage from stockpiled area. Remember water draining from a stockpile may be contaminated and require controlled off-site disposal.

3.3.11 Where disposal of contaminated land is required, this should be done in accordance with current Waste Legislation.

4 Revision History

No	Overview of Amendments	Previous Document	Revision	Authorisation
01	New document created	N/A	1.00	Richard Baldwin
02				

Scottish & Southern Electricity Networks

TG-NET-ENV-518

Environmental

General Environmental Management Plan (GEMP)

- Private Water Supplies

	Name	Title
Author	Dan Thomas	Environmental Project Manager
Checked by	Simon Hall	Environmental Project Manager
Approved by	Richard Baldwin	Head of Delivery

Contents

1 Introduction

1.1 Many construction works, including site investigation works, have the potential to impact on private water supplies (PWS). This can be through either disturbing drainage patterns (horizontally or vertically) or impacting on the quality of the water source. There is also the potential to impact on infrastructure of PWS, with pipes and tanks possibly omitted from service plans.

1.2 Damaging a PWS can have impacts on the health of the users, as well as severe financial and reputational impacts.

1.3 It is required to comply with the following in addition to any specific measures identified associated with the site.

2 General Compliance Requirements

2.1 Pre-construction

2.1.1 All PWS located within 250 m of the proposed works must be identified prior to commencement of any works.

2.1.2 A risk assessment should be undertaken to identify those PWS that have the potential to be affected by the works including consideration of:

- Type and depth of water supply source (e.g. borehole, spring or surface water abstraction);
- Catchment area; and
- Nature of proposed works (e.g. depth and extent of any proposed excavations, potential for pollution incidents / spillage etc).

2.1.3 Should the results of this assessment indicate a risk to the PWS, then mitigation shall be developed for inclusion in a site specific PWS Protection Plan that is discussed and agreed with the PWS owner.

2.1.4 In certain circumstances it may be appropriate to undertake water quality testing of the source or supply, to establish a baseline of current water levels and quality. This should be agreed as part of the PWS projection plan.

2.1.5 Prepare a contingency plan to deliver an alternative water supply (on a temporary or permanent basis) in the event of an unforeseen problem with the existing supply.

2.2 Construction

2.2.1 PWS requiring protection will have specific mitigation developed. Mitigation may include some / all of the following:

- Fence off the PWS intake (to avoid accidental damage and to deter animals) and identify relevant buffer distances;

- Installation of silt mitigation to prevent runoff from works areas entering the PWS. Use a precautionary approach as not all flow pathways may be immediately obvious;
- Avoid undertaking works within PWS catchments during wet weather or when wet weather is forecast as there will be increased surface water flows into the PWS which will be harder to control.
- Low impact access methodologies including the use of track panels where access to works are within the PWS catchment;
- Survey and peg out the route of the distribution main in the vicinity of the construction works and avoid / minimise activity within this area; and
- All site operatives working in the area should be made aware of the location of the PWS and of the sensitive catchment area through toolbox talks or similar, and should be reminded when works take place in this area.

2.2.2 Put in place measures to protect PWS distribution mains where they cross beneath roads / access tracks. These might include:

- Setting the existing pipe work within mass concrete;
- Upgrading or rerouting the existing pipe work;
- Ensuring that there are adequate pollution control and emergency response measures in place to deal with any accidents that could affect a water supply (e.g. spill response or sediment control);
- Implementation of regular, recorded checks on any pipework (visible signs of cracking or other damage); and
- Provision of an alternative supply (temporary / permanent).

2.2.3 Undertake regular health, safety and environment briefings to construction staff. Include information on:

- Presence and importance of water supply intake and distribution main nearby;
- Need to protect these from accidental damage;
- Need to act promptly if an accidental spill or pollution incident poses a threat; and
- Reporting requirements.

2.2.4 Regularly monitor works and their impact on the PWS. If the PWS is being impacted or has the potential to be impacted, stop those activities and seek specialist advice.

2.3 Unidentified Water Supplies

2.3.1 It is possible that previously unidentified PWS may be found during works.

2.3.2 If this happens, stop work in that location and seek specialist advice.

2.3.3 Necessary protection measures will need to be identified in consultation with the PWS owner, landowner, specialists and relevant authorities and implemented before work should resume in that location.

3 Revision History

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01	New document created	N/A	1.00	Richard Baldwin
02				

Scottish & Southern Electricity Networks

TG-NET-ENV-519

Environmental

General Environmental Management Plan (GEMP)

- Forestry

	Name	Title
Author	Dan Thomas	Environmental Project Manager
Checked by	Simon Hall	Environmental Project Manager
Approved by	Richard Baldwin	Head of Delivery

Contents

1 Introduction

1.1 Forestry and woodland is an important resource in Scotland. It can contribute biodiversity, climate resilience, flood regulation as well as be an important product for materials. Overall there is a large societal importance on healthy, sustainable forestry management and works to tree's needs to be carefully considered to impact is minimised and the appropriate management regime is put in place. This GEMP is to be followed by anyone working undertaking forestry works, other tree felling or arboreal works on behalf of Scottish and Southern Electricity Networks (SSEN).

2 Legislation

2.1 All felling works must be authorised under an appropriate Planning Permission, Section 37 consent, Felling Licence, or permitted under The Forestry (Exemptions) (Scotland) Regulations 2019. The requirements of any consent must be adhered to at all times.

2.2 Landowner agreement must be in place prior to felling or other tree works taking place.

3 General Compliance Requirements

3.1 Felling/Tree Removal

3.1.1 No tree felling/vegetation removal should take place during the bird breeding season unless pre-felling surveys have been undertaken.

3.1.2 Mulching should only be used where there is a need to clear the site of tree residue or where trees or areas are too small to fell commercially (typically, a minimum top diameter of 7 cm will be commercially recovered). The resultant mulch is to be partially incorporated with the vegetation layer, or separated and made available for alternative reuse, preferably within the project.

3.2 Other Tree Works

3.2.1 Avoid all recognised injurious practices such as:

- Topping or lopping to an arbitrary height or branch length;
- Flush cuts;
- Unbalancing a tree crown by excessive one-sided pruning;
- Inappropriate use of flailing; and
- Climbing damage - Care shall be taken to avoid injuring thin and weak barked species by inappropriate use of rope access techniques on trees (such as use of climbing irons) on trees to be retained.

3.2.2 Vegetation should be left well balanced with natural crown shapes.

3.2.3 If the only pruning option is to severely reduce or unbalance a tree, then coppicing, or felling and replacement planting are often better options and shall be agreed with the landowner.

3.2.4 Pruning must also take into account the vegetation re-growth expected in the interval between cuts. This will vary widely between plant species and sites.

3.3 Protection of Retained Trees

3.3.1 Avoid damaging those standing trees which are to be retained.

3.3.2 A root protection zone should be identified and enforced around all trees to remain on site that are within close proximity to the works area to ensure that no accidental damage is caused to the tree roots. Root protection zones should be defined in line with the British Standard 5837.

3.3.3 No material arising from site works are to be stored within the root protection zone or stacked against trees.

3.4 Access

3.4.1 Utilise brash to assist with the access requirements for felling and construction machinery and give consideration to rights of way by transient wildlife. In agreement environmental specialists and landowners, small piles of brash and timber may be left on site at specific, identified locations in the interest of habitat creation and increasing biodiversity.

3.4.2 Access damage - Vehicle access and treatment of arisings shall avoid injury to low branches, stems, root buttresses and feeder roots. Branches should be removed by saw prior to access being taken. Breaking of limbs is not acceptable during access.

3.5 Storage of Marketable Timber

3.5.1 Presentation of produce should be in neat, safely stacked piles ready for forwarder/tractor pick-up, where required. Timber stacks must be not higher than 3m.

3.5.2 Sites shall be left tidy, with brash and stumps cut low and neatly with any hinge or jagged spikes removed, to prevent them becoming a trip hazard or an obstacle to vehicles. Remove all litter from site.

3.6 Forestry Waste

3.6.1 Note that forest wastes are controlled under SEPA Waste Regulations which must be adhered to.

3.7 General Forestry Practice

3.7.1 Forestry best practice as specified by Scottish Forestry and Forest Industry Safety Accord (FISA) is to be implemented at all times. The following is provided as a guide (but not a definitive list) to the standards that should be followed during forestry works:

- BS 5837 (2012) – Trees in Relation to Design, Demolition and Construction; and
- The Forestry Commission publication 'Managing Forest Operations to Protect the Water Environment'.

3.7.2 Spreading Disease - Appropriate regard shall be given to avoiding spreading fungal diseases. Forestry Commission Biosecurity Guidance should be followed. Consideration should be given to landowners' requirements for treating stumps.

3.7.3 Leave watercourses, culverts and ditches undamaged and clear of arisings. No felling into watercourses is allowed.

3.7.4 Local drainage systems to be maintained and not damaged or interrupted by the felling works.

3.7.5 No fires should be lit on site. Fire risk in and near wooded areas should be considered and risk assessed with additional mitigations imposed during prolonged dry periods (e.g. implementation of wider non-smoking zones.)

4 Revision History

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Scottish & Southern Electricity Networks

TG-NET-ENV-520

Environmental

General Environmental Management Plan (GEMP)

- Dust Management

	Name	Title
Author	Dan Thomas	Environmental Project Manager
Checked by	Simon Hall	Environmental Project Manager
Approved by	Richard Baldwin	Head of Delivery

Contents

1 Introduction

1.1 There are many potential sources of dust from a construction site which need to be closely managed on an ongoing basis to ensure it is adequately controlled on site. Likely sources of dust include:

- Haul roads and access tracks;
- Yards and storage areas;
- Soil storage areas;
- Construction corridor (exposed areas following stripping);
- Material transportation;
- Transport of mud onto the public highway;
- Loading and unloading materials;
- Quarrying or blasting activities;
- Crushing / screening activities;
- Stone breaking;
- Concrete or stone cutting.

1.2 Once dust particles are airborne, it is very difficult to prevent them from dispersing into the surrounding area. The most effective technique is to control dust at source and prevent it from becoming airborne.

2 Legislation

2.1 In the event of dust becoming an issue there is potential for enforcement action from the Scottish Environment Protection Agency (SEPA) or the local authority. There is also the potential for legal action, which will have cost, programme and reputation implications.

2.2 Likely actions and implications include:

- Health and & Safety implications for operatives on site and wider public;
- Nuisance to neighbours and bad publicity for the site;
- Abatement notice or enforcement action from regulators;
- Impact on project programme and budget (e.g. compliance with statutory notices relating to dust levels / abatement notices);
- Under the Clean Air Act 1993 and Part 3 of the Environmental Protection Act 1990, local authorities can impose limits on dust generated from a site;
- Impacts on ecology (e.g. impacting on plant growth, smothering of habitats, watercourse pollution, local pH changes etc);
- Claims from farmers for dust damage to crops.

3 General Compliance Requirements

3.1 Planning the Works

3.1.1 Where Dust has the potential to become an issue, a protection plan should be developed.

3.1.2 Likely sources of dust should be identified ahead of works and appropriate mitigation measures put in place to minimise the risk of dust become an issue.

3.1.3 Nearby potential receptors such as residential dwellings or sensitive habitats should be identified, and the works planned minimise the risk of dust impacting on these, with the adoption of up-front appropriate mitigation measures.

3.1.4 Contingency measures should be put in place to enable a prompt, efficient and legally compliant response in the event of dust becoming an issue.

3.2 Avoiding Dust Generating Activities

3.2.1 Plan activities to ensure that, as far as practical, particularly dusty activities are not carried out in unsuitable weather conditions (i.e. very dry / windy conditions) unless suppression is in place.

3.2.2 Store materials away from the site boundary.

3.2.3 Limit vehicle speeds along stone access tracks.

3.2.4 Vehicles carrying bulk materials should be sheeted if could give rise to dust.

3.2.5 Keep height of soil stockpiles to a minimum and gently grade the side slopes.

3.2.6 Minimise the height of fall of materials.

3.2.7 Reduce the height that materials are unloaded from.

3.2.8 Mud should not be deposited on roads. Where applicable, wheel cleaning facilities will be provided prior to vehicles leaving site.

3.2.9 Keep all public roads well swept and bowse if required. Ensure a road sweeper can be commissioned locally to the site in the event of an issue arising.

3.2.10 Do not use drills that are powered by compressed air unless appropriate control measures are in place.

3.2.11 Ensure any tools or plant which have facilities for dust suppression utilise this function.

3.3 Management and Mitigation

3.3.1 Inspect high risk areas daily, especially during dry weather.

- Suppress dust from soil stockpiles, haul roads, stripped working corridors and material storage areas, by bowsing with water, where required;
- Ensure the relevant permissions and consents have been obtained for water used for suppression activities (e.g. CAR authorisation from SEPA or Standpipe licence from Scottish Water);

- Ensure efficient use of water to dampen down dust (e.g. use of diffusers to suppress wide areas with a spray/mist rather than a standard hosepipe arrangement);
- Any run-off from dust suppression activities shall be controlled in line with best practice to avoid creating sediment contaminated run off;
- Communicate dust management procedures to all relevant personnel and provide suitable training if required;
- Follow-up any complaints immediately and take action to avoid a repeat complaint.

3.3.2 Further information available in:

- BRE (2003) Control of dust from construction and demolition activities;
- DETR (2000) Environmental handbook for building and civil engineering projects;
- CIRIA (2005) Environmental Good Practice – site guide.

4 Revision History

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Scottish & Southern Electricity Networks

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Environmental

General Environmental Management Plan (GEMP)

- Biosecurity (On Land)

	Name	Title
Author	Dan Thomas	Environmental Project Manager
Checked by	Simon Hall	Environmental Project Manager
Approved by	Richard Baldwin	Head of Environment

Contents

1 References

The documents detailed in Table 1.1 – Scottish and Southern Electricity Networks Documents below, should be used in conjunction with this document.

Reference	Title
PR-NET-OPS-025	Foot and Mouth Disease

2 GEMP – Biosecurity (On Land)

2.1 General principles of Soil Management Process

2.1.1 Biosecurity is important when any agricultural land, hill ground and moorland that carries stock, farm steadings, forestry and woodland, rivers and lochs and aquaculture units is entered where there is a risk of spreading pest or disease.

2.1.2 Biosecurity good practice will minimise the risk of contamination and the spread of animal and plant diseases, parasites and non-native species. You cannot always see disease causing agents, plant pests, parasites and non-native species and they can be picked up and carried on clothing, footwear, on vehicles and equipment to other locations.

2.1.3 The main risk identified for our work has been identified as the transfer of potato cyst nematode and clubroot (a brassica disease) in arable land. These are predominately spread by contaminated soil, plant matter or dung.

2.1.4 There is also the risk of spreading insect pests, or bacterial, viral and fungal tree pathogens in woodland areas, or causing the spread of non-native invasive species or injurious weeds.

2.1.5 Additionally, there are several diseases capable of being transmitted from animals to humans including Lyme Disease, Leptospirosis, E. coli O157 and Salmonella. Good hygiene practice will significantly reduce the risk of contracting or spreading a disease.

2.2 Biosecurity Control Stages

2.2.1 The stage of biosecurity control that should be practiced will vary according to:

- Type of work you are carrying out
- Use of land you are entering e.g. is it used to grow crops such as brassicas or potatoes
- Livestock movement, some sites are governed by stricter disease control measures
- Landowner / occupier as well as project specific requirements
- The known presence of current pests and diseases or restrictions applied to land or premises

2.2.2 The stages (Stage 1 and Stage 2) described below are based on Scottish Government guidelines but have been tailored to the type of works normally undertaken by us or our contractors.

2.2.3 Unless there is a specific risk or requirement Stage 1 should suffice (see below). The control measures are only the minimum recommended and you must comply with any biosecurity procedures put in place by the contractor or landowner.

2.3 Biosecurity Control – Stage 1

2.3.1 For non-intrusive works e.g. site visits, walkover surveys and intrusive works in low risk areas i.e. where there is no know reasonable risk of the transmission of disease or pests.

- Ensure the landowner has been notified and is aware of the works/surveys to be undertaken
- Ensure all personnel have been briefed and understand what is required of them and the possible consequences of not adhering to the measures explained
- Ensure footwear is clean (visually free from soil and debris) before entering site. If necessary, brush and wash with water
- Ensure vehicles, plant and tools (including temporary access materials such as 'bog mats' and track way panels) to be used on the site is cleaned at the commencement of the works and thereafter is kept clean and, in particular, remove any accumulated mud, especially when moving between holdings
- Make use of any facilities provided at the premises to clean footwear if required by the contractor or land manager
- Keep access to a minimum, do not access areas unnecessarily and if practical do not take vehicles onto premises and keep to established tracks
- Respect any notices or instructions
- Food, Litter and packaging must be removed from site to prevent animals from eating or getting tangled up in material, litter etc
- Ensure that gates are left as they are found, as per the Scottish Government's Biosecurity Code. For more information on specific diseases refer to Scottish Government web pages

2.3.2 The minimum equipment to be carried in the vehicle should include a stiff brush, water sprayer with sufficient water to clean equipment and footwear/clothing, a hoof pick to remove mud between boot treads and suitable container.

2.4 Biosecurity Control – Stage 2

2.4.1 Ensure landowner has been contacted well in advance of any works taking place. Establish whether there are any control measures needed which relate specifically to the area you are working. For intrusive works i.e. ground-breaking operations in areas which have been deemed to be high risk. Also, for all non-intrusive work e.g. site walkovers where there are specific landowner or project requirements for this level of biosecurity non-intrusive works e.g. site visits, walkover surveys and intrusive works in low risk areas i.e. where there is no know reasonable risk of the transmission of disease or pests.

2.4.2 High risk areas are those fields which have been either identified as having the potential to be used to grow brassicas (oil seed rape, cabbage, turnips, swede, etc) or potatoes, or any other areas deemed to be high risk by the contractor.

- Mitigations as per Stage 1
- Clean and disinfect footwear using appropriate disinfectants (please refer to Farmland Biosecurity Policy for further guidance)
- Ensure vehicles, plant and tools (including temporary access materials such as 'bog mats' and track way panels) are adequately cleaned and disinfected using appropriate methods. Pay particular attention to the tyres and wheel arches. This is doubly important when moving from one farm to another to reduce the risk of spreading disease

2.4.3 If the stages 1 and 2 are not anticipated to be sufficient e.g. there is a known outbreak of a contagious pest or disease, please refer to PR-NET-OPS-025 Foot and Mouth Disease, and SEARS guidance for enhanced biosecurity control.

2.4.4 Further guidance can be obtained from the SEARS website and latest advice on the type of disinfectant to used can be obtained from the Department for Environment, Food and Rural Affairs (DEFRA) website: http://disinfectants.defra.gov.uk/

3 Revision History

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Scottish & Southern Electricity Networks

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Environmental

General Environmental Management Plan (GEMP)

- Restoration

	Name	Title
Author	Dan Thomas	Environmental Project Manager
Checked by	Simon Hall	Environmental Project Manager
Approved by	Richard Baldwin	Head of Delivery

Contents

1 Introduction

1.1 The way in which stripping, storage and replacement of soils / turfs is undertaken can significantly increase the successfulness of any reinstatement. The following guidance should form a basis of the restoration plan for the project.

1.2 Important guidance on soil management principles is contained in the Soil Removal, Storage and Reinstatement General Environmental Management Plan (GEMP) and should be followed in conjunction with this GEMP.

2 Legislation

2.1 Reinstatement and restoration obligations will be imposed on the works through the core consenting regimes, including:

- Planning permission under the Town and Country Planning (Scotland) Act 1997 (as amended);
- S37 consent under the Electricity Act 1998 (as amended);
- SSSI consent under Nature Conservation (Scotland) Act 2004 (as amended);
- Natura Consent under Conservation (Natural Habitats, &c.) Regulations 1994 (as amended); and
- CAR authorisations under The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended).

2.2 Any obligations imposed under these consents must be complied with.

3 General Compliance requirements

3.1 Planning Construction Works

3.1.1 In planning construction works seek to avoid intrusive work wherever possible. There will be less reinstatement and restoration required once construction is finished.

3.1.2 Seek to:

- Avoid major earthworks wherever possible;
- Retain natural features such as rocky outcrops;
- Avoid loss of mature trees; for example, remove young regenerating birch in preference to mature trees which may have biodiversity and landscape value and will give structure to the finished works;
- Site tracks and micro-site route around groups of trees to leave natural features rather than dissecting groups/copses;
- When crossing hedges or walls plan to use existing gaps;

- Design any permanent drainage ditches to be as natural as possible (sinuous with varied banks and alignments etc);
- Design drainage measures carefully to avoid unnecessary long-term effects on adjacent habitats which could be difficult to restore; and
- Plan all site activities to reduce the need for vehicle movements. This will help in final restoration by minimising compression etc.

3.2 Planning Restoration

3.2.1 Restoration at the end of the works will always be more successful if planned in advance. A soil management and restoration plan should be developed in advance of the works.

3.2.2 Always:

- Plan restoration in advance of working on-site - this will save time and money at a later stage and will ensure that opportunities are not lost, and a more successful outcome is achieved;
- Ensure that detailed restoration plans take account of specific habitat types and locations;
- Identify where soils and peat and turfs will be stored;
- Take account of all agreements made during consenting process and with landowners;
- Take account of all environmental interests, for example, seek to enhance local biodiversity (avoiding planting on sensitive archaeological or geological sites);
- Plan how monitoring of restoration will be undertaken identifying when, how frequently and by whom;
- Consider how deer pressures (grazing and wallowing) or other grazing may affect the success of planting and plan restoration works accordingly; and
- Plan restoration taking account of run-off erosion risks on steep slopes in poor conditions; be aware of the potential for sediment rich run-off to smother sensitive or newly established vegetation in poor weather conditions and seek to minimise this.

3.3 Early Works

3.3.1 Early works will help in achieving more successful final restoration. These include the following:

- Always take photographs of the site before works start to guide later restoration including of any drainage that will be disturbed;
- Strip turfs and vegetation carefully and use in temporary works to prevent erosion;
- Turfs can be stored successfully in temporary cut-off ditches in some locations which can aid attenuation and prevent turfs / vegetation from drying out;
- Store top soil and subsoil separately according to best practice;

- Store stripped materials in the immediate vicinity (or as close as feasible) for future Re-use in site restoration;
- Keep a record of where all soils and turfs are stored. Consider signage on storage areas to help identifying source and type of material storage when it comes to reinstatement;
- Remove large boulders (rather than cover) to replace in restoration works;
- Remove noxious weeds in accordance with best practice and legal requirements. Do not allow unnecessary spread or this will compromise the success of final restoration works;
- Seek to avoid compression of soils as much as possible on restoration. Drainage may be impeded and may result in extensive rush areas being created; and
- During construction seek to avoid creating eroded areas which can be difficult to restore successfully.

3.4 Final Restoration

3.4.1 At the end of construction in any area the land and vegetation must be restored to pre-construction conditions. This should be done carefully and sympathetically taking account of all required mitigation and of the conditions. The following principles should also be adopted where appropriate:

- Undertake restoration works in suitable weather conditions - wet ground conditions can be difficult as can hot dry and windy spells;
- Restoration should ensure the successful integration of the site with surrounding land uses and habitats;
- All field, roadside or other boundaries disturbed during construction operations would be reinstated using the original materials (in the case of stone dykes, this having been carefully set aside for re-use) or to the original specification and to at least the pre-existing condition, or better;
- Natural regeneration of habitats should be promoted in all appropriate areas;
- Where hedgerow field boundaries are removed, they are to be replanted with the same species and at the same spacing intervals;
- Any required replanting and / or reseeding should be undertaken at appropriate times of the year and with the agreement of landowners / occupiers (and SNH if within designated sites);
- Identify the most appropriate machinery to use for restoration in any area (small digger or large machine etc) according to the sensitivity of the habitats and the extent of areas to be restored (take advice from the site ecologist);
- Undertake small sections of the site for restoration and monitor success with input from the site environmental representative(s) before restoring large areas;
- All accesses are to be restored to original condition.

- A pro-active approach to restoration i.e. use of temporary access materials such as Trackway panels and appropriate low pressure construction vehicles, particularly in areas of wet ground, is encouraged.
- Unless otherwise specified all decommissioned tower foundations are to be removed to 1.5 m below ground level.

4 Revision History

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01	New document created	N/A	1.00	Richard Baldwin
02				

Scottish & Southern Electricity Networks

TG-NET-ENV-523

Environmental

General Environmental Management Plan (GEMP)

- Bad Weather

	Name	Title
Author	Dan Thomas	Environmental Project Manager
Checked by	Simon Hall	Environmental Project Manager
Approved by	Richard Baldwin	Head of Delivery

Contents

1 Introduction

1.1 It is important to consider the implications of poor weather conditions and associated environmental risks.

1.2 Bad weather, particularly heavy rain, can increase the risk of significant environmental impacts during construction (for example, on sensitive habitats and increased risk of sediment laden run-off into surface waters).

1.3 Storm events can also impact oil storage areas and increase the risk of a loss of oil to the environment.

2 General Compliance Requirements

2.1 General

2.1.1 Identify an action plan before construction starts that identifies measures to implement in times of extreme weather. This should include heavy rain, high winds, heavy snow, prolonged freezing condition and periods of dry weather.

2.1.2 The weather forecast should be checked daily and changes to work activities or mitigation requirements implemented on an ongoing basis.

2.1.3 Identify and communicate any areas of flood risk. SEPA flood mapping can assist in this but should not be the sole information used in any risk assessment.

2.1.4 Ground conditions should be checked regularly, and assessment made as to whether they are suitable for the proposed site activities.

2.1.5 Check whether plant is causing damage on site because of poor ground conditions exacerbated by bad weather.

2.1.6 Plan for high run-off in advance and Identify protection measures (silt traps, straw bales and booms etc.).

2.1.7 Check for any materials stored close to watercourses during construction activities which could be washed into the water in times of storm.

2.1.8 During times of excessive rainfall and ground saturation, stripping and reinstatement works should not be undertaken.

2.1.9 Check any containment bunds (oil storage, concrete washout etc) have the appropriate capacity and empty if necessary, to prevent any un-controlled discharge.

2.1.10 Ensure all skips and waste containers are covered / closed to minimise water ingress.

2.1.11 Emergency response plans should take account of bad weather.

2.1.12 Consider the use of a visual display board which can be used to alert site staff to the expected weather and the necessary preparations that are required.

3 Revision History

No	Overview of Amendments	Previous Document	Revision	Authorisation
01	New document created	N/A	1.00	Richard Baldwin
02				