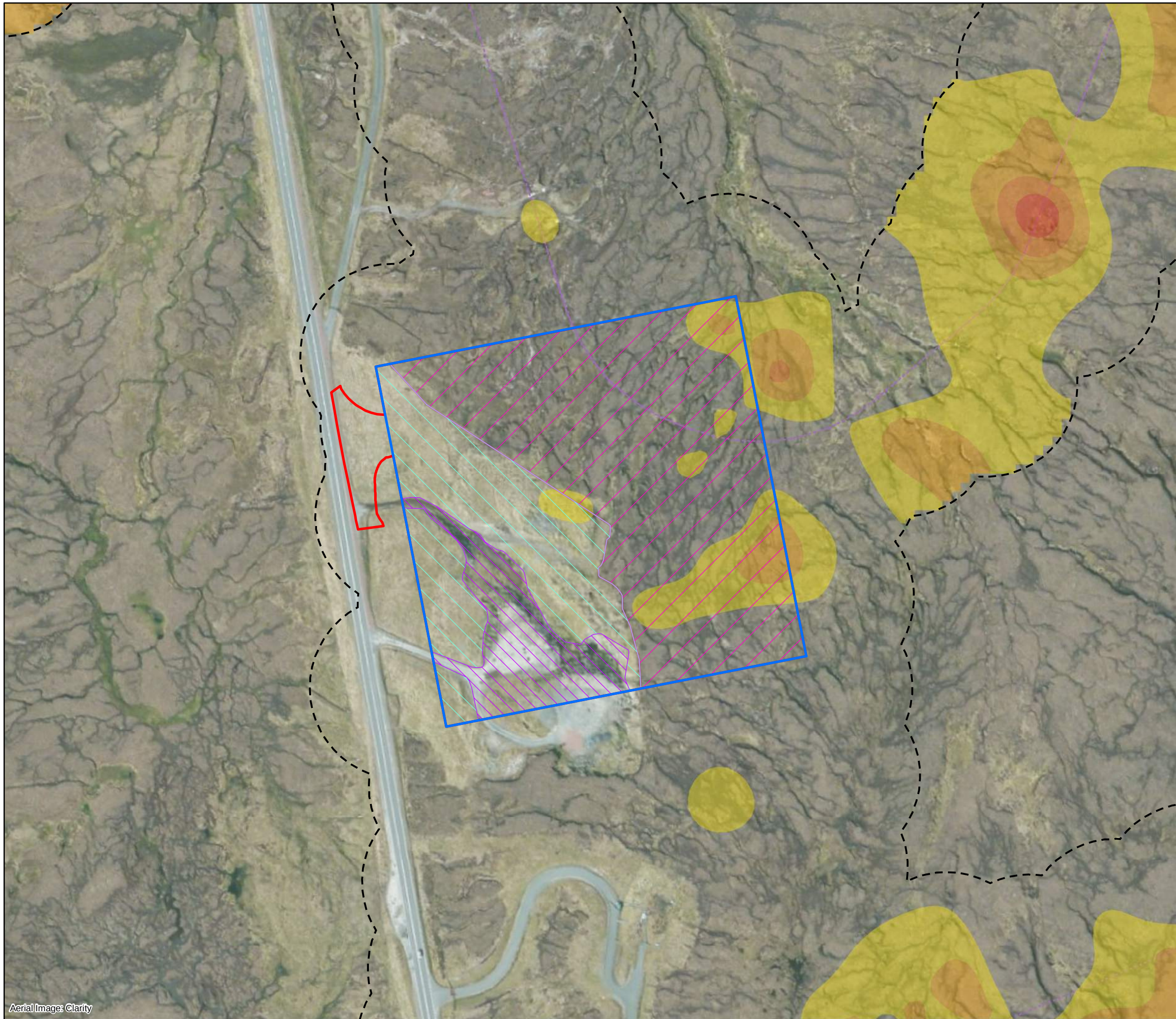


FIGURE 7A-C

Aerial Photography with Geomorphological Interpretation



Aerial Image: Clarity

- Key
- Site Boundary
 - Proposed North Construction Compound (200m x 200m)
 - AccessTracks
 - Excavated soils
 - Haggy peat
 - Thin peat/peaty soils
- Peat Depth (m)
- 1.5 - 2
 - 2.1 - 2.5
 - 2.6 - 3
 - 3.1 - 7

Scale 1:2,000 @ A3

0 50 100 m

N

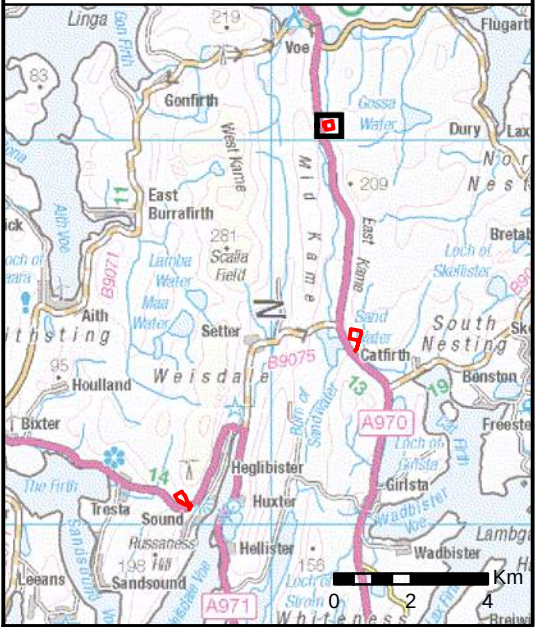
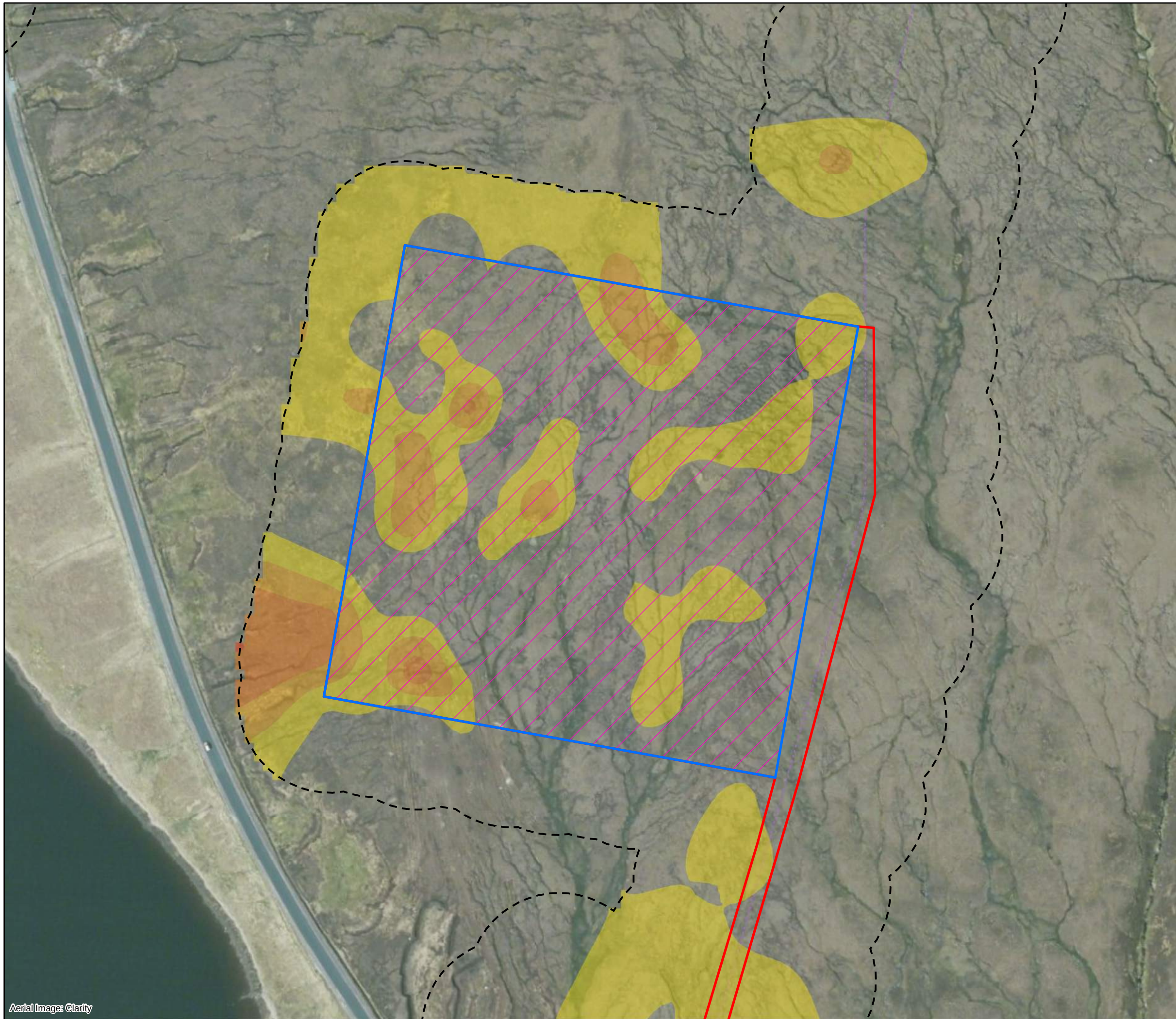


Figure 07a
Geomorphology (North)

Viking Wind Farm
Construction Compounds - PLHRA



Aerial Image: Clarity

- Key
- Site Boundary
 - Proposed Main Construction Compound (250m x 250m)
 - Access Tracks
 - Haggy peat
- Peat Depth (m)**
- 1.5 - 2
 - 2.1 - 2.5
 - 2.6 - 3
 - 3.1 - 7

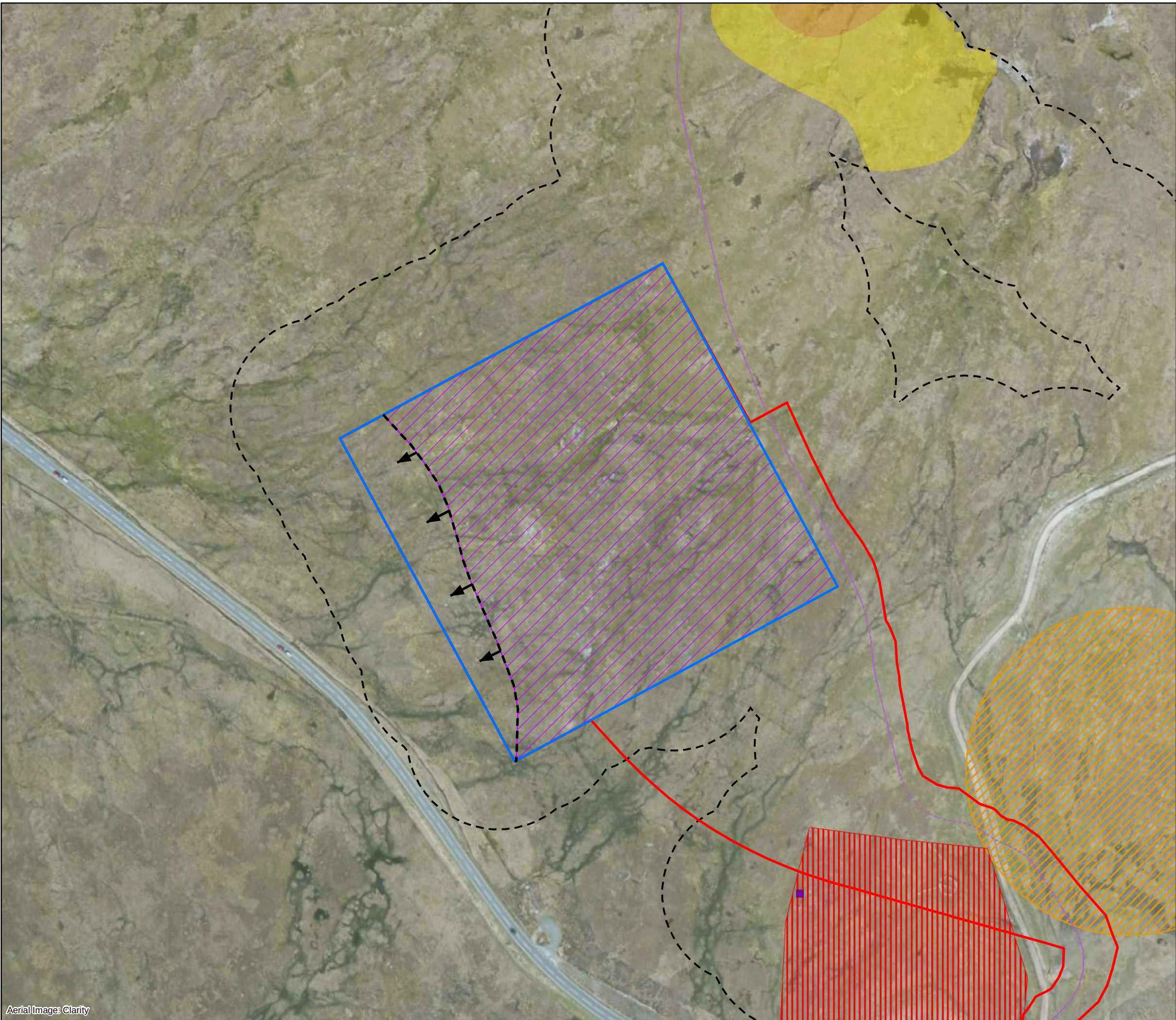
Scale 1:2,000 @ A3

0 50 100 m



Figure 07b
Geomorphology (Main)

Viking Wind Farm
Construction Compounds - PLHRA



Aerial Image: Clarity

- Key
- Site Boundary
 - Proposed West Construction Compound (200m x 200m)
 - Consented Construction Compound
 - Borrow Pit Extraction Area
 - Access Tracks
 - Borrow Pit Search Area
 - Steep slope with shallow and outcropping rock
 - Break in slope
- Peat Depth (m)
- 1.5 - 2
 - 2.1 - 2.5

Scale 1:2,000 @ A3

0 50 100 m



Figure 07c
Geomorphology (West)

Viking Wind Farm
Construction Compounds - PLHRA

APPENDIX A

Peat Risk Data

Source	Soil	Substrate	Easting	Northing	Peat Depth (m)	Slope (Degrees)	Substrate Coefficient	Ground Conditions Coefficient	Peat Coefficient	Slope Coefficient	Risk Coefficient	Potential Instability
SLR	PEAT	GRANULAR	441539	1160454	1.40	7.1	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	441507	1160491	1.00	7.8	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	441585	1160435	1.60	13.2	1	Thick Peat	3	8	24	Medium
SLR	PEAT	GRANULAR	441534	1160483	1.00	8.0	1	Thin Peat	2	6	12	Low
SLR	SOIL	ROCK	441555	1160458	0.80	9.6	2	Thin Peat	2	6	24	Medium
SLR	PEAT	GRANULAR	441488	1160468	0.40	7.5	1	Peaty Soil	1	4	4	Negligible
SLR	PEAT	GRANULAR	441523	1160423	1.40	6.5	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	441617	1160383	1.90	9.6	1	Thick Peat	3	6	18	Medium
SLR	PEAT	GRANULAR	441589	1160382	0.90	6.6	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	441569	1160382	1.30	6.2	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	441540	1160381	0.50	6.1	1	Peaty Soil	2	4	8	Low
SLR	SOIL	GRANULAR	441496	1160362	0.10	8.1	1	Peaty Soil	1	6	6	Low
SLR	SOIL	GRANULAR	441480	1160378	0.20	11.3	1	Peaty Soil	1	6	6	Low
SLR	PEAT	GRANULAR	441492	1160384	1.80	6.9	1	Thick Peat	3	4	12	Low
SLR	PEAT	GRANULAR	441518	1160381	1.60	7.8	1	Thick Peat	3	4	12	Low
SLR	PEAT	GRANULAR	441468	1160377	0.90	12.6	1	Thin Peat	2	8	16	Medium
SLR	PEAT	GRANULAR	441454	1160379	0.70	11.7	1	Thin Peat	2	6	12	Low
SLR	SOIL	GRANULAR	441443	1160387	0.10	10.0	1	Peaty Soil	1	6	6	Low
SLR	SOIL	GRANULAR	441419	1160405	0.10	2.9	1	Peaty Soil	1	2	2	Negligible
SLR	PEAT	GRANULAR	441441	1160405	0.90	7.5	1	Thin Peat	2	4	8	Low
SLR	SOIL	GRANULAR	441469	1160406	0.90	10.0	1	Thin Peat	2	6	12	Low
SLR	SOIL	GRANULAR	441494	1160407	0.70	8.4	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	441515	1160406	0.90	7.0	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	441542	1160407	0.80	6.9	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	441566	1160408	1.60	6.9	1	Thick Peat	3	4	12	Low
SLR	PEAT	GRANULAR	441591	1160408	1.30	8.6	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	441613	1160409	0.60	8.7	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	441613	1160409	1.60	8.7	1	Thick Peat	3	6	18	Medium
SLR	PEAT	GRANULAR	441608	1160429	1.20	10.9	1	Thin Peat	2	6	12	Low
SLR	SOIL	GRANULAR	441564	1160433	0.20	11.0	1	Peaty Soil	1	6	6	Low
SLR	PEAT	GRANULAR	441535	1160428	0.80	6.1	1	Thin Peat	2	4	8	Low
SLR	SOIL	GRANULAR	441509	1160428	0.20	5.2	1	Peaty Soil	1	4	4	Negligible
SLR	PEAT	GRANULAR	441489	1160431	0.60	6.3	1	Thin Peat	2	4	8	Low
SLR	SOIL	GRANULAR	441465	1160429	0.10	7.3	1	Peaty Soil	1	4	4	Negligible
SLR	PEAT	GRANULAR	441440	1160428	1.00	4.3	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	441412	1160455	0.90	4.6	1	Thin Peat	2	4	8	Low
SLR	SOIL	GRANULAR	441441	1160455	0.30	3.8	1	Peaty Soil	1	2	2	Negligible
SLR	SOIL	GRANULAR	441468	1160453	0.20	5.0	1	Peaty Soil	1	4	4	Negligible
SLR	SOIL	GRANULAR	441491	1160455	0.20	7.4	1	Peaty Soil	1	4	4	Negligible
SLR	PEAT	GRANULAR	441514	1160456	0.50	5.7	1	Peaty Soil	2	4	8	Low
SLR	PEAT	GRANULAR	441569	1160464	1.10	9.9	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	441589	1160457	0.90	10.8	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	441614	1160456	2.60	9.7	1	Thick Peat	3	6	18	Medium
SLR	PEAT	GRANULAR	441603	1160484	1.80	5.6	1	Thick Peat	3	4	12	Low
SLR	PEAT	GRANULAR	441587	1160484	2.20	6.9	1	Thick Peat	3	4	12	Low
SLR	PEAT	GRANULAR	441589	1160505	1.00	6.2	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	441563	1160482	1.20	8.7	1	Thin Peat	2	6	12	Low

Source	Soil	Substrate	Easting	Northing	Peat Depth (m)	Slope (Degrees)	Substrate Coefficient	Ground Conditions Coefficient	Peat Coefficient	Slope Coefficient	Risk Coefficient	Potential Instability
SLR	PEAT	GRANULAR	441541	1160492	1.10	7.5	1	Thin Peat	2	4	8	Low
SLR	SOIL	GRANULAR	441513	1160490	0.20	6.9	1	Peaty Soil	1	4	4	Negligible
SLR	SOIL	GRANULAR	441487	1160484	0.20	7.2	1	Peaty Soil	1	4	4	Negligible
SLR	PEAT	GRANULAR	441465	1160482	1.00	6.2	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	441440	1160478	0.60	5.0	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	441405	1160467	1.00	4.3	1	Thin Peat	2	4	8	Low
SLR	SOIL	GRANULAR	441416	1160429	0.30	2.9	1	Peaty Soil	1	2	2	Negligible
SLR	SOIL	GRANULAR	441413	1160380	0.30	9.8	1	Peaty Soil	1	6	6	Low
SLR	PEAT	GRANULAR	441640	1160335	1.50	15.6	1	Thin Peat	3	8	24	Medium
SLR	PEAT	GRANULAR	441595	1160335	1.70	12.4	1	Thick Peat	3	8	24	Medium
SLR	PEAT	GRANULAR	441544	1160332	1.90	6.2	1	Thick Peat	3	4	12	Low
SLR	PEAT	GRANULAR	441495	1160331	0.10	15.7	1	Peaty Soil	1	8	8	Low
SLR	PEAT	GRANULAR	441437	1160331	0.10	6.9	1	Peaty Soil	1	4	4	Negligible
SLR	SUPERFICIAL	GRANULAR	441440	1160283	0.10	6.4	1	Peaty Soil	1	4	4	Negligible
SLR	SOIL	GRANULAR	441487	1160282	0.70	10.7	1	Thin Peat	2	6	12	Low
SLR	PEAT	ROCK	441532	1160277	0.20	17.0	2	Peaty Soil	1	8	16	Medium
SLR	PEAT	GRANULAR	441591	1160289	0.90	11.3	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	441639	1160286	0.30	12.0	1	Peaty Soil	1	6	6	Low
SLR	SOIL	GRANULAR	441444	1160302	0.10	7.9	1	Peaty Soil	1	4	4	Negligible
SLR	SOIL	GRANULAR	441468	1160301	0.00	0.6	1	No Peat	0	1	0	None
SLR	SOIL	GRANULAR	441495	1160308	0.10	11.8	1	Peaty Soil	1	6	6	Low
SLR	SOIL	GRANULAR	441518	1160305	0.10	11.5	1	Peaty Soil	1	6	6	Low
SLR	PEAT	GRANULAR	441544	1160305	0.80	15.4	1	Thin Peat	2	8	16	Medium
SLR	PEAT	GRANULAR	441568	1160306	1.00	9.9	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	441593	1160308	1.00	11.6	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	441615	1160310	0.30	13.4	1	Peaty Soil	1	8	8	Low
SLR	PEAT	GRANULAR	441620	1160333	1.70	15.6	1	Thick Peat	3	8	24	Medium
SLR	PEAT	GRANULAR	441565	1160331	1.70	8.6	1	Thick Peat	3	6	18	Medium
SLR	PEAT	GRANULAR	441541	1160357	0.30	6.9	1	Peaty Soil	1	4	4	Negligible
SLR	PEAT	GRANULAR	441563	1160357	1.20	6.7	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	441592	1160358	1.80	8.8	1	Thick Peat	3	6	18	Medium
SLR	PEAT	GRANULAR	441617	1160360	2.30	11.3	1	Thick Peat	3	6	18	Medium
SLR	PEAT	GRANULAR	441518	1160355	0.90	3.2	1	Thin Peat	2	2	4	Negligible
SLR	SOIL	GRANULAR	441488	1160347	0.30	13.3	1	Peaty Soil	1	8	8	Low
SLR	SOIL	GRANULAR	441518	1160328	0.20	13.2	1	Peaty Soil	1	8	8	Low
SLR	SOIL	GRANULAR	441516	1160268	0.00	2.4	1	No Peat	0	2	0	None
SLR	SOIL	GRANULAR	441492	1160349	0.10	14.4	1	Peaty Soil	1	8	8	Low
SLR	SOIL	GRANULAR	441469	1160354	0.10	1.9	1	Peaty Soil	1	1	1	Negligible
SLR	SOIL	GRANULAR	441452	1160353	0.00	11.6	1	No Peat	0	6	0	None

Source	Soil	Substrate	Easting	Northing	Peat Depth (m)	Slope (Degrees)	Substrate Coefficient	Ground Conditions Coefficient	Peat Coefficient	Slope Coefficient	Risk Coefficient	Potential Instability
SLR	PEAT	GRANULAR	442088	1155080	1.50	13.8	1	Thin Peat	3	8	24	Medium
SLR	PEAT	GRANULAR	442321	1154933	0.90	11.3	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	442327	1154984	0.80	9.4	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	442330	1155034	1.90	7.1	1	Thick Peat	3	4	12	Low
SLR	PEAT	GRANULAR	442318	1155030	1.80	2.5	1	Thick Peat	3	2	6	Low
SLR	PEAT	GRANULAR	442115	1155076	1.20	11.7	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	442138	1155071	1.50	8.6	1	Thin Peat	3	6	18	Medium
SLR	PEAT	GRANULAR	442158	1155068	1.20	10.6	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	442188	1155064	1.80	7.6	1	Thick Peat	3	4	12	Low
SLR	PEAT	GRANULAR	442211	1155058	2.40	6.2	1	Thick Peat	3	4	12	Low
SLR	PEAT	GRANULAR	442237	1155055	1.20	4.0	1	Thin Peat	2	2	4	Negligible
SLR	PEAT	GRANULAR	442262	1155051	0.80	5.7	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	442287	1155046	0.70	7.9	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	442309	1155039	1.80	3.7	1	Thick Peat	3	2	6	Low
SLR	PEAT	GRANULAR	442308	1155015	1.50	3.9	1	Thin Peat	3	2	6	Low
SLR	PEAT	GRANULAR	442300	1154992	1.90	4.0	1	Thick Peat	3	4	12	Low
SLR	PEAT	GRANULAR	442280	1155022	1.00	7.1	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	442253	1155024	1.40	2.6	1	Thin Peat	2	2	4	Negligible
SLR	PEAT	GRANULAR	442231	1155031	2.40	3.3	1	Thick Peat	3	2	6	Low
SLR	PEAT	GRANULAR	442203	1155033	2.00	6.0	1	Thick Peat	3	4	12	Low
SLR	PEAT	GRANULAR	442181	1155039	0.90	6.5	1	Thin Peat	2	4	8	Low
SLR	SOIL	GRANULAR	442158	1155042	0.20	9.6	1	Peaty Soil	1	6	6	Low
SLR	PEAT	GRANULAR	442136	1155045	1.20	7.6	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	442109	1155048	1.00	14.6	1	Thin Peat	2	8	16	Medium
SLR	PEAT	GRANULAR	442083	1155055	1.50	14.5	1	Thin Peat	3	8	24	Medium
SLR	PEAT	GRANULAR	442081	1155028	0.90	12.4	1	Thin Peat	2	8	16	Medium
SLR	PEAT	GRANULAR	442075	1155005	2.00	10.7	1	Thick Peat	3	6	18	Medium
SLR	PEAT	GRANULAR	442070	1154980	1.80	10.1	1	Thick Peat	3	6	18	Medium
SLR	PEAT	GRANULAR	442066	1154956	1.10	14.8	1	Thin Peat	2	8	16	Medium
SLR	PEAT	GRANULAR	442064	1154930	1.10	12.4	1	Thin Peat	2	8	16	Medium
SLR	PEAT	GRANULAR	442088	1154929	2.30	11.4	1	Thick Peat	3	6	18	Medium
SLR	PEAT	GRANULAR	442091	1154954	2.20	5.2	1	Thick Peat	3	4	12	Low
SLR	PEAT	GRANULAR	442096	1154978	2.10	7.4	1	Thick Peat	3	4	12	Low
SLR	PEAT	GRANULAR	442100	1155003	0.80	11.3	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	442105	1155028	1.80	14.1	1	Thick Peat	3	8	24	Medium
SLR	PEAT	GRANULAR	442132	1155023	1.20	8.3	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	442126	1154998	2.70	9.4	1	Thick Peat	3	6	18	Medium
SLR	PEAT	GRANULAR	442120	1154976	1.50	9.5	1	Thin Peat	3	6	18	Medium
SLR	PEAT	GRANULAR	442116	1154947	1.70	8.0	1	Thick Peat	3	6	18	Medium
SLR	PEAT	GRANULAR	442114	1154923	1.30	9.4	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	442139	1154922	1.70	10.6	1	Thick Peat	3	6	18	Medium
SLR	PEAT	GRANULAR	442263	1154922	1.00	10.9	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	442239	1154928	0.90	9.5	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	442212	1154931	0.80	10.2	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	442188	1154935	1.00	10.4	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	442164	1154938	2.40	11.0	1	Thick Peat	3	6	18	Medium
SLR	PEAT	GRANULAR	442139	1154942	1.50	10.6	1	Thin Peat	3	6	18	Medium

Source	Soil	Substrate	Easting	Northing	Peat Depth (m)	Slope (Degrees)	Substrate Coefficient	Ground Conditions Coefficient	Peat Coefficient	Slope Coefficient	Risk Coefficient	Potential Instability
SLR	PEAT	GRANULAR	442147	1154969	1.10	8.0	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	442171	1154966	1.80	7.1	1	Thick Peat	3	4	12	Low
SLR	PEAT	GRANULAR	442196	1154959	0.90	7.9	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	442224	1154954	2.00	7.1	1	Thick Peat	3	4	12	Low
SLR	PEAT	GRANULAR	442242	1154951	0.90	11.8	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	442271	1154949	0.30	12.0	1	Peaty Soil	1	8	8	Low
SLR	PEAT	GRANULAR	442295	1154942	0.90	9.5	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	442296	1154966	1.70	5.5	1	Thick Peat	3	4	12	Low
SLR	PEAT	GRANULAR	442272	1154967	1.70	4.9	1	Thick Peat	3	4	12	Low
SLR	PEAT	GRANULAR	442277	1154997	1.30	8.1	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	442251	1154998	1.20	5.8	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	442248	1154973	1.70	8.7	1	Thick Peat	3	6	18	Medium
SLR	PEAT	GRANULAR	442222	1154978	1.40	6.3	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	442227	1155007	1.50	5.6	1	Thin Peat	3	4	12	Low
SLR	PEAT	GRANULAR	442203	1155008	0.90	7.5	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	442173	1154987	1.80	6.6	1	Thick Peat	3	4	12	Low
SLR	SOIL	GRANULAR	442178	1155011	0.20	8.3	1	Peaty Soil	1	6	6	Low
SLR	PEAT	GRANULAR	442151	1155019	0.90	8.1	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	442150	1154992	0.90	7.3	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	442291	1154834	1.30	9.7	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	442304	1154883	1.20	5.5	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	442274	1154786	1.80	3.7	1	Thick Peat	3	2	6	Low
SLR	PEAT	ROCK	442297	1154787	0.50	5.9	2	Peaty Soil	2	4	16	Medium
SLR	PEAT	ROCK	442309	1154834	0.20	9.5	2	Peaty Soil	1	6	12	Low
SLR	PEAT	GRANULAR	442058	1154909	1.40	9.3	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	442053	1154884	2.40	7.7	1	Thick Peat	3	4	12	Low
SLR	PEAT	GRANULAR	442047	1154860	2.70	11.4	1	Thick Peat	3	6	18	Medium
SLR	PEAT	GRANULAR	442047	1154836	1.60	11.9	1	Thick Peat	3	6	18	Medium
SLR	PEAT	GRANULAR	442071	1154833	1.70	8.1	1	Thick Peat	3	6	18	Medium
SLR	PEAT	GRANULAR	442074	1154855	1.80	8.4	1	Thick Peat	3	6	18	Medium
SLR	PEAT	GRANULAR	442077	1154881	1.60	11.0	1	Thick Peat	3	6	18	Medium
SLR	PEAT	GRANULAR	442081	1154907	0.90	9.4	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	442109	1154899	1.00	7.2	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	442101	1154871	2.00	5.7	1	Thick Peat	3	4	12	Low
SLR	PEAT	GRANULAR	442098	1154850	2.80	4.2	1	Thick Peat	3	4	12	Low
SLR	PEAT	GRANULAR	442095	1154827	0.90	7.3	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	442119	1154827	1.70	4.7	1	Thick Peat	3	4	12	Low
SLR	PEAT	GRANULAR	442124	1154844	1.60	3.7	1	Thick Peat	3	2	6	Low
SLR	PEAT	GRANULAR	442145	1154817	1.20	5.3	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	442169	1154813	0.90	5.8	1	Thin Peat	2	4	8	Low
SLR	SOIL	GRANULAR	442194	1154810	0.20	3.5	1	Peaty Soil	1	2	2	Negligible
SLR	PEAT	GRANULAR	442214	1154805	1.00	6.0	1	Thin Peat	2	4	8	Low
SLR	SOIL	GRANULAR	442242	1154801	0.30	7.0	1	Peaty Soil	1	4	4	Negligible
SLR	SOIL	GRANULAR	442272	1154817	0.20	8.4	1	Peaty Soil	1	6	6	Low
SLR	PEAT	GRANULAR	442245	1154825	1.20	6.8	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	442222	1154829	1.80	6.5	1	Thick Peat	3	4	12	Low
SLR	PEAT	GRANULAR	442195	1154833	0.70	6.9	1	Thin Peat	2	4	8	Low

Source	Soil	Substrate	Easting	Northing	Peat Depth (m)	Slope (Degrees)	Substrate Coefficient	Ground Conditions Coefficient	Peat Coefficient	Slope Coefficient	Risk Coefficient	Potential Instability
SLR	PEAT	GRANULAR	442171	1154836	1.50	7.1	1	Thin Peat	3	4	12	Low
SLR	PEAT	GRANULAR	442147	1154845	0.30	5.0	1	Peaty Soil	1	4	4	Negligible
SLR	SOIL	GRANULAR	442129	1154872	0.30	5.4	1	Peaty Soil	1	4	4	Negligible
SLR	PEAT	GRANULAR	442152	1154867	0.70	6.3	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	442176	1154861	1.40	7.2	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	442204	1154858	0.60	8.6	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	442225	1154850	1.80	7.9	1	Thick Peat	3	4	12	Low
SLR	PEAT	GRANULAR	442250	1154846	1.20	7.3	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	442274	1154842	1.10	7.4	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	442279	1154869	1.20	5.7	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	442254	1154873	1.10	7.4	1	Thin Peat	2	4	8	Low
SLR	PEAT	GRANULAR	442230	1154876	1.80	7.3	1	Thick Peat	3	4	12	Low
SLR	PEAT	GRANULAR	442204	1154880	1.40	8.6	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	442180	1154883	0.90	8.6	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	442153	1154888	1.40	8.9	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	442130	1154891	1.10	9.1	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	442162	1154912	0.60	9.9	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	442190	1154907	0.30	10.6	1	Peaty Soil	1	6	6	Low
SLR	PEAT	GRANULAR	442209	1154908	1.40	10.0	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	442234	1154900	1.30	9.2	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	442261	1154895	2.00	9.1	1	Thick Peat	3	6	18	Medium
SLR	PEAT	GRANULAR	442283	1154890	1.70	6.1	1	Thick Peat	3	4	12	Low
SLR	PEAT	GRANULAR	442290	1154913	0.20	9.5	1	Peaty Soil	1	6	6	Low

Source	Soil	Substrate	Easting	Northing	Peat Depth (m)	Slope (Degrees)	Substrate Coefficient	Ground Conditions Coefficient	Peat Coefficient	Slope Coefficient	Risk Coefficient	Potential Instability
SLR	PEAT	ROCK	437704	1150767	0.40	17.4	2	Peaty Soil	1	8	16	Medium
SLR	PEAT	GRANULAR	437688	1150820	0.40	20.5	1	Peaty Soil	1	8	8	Low
SLR	PEAT	GRANULAR	437678	1150867	0.70	19.5	1	Thin Peat	2	8	16	Medium
SLR	PEAT	ROCK	437728	1150781	0.30	16.9	2	Peaty Soil	1	8	16	Medium
SLR	PEAT	ROCK	437711	1150828	0.40	18.1	2	Peaty Soil	1	8	16	Medium
SLR	SOIL	GRANULAR	437663	1150774	0.20	15.6	1	Peaty Soil	1	8	8	Low
SLR	PEAT	GRANULAR	437649	1150800	0.90	15.0	1	Thin Peat	2	8	16	Medium
SLR	SOIL	GRANULAR	437637	1150819	0.10	13.3	1	Peaty Soil	1	8	8	Low
SLR	ROCK	ROCK	437663	1150829	0.00	18.2	2	No Peat	0	8	0	None
SLR	SOIL	GRANULAR	437646	1150854	0.20	19.2	1	Peaty Soil	1	8	8	Low
SLR	SOIL	GRANULAR	437627	1150846	0.30	15.8	1	Peaty Soil	1	8	8	Low
SLR	SOIL	ROCK	437603	1150831	0.30	13.1	2	Peaty Soil	1	8	16	Medium
SLR	SOIL	GRANULAR	437615	1150807	0.40	14.7	1	Peaty Soil	1	8	8	Low
SLR	SOIL	GRANULAR	437627	1150783	0.30	13.3	1	Peaty Soil	1	8	8	Low
SLR	SOIL	ROCK	437640	1150763	0.80	10.6	2	Thin Peat	2	6	24	Medium
SLR	SOIL	GRANULAR	437603	1150775	0.60	13.7	1	Thin Peat	2	8	16	Medium
SLR	SOIL	GRANULAR	437593	1150796	0.30	11.8	1	Peaty Soil	1	6	6	Low
SLR	SOIL	GRANULAR	437582	1150819	0.30	13.8	1	Peaty Soil	1	8	8	Low
SLR	SOIL	GRANULAR	437558	1150806	0.50	11.1	1	Peaty Soil	2	6	12	Low
SLR	SOIL	GRANULAR	437571	1150780	0.30	11.7	1	Peaty Soil	1	6	6	Low
SLR	PEAT	GRANULAR	437546	1150773	0.50	12.1	1	Peaty Soil	2	8	16	Medium
SLR	SOIL	GRANULAR	437535	1150796	0.20	12.0	1	Peaty Soil	1	6	6	Low
SLR	SOIL	GRANULAR	437514	1150783	0.50	13.4	1	Peaty Soil	2	8	16	Medium
SLR	SOIL	GRANULAR	437491	1150772	0.20	11.4	1	Peaty Soil	1	6	6	Low
SLR	PEAT	ROCK	437730	1150714	0.30	10.6	2	Peaty Soil	1	6	12	Low
SLR	PEAT	GRANULAR	437751	1150678	0.30	12.7	1	Peaty Soil	1	8	8	Low
SLR	PEAT	ROCK	437776	1150688	0.10	13.2	2	Peaty Soil	1	8	16	Medium
SLR	PEAT	ROCK	437752	1150735	0.10	14.9	2	Peaty Soil	1	8	16	Medium
SLR	SOIL	GRANULAR	437603	1150602	0.20	10.6	1	Peaty Soil	1	6	6	Low
SLR	SOIL	ROCK	437630	1150624	0.00	13.6	2	No Peat	0	8	0	None
SLR	SOIL	GRANULAR	437660	1150637	0.20	9.5	1	Peaty Soil	1	6	6	Low
SLR	SOIL	GRANULAR	437682	1150637	0.20	12.3	1	Peaty Soil	1	8	8	Low
SLR	SOIL	GRANULAR	437699	1150654	0.20	11.0	1	Peaty Soil	1	6	6	Low
SLR	SOIL	GRANULAR	437719	1150665	0.30	8.2	1	Peaty Soil	1	6	6	Low
SLR	SOIL	GRANULAR	437708	1150690	0.20	9.3	1	Peaty Soil	1	6	6	Low
SLR	SOIL	GRANULAR	437700	1150706	0.20	10.2	1	Peaty Soil	1	6	6	Low
SLR	SOIL	GRANULAR	437685	1150731	0.20	10.6	1	Peaty Soil	1	6	6	Low
SLR	SOIL	GRANULAR	437674	1150756	0.30	12.7	1	Peaty Soil	1	8	8	Low
SLR	SOIL	GRANULAR	437650	1150740	0.20	9.8	1	Peaty Soil	1	6	6	Low
SLR	SOIL	ROCK	437666	1150719	0.10	12.4	2	Peaty Soil	1	8	16	Medium
SLR	SOIL	GRANULAR	437675	1150697	0.10	10.1	1	Peaty Soil	1	6	6	Low
SLR	SOIL	GRANULAR	437690	1150671	0.10	10.4	1	Peaty Soil	1	6	6	Low
SLR	SOIL	GRANULAR	437662	1150660	0.10	8.5	1	Peaty Soil	1	6	6	Low
SLR	SOIL	ROCK	437650	1150687	0.10	13.4	2	Peaty Soil	1	8	16	Medium
SLR	SOIL	GRANULAR	437638	1150710	0.10	11.8	1	Peaty Soil	1	6	6	Low
SLR	SOIL	GRANULAR	437624	1150732	0.10	13.1	1	Peaty Soil	1	8	8	Low
SLR	SOIL	GRANULAR	437615	1150755	0.20	14.0	1	Peaty Soil	1	8	8	Low

Source	Soil	Substrate	Easting	Northing	Peat Depth (m)	Slope (Degrees)	Substrate Coefficient	Ground Conditions Coefficient	Peat Coefficient	Slope Coefficient	Risk Coefficient	Potential Instability
SLR	SOIL	ROCK	437583	1150760	0.50	12.6	2	Peaty Soil	2	8	32	High
SLR	SOIL	GRANULAR	437594	1150738	0.20	11.6	1	Peaty Soil	1	6	6	Low
SLR	SOIL	GRANULAR	437605	1150716	0.20	11.8	1	Peaty Soil	1	6	6	Low
SLR	SOIL	GRANULAR	437618	1150696	0.30	12.6	1	Peaty Soil	1	8	8	Low
SLR	SOIL	GRANULAR	437628	1150672	0.30	13.2	1	Peaty Soil	1	8	8	Low
SLR	SOIL	GRANULAR	437640	1150652	0.20	12.1	1	Peaty Soil	1	8	8	Low
SLR	SOIL	GRANULAR	437621	1150641	0.10	14.4	1	Peaty Soil	1	8	8	Low
SLR	SOIL	GRANULAR	437611	1150662	0.20	13.8	1	Peaty Soil	1	8	8	Low
SLR	PEAT	GRANULAR	437595	1150687	0.70	11.8	1	Thin Peat	2	6	12	Low
SLR	SOIL	GRANULAR	437586	1150706	0.20	14.0	1	Peaty Soil	1	8	8	Low
SLR	SOIL	GRANULAR	437575	1150730	0.20	13.6	1	Peaty Soil	1	8	8	Low
SLR	SOIL	GRANULAR	437560	1150751	0.30	13.9	1	Peaty Soil	1	8	8	Low
SLR	SOIL	GRANULAR	437528	1150759	0.10	9.5	1	Peaty Soil	1	6	6	Low
SLR	PEAT	GRANULAR	437541	1150737	1.00	8.6	1	Thin Peat	2	6	12	Low
SLR	PEAT	GRANULAR	437552	1150717	0.80	9.3	1	Thin Peat	2	6	12	Low
SLR	SOIL	GRANULAR	437564	1150692	0.20	11.4	1	Peaty Soil	1	6	6	Low
SLR	SOIL	GRANULAR	437573	1150671	0.20	10.4	1	Peaty Soil	1	6	6	Low
SLR	SOIL	ROCK	437588	1150651	0.10	9.2	2	Peaty Soil	1	6	12	Low
SLR	SOIL	GRANULAR	437598	1150629	0.10	8.8	1	Peaty Soil	1	6	6	Low
SLR	SOIL	GRANULAR	437577	1150617	0.20	5.9	1	Peaty Soil	1	4	4	Negligible
SLR	SOIL	ROCK	437562	1150631	0.00	5.9	2	No Peat	0	4	0	None
SLR	SOIL	GRANULAR	437550	1150663	0.10	6.0	1	Peaty Soil	1	4	4	Negligible
SLR	SOIL	GRANULAR	437541	1150685	0.20	6.3	1	Peaty Soil	1	4	4	Negligible
SLR	PEAT	GRANULAR	437530	1150705	0.90	7.3	1	Thin Peat	2	4	8	Low
SLR	SOIL	GRANULAR	437517	1150728	0.10	8.9	1	Peaty Soil	1	6	6	Low
SLR	SOIL	GRANULAR	437504	1150751	0.30	10.9	1	Peaty Soil	1	6	6	Low
SLR	SOIL	GRANULAR	437587	1150594	0.60	7.1	1	Thin Peat	2	4	8	Low

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APPENDIX 2.4: CARBON CALCULATOR

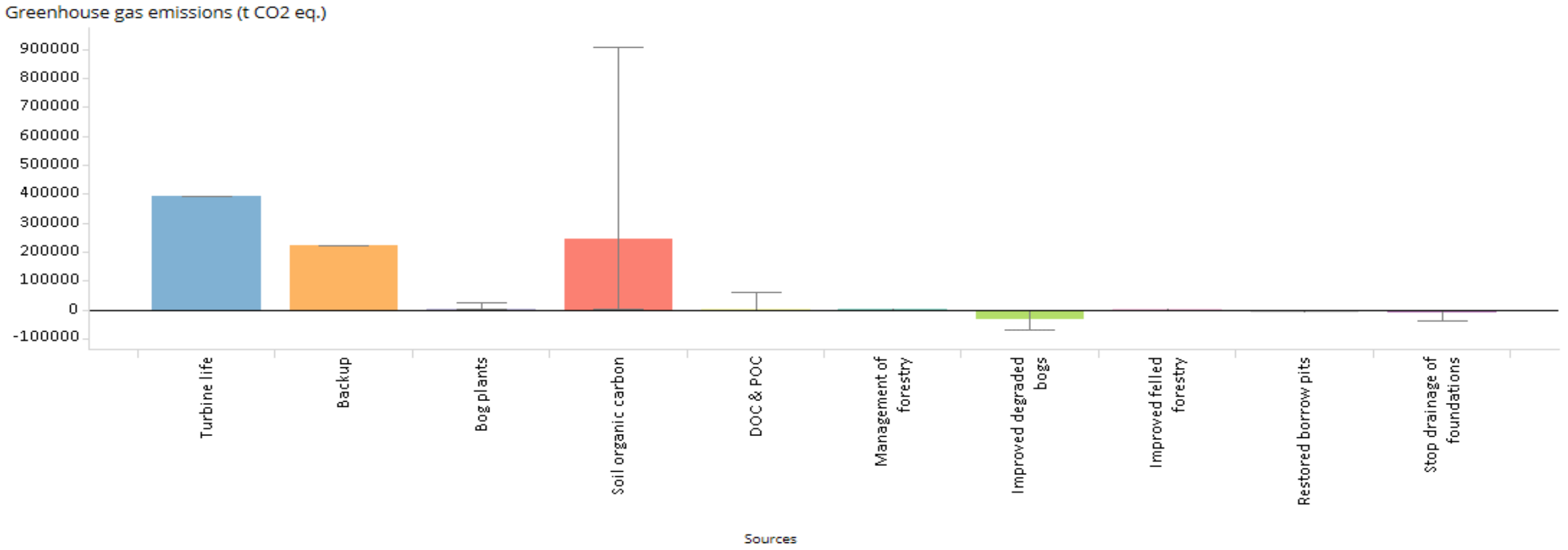
This Technical Appendix provides a comparison of Carbon Calculator (v1.5.1) results between the consented Viking Wind Farm (per the Viking Wind Farm, S36C Application – EIA Report 2018¹) and the same scheme but with three larger construction compounds.

¹ Available at: <https://www.energyconsents.scot/ApplicationDetails.aspx>

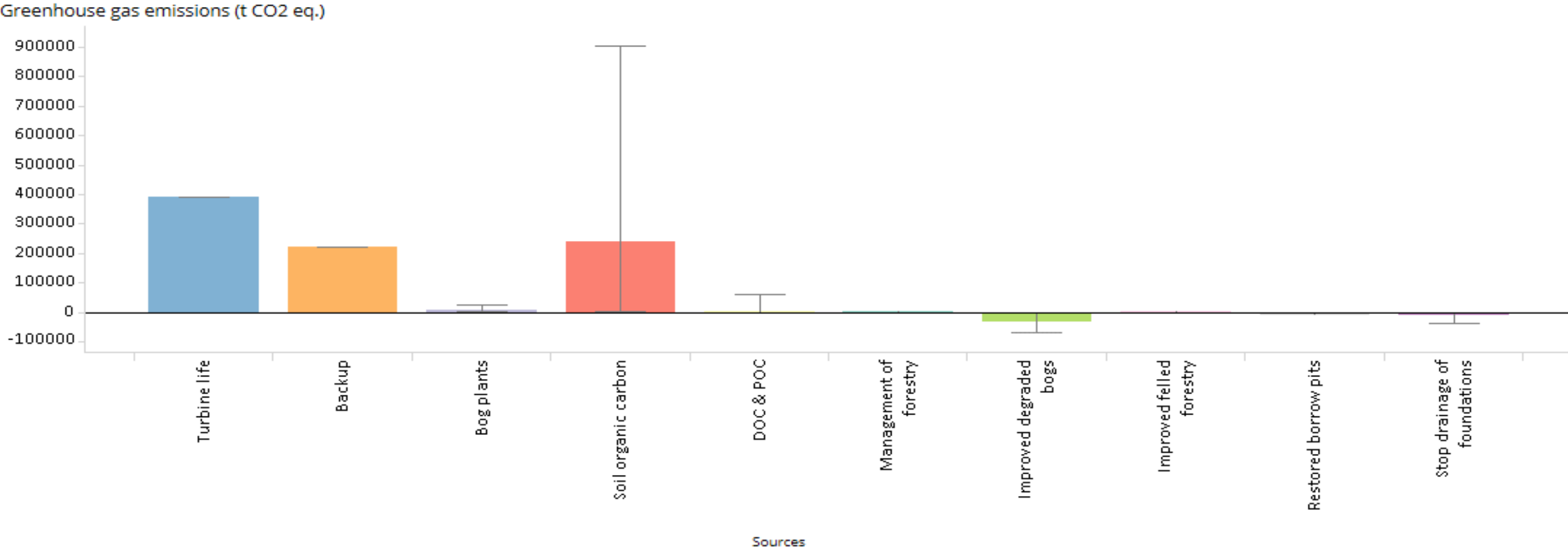
2.4.1 Carbon Calculator - Output Data

	Viking Wind Farm, S36C Application - EIA Report 2018 (Ref: RRM0-8UB3-26BR v1)			Viking Wind Farm (Revised compounds) 20190617 (Ref: RRM0-8UB3-26BR v5)		
1. Windfarm CO2 emission saving over...	Exp.	Min.	Max.	Exp.	Min.	Max.
...coal-fired electricity generation (t CO2 / yr)	1,649,049	1,364,116	1,933,981	1,649,049	1,364,116	1,933,981
...grid-mix of electricity generation (t CO2 / yr)	504,559	417,378	591,739	504,559	417,378	591,739
...fossil fuel-mix of electricity generation (t CO2 / yr)	826,321	683,544	969,097	826,321	683,544	969,097
Energy output from windfarm over lifetime (MWh)	44,908,731	37,149,123	52,668,339	44,908,731	37,149,123	52,668,339
Total CO2 losses due to wind farm (tCO2 eq.)	Exp.	Min.	Max.	Exp.	Min.	Max.
2. Losses due to turbine life (eg. manufacture, construction, decomissioning)	390,975	390,975	390,975	390,975	390,975	390,975
3. Losses due to backup	223,089	223,089	223,089	223,089	223,089	223,089
4. Lossess due to reduced carbon fixing potential	5,256	1,577	23,319	5,396	1,633	23,545
5. Losses from soil organic matter	242,969	3,974	907,377	240,654	1,871	904,869
6. Losses due to DOC & POC leaching	3,880	173	60,276	3,877	172	60,274
7. Losses due to felling forestry	0	0	0	0	0	0
Total losses of carbon dioxide	866,168	619,788	1,605,036	863,991	617,741	1,602,753
8. Total CO2 gains due to improvement of site (t CO2 eq.)	Exp.	Min.	Max.	Exp.	Min.	Max.
8a. Change in emissions due to improvement of degraded bogs	-30,174	0	-68,494	-30,174	0	-68,494
8b. Change in emissions due to improvement of felled forestry	0	0	0	0	0	0
8c. Change in emissions due to restoration of peat from borrow pits	-1,671	0	-2,995	-1,671	0	-2,995
8d. Change in emissions due to removal of drainage from foundations & hardstanding	-2,468	0	-36,385	-2,468	0	-36,385
Total change in emissions due to improvements	-34,313	0	-107,874	-34,313	0	-107,874
RESULTS	Exp.	Min.	Max.	Exp.	Min.	Max.
Net emissions of carbon dioxide (t CO2 eq.)	831,855	511,914	1,605,036	829,677	509,867	1,602,753
Carbon Payback Time						
...coal-fired electricity generation (years)	0.50	0.26	1.18	0.50	0.30	1.20
...grid-mix of electricity generation (years)	1.65	0.87	3.85	1.60	0.90	3.80
...fossil fuel-mix of electricity generation (years)	1.01	0.53	2.35	1.00	0.50	2.30
Ratio of soil carbon loss to gain by restoration (not used in Scottish applications)	7	0	No gains!	7	0	No gains!
Ratio of CO2 eq. emissions to power generation (g/kWh) (for info. only)	19	10	43	18	10	43
Homes powered equivalent...(based on household consumption at 3.781 MWh pa, July 2018 (renewable UK)						
(lifetime, based on 2018 consumption data)	11,877,475	9,825,211	13,929,738	11,877,474	9,825,211	13,929,738
(pa)	475,099	393,008	557,190	475,099	393,008	557,190

2.4.2 Viking Wind Farm, S36C Application - EIA Report 2018 - GHG emissions

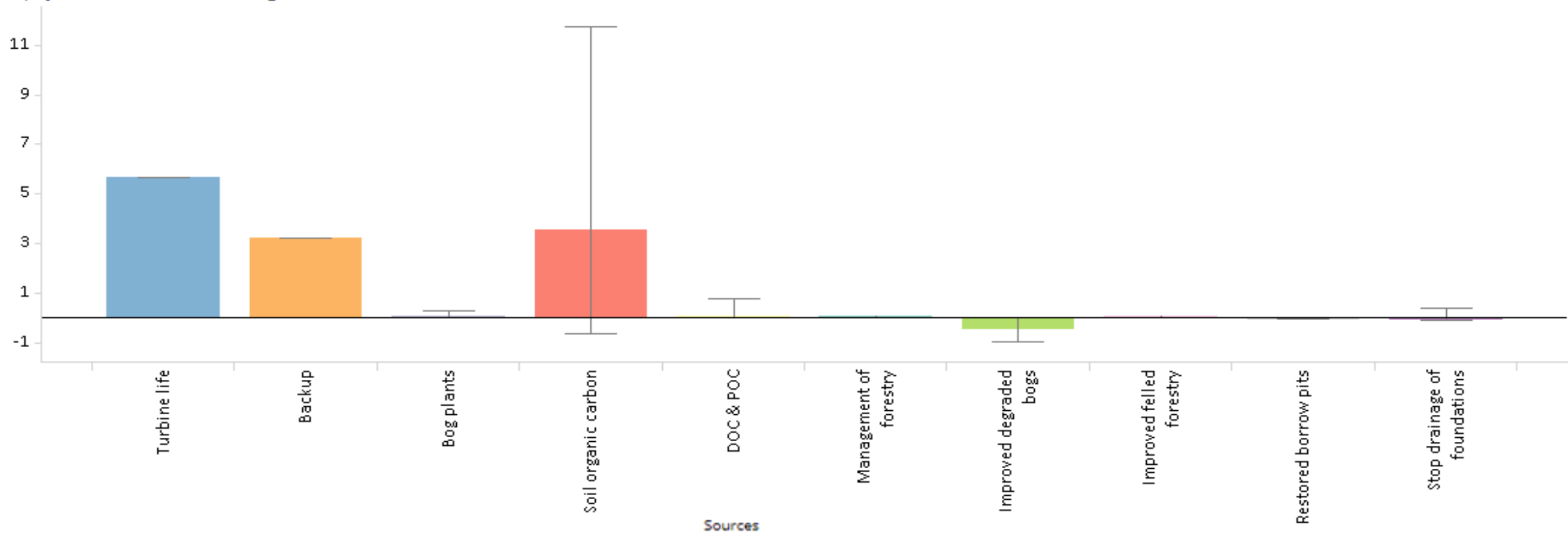


2.4.3 Viking Wind Farm (Revised compounds) 20190617 - GHG emissions



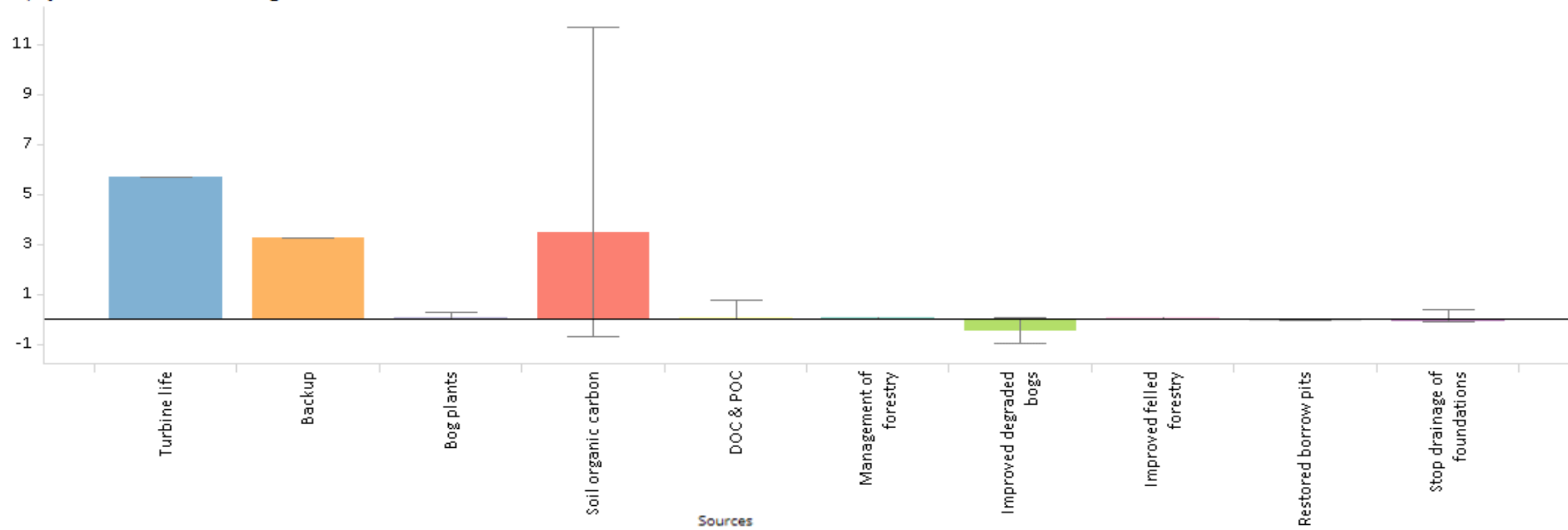
2.4.4 Viking Wind Farm, S36C Application - EIA Report 2018 - Carbon Payback time

Carbon payback time (months) using fossil-fuel mix as conterfactual



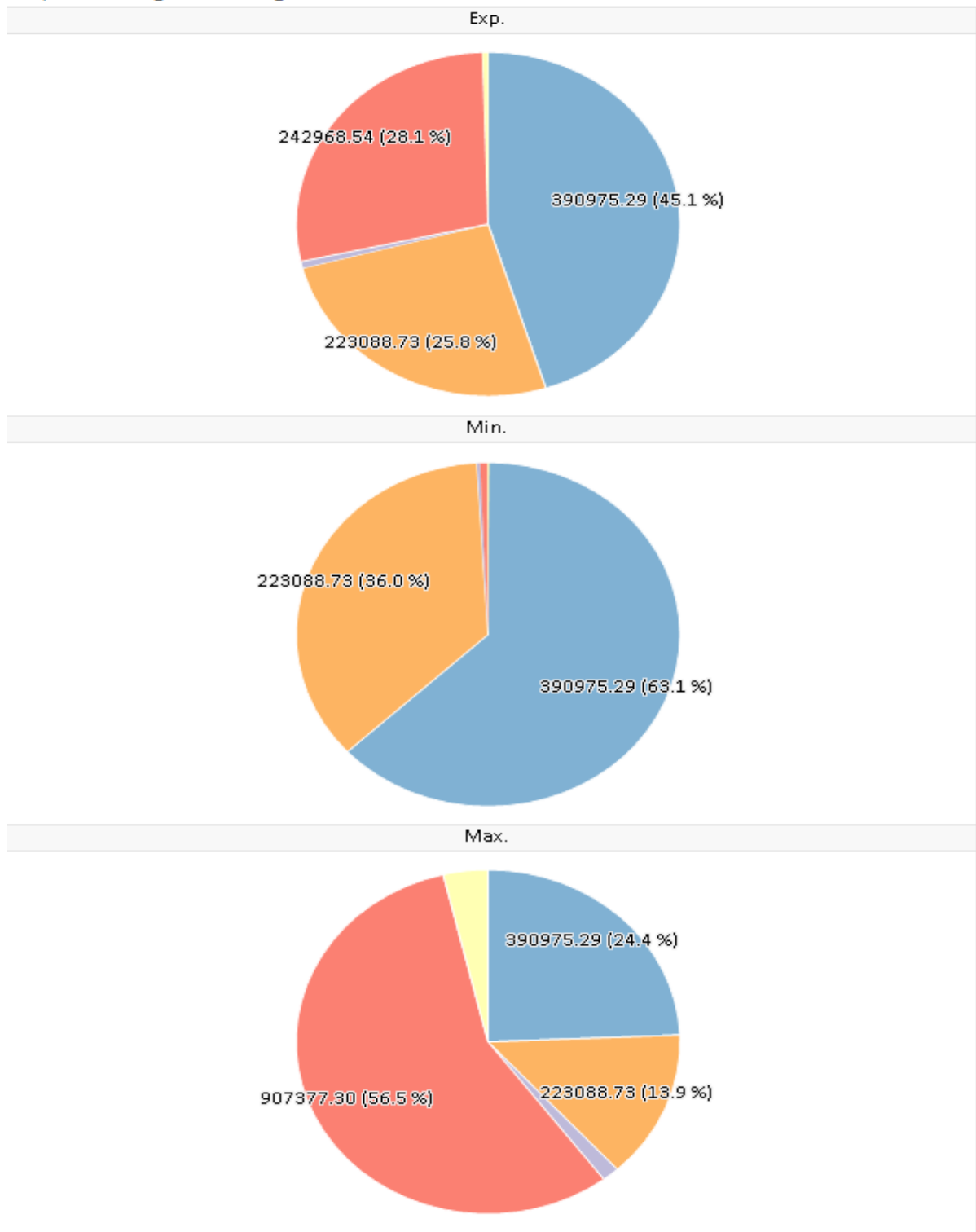
2.4.5 Viking Wind Farm (Revised compounds) 20190617 - Carbon Payback time

Carbon payback time (months) using fossil-fuel mix as conterfactual



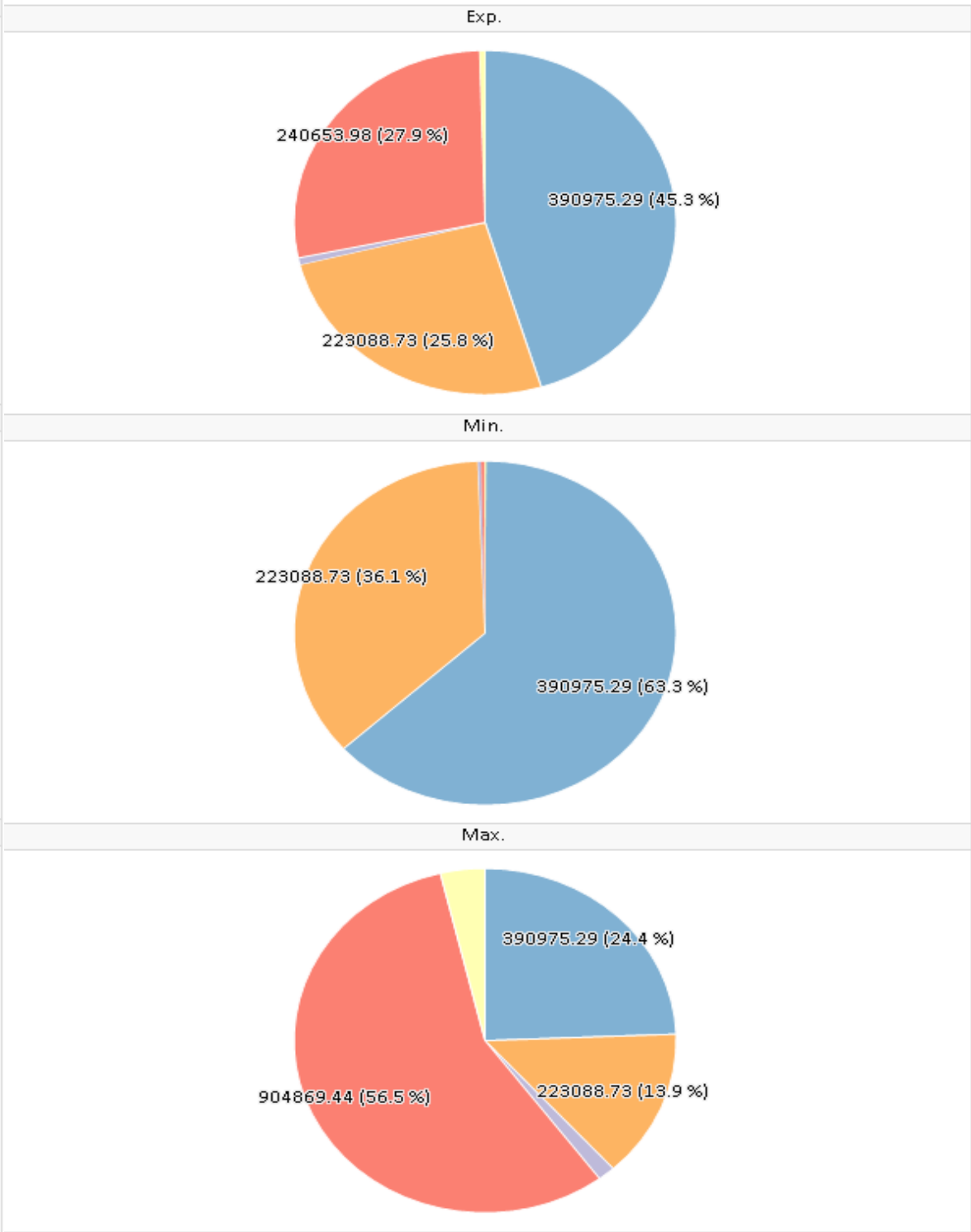
2.4.6 Viking Wind Farm, S36C Application - EIA Report 2018 - sources of GHG

Proportions of greenhouse gas emissions from different sources



2.4.7 Viking Wind Farm (Revised compounds) 20190617 - sources of GHG

Proportions of greenhouse gas emissions from different sources



- Sources
- Turbine life
 - Backup
 - Bog plants
 - Soil organic carbon
 - DOC & POC
 - Management of forestry
 - Improved degraded bogs
 - Improved felled forestry
 - Restored borrow pits
 - Stop drainage of foundations