



ARCUS

MOORSHIELD WIND TURBINES PLANNING APPLICATION

APPENDIX **2.2**: PEAT PROBING SUMMARY REPORT

MARCH 2020



Prepared By:

Arcus Consultancy Services

7th Floor
144 West George Street
Glasgow
G2 2HG

T +44 (0)141 221 9997 | E info@arcusconsulting.co.uk
w www.arcusconsulting.co.uk

Registered in England & Wales No. 5644976

TABLE OF CONTENTS

1	INTRODUCTION	1
2	EXISTING LAND USE	1
3	PUBLISHED GEOLOGY	1
4	FIELD SURVEY	1
5	SUMMARY	2
	Annex A – Interpolated Peat Depths Figure	
	Annex B – Tabulated Peat Depths	

1 INTRODUCTION

Arcus Consultancy Services Ltd (Arcus) has been commissioned by Moorshield Wind Farm Ltd to carry out a peat depth survey of the proposed Moorshield Wind Turbines in East Renfrewshire (the Development). The majority of the land within the site boundary (the Site) includes moorland and grazing land with a north facing aspect. This land use extends beyond the site boundary, with Bennan Loch immediately adjacent to the northern site boundary.

2 EXISTING LAND USE

The Core Study Area is comprised of heathland, moorland and rough grazing with an area of arable land in the north-west of the Site. The Wider Study Area comprising mainly rough grazing with areas of forestry to the north and west. The Bennan Loch is located approximately 30 metres (m) to the north of the Core Study Area.

3 PUBLISHED GEOLOGY

British Geological Survey (BGS) Bedrock geology mapping¹ indicates that the site is underlain by igneous Basalt. This rock forms a flow moss lava member from the '**Clyde Plateau Volcanic Formation**'.

BGS and **Scotland's Soils**² maps pertaining to superficial soils show the Site to be dominated by peat. The majority of the peatland encountered is recorded to be class 1, with pockets of class 4 and 5 soils to the north and north-west of the site³. The Site also contains areas of mineral soil in the north-west and south-west.

Published soils mapping indicates that most of the site is covered by dystrophic blanket peat, however this is broken up in the East and South West by poorly drained peaty gleys and to the North by peaty gleyed podzols, freely drained below iron pan and freely drained brown soils in the North West.

4 FIELD SURVEY

A peat depth survey was undertaken in September 2019 focusing on the proposed access track and turbine locations. A grid methodology was incorporated, with probes taken at 50 m intervals along the infrastructure locations; additional probes were taken at 10 m intervals either side of the central probe location. The proposed turbine locations were probed in a 10 m grid formation to provide an accurate understanding of the underlying peat profile.

A total of 259 probes were recorded with depths ranging between 0.0 m and 5.4 m.

Peat depth varied across the Site, with just over a third of probes reaching depths of between 0 and 0.5 m, however, a high concentration of probes in the centre of the Site area recorded peat depths of up to 5.4 m. The average peat depth was recorded as 1.60m. Figure 1 in Annex A illustrates the '**Interpolated Peat Depths**', while Table 1 below summarises the peat depths recorded:

¹ British Geological Survey, *Onshore GeoIndex* [Online] Available at: <http://mapapps2.bgs.ac.uk/geoindex/home.html> [Accessed 03/02/2020]

² Scottish Government, *Scotland's Soils, National Soil Map of Scotland* [Online] Available at: http://map.environment.gov.scot/Soil_maps/?layer=1 [Accessed 03/02/2020]

³ Scottish Government, *Scotland's Soils, Carbon and Peatland 2016 Map* [Online] Available at: <https://soils.environment.gov.scot/maps/thematic-maps/carbon-and-peatland-2016-map/> [Accessed 03/02/2020]

Table 1: Peat Survey 1 Summary

Peat Depth Range (m)	Nº of Peat Probes	Percentage of Total
0.00 - 0.50	89	34%
0.51 - 1.00	41	16%
1.01 - 1.50	4	2%
1.51 - 2.00	22	8%
2.01 - 2.50	28	11%
2.51 - 3.00	45	17%
3.01 - 3.50	9	3%
3.51 - 4.00	9	3%
4.01 - 4.50	5	2%
4.51 - 5.00	5	2%
5.01 - 5.50	2	1%
Σ =	259	

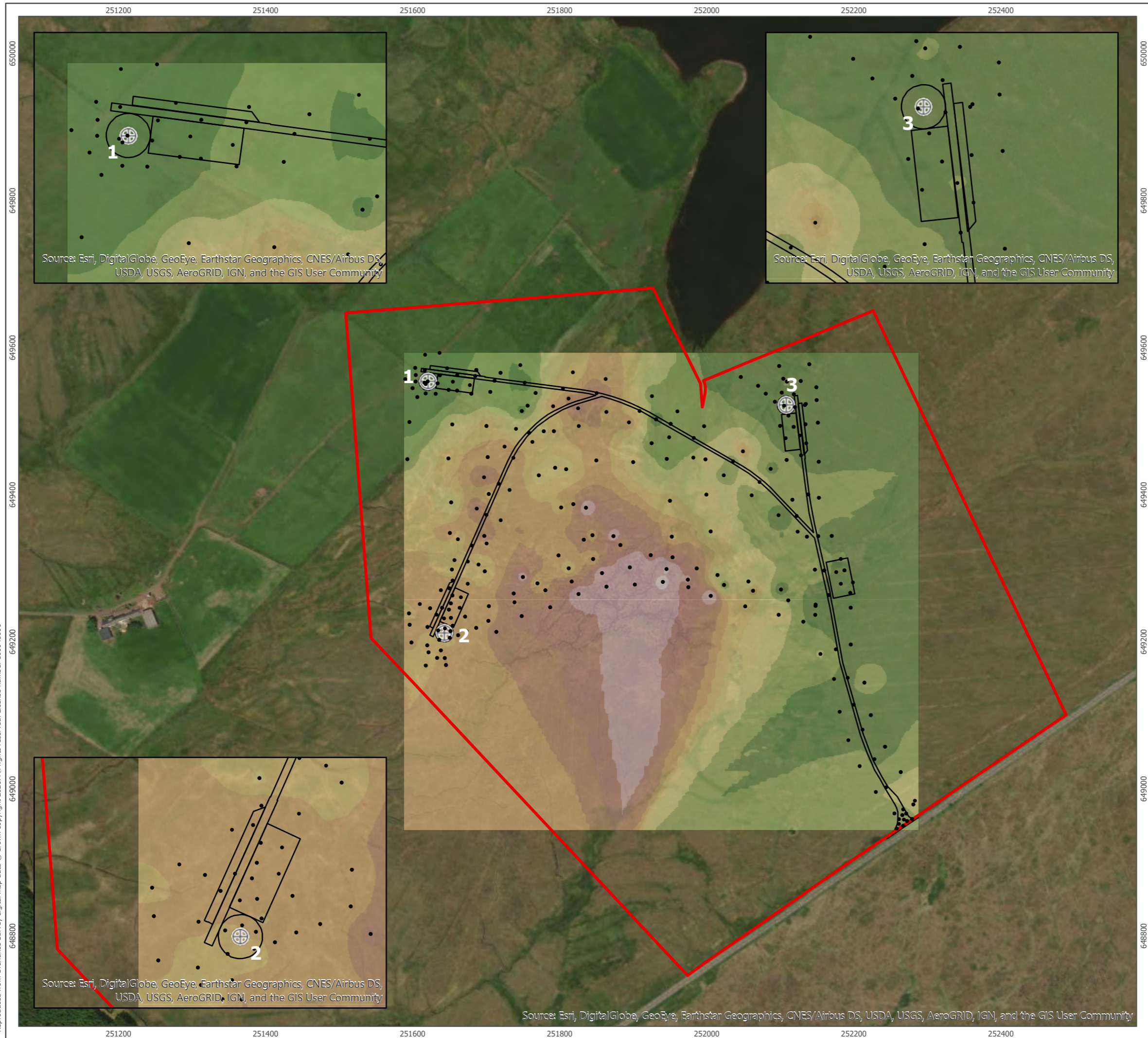
The tabulated peat probe locations and depths are included in Annex B.

5 SUMMARY

The proposed site layout has been designed to locate Site infrastructure out with deep peat areas where possible. Turbines T1 and T3 are located in areas of 0.0m – 0.5m peat depth while the substation for the development has been located in an area where peat was between 0.0m – 1.0m peat depth. Turbine T2 is situated in the western site area in peat 2.0m – 3.0m depth.

The track for the development has been aligned to avoid deep peat where practical and achieves this for the most part being areas of 0.0m - 1.0m. The spur track to T2 avoids the deepest peat with a range of peat 2.0m – 3.5m on the site but passes through a localised pocket up to 4.0m at its juncture.

ANNEX A – INTERPOLATED PEAT DEPTHS FIGURE



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

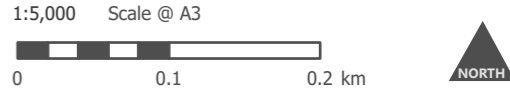
wind2

ARCUS

- Site Boundary
- ⊕ Wind Turbines
- Peat Probe Locations
- Site Infrastructure

Interpolated Peat Depths (m)

- ≤ 0.5
- ≤ 1.0
- ≤ 1.5
- ≤ 2.0
- ≤ 2.5
- ≤ 3.0
- ≤ 3.5
- ≤ 4.0
- ≤ 4.5
- ≤ 5.0
- ≤ 5.5



Produced By: BM	Ref: 3520-REP-003
Checked By: SC	Date: 04/02/2020

Interpolated Peat Depths
Figure 1

Moorshield Wind Turbines
Peat Probing Summary

Reproduced from Ordnance Survey digital map data © Crown copyright 2020. All rights reserved. License number 100048606

ANNEX B – TABULATED PEAT DEPTHS

3520 - Moorshield Wind Turbines



Peat Probe Locations and Depths

Easting	Northing	PeatDepth	Lat	Long
252167	649263	0	55.71418412	-4.354747848
251932	649502	0	55.71625767	-4.358610353
251621	649554	0.05	55.71662626	-4.363577098
252197	649246	0.1	55.71404002	-4.354263014
252102	649271	0.1	55.71423255	-4.355783621
252149	649248	0.1	55.71404656	-4.355024786
252188	649297	0.1	55.71449261	-4.354425096
252047	649560	0.1	55.71681023	-4.356808143
252119	649536	0.1	55.71662075	-4.355649085
252140	649577	0.1	55.71699433	-4.355337338
251632	649537	0.1	55.71647824	-4.363395433
251617	649569	0.1	55.71676513	-4.363647801
251605	649554	0.1	55.71662034	-4.363838512
251601	649544	0.1	55.71653738	-4.363899282
251607	649532	0.1	55.71643034	-4.363790206
252197	649196	0.2	55.71358978	-4.354233844
252243	649057	0.2	55.71235598	-4.353418493
252149	649250	0.2	55.71406215	-4.355024279
252081	649537	0.2	55.71661703	-4.356256548
252071	649548	0.2	55.71670973	-4.356428641
252150	649528	0.2	55.7165596	-4.355151749
252134	649522	0.2	55.71649447	-4.35540269
252136	649523	0.2	55.716508	-4.355383502
251617	649552	0.2	55.71660931	-4.36364854
251753	649552	0.2	55.71665109	-4.361479061
251648	649571	0.2	55.71679424	-4.363167245
251618	649590	0.2	55.71695029	-4.36365261
251638	649592	0.2	55.71697927	-4.363341564
252108	649476	0.2	55.71608159	-4.355794247
252136	649470	0.2	55.71602802	-4.355345234
252200	649280	0.2	55.71434871	-4.354233517
252171	649343	0.3	55.71490717	-4.354724948
252224	649100	0.3	55.71273595	-4.353748359
252119	649492	0.3	55.71622302	-4.355629718
252101	649493	0.3	55.71623	-4.355922889
252099	649575	0.3	55.71696	-4.355987521
252105	649557	0.3	55.71680681	-4.355887977
252106	649521	0.3	55.71647754	-4.35585267
252152	649498	0.3	55.71628478	-4.35510818
251749	649513	0.3	55.71630375	-4.361520744
251662	649562	0.3	55.71671607	-4.362942424
251638	649562	0.3	55.71670597	-4.363317315
251635	649551	0.3	55.71660663	-4.363361223
251604	649572	0.3	55.7167863	-4.36385723
251605	649562	0.3	55.71669854	-4.363839577
251591	649557	0.3	55.716644	-4.364062939

251597	649498	0.3	55.71612241	-4.363942768
252098	649372	0.3	55.71513831	-4.355891439
252088	649435	0.3	55.71570043	-4.356095341
251656	649553	0.3	55.71663269	-4.363032044
252177	649294	0.3	55.71446759	-4.35460213
252183	649278	0.3	55.71432736	-4.35449363
252196	649266	0.4	55.71421997	-4.354282247
252094	649526	0.4	55.71652223	-4.356053465
252121	649519	0.4	55.71646436	-4.355614631
252153	649444	0.4	55.71580778	-4.355060658
251619	649537	0.4	55.71647841	-4.363611788
252132	649227	0.5	55.71384865	-4.355276769
252148	649236	0.5	55.71393722	-4.35502377
252024	649277	0.5	55.71426395	-4.357018843
252137	649343	0.5	55.71488811	-4.355261191
252152	649343	0.5	55.71489887	-4.355017507
252129	649453	0.5	55.71587902	-4.355447962
252103	649538	0.5	55.716636	-4.355912398
252129	649554	0.5	55.71678602	-4.355509108
252150	649546	0.5	55.71671614	-4.355167527
252112	649507	0.5	55.71635852	-4.355749067
252135	649495	0.5	55.71625953	-4.355375994
251926	649470	0.5	55.71596473	-4.35868895
251997	649493	0.5	55.71619387	-4.357566213
251757	649521	0.5	55.71637135	-4.36139841
251712	649555	0.5	55.71666259	-4.362132101
251686	649561	0.5	55.71671146	-4.362551524
251661	649541	0.5	55.71652621	-4.36293452
251650	649542	0.5	55.71653125	-4.363117788
251768	649538	0.5	55.71652951	-4.361234407
251720	649565	0.5	55.71676124	-4.362008339
252124	649349	0.5	55.71494557	-4.355466058
252123	649371	0.5	55.7151367	-4.355498009
251983	649477	0.5	55.71604601	-4.357780793
251747	649576	0.5	55.7168638	-4.361586063
252117	649393	0.6	55.71533325	-4.355602822
252110	649447	0.6	55.71581654	-4.355756246
252272	648966	0.6	55.71154886	-4.352910659
252267	648964	0.6	55.71152848	-4.352993976
251681	649537	0.6	55.71649426	-4.362623495
251688	649569	0.6	55.71678665	-4.362532945
252062	649399	0.6	55.71537031	-4.356486267
252037	649445	0.6	55.7157774	-4.3569131
251961	649513	0.6	55.71636402	-4.358154543
251926	649534	0.6	55.7165392	-4.358716504
252127	649480	0.6	55.71612052	-4.35549085
252183	649312	0.6	55.71463031	-4.354513566
252139	649400	0.7	55.71540383	-4.355263953
252110	649553	0.7	55.7167731	-4.355808586
252262	648952	0.7	55.71141845	-4.353060474

252024	649426	0.7	55.71560265	-4.357105195
252215	649144	0.8	55.71312986	-4.353910627
252161	649297	0.8	55.71448247	-4.354861329
252153	649395	0.8	55.71536796	-4.355031469
251946	649448	0.8	55.71577939	-4.358349985
251594	649448	0.8	55.71566781	-4.363959514
252269	648958	0.8	55.71147436	-4.352957125
251950	649478	0.8	55.71604433	-4.358314255
251679	649549	0.8	55.71659854	-4.362662498
252259	648946	0.9	55.711362	-4.353106207
252112	649256	1	55.71410292	-4.355619007
252265	649022	1	55.71205318	-4.353060562
252148	649298	1	55.71448872	-4.355064367
251952	649496	1	55.71620967	-4.358291505
252268	648949	1	55.71139853	-4.352967541
252273	648956	1	55.71145821	-4.35288756
252280	648959	1	55.71148473	-4.35278111
251706	649539	1	55.71652421	-4.362216186
251653	649389	1	55.71515902	-4.362980793
251983	649450	1	55.71580607	-4.357775992
251741	649489	1	55.71608347	-4.361632606
252256	648966	1.1	55.71154536	-4.353166857
252016	649290	1.2	55.71438278	-4.357166659
252058	649282	1.2	55.71431705	-4.356494101
251655	649495	1.6	55.71611132	-4.363014073
252073	649417	1.6	55.7155356	-4.35632627
251795	649436	1.7	55.71562477	-4.360757038
251773	649426	1.7	55.7155259	-4.361104818
251779	649486	1.7	55.71606566	-4.361030065
252282	648978	1.8	55.71166312	-4.352763646
252000	649400	1.8	55.71535973	-4.357466658
252006	649350	1.8	55.714912	-4.35734644
251654	649298	1.8	55.71433941	-4.362915248
251810	649434	1.8	55.71561136	-4.360517742
251813	649299	1.9	55.71440264	-4.36038961
251759	649484	1.9	55.71604003	-4.361346865
252099	649236	2	55.71392228	-4.355815446
251623	649185	2	55.71331937	-4.363359747
251999	649448	2	55.71578995	-4.357512411
251699	649295	2	55.7143312	-4.362202664
251901	649444	2	55.71572586	-4.359074649
251909	649513	2	55.71635292	-4.358973866
251819	649566	2	55.71679723	-4.360444007
251662	649339	2	55.71471165	-4.362807432
251691	649305	2	55.71441139	-4.362342285
251637	649202	2.1	55.71347566	-4.363138498
251596	649238	2.1	55.71378642	-4.363811274
251651	649205	2.2	55.71350523	-4.362911011
251771	649279	2.2	55.71420664	-4.361055188
251951	649391	2.2	55.71526943	-4.358249932

251650	649449	2.2	55.71569438	-4.363072489
251704	649401	2.2	55.71527709	-4.362172894
251805	649544	2.2	55.71659317	-4.360646686
251676	649309	2.2	55.71444381	-4.362575616
251619	649167	2.3	55.71315679	-4.363408402
251953	649343	2.3	55.71483236	-4.358183664
251803	649382	2.3	55.71514249	-4.360598323
252053	649248	2.4	55.71401159	-4.356544503
251634	649178	2.4	55.71325372	-4.363169532
251655	649221	2.4	55.71365401	-4.362855615
251701	649493	2.4	55.71610599	-4.362273396
251687	649218	2.5	55.71363695	-4.362346532
251639	649188	2.5	55.71334807	-4.363092982
251636	649215	2.5	55.71359014	-4.363166814
251633	649236	2.5	55.71378214	-4.363218026
251846	649312	2.5	55.7145266	-4.359869077
251653	649252	2.5	55.71392554	-4.36291257
251641	649246	2.5	55.71386879	-4.363098168
251621	649195	2.5	55.71340381	-4.363391728
251793	649486	2.5	55.71607091	-4.360811329
251658	649311	2.5	55.71445513	-4.362866364
251645	649218	2.5	55.71361742	-4.363021706
251644	649231	2.5	55.71373921	-4.363048856
251672	649234	2.6	55.71376994	-4.362594568
251625	649245	2.6	55.71385748	-4.363357628
251599	649199	2.6	55.71343229	-4.363736405
251621	649220	2.6	55.71362808	-4.363399404
251764	649471	2.6	55.7159312	-4.361269074
251676	649278	2.6	55.71417238	-4.362562665
251639	649270	2.6	55.71408255	-4.363137742
251674	649214	2.7	55.7135919	-4.362551374
251663	649209	2.7	55.71354035	-4.362732439
251650	649243	2.7	55.71384867	-4.362950443
251652	649214	2.7	55.71358825	-4.36289986
252050	649459	2.7	55.71590323	-4.356708302
251792	649520	2.7	55.71637476	-4.360846131
251665	649246	2.7	55.71387561	-4.36271996
252064	649269	2.8	55.71420497	-4.35638731
251739	649253	2.8	55.71396561	-4.361537635
251704	649228	2.8	55.71372799	-4.362087451
251705	649248	2.8	55.71390758	-4.362088275
251846	649345	2.8	55.71481724	-4.359899404
251703	649451	2.8	55.71572679	-4.362223743
251652	649347	2.8	55.71478427	-4.362985687
251655	649283	2.8	55.71420496	-4.362890084
251655	649263	2.8	55.71402354	-4.362884513
251653	649232	2.8	55.71374932	-4.362899756
251597	649223	2.8	55.71364769	-4.363787538
251799	649317	2.8	55.71455634	-4.360619567
251863	649557	2.8	55.7167292	-4.359730278

251702	649333	2.8	55.71467184	-4.362183589
251667	649260	2.8	55.71400462	-4.362699196
251819	649387	2.9	55.71518846	-4.360337461
251851	649446	2.9	55.71573169	-4.359872077
251864	649512	2.9	55.71632728	-4.35968946
251827	649493	2.9	55.71614388	-4.360277152
251726	649465	2.9	55.71586182	-4.36186635
251733	649406	2.9	55.71533434	-4.361726681
251721	649365	2.9	55.7149615	-4.36189581
251781	649270	3	55.71412528	-4.360877144
251883	649331	3	55.71470841	-4.35928907
251651	649272	3	55.71410926	-4.362956035
251895	649498	3	55.71620993	-4.35919498
251738	649450	3	55.71572879	-4.361668068
251718	649414	3	55.71540602	-4.36196673
251701	649372	3	55.71502011	-4.362207842
251681	649330	3	55.71464059	-4.362500902
251611	649251	3	55.71390469	-4.363582918
251645	649177	3.1	55.7132558	-4.363003914
251646	649168	3.1	55.71317086	-4.362973058
251834	649338	3.1	55.71475847	-4.360084635
251813	649530	3.2	55.71647506	-4.360518836
251817	649281	3.4	55.71424244	-4.360315456
251976	649274	3.5	55.71422214	-4.357788464
251954	649314	3.5	55.71458055	-4.358152969
251987	649299	3.5	55.71445467	-4.357620573
251698	649343	3.5	55.71476292	-4.362239116
251788	649246	3.7	55.7139194	-4.360760516
251715	649213	3.7	55.71359685	-4.361907543
251925	649317	3.8	55.71459784	-4.358626134
251698	649423	3.8	55.7154791	-4.362287961
251688	649381	3.8	55.71509391	-4.362421989
251826	649517	3.9	55.71636041	-4.360304754
251749	649234	4	55.71379957	-4.36137084
251738	649265	4	55.714073	-4.36156133
251851	649538	4	55.71655349	-4.359913909
251975	649284	4.2	55.71431333	-4.357804381
251865	649275	4.3	55.7141947	-4.359559489
251751	649288	4.3	55.71427766	-4.361373764
251874	649343	4.4	55.71481426	-4.359445959
251858	649293	4.5	55.71435824	-4.359666016
251837	649382	4.8	55.71514941	-4.360061404
252006	649262	5	55.71412542	-4.35729707
251903	649277	5	55.71423184	-4.358948067
251896	649301	5	55.71443998	-4.359068976
251827	649265	5	55.71409299	-4.360158564
251946	649298	5.2	55.71443465	-4.358274383
251941	649281	5.4	55.71427587	-4.358343594