Landscape Design and Management

2015.06.11_NorthConnect_PER_REP_Landscape Design & Mangement_RevA
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Date:	By:	Control:	Approved by:
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Contents

NorthConnect: Landscape Design and Management

1 Introduction

This document provides details of the landscape design and management of the NorthConnect Converter Station proposed for the Fourfields site to the West of Boddam, near Peterhead. This document will be reviewed at the detailed design stage and updated as appropriate to take into account any changes in layout and applicable guidance.

2 Background

The design process carried out to date has taken into account the position of the Converter Station in relation to the existing landform as well as key receptors. The location of the Converter Station within the lower, north-eastern part of the site has minimised its visibility, particularly from the north and from the more populated parts of the Study Area. The height of the Converter Station above the surrounding landform has been minimised by reducing the level of the building platform.

Landscape mounding has then been developed to screen the converter station from the receptors and to blend the building into the landscape as far as practicable. The mounding design has been optimised with the aid of 3D modelling and photomontage development.

A Rochdale envelope approach has been utilised throughout the planning process. Hence, there is a potential that the converter station building could reduce in size in one or more dimensions. If this were to occur then there is a potential to reduce the amount of landscaping in a proportionate manner, whilst still achieving the same screening effects.

The planting regime, paths, shelter and interpretation panels have been developed in discussion with local stakeholders.

3 Design Strategy

The design strategy for the key elements of the Converter Station has taken into account the following objectives:

- To identify a location where the Converter Station could relate best to the landscape character of the site and its surroundings;
- To locate the Converter Station where it would be least visible from key receptors;
- To create a design that responds to the landscape character of the site;
- To create a design that takes account of the relevant national, regional and local policy and guidance; and

- To respond to the various constraints identified, including responses from statutory consultees (NorthConnect, 2015a) and from public consultations (NorthConnect, 2015b).

4 Layout

The Full Site layout Plan is illustrated in Drawing 3022, and shows the location of the existing and proposed footpaths, the interpretation boards, mounding, walls and the various planting areas. The converter station base level is 63m above ordnance datum (AOD) (sea level) which is also approximately the lowest existing ground level within the Fourfields site. The Converter Station site will cover an area of 3.4Ha.

5 Landscaping Mounds

Excavated material will be used to create screening mounds adjacent to the Converter Station, to further reduce its visibility and also help to integrate the building into the landscape. These mounds will have a maximum outer slope of 1 in 3 and a naturalistic profile to reflect that of the natural, undulating topography that is evident nearby, as advocated by the Energetica Masterplan. The curving form of the converter building will reflect the profile of the mounds and the planted roof will also help to integrate the building within the landscape.

Computer generated representations of the evolving layout from key viewpoints were reviewed at several stages throughout the iterative design process. The proposed contours of the mounds are shown in Drawing 3031 the highest points are on the west and south side of the site where the mounds are just below 91m AOD. The mounds slope down toward the north east corner of the site and the mounds at the east are 76m high at their highest point. Cross Sections are shown in Drawings 3031, 3033, 3034. Drawing 3035, shows the current ground levels and proposed mound levels, and includes tables providing the difference in height between the two at the centre of each 20m box.

The various materials: soils; weathered rock; and solid rock, excavated for the Converter Station platform will be utilised to create the mounds. The materials may be processed (crushed) in the case of the harder rock, to facilitate their reuse. Rock will be used as the base of the mounds, then weathered rock, clays and finally topsoil will be placed on to allow planting. The materials will be appropriately compacted to obtain the desired engineering specifications for density, moisture content, stability and settlements.

The screening mounds to the north and east will be created as part of the enabling works in advance of the main construction phase, using materials excavated from the Converter Station platform. This will help to screen activity on site during the subsequent construction period, from the critical viewpoints to the north and north east. The Fourfields site is sufficiently large to allow reuse of excavated materials on site, so minimising the visual effects of traffic movements on residents, whilst allowing naturalistic mounds to be created that reflect the local landscape character.

The total area covered by the landscaping mounds is 7.8Ha.

If the converter station or building is to reduce in size then the mounds could also be reduced. The design would be of a similar shape and format, to ensure the appropriate mitigation is provided taking account of:

- Screening requirements from the main receptors;
- The need for at least 1 in 3 slopes in public access areas;
- The noise attenuation requirements;
- Providing a naturalistic shape;
- Minimising effects on groundwater; and
- Maintaining an onsite material balance, if practicable, to prevent the need for material to be imported or exported.

6 Foot Paths

The construction of the Converter Station site will require part of the existing path that bisects the site West to East to be removed. The intention is to construct new paths as shown in Drawing 3022. Paths will be 1.5m wide constructed with low maintenance in mind utilising local aggregates, in keeping with the existing paths. A route is provided from the west to the east across the site in addition to a link to the northwest corner of Fourfields and a new path running parallel to the western edge of the northwest field.

7 Dry Stone Walls

Due to the local geology in this area Dry Stone Walls tend to be constructed using the boulder style, this is single skin wall no more than 1.5m in height. The walls to be removed will be examined prior to their dismantling so as to ensure their re-construction is as close as can be achieved to their original style. The existing walls are approximately 1m in height and the new walls will be of a similar height. Where available, a Drystone Dyker with experience of construction in the local style will be utilised to carry out the works. Stone from walls to be removed from the site will be reused within the new walls.

8 Shelter

A sheltered seating area will be included on the western edge of Fourfields just to the north of the dividing wall as shown on Drawing 3022. This will be primarily of drystone construction utilising, where practicable, stone from the walls that need to be dismantled to make way for the converter station site. The shelter will be 4m in diameter, and no more than 1.5m high, enough to provide shelter without becoming a dominant feature in the landscape. The design will be adapted from the Dry Stone Walling Associations (DSWA) design: Butts for Shooting, Shelter and Watching (DSWA, 2005) similar to that shown in Figure 8.1, however, the opening will be at least 1m wide to allow wheel chair access.

Figure 8.1: Example of Shelter Design Type

9 Interpretation Boards

Three interpretation boards will be installed:

1. On the east of the site, which will provide information about NorthConnect;
2. Next to the Shelter providing information on the farming heritage with reference to Sandfordhill Farmstead and the local ecology; and
3. At the North East corner of the site providing information on the local archaeology including the Den of Boddam Flint Mine.

The indicative locations for these are shown in Drawing 3022.

The bases for the Interpretation Boards will be constructed utilising local stone and in drystone fashion. The boards will be fade/weather/UV/vandal resistant. The whole sign will be encapsulated, to ensure no water leaks or peeling graphics. The height and angle of the boards will be optimised to ensure that they can be easily read by someone sat in a wheelchair.

10 Planting

10.1 Existing Vegetation

The landscape of the area is predominantly agricultural and subject to cold, exposed coastal winds. There are few areas of woodland cover and these are mostly in the form of shelter belts associated with farms. Recent hedgerow planting within and adjacent to the Fourfields site has been of variable success.

10.2 Planting Strategy

The Energetica Masterplan encourages the retention and augmentation of existing hedges and woodland areas, and the introduction of new planting to improve the biodiversity and shelter of the area, to provide a framework for future development without impacting dramatically on the distinct open coastal landscape character.

It advises that all new developments should have a minimum boundary width of 10m structure planting to provide a framework to the development and shelter. The 10m boundary can incorporate existing planting. Structure planting should consist of native woodland and shrub transplants, 40-60cm high at 1 per m^2 with feathered

trees at 1 per 5m^2, protected with rabbit and wind proof fencing and deer proof fencing where planting is adjacent to open country or coastal strips. Plant species should consist of native woodland mixes suitable as first and second line of defence in maritime conditions.

The tree and shrub planting will be restricted to the northern and eastern fringes of the converter station site. There are several reasons for this:

- The results of the public consultation indicate a desire for the majority of the site to be kept open;
- The proposed planting would build upon existing tree and shrub belts located along the north and eastern boundaries;
- Recent tree and hedge planting is generally more successful towards the north of the site, which is more sheltered from coastal winds;
- Tree and shrub planting located here would provide the most effective screen from nearby dwellings, footpath and road users; and
- The form and scale of the planting proposed reflects that of nearby tree belts, helping to minimise effects on the predominantly open landscape character.

The outer edge of the woodland will be planted shrubs.

The planted area would be enclosed within a 2.0m high rabbit-proofed deer fence. In addition, all plants would be protected with tree and shrub shelters with suitable stakes and ties.

Recently planted hedgerows along the southern boundary would be extended along the southern and eastern boundaries to meet the proposed site access.

10.3 Woodland Planting

The proposed woodland planting has the following objectives:

- To ensure adequate screening of the Converter Station from nearby residential properties and adjacent footpaths;
- To ensure sufficient numbers of trees and a sufficient variety of species are present so that if one area of planting or one species fails that the remaining number of trees would be adequate to screen the Converter Station;
- To provide a naturalistic planting design that mitigates the landscape effects of the Converter Station and provides a degree of landscape integration;
- To reflect the form and scale of woodland belts within the local landscape of the Eastern Coastal Agricultural Plain; and
- To reflect the planting mixes provided within the Energetica guidance, but also reflects the success of hedgerow and woodland species used in recent planting adjacent to the Fourfields site.

Appendix A identifies proposed woodland tree and shrub species and estimated growth rates at years 1, 5, 10 and 15.

The proposed woodland mix builds upon that recommended by the Energetica Masterplan, but also includes native species such as aspen (*Populus tremula*) and Wych elm (*Ulmus glabra*) , which are known to do well on exposed sites and are also

tolerant of the dry conditions that might be expected on earth mounds. Scots pine (*Pinus sylvestris*) is included, in order to provide an evergreen component.

Whilst the Energetica Masterplan advocates the inclusion of 1.8-2.0m high feathered trees within the mix, smaller trees have been shown to establish more quickly, particularly on exposed sites such as Fourfields (Simon J Hodge, 1995) and it is proposed that 40-60cm plants are used throughout at a density of 1 plant/m^2.

Prior to planting the proposed species will be reviewed to take account of plant and tree health information provided by the Forestry Commission on their website (Forestry Commission). If required, species will be removed and replaced with a suitable alternative, or the mix adjusted to make up for the species loss.

10.4 Woodland Shrub Edge Mix

The woodland shrub edge mix which is detailed in Appendix 1 is similar to that proposed by the Energetica Masterplan, but also includes gorse, which thrives locally and would increase the evergreen component. All would be planted at a density of 3 plants/m^2.

All species selected are native to Scotland, generally tolerant of exposed sites and could therefore be expected to grow successfully at the site. Prior to finalising the planting scheme and selecting the most appropriate species, soil testing of the planting areas should be undertaken and any deficiencies rectified.

The estimated growth rates shown in Appendix 1 would not be uniform, with some species growing rapidly in the first five to ten years and slowing down thereafter, and some species growing at a steady rate. The heights of species listed are therefore indicative and a conservative estimate of the likely growth rates that could be achieved, taking the exposed nature of the site into account.

Edges of woodland areas would be scalloped in order to maximise the woodland edge and increase wildlife value. Rides would be incorporated into the belts for the same reason. The edge will vary in depth from 5 to 10m around the woodland planting. Native honeysuckle (*Lonicera periclymenum*) would be planted within woodland margins to enhance wildlife benefits.

10.5 Hedgerow planting

Recently planted hedgerows along the southern boundary would be extended along the southern and eastern boundaries to meet the proposed site access. Mixed thorn species (*Crataegus monogyna* and *Prunus spinosa*) elder - *Sambucus niger* and dog rose - *Rosa canina* would be planted at 10 plants/m in staggered rows, as recommended by the Energetica Masterplan. Plants would be protected by tree shelters and enclosed within 1m high rabbit-proofed post and wire fences.

10.6 Proposed Meadow Areas

All unplanted areas, including mounds, woodland rides and remaining meadow areas would be weed-killed and subsequently sown with a suitable coastal meadow mix containing native wild flowers and grasses, as advised by the Energetica Masterplan.

10.7 Grazing Land

The area to the south of the proposed path would be fenced and ownership and management revert to Boddam Estates.

10.8 Crib Wall Areas

Areas of crib wall would be planted with native ivy (*Hedera helix*) and honeysuckle (*Lonicera periclymenum*) to provide useful habitat and reduce the visual effect of the structures, where these are visible from adjacent areas.

11 Maintenance

11.1 Tree and Shrub Planting

Factors affecting plant establishment include soil preparation and drainage, vermin control, wind protection and also reducing competition from weeds. Maintenance of the planting over the course of five years after planting would be essential to ensure its long term success. Maintenance would include beating up (the removal and replacement of failed plants), checking rabbit/deer fencing, vermin control, checking and securing stakes and ties, checking tree shrub and hedge shelters and weed control (keeping 1m^2 area around each tree/shrub weed-free using herbicide). All existing belts along the north and eastern periphery of the site and hedgerow planting along the south and western boundary would be similarly maintained.

11.2 Meadow

The nutrient status of the former arable land is likely to be high and this will be reduced by regular cutting and removal of cuttings. This operation will be carried out several times in the first year following sowing during the growing season (April to October), reducing to once or possibly twice annually by year five. The success of meadow species would be monitored as part of ongoing landscape maintenance operations.

11.3 Crib Wall Planting

The success of the crib wall planting will be monitored and if need be additional planting carried out to ensure that the appropriate aesthetic affect is achieved.

11.4 Paths, Walls, Shelter and Interpretation Boards

Annual inspections will be carried out each spring of the footpaths, walls, shelter and interpretation boards. In between times, any issues arising can be flagged to NorthConnect staff who can arrange adhoc inspections. Repairs will be carried out as deemed necessary through the lifetime of the converter station by NorthConnect to keep the hardware in a safe operating state.

In addition the interpretation panels will be reviewed at least every 5 years to ensure that their content is still appropriate, or whether it should be updated, to refresh the content.

12 Conclusion

This document lays out the current thinking with regard to the landscaping, its planting and management. Prior to construction, the document will be reviewed to take account of the detailed design of the converter station site and environmental factors such as any plant or tree health issues known about at that time.

NorthConnect aim to achieve an aesthetically pleasing landscaping of the converter station to help it to blend into the surrounding area, whilst providing acoustic abatement, opportunities for wildlife and enhanced recreation facilities in the Fourfields area.

References

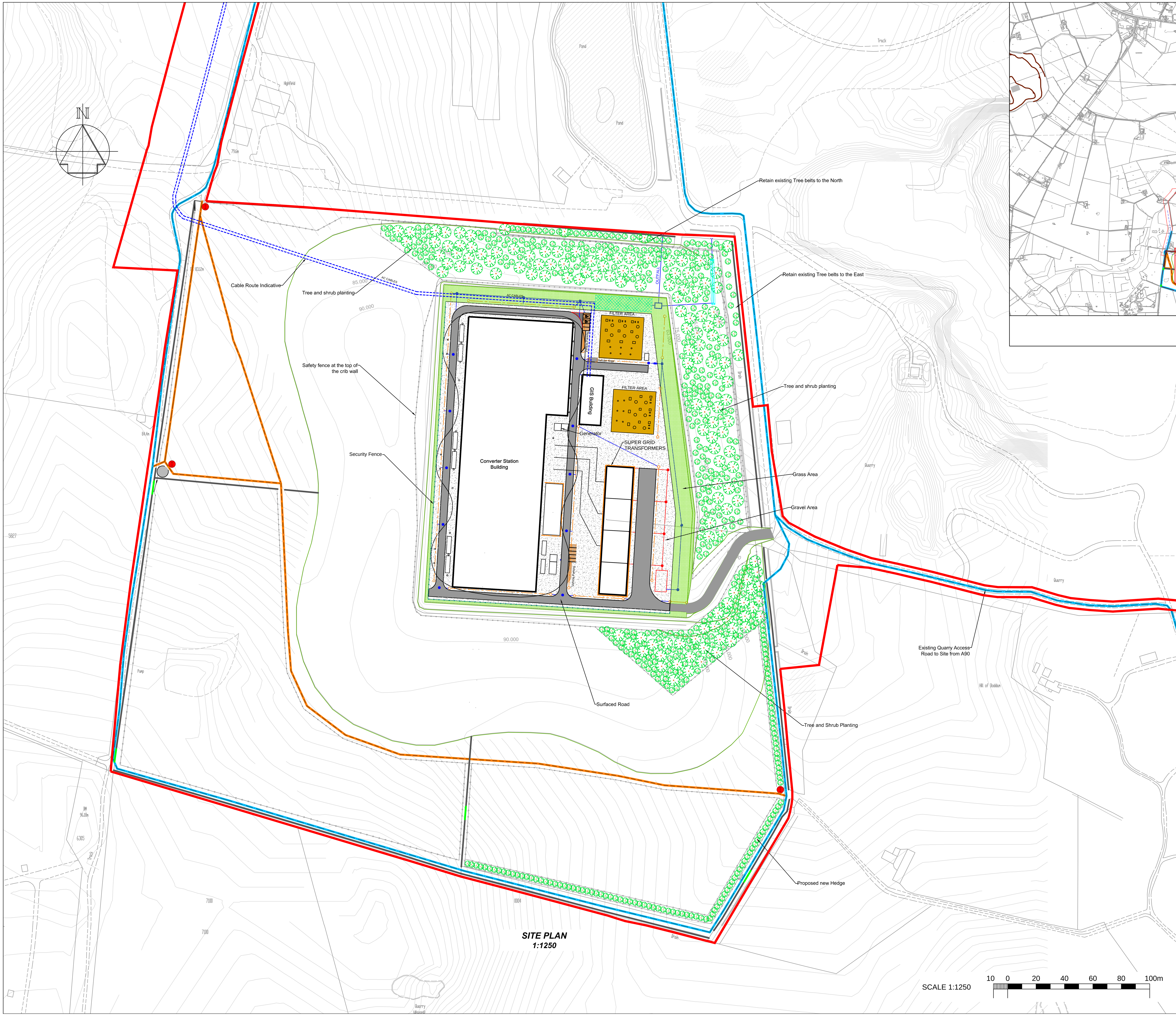
- Dry Stone Walling Association (DSWA), 2005, Butts for Shooting, Shelter or Watching. http://www.dswa.org.uk/userfiles/file/Leaflets/Shooting-Butts-updated-Sept-2005.pdf
- NorthConnect, 2015a, Interconnector Converter Station and High Voltage Alternating Current Cable Route, Environmental Statement
- NorthConnect, 2015b, Pre-Application with Communities Consultation Report, 2015_04_01-_PER_REP_PACC Report_Rev1
- Forestry Commission, http://scotland.forestry.gov.uk/supporting/forest-industries/tree-health

Appendix A – Woodland Planting: Species and Estimated Growth Rates

%	Species	Growth rate *	Mature height	Tolerant dry soils	Shade tolerant	Salt tolerant	Tolerant exposure	Estimated height (m) at given year			
								1	5	10	15
Woodland mix											
10	Alder (*Alnus glutinosa*)	F	6-15 m	no	yes	no	yes	0.6	2.4	4.7	7.0
10	Ash (*Fraxinus excelsior)*	M-F	> 15 m	no	no	yes	yes	0.6	2.1	4.0	5.9
10	Aspen (*Populus tremula)*	F	6-15 m	no	no	yes	yes	0.6	2.4	4.7	7.0
10	Birch, Downy *(Betula pubescens)*	F	6-15 m	yes	no	no	yes	0.6	2.4	4.7	7.0
10	Birch, Silver (*Betula pendula*)	F	6-15 m	yes	no	no	yes	0.6	2.4	4.7	7.0
5	Cherry, Bird (*Prunus padus)*	M	6-15 m	no	no	no	yes	0.6	1.8	3.3	4.8
5	Elm, Wych (*Ulmus glabra)*	M	15 m +	no	yes	yes	yes	0.6	1.8	3.3	4.8
10	Hawthorn (*Crataegus monogyna*)	M	0.5-5 m	yes	no	yes	yes	0.6	1.8	3.3	4.8
5	Oak (*Quercus robur*)	S	> 15 m	no	yes	yes	yes	0.6	1.2	2.0	3.0
10	Pine, Scots (*Pinus sylvestris*)	M	> 15 m	yes	no	no	yes	0.6	1.8	3.3	4.8

%	Species	Growth rate *	Mature height	Tolerant dry soils	Shade tolerant	Salt tolerant	Tolerant exposure	Estimated height (m) at given year			
								1	5	10	15
10	Rowan (*Sorbus aucuparia*)	F	6-15 m	yes	no	yes	yes	0.6	2.4	4.7	7.0
5	Whitebeam (Sorbus aria)	M	6-15 m	yes	yes	yes	yes	0.6	1.8	3.3	4.8
Woodland edge											
15	Blackthorn (*Prunus spinosa*)	F	0.5-5 m	yes	no	yes	yes	0.6	2.4	4.7	7.0
10	Elder (*Sambucus nigra*)	F	6-15 m	yes	yes	yes	yes	0.6	2.4	4.7	7.0
15	Gorse (*Ulex europaeus*)	M	0.5-5 m	yes	no	no	no	0.6	1.8	3.3	4.8
10	Hazel (*Corylus avellana)*	F	6-15 m	no	yes	no	no	0.6	2.4	4.7	7.0
10	Osier (*Salix viminalis*)	F	6-15 m	no	no	yes	yes	0.6	2.4	4.7	7.0
10	Rose, Briar (*Rosa rubiginosa*)	M	0.5-5 m	yes	no	no	yes	0.6	1.8	3.3	4.0
10	Rose, Burnet (*Rosa spinosissima*)	M	0.5-5 m	yes	no	yes	yes	0.6	1.8	3.3	4.0
10	Rose, Dog (*Rosa canina*)	M	0.5-5 m	yes	yes	no	yes	0.6	1.8	3.3	4.0
10	Willow, Grey (*Salix cinerea*)	F	6-15 m	no	no	yes	yes	0.6	2.4	4.7	7.0

* S=Slow, M=Medium, F=Fast



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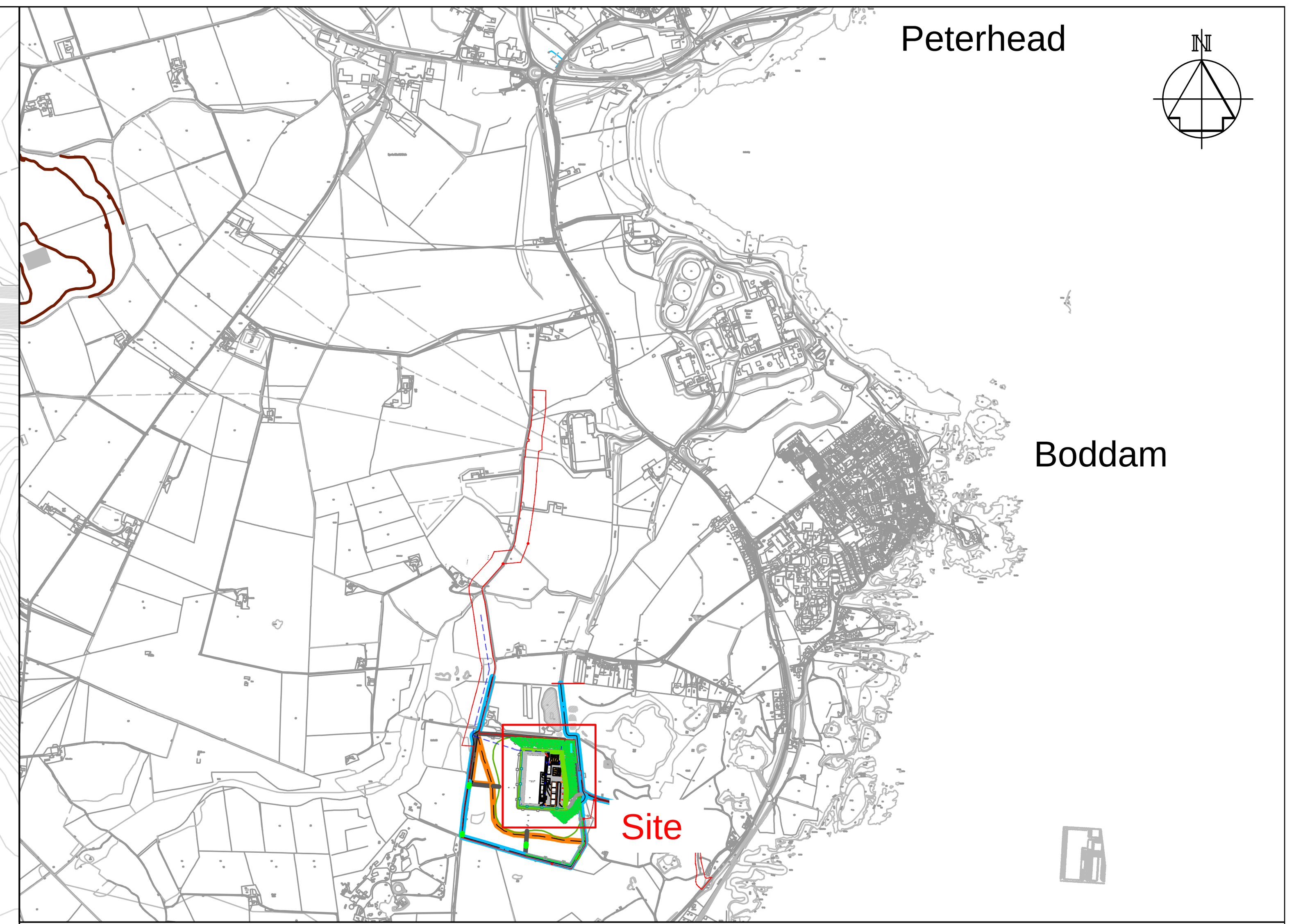

LOCATION PLAN
1:20000

NOTES

1. ALL LEVELS RELATIVE TO ORDNANCE DATUM.
2. SUPER GRID TRANSFORMERS (SGT) ARE WITHIN BUNDED TANKS. DRAINAGE FOR THESE IS SEPARATE, AND WILL PASS THROUGH AN OIL DUMP TANK, OIL/ WATER SEPARATING PUMP AND SEPARATOR BEFORE JOINING STORM WATER SEWERS.
3. KEY

- FILTER DRAIN
- STORM WATER SEWER
- SEPARATE SGT DRAIN
- GREEN ROOF EDGE
- UNDERGROUND STORAGE GEO-CELL TANK
- SWALE
- OIL/ WATER SEPARATOR
- OVERFLOW CHAMBER

Existing Footpath
Proposed Footpath
Stone Dykes
Proposed Post and Wire Fence
Proposed Gated Tractor Access
Proposed Interpretation Panel
Proposed Shelter
Outline of Proposed Mound
Tree/ Shrubs
AC Cable
Rigid/ Reflective Barrier

A1

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Drawing Status: FOR INFORMATION

eRoom Doc Number: 2015.3.19_NorthConnect_TEC_DRA_Site_Layout_Plan_3022_B

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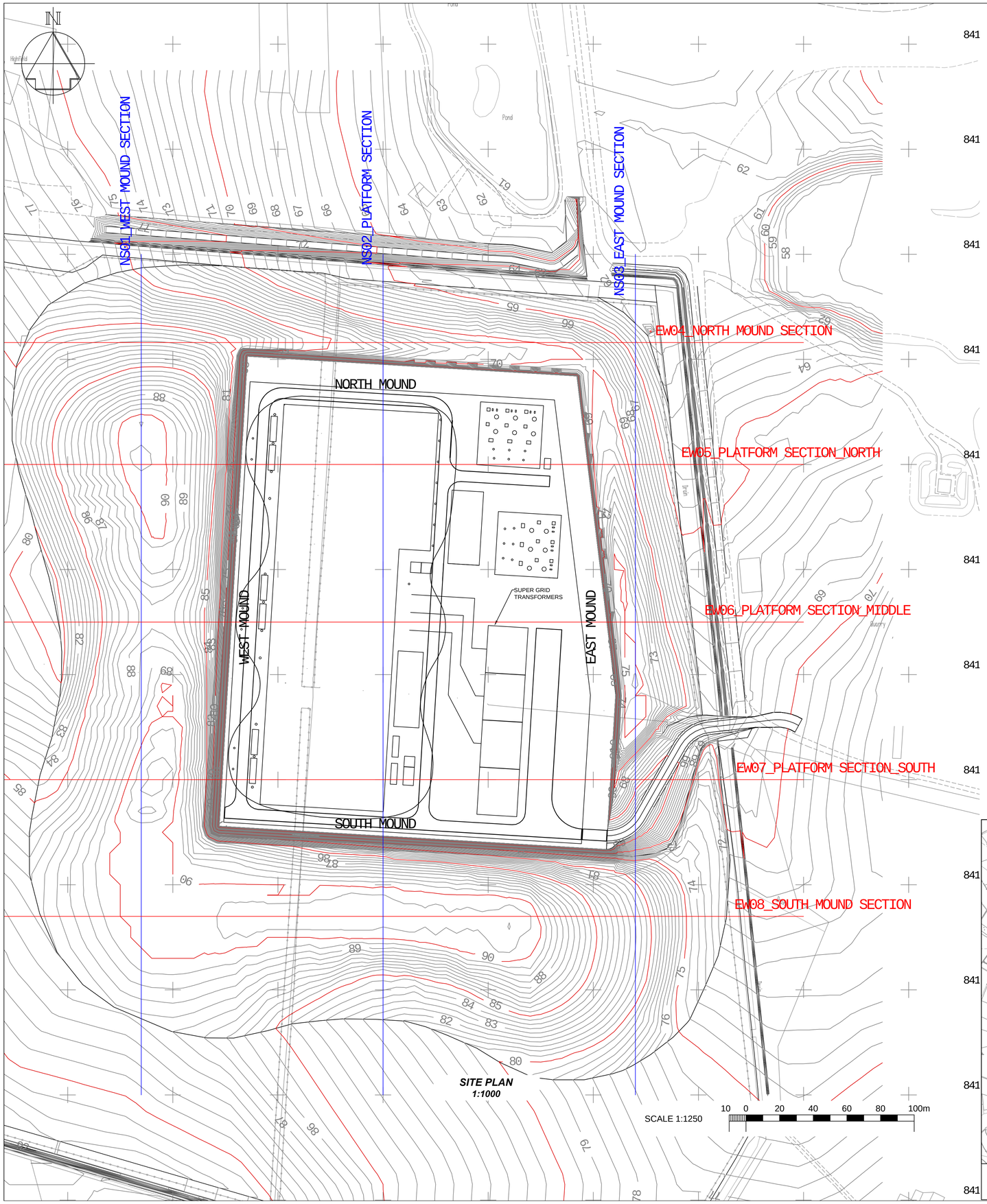

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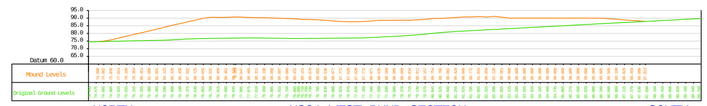

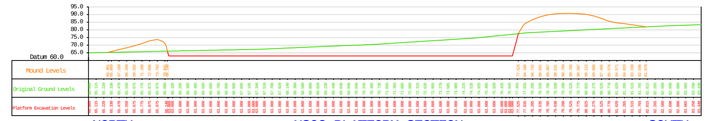

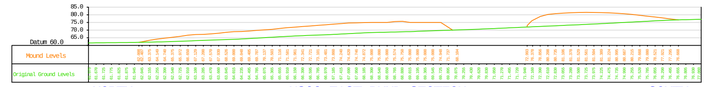

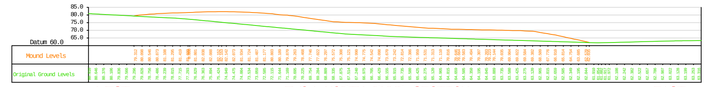

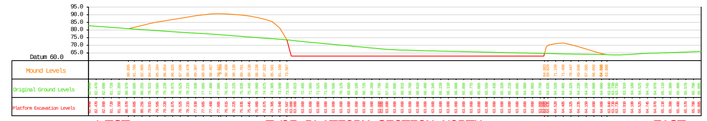

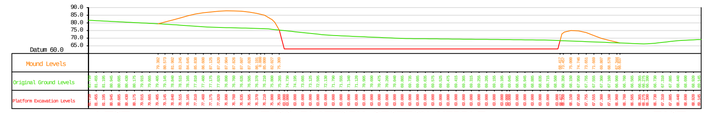

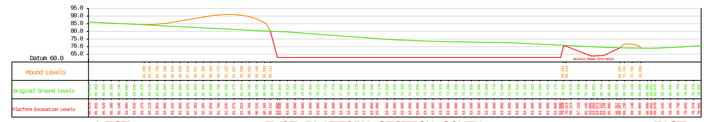

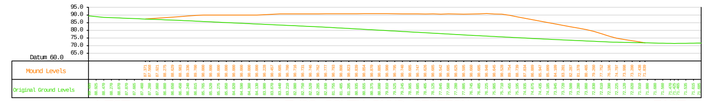

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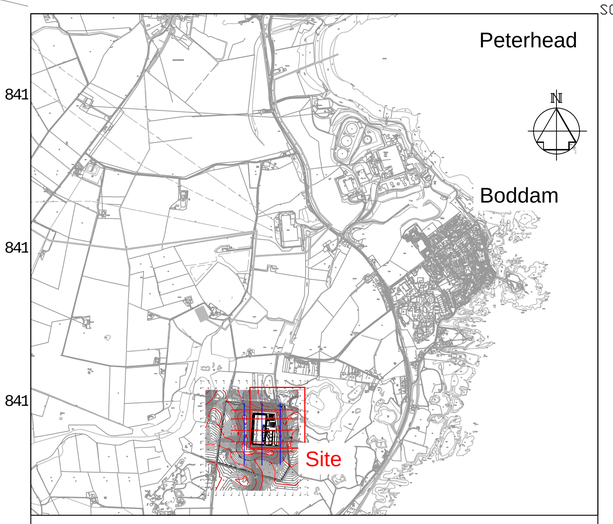

LOCATION PLAN
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2015.5.26_NorthConnect_Contours Drawing_3031_C

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Contours Plan & Sections

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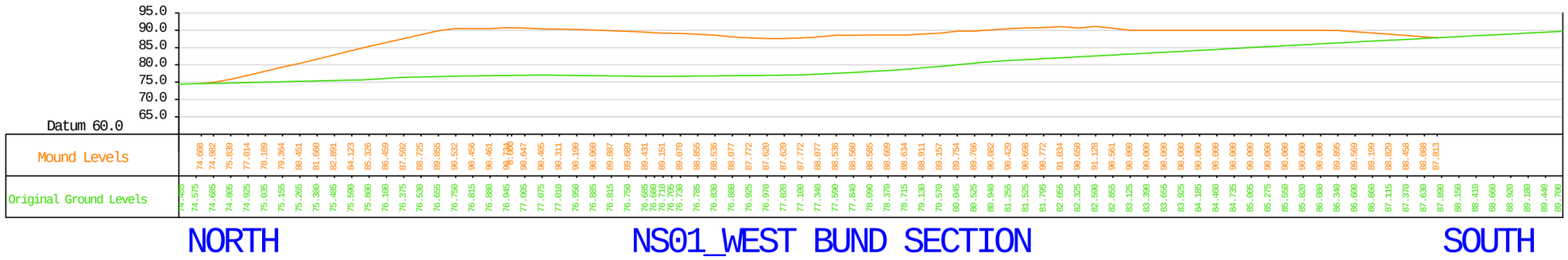

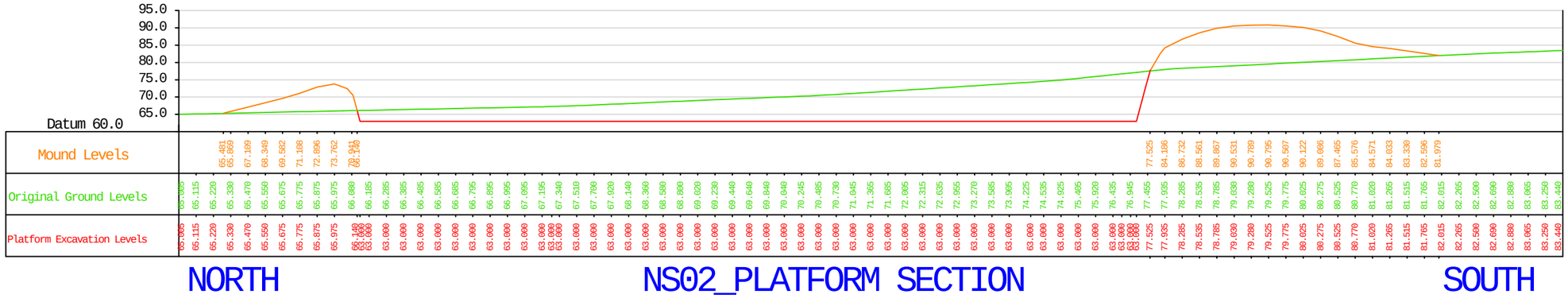

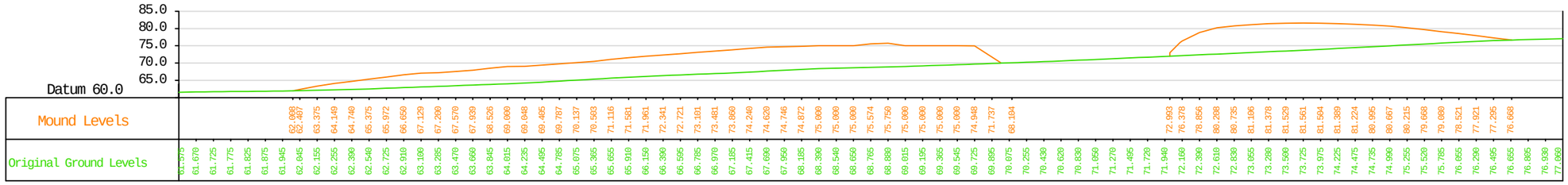

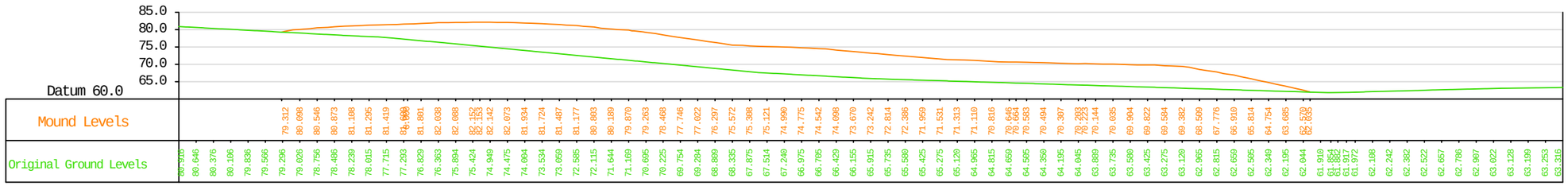

LEGEND

MOUND LEVELS

EXISTING GROUND LEVELS

EXCAVATED PLATFORM LEVELS

A3

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Title: Bunding Cross Section 1

Location	Drawing Number	Sht No	Rev No
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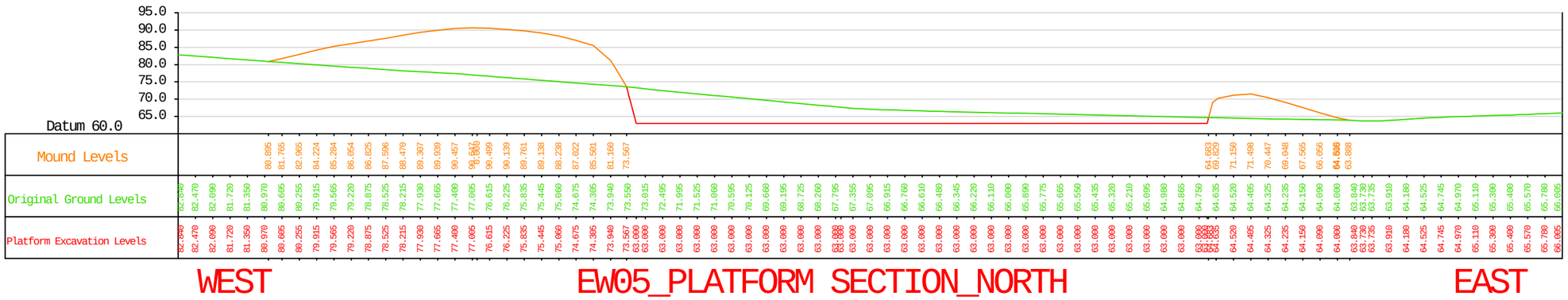

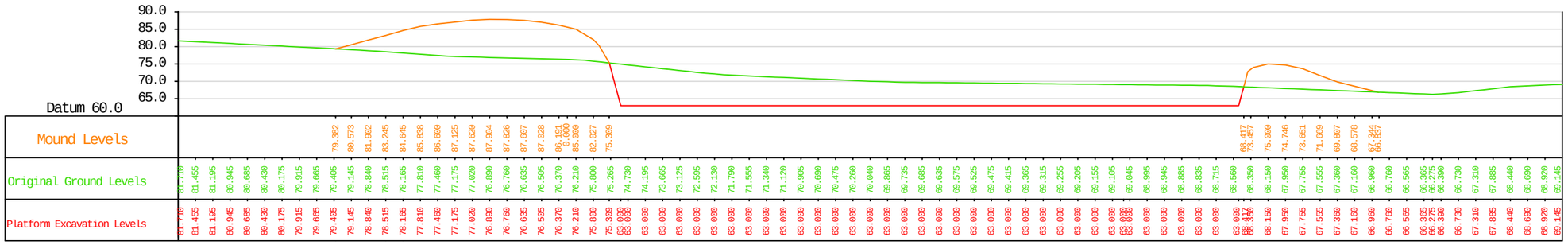

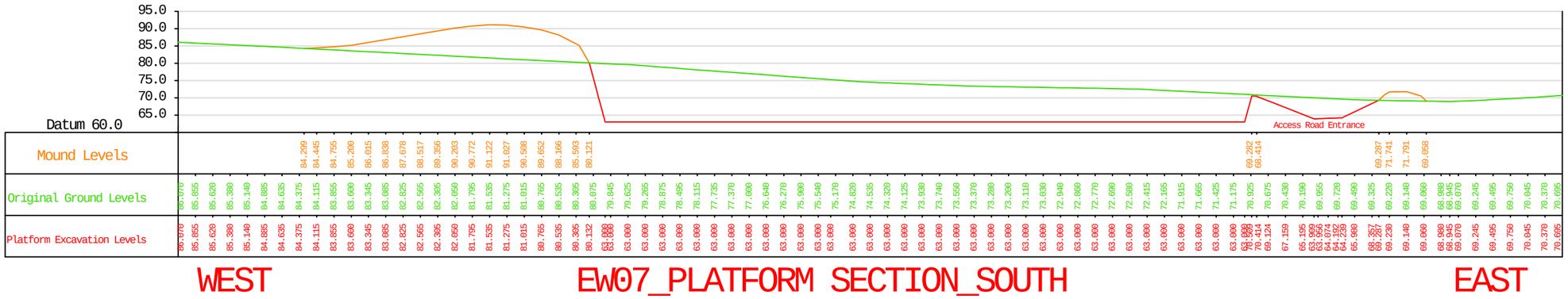

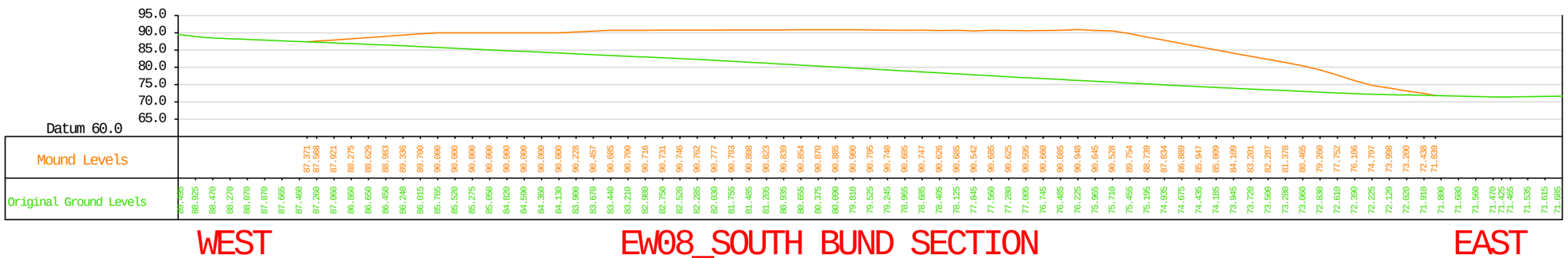

LEGEND

MOUND LEVELS

EXISTING GROUND LEVELS

EXCAVATED PLATFORM LEVELS

A3

NORTHCONNECT
CONNECTING RENEWABLES

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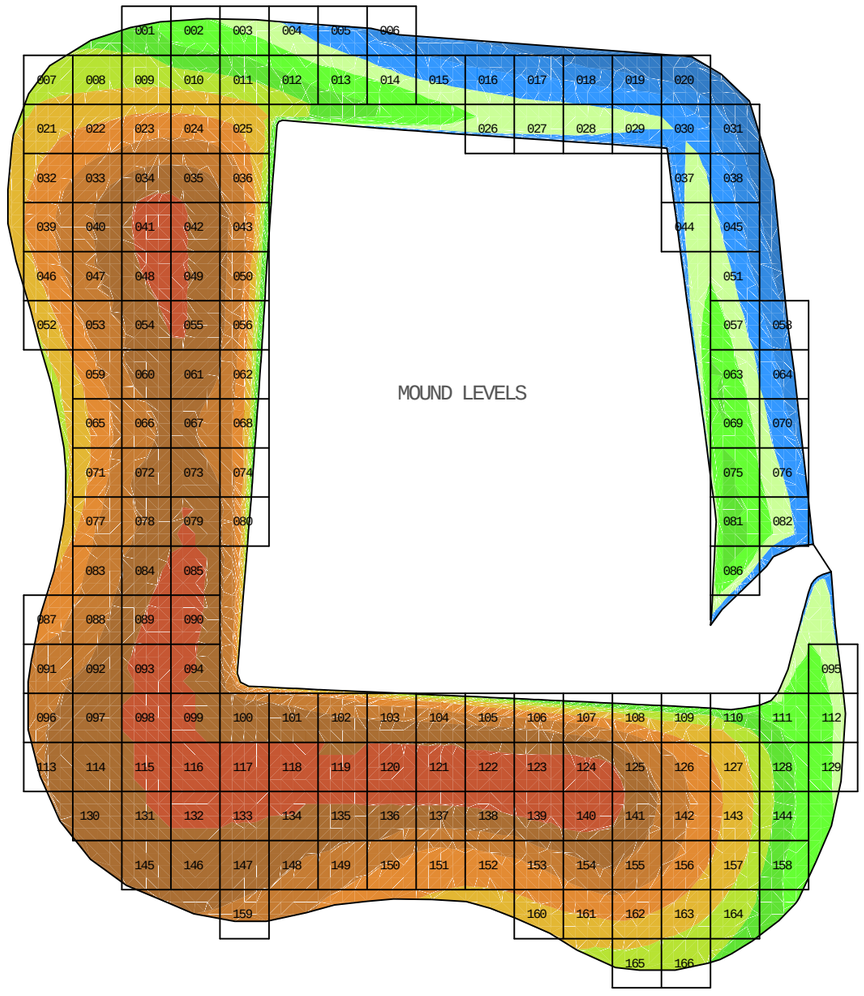
Drawing Status: FOR INFORMATION

eRoom Doc Number: 2015.6.11.Northconnect_TEC_DRA_Bunding Cross Section 2_A

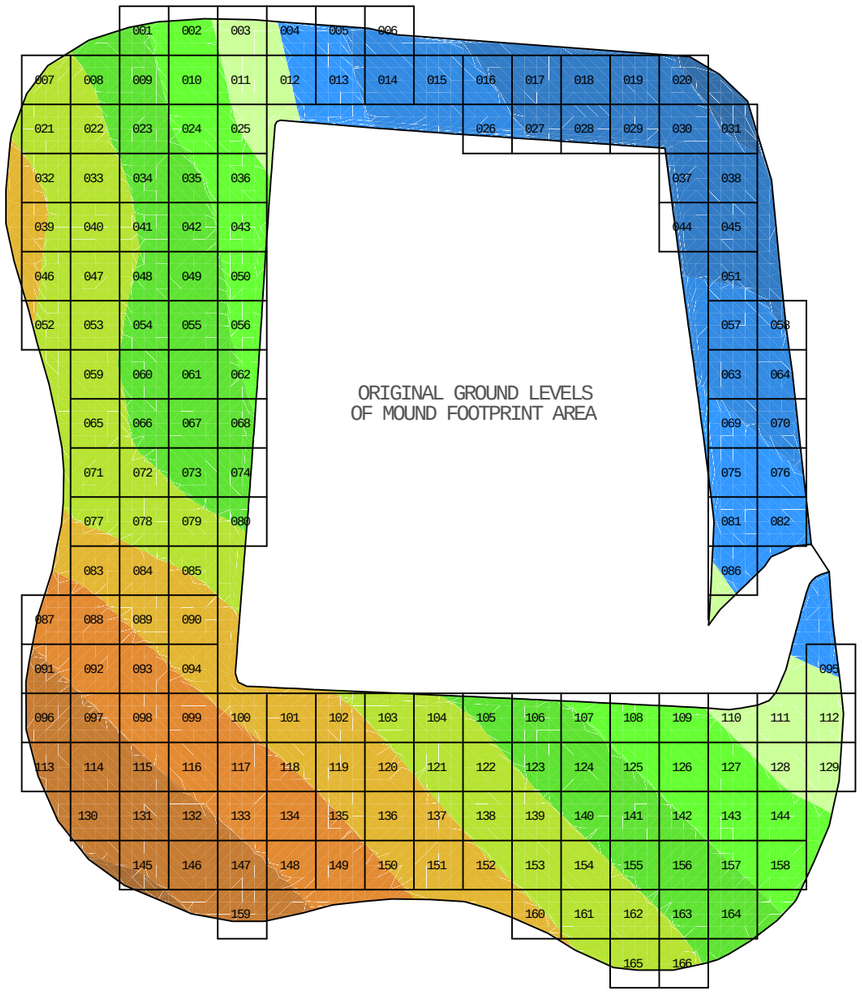
Title: Bunding Cross Section 2

Location	Drawing Number	Sht No	Rev No
BODDAM	3034	01	0A

GRID No	MOUND	O.G.L	LVL DIFF	GRID No	MOUND	O.G.L	LVL DIFF	GRID No	MOUND	O.G.L	LVL DIFF	GRID No	MOUND	O.G.L	LVL DIFF	GRID No	MOUND	O.G.L	LVL DIFF	GRID No	MOUND	O.G.L	LVL DIFF	GRID No	MOUND	O.G.L	LVL DIFF
001	75.343	75.155	0.188	021	81.453	79.060	2.393	041	90.393	77.270	13.123	061	88.842	76.370	12.472	081	75.000	69.015	5.985	101	88.542	81.390	7.152	121	90.789	79.280	11.509	141	88.820	75.995	12.825
002	73.706	73.295	0.411	022	82.941	77.925	5.016	042	89.698	75.705	13.993	062	83.146	74.960	8.186	082	71.058	68.385	2.673	102	87.771	80.480	7.291	122	90.467	78.155	12.312	142	85.233	74.955	10.278
003	72.274	71.430	0.844	023	84.017	76.065	7.952	043	85.670	74.155	11.515	063	73.101	66.785	6.316	083	85.817	81.685	4.132	103	87.001	79.410	7.591	123	90.481	77.030	13.451	143	81.504	73.975	7.529
004	70.162	69.550	0.612	024	83.974	74.205	9.769	044	70.254	64.290	5.964	064	66.852	65.815	1.037	084	89.014	80.755	8.259	104	86.732	78.285	8.447	124	90.568	75.960	14.608	144	75.980	73.060	2.920
005	68.063	67.660	0.403	025	82.001	72.355	9.646	045	68.526	63.845	4.681	065	83.392	78.450	4.942	085	90.672	78.830	10.842	105	86.140	77.160	8.980	125	88.244	74.925	13.319	145	88.703	87.310	1.395
006	GL	GL	0.000	026	71.059	65.438	5.621	046	83.367	79.835	3.532	066	87.125	77.135	9.990	086	74.948	69.725	5.223	106	84.688	76.035	8.653	126	84.645	73.940	10.705	146	88.966	86.470	2.496
007	78.883	78.305	0.578	027	70.963	64.820	6.143	047	87.058	78.455	8.603	067	87.607	76.590	11.017	087	84.445	84.115	0.330	107	83.238	74.915	8.323	127	81.106	73.055	8.051	147	88.568	85.555	3.013
008	79.361	77.38	1.981	028	70.385	64.205	6.180	048	90.119	77.275	12.844	068	82.251	75.635	6.616	088	86.838	83.085	3.753	108	80.987	73.940	7.047	128	76.079	72.170	3.909	148	87.593	84.585	3.008
009	79.435	75.615	3.820	029	70.000	63.590	6.410	049	89.729	75.965	13.764	069	74.620	67.690	6.930	089	90.203	82.050	8.153	109	79.356	73.050	6.306	129	72.440	71.690	0.750	149	86.273	83.485	2.788
010	78.623	73.750	4.873	030	69.920	62.975	6.945	050	84.937	74.460	10.477	070	68.213	66.695	1.518	090	90.508	81.015	9.493	110	76.378	72.160	4.218	130	88.554	86.854	1.709	150	84.758	82.385	2.373
011	77.595	71.860	5.735	031	64.740	62.390	2.350	051	69.787	64.785	5.002	071	83.553	78.755	4.818	091	86.135	85.175	0.960	111	74.105	71.280	2.825	131	89.863	86.275	3.588	151	84.033	81.265	2.768
012	75.349	69.975	5.374	032	83.527	79.785	3.742	052	81.394	79.670	1.724	072	88.041	77.820	10.221	092	88.249	84.145	4.104	112	72.496	70.800	1.696	132	90.000	85.400	4.600	152	84.149	80.160	3.989
013	73.665	68.085	5.580	033	86.422	78.480	7.942	053	85.840	78.300	7.540	073	88.522	76.900	11.622	093	90.418	83.115	7.303	113	87.620	87.140	0.480	133	90.144	84.480	5.664	153	85.126	79.120	6.006
014	71.653	66.655	4.998	034	88.517	76.920	11.597	054	88.878	77.010	11.868	074	88.253	76.210	6.043	094	90.000	82.100	7.9000	114	89.098	86.270	2.828	134	89.947	83.560	6.387	154	87.220	78.085	9.735
015	69.582	65.675	3.907	035	88.319	75.325	12.994	055	89.790	76.150	13.640	075	75.000	68.540	6.460	095	71.984	69.910	2.074	115	90.000	85.254	4.755	135	89.396	82.495	6.901	155	86.573	77.055	9.518
016	68.586	65.030	3.556	036	84.616	73.550	11.066	056	84.042	74.555	9.487	076	69.757	67.805	1.952	096	87.419	86.253	1.184	116	90.000	84.315	5.685	136	89.316	81.395	7.921	156	83.984	76.025	7.959
017	67.828	64.415	3.411	037	70.109	63.545	6.564	057	71.581	65.910	5.671	077	84.960	79.640	5.320	097	89.235	85.215	4.020	117	90.379	83.400	6.979	137	89.086	80.275	8.811	157	80.667	74.990	5.677
018	67.028	63.795	3.233	038	67.129	63.100	4.029	058	65.340	64.985	0.355	078	87.940	78.915	9.025	098	90.000	84.180	5.820	118	90.610	82.480	8.130	138	89.637	79.150	10.487	158	74.950	74.015	0.953
019	65.499	63.175	2.324	039	84.525	80.000	4.525	059	84.634	78.015	6.619	079	90.000	78.125	11.875	099	90.000	83.205	6.795	119	90.666	8.515	9.151	139	90.216	78.055	12.161	159	86.932	86.630	0.302
020	64.399	62.565	1.834	040	87.824	78.625	9.199	060	88.360	76.950	11.410	080	82.155	77.317	4.838	100	89.305	82.295	7.010	120	90.721	80.405	10.316	140	90.698	77.025	13.673	160	81.611	80.185	1.426
																												161	82.051	79.150	3.581
																												162	82.854	78.115	4.739
																												163	81.138	77.085	4.053
																												164	78.521	76.055	2.466
																												165	79.271	78.930	0.341
																												166	78.199	77.895	0.304

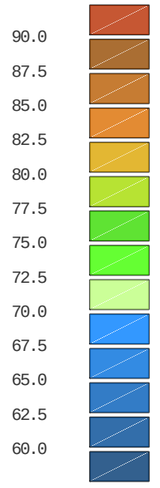


MOUND LEVELS



ORIGINAL GROUND LEVELS
OF MOUND FOOTPRINT AREA

Height Above Sea Level (m)



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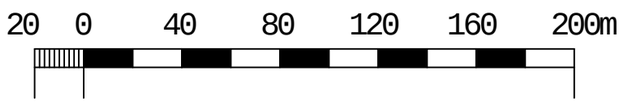

A3

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Drawing Status: FOR INFORMATION

eRoom Doc Number: 2015.6.11.Northconnect_TEC_DRA_Height Bands Drawing_B

Title: Height Bands Drawing

Location	Drawing Number	Sht No	Rev No
BODDAM	3035	01	0B