

Noise Source Level Data

Scenario 01 - Construction of access track and compound														
Point Sources														
Name	Operational time	63	125	250	500	1000	2000	4000	8000	A	lin	Source		
Dump Truck (tipping fill)	100%	113	102	106	101	101	102	95	91	107	114.8	C2.30 - BS 5228-1:2009+A1:2014: Annex C		
Articulated dump truck (tipping fill)	100%	108	104	101	98	97	94	91	86	102	110.6	C2.32 - BS 5228-1:2009+A1:2014: Annex C		
Concrete mixer truck	100%	111	102	94	97	98	106	88	83	108	112.9	C4.20 - BS 5228-1:2009+A1:2014: Annex C		
Poker vibrator	100%	90	98	98	92	90	89	87	84	96.7	102.5	C4.34 - BS 5228-1:2009+A1:2014: Annex C		
Lorry with lifting boom	100%	109	106	104	102	100	97	92	84	104.9	112.5	C4.53 - BS 5228-1:2009+A1:2014: Annex C		
Hand-held circular saw (petrol)	100%	112	114	106	106	105	106	110	108	114.6	118.6	C5.36 - BS 5228-1:2009+A1:2014: Annex C		
Tracked semi-mobile crusher	100%	119	119	116	115	113	111	106	96	118.1	124.3	C9.15 - BS 5228-1:2009+A1:2014: Annex C		
Line Sources (Moving Point Sources)														
Name	Speed (Km/h)	Number of movements per hour		63	125	250	500	1000	2000	4000	8000	A	lin	Source
Tracked Excavator	5	20		113	106	105	105	101	99	96	91	107	115.1	C2.14 - BS 5228-1:2009+A1:2014: Annex C
Dump Truck (empty)	15	10		114	107	107	107	107	112	97	88	114.7	117.9	C2.31 - BS 5228-1:2009+A1:2014: Annex C
Articulated dump truck	15	10		113	115	105	103	104	101	97	90	108.5	117.8	C2.33 - BS 5228-1:2009+A1:2014: Annex C
Vibratory roller	2	3		110	106	95	99	95	92	88	85	100.7	111.9	C2.40 - BS 5228-1:2009+A1:2014: Annex C
Road sweeper	10	1		108	103	97	103	99	95	89	86	103.8	110.8	C4.90 - BS 5228-1:2009+A1:2014: Annex C
Dozer	5	20		108	106	99	98	102	96	93	89	104.7	111.4	C5.12 - BS 5228-1:2009+A1:2014: Annex C
Grader	5	5		113	121	106	107	108	107	104	102	113.7	122.3	C6.31 - BS 5228-1:2009+A1:2014: Annex C
Lorry	15	10		121	107	104	102	101	100	97	94	106.9	121.4	C11.14 - BS 5228-1:2009+A1:2014: Annex C

Scenario 02 - Daytime operations														
Point Sources														
Name	Operational time	63	125	250	500	1000	2000	4000	8000	A	lin	Source		
Lorry with lifting boom	100%	109	106	104	102	100	97	92	84	104.9	112.5	C4.53 - BS 5228-1:2009+A1:2014: Annex C		
Diesel generator for site cabins	100%	108	102	85	82	81	76	73	65	89.4	109	C4.76 - BS 5228-1:2009+A1:2014: Annex C		
Diesel generator for lighting	100%	106	99	94	90	87	83	84	77	93.5	107.2	C4.86 - BS 5228-1:2009+A1:2014: Annex C		
Line Sources (Moving Point Sources)														
Name	Speed (Km/h)	Number of movements per hour		63	125	250	500	1000	2000	4000	8000	A	lin	Source
Lorry	15	10		121	107	104	102	101	100	97	94	106.9	121.4	C11.14 - BS 5228-1:2009+A1:2014: Annex C
Road sweeper	10	1		108	103	97	103	99	95	89	86	103.8	110.8	C4.90 - BS 5228-1:2009+A1:2014: Annex C
Tractor (towing equipment)	5	10		107	99	106	103	106	98	89	83	108.1	112.2	C4.74 - BS 5228-1:2009+A1:2014: Annex C

Scenario 03 - Night-time & evening operations													
Point Sources													
Name	Operational time	63	125	250	500	1000	2000	4000	8000	A	lin	Source	
Diesel generator for site cabins	100%	108	102	85	82	81	76	73	65	89.4	109	C4.76 - BS 5228-1:2009+A1:2014: Annex C	
Diesel generator for lighting	100%	106	99	94	90	87	83	84	77	93.5	107.2	C4.86 - BS 5228-1:2009+A1:2014: Annex C	



**Viking Wind Farm, Proposed North Construction
Compound**

Ecology Technical Report

June 2019

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Viking Wind Farm, Proposed North Construction Compound

Ecology Technical Report

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1. INTRODUCTION

1.1 Background

- 1.1.1 This Technical Report accompanies the Environmental Report Chapter 7 on Ecology for the proposed North Construction Compound for Viking Wind Farm, Shetland.

1.2 Purpose of this Document

- 1.2.1 The purpose of this document is to report all the background information gathered and used for the ecological impact assessment of the proposed North Construction Compound.

2. METHODS

2.1 Introduction

- 2.1.1 The following was undertaken for ecology: a desk study and field surveys for habitats (Phase 1 methodology), National Vegetation Classification (NVC) and otter. The methods used are noted under the headings which follow.

2.2 Desk Study

- 2.2.1 Historical documents providing past relevant ecological information for the area of interest were searched and information extracted where relevant. For example, the past Viking Wind Farm Environmental Statement (VEP, 2009), contained both Phase 1 and National Vegetation Classification mapping which overlapped part of the proposed north compound area. While this mapping was completely re-assessed, it was useful to provide context during preparation for these field surveys.
- 2.2.2 The Shetland Biological Records Centre (Paul Harvey, Shetland Amenity Trust) was contacted and asked to provide any relevant ecological data they may hold for the study area (the proposed compound boundary + a buffer of 250m minimum).

2.3 Field Surveys

Otter

- 2.3.1 Otter are the only native protected mammal species on Shetland that are regularly present on land and therefore have the potential to be present in suitable habitat within the study area.
- 2.3.2 Otters are active all year round, and can therefore be surveyed in Scotland at any time of the year. This otter survey was undertaken in early June 2019. The Twart Burn and its small tributaries within the wider study area were all surveyed on Sunday 2nd June.
- 2.3.3 It is recommended that 200m (SNH, 2019a) upstream and downstream of suitable otter habitat are surveyed from any potential sources of disturbance (in this case the future construction and use of a compound). All of the Twart Burn and its small tributaries within the 250m buffer zone were surveyed.

Field Survey Methods Used

- 2.3.4 This otter survey followed a similar approach to that described in the 2003-4 national survey of otter distribution in Scotland (Strachan, 2007). All sections of watercourses and waterbodies were checked carefully for signs of the presence of otter. This included both banks as well as features such as waterfalls, exposed rocks, gravel bars and beaches, and any other debris present in or adjacent to the channels. In addition, areas

of the upper banks/valleys upslope of the watercourses were also searched, for any evidence of otter use and any features which could be used as resting sites by otter.

- 2.3.5 Otter field signs searched for included spraints (faeces), anal gland deposits, feeding remains, holts, couches, slides, prints and tracks. A handheld Global Positioning System (GPS) was used to record the locations of important features and signs (accuracy indicated as ± 3 m for the whole survey). In practice, the accuracy of GPS recording can be reduced at times due to very thick cloud or steep topography.
- 2.3.6 The otter survey was carried out by a suitably qualified and experienced ecologist. This ecologist (Dr Andy Mackenzie, MBEC Partner) is familiar with all of the relevant field signs and has a detailed understanding of the habitat requirements of otters. He has been a practicing professional ecologist for over 28 years and has held various licences from Scottish Natural Heritage for otter survey and safeguarding.

Survey Limitations

- 2.3.7 There had been some rain in the previous week, however, the burn was at a summer level and did not appear to have risen much over the previous fortnight. While sprainting activity can be underestimated following heavy rainfall, active resting-up sites (particularly holts and covered couches) could still be fully and accurately surveyed.

Habitats and Flora

Phase 1 Habitat Survey

- 2.3.8 A Phase 1 habitat survey following the standard methodology (JNCC, 2004) was undertaken on Monday 3rd June and Tuesday 4th June 2019 for the proposed north construction compound area and a 250m buffer surrounding it. There were no limitations to report in relation to this survey. A Phase 1 map of the key habitats using a GPS and Geographical Information System (GIS) was produced. A set of additional target notes and plant species seen were also recorded.

NVC Survey

- 2.3.9 A National Vegetation Classification survey (NVC) to characterise the dominant vegetation communities present within the study area was undertaken on Monday 3rd June and Tuesday 4th June 2019 for the proposed north construction compound area and a 250m buffer surrounding it. This survey was undertaken by an experienced ecologist (Dr Andy Mackenzie, MBEC Partner) following the standard methodology (Rodwell, 1991 & 1992).
- 2.3.10 There was one limitation noted during the NVC survey and that related to the cold and late spring experienced in 2019. Some plants, particularly the sedges, were not in full flower by early June 2019 and this made identification to species level more difficult. However, the author used his experience of the vegetative characteristics of plants to limit this as much as possible and it was not viewed as a significant impediment to successful survey completion.
- 2.3.11 All vegetation types which were greater than around 30m x 30m in area were mapped and identified. Where smaller but important habitat types were present these were target noted and noted in the accompanying text. It is often the case with plant communities that complex mosaics of different vegetation communities exist together, often due to locally changing topography and physio-chemical conditions. Where these are of approximately similar proportions they are mapped and noted as such. Where one vegetation type is clearly dominant in area of coverage over others then this is mapped but the other vegetation communities present are still noted in accompanying

text. A map of the dominant vegetation communities was produced using a hand held GPS and GIS. Relevant additional/necessary quadrats (following on from the proposed main construction compound NVC close by) were undertaken of homogeneous vegetation stands to ensure the necessary accurate data for later analysis, allowing accurate identification of the communities involved. A set of additional notes and surrounding additional species present was also recorded. For community identification both Rodwell (1991 and 1992) and Averis *et al.* (2004) were used.

Invasive Plants

- 2.3.12 Invasive, non-native plant species were noted, when spotted, during all surveys within the study area and are reported where relevant.

3. RESULTS

3.1 Introduction

- 3.1.1 Important results from the desk study and the ecological surveys undertaken for the proposed North Construction Compound are reported in this section.

3.2 Desk Study

- 3.2.1 The records available from the Shetland Biological Records Centre for the Kames area are at a resolution of 1km or 100m. There are only 8 records of introduced mammals for the area. These records range in age but are from within the last 20 years. While valuable as records, they do not give a great deal of additional information, other than to indicate a range of expected introduced mammals are present. Evidence of mountain hare presence was seen during surveying in early June 2019. A copy of the desk study records provided by the Shetland Biological Records Centre is provided in Appendix 1.
- 3.2.2 A desk search was undertaken for relevant designated sites in the surrounding area. There are no sites designated for nature conservation in the surrounding area which could be affected by the proposed development.

3.3 Field Surveys

Protected Species

- 3.3.1 No evidence of any recent otter presence was found within the proposed north compound area. Limited evidence of otter presence was found to the north of the proposed development just within the surrounding 250m buffer. A tributary of the Twart Burn crosses the A970 via small culverts and evidence of recent otter presence was found on both sides of the main road (see Figure 1 and Appendix 2 for Target Note 1 & 2 details of this otter evidence). Just to the east of the road a repeat otter sprainting site was found next to the burn with one recognisable spraint which was at least a month old. Just to the west of the road a fresh otter footprint was found next to the bank edge. Due to the small size of the road culverts, it seems likely that an otter accessing the west side of this burn would have to cross over the carriageway of the road. This limited evidence suggests an otter occasionally, but over a longer period of time, does access this area. No evidence of resting-up sites was found within 250m of the proposed development.

Habitats and Flora

Phase 1 Habitat Survey

- 3.3.2 The mapped results of the Phase 1 habitat survey of the proposed north compound and a surrounding 250m buffer can be seen in Figure 1. This figure is accompanied by

Appendix 2 which details Target Notes for the Phase 1 habitat mapping. The locations of the Target Notes are indicated on Figure 1.

- 3.3.3 Figure 1 illustrates that just under 40% of the proposed north compound area is previously disturbed ground of an old quarry with areas of restored/partly restored acid grassland and unrestored quarry areas. The area within the proposed north construction compound to the east of the quarry is all blanket bog on peat of a metre or more in depth.
- 3.3.4 In the surrounding 250m buffer area the habitat is also dominated by blanket bog, which is in good condition overall. There are small areas of acid grassland around the Scottish Water compound and the road and two areas of modified bog to the south west of the study area (Target Notes 5 & 7 on Figure 1). There is also a slightly larger area of acid grassland which is burn edge habitat to the east side of the survey area (Target Note 9). There are very small areas of marshy grassland (acidic rush pasture) within the acid grassland areas and within the blanket bog to the west of the A970 road. Part of the bog to the west of the road can be termed valley bog and does contain drainage runnels and pools in places (see Target Note 10 on Figure 1 and Appendix 2). Table 3.1 below indicates the areas of Phase 1 habitats present within the overall study area (north compound boundary + 250m surrounding buffer) and the percentage of each Phase 1 habitat type present.

Table 3.1: Phase 1 Habitat Areas and Percentages within the Study Area.

Phase 1 Habitat	Area (m ²)	Area (ha)	Percentage
B12 – Acid grassland – semi-improved	13549	1.35	3.10
B11 – Acid grassland	21388	2.14	4.89
E161 – Blanket bog	359661	35.97	82.29
E17 – Wet modified bog	8728	0.87	2.00
E18 – Dry modified bog	10426	1.04	2.38
J5 - Other, road	11905	1.19	2.72
I21 – Other, old quarry	11433	1.14	2.62
Total	437089	43.71	100.00

- 3.3.5 A species list of all plants that were noted during the Phase 1 habitat survey is included as Appendix 3. It is important to note that this is not an exhaustive list, rather those plants noted in passing during surveying. However, an effort was made to record any notable species and particularly any invasive non-native plant species. Montbretia (*Crocsmia x crocosmiflora*) was recorded as more than one clump within the quarry (see Appendix 1: Target Note 11), this is an extremely invasive species and is already a recognised spreading plant in various parts of Scotland. It is likely that it has been introduced to the quarry with dumped soil, probably originating from a garden. No particularly notable native plants were recorded during this survey.

NVC Survey

- 3.3.6 The mapped results of the NVC survey of the proposed north compound and a surrounding 250m buffer can be seen in Figure 2. This figure is accompanied by Appendix 4 which details the quadrat data collected to assist with the classification mapping and overall assessment of plant community condition. Five quadrats (2m x

2m) were undertaken within the area surveyed and their locations are indicated on Figure 2.

3.3.7 The vegetation communities present within the study area are described below.

3.3.8 U4 - *Festuca ovina*-*Agrostis capillaris*-*Galium saxatile* grassland. This grassland was present in the restored areas of the quarry adjacent to the road and around the disturbed area of the Scottish Water compound. Just over 5% of the study area was this vegetation type (see Table 3.2). Part of the quarry area is within the proposed development boundary (see Figure 2). The plant community recorded was very variable and may even have been seeded/partially seeded in some of these areas in the past, although this grassland had since been colonised/varied from seeding only. A sub-community was not assigned due to its disturbed/variable characteristics. As noted in Appendix 4, the area where a quadrat was undertaken could be argued as verging on the **U4b - *Holcus lanatus*-*Trifolium repens* sub-community** but this was not definitive and variable within the local surrounding area. The plants present indicated that it was acidic and damp in character overall but not highly so and there were weeds present such as broad-leaved dock and creeping thistle which suggested some nutrient enrichment, at least in places. This nutrient enrichment may have been caused by the use of imported soils in places, rather than any fertiliser use directly.

Table 3.2: NVC Plant Community Areas and Percentages within the Study Area.

National Vegetation Classification	Area (m ²)	Area (ha)	Percentage
U4 - <i>Festuca ovina</i>-<i>Agrostis capillaris</i>-<i>Galium saxatile</i> grassland	22376	2.24	5.12
U4a - <i>Festuca ovina</i>-<i>Agrostis capillaris</i>-<i>Galium saxatile</i> grassland, typical sub-community.	15385	1.54	3.52
M17b - <i>Trichophorum cespitosum</i>-<i>Eriophorum vaginatum</i> blanket mire, <i>Cladonia</i> sub-community.	8728	0.87	2.00
M19b - <i>Calluna vulgaris</i>-<i>Eriophorum vaginatum</i> blanket mire, <i>Empetrum nigrum</i> ssp. <i>nigrum</i> sub-community.	359661	35.97	82.28
U6d - <i>Juncus squarrosus</i>-<i>Festuca ovina</i> grassland, <i>Agrostis capillaris</i>-<i>Luzula multiflora</i> sub-community.	7602	0.76	1.74
Artificial (Road - current, old section and side tracks)	11905	1.19	2.72
Artificial (Disturbed, non-restored quarry)	11433	1.14	2.62
Total	437089	43.71	100.00

3.3.9 **U4a - *Festuca ovina*-*Agrostis capillaris*-*Galium saxatile* grassland, typical sub-community.** This vegetation community was present along the main road verge and as a larger area in the south west of the 250m buffer zone (see Figure 2 for the locations). In terms of coverage within the area it occurred in just over 3.5% of the study area (see Table 3.2 for further details). Given the generally disturbed nature of this area next to the road, this acid grassland was quite mixed but was partly present on deep peat in the road verge. In contrast, the larger area to the south west did not appear to be artificially disturbed, certainly further from the road edge, and was all in deep peat. This acid grassland can be termed “dry modified bog” in Phase 1 terminology and is likely

to be due to sheep grazing this slightly drier peat over a long time period. There were a range of common plant species present, with some bog species as well as the more typical grassland ones. This plant community was all on deeper peat within this survey area, despite being a grassland. In a few places there were very small patches of acidic soft rush pasture although this was very local where small amounts of water were moving down the slope, and was not mapped separately.

- 3.3.10 **M17b - *Trichophorum cespitosum*-*Eriophorum vaginatum* blanket mire, *Cladonia* sub-community.** A quadrat of this vegetation was not completed for this survey area because the vegetation and conditions were very similar to that surveyed elsewhere. If anything this area to the south west of the survey area (see Figure 2) was more degraded, with more bare peat present in this valley bottom situation. This vegetation community accounted for 2% of the total area surveyed (see Table 3.2 for the areas and percentages of the study area). While this community is classified as blanket bog it was inactive, eroding and with a paucity of *Sphagnum* species. It was “wet modified bog” under the Phase 1 terminology and was dominated by the moss *Racomitrium lanuginosum*. Areas showed large and small-scale erosion features with regular bare peat between the vegetation. M17b is the lichen sub-community, however Averis *et al.* (2004) note that, “The *Cladonia* species sub-community M17b occurs on slightly drier peats, for example where the surface has been dried out by burning. Like the *Cladonia* sub-community of *Trichophorum*-*Erica* wet heath M15c, its name is deceptive, as in many places it is the moss *Racomitrium lanuginosum*, rather than *Cladonia* lichens, that defines this sub-community.” While there was no evidence of burning in this area, the peat surface was clearly dried out and the hydrology altered probably due to long-term sheep grazing and trampling in this valley bottom.
- 3.3.11 **M19b - *Calluna vulgaris*-*Eriophorum vaginatum* blanket mire, *Empetrum nigrum* ssp. *nigrum* sub-community.** This vegetation community accounted for just over 82% of the survey area (see Table 3.2 for further details) and occurred in the undisturbed areas within the proposed development boundaries and in the majority of the surrounding 250m buffer zone. This was generally good quality active blanket bog on deep peat. It was sparser in *Sphagnum* species cover in places and generally lower in higher plant species diversity than would be expected when compared to further south in Scotland. This was thought to be due to the peat surface being slightly drier overall. *Sphagnum capillifolium* (both subspecies but *rubellum* appeared to be more frequent) was the dominant *Sphagnum* present. This M19b was much more intact and lacked the regular peat erosion seen in the M17b community. This community type in this area was very uniform and there were only minor differences in species and cover between widely separate vegetation stands. Within this study area there was still some haggling and eroded drainage gullies but it was clear that there was recovery occurring with gully revegetation and infilling, possibly due to less density of sheep in recent years. On the east side of the main road (A970), there were virtually no bog pools within the study area. However, on the west side of the road part of the M19b could be described as a valley bog and more water was present in areas where drainage was gathered close to burn tributaries and natural runnels. These features were small in size and were not mapped however, there were small areas of rush bog, *Sphagnum* flush and bog pools. The bog pools and some of the small slow flowing tributaries contained bog pondweed (*Potamogeton polygonifolius*) and various species of *Sphagnum* including *Sphagnum denticulatum*, *Sphagnum cuspidatum* and *Sphagnum fallax*. Quadrats of these very small areas were not undertaken but it is probable that they would be classified as **M1 – *Sphagnum auriculatum* bog pool community** and **M30 - Related Vegetation of Seasonally-inundated Habitats** (see Figure 1, Target Note 10 for the location of these micro vegetation communities).

- 3.3.12 **U6d - *Juncus squarrosus*-*Festuca ovina* grassland, *Agrostis capillaris*-*Luzula multiflora* sub-community.** This plant community is present in one area outside of the proposed north construction compound and is located on a hill slope where burn tributaries emerge from peat pipes under deep peat and merge into the Twart Burn (see Figure 2). This plant community accounted for under 2% of the study area (see Table 3.2). The vegetation is on the edges of the tributaries but forms a larger area where these all merge. It is a flushed acid grassland which is variable – some areas being locally wetter (with *Sphagnum* species present) but dominated by a fairly dry grassy sward which is acidic and inundated/re-wetted in higher flows as the burn channels spread out. It is preferentially grazed by sheep and greylag geese and there is some local semi-improvement present. There are small and unmapped areas of *Juncus effusus* acidic rush pasture present in places. It is all on peat which has been partly eroded from the blanket bog edges by water movement over time but the vegetated peat is generally still an average of at least 1m deep.
- 3.3.13 **Artificial (Disturbed, non-restored quarry).** The non-restored area of the old quarry contains a mix of vegetation within small areas with rock edge, mesotrophic/eutrophic grassland, ponds and more disturbed ephemeral habitats. Plant species seen were noted and are listed in Appendix 3 and a Target Note of a non-native invasive species (*Montbetia*) is included in Appendix 2.
- 3.3.14 While Table 3.2 gives the NVC plant community areas and percentages for the whole study area, Table 3.3 gives the same data specifically for the proposed North Compound area only. This table indicates that the majority of the proposed development area is blanket bog (just over 61% is M19b, Table 3.3). The remaining c. 39% is all unrestored quarry and restored quarry edge grassland (U4) which is not of any significant nature conservation value.

Table 3.3: NVC Plant Community Areas and Percentages within the Proposed North Compound Boundary.

National Vegetation Classification	Area (m ²)	Area (ha)	Percentage of the Compound Area
M19b - <i>Calluna vulgaris</i>-<i>Eriophorum vaginatum</i> blanket mire, <i>Empetrum nigrum</i> ssp. <i>nigrum</i> sub-community.	24475	2.45	61.19
Artificial (Disturbed, non-restored quarry).	7519	0.75	18.80
U4 - <i>Festuca ovina</i>-<i>Agrostis capillaris</i>-<i>Galium saxatile</i> grassland.	8007	0.80	20.01
Total	40000	4.00	100.00

Groundwater Dependent Terrestrial Ecosystems

- 3.3.15 SEPA require information on Groundwater Dependent Terrestrial Ecosystems (GWDTEs) to be provided. This can be provided by using the NVC data (Appendix 4) and NVC mapping with area analysis (Figure 2, Table 3.2 and Table 3.3).
- 3.3.16 There are no groundwater sensitive vegetation communities within the boundaries of the proposed north construction compound. However, there is one community present within the wider study area which can have a Moderate sensitivity in terms of groundwater dependency and that is the **U6d - *Juncus squarrosus*-*Festuca ovina* grassland, *Agrostis capillaris*-*Luzula multiflora* sub-community** (see Appendix 4 for

further details). There is one stand of this vegetation to the north east of the proposed north construction compound (Figure 3). This vegetation appears to be influenced by inundation from high water levels, however, it will also have some element of wetting from the surrounding peat. It is important to take into account that this vegetation is grass dominated and the dominant vegetation indicates relatively dry conditions. The surrounding topography falls towards this habitat (see Figure 3) and therefore the eastern side of the proposed north compound and its drainage (M19b blanket bog) will direct surface water towards this area, particularly following heavier precipitation. As noted the vegetation type present suggests overall that surface water influence and general migration of water towards the tributaries are the key factor (acidic in nature). While there is likely to be an element of water movement through the peat and at the interface of the peat and glacial till, the most important element is likely to be from surface water inundation and general seepage off the surrounding blanket bog. The small area and percentage of this common plant community compared to the total study area is detailed in Table 3.4 below.

Table 3.4: GWDTE Plant Communities Present, Total Area and Study Area Percentage.

GWDTEs	Area (m ²)	Area (ha)	% of Total Study Area
U6d/Moderate Sensitivity Total Area	7602	0.76	1.74

4. NATURE CONSERVATION EVALUATION

- 4.1.1 Nature conservation evaluation (often referred to as sensitivity) is required for further consideration and impact assessment. It is included here for the important ecological receptors surveyed.
- 4.1.2 Evidence of occasional otter use/presence was found over 200m away from the nearest edge of the proposed development. No resting-up sites were recorded. While other mammal species are present they are not viewed as important from a nature conservation perspective. For the proposed development it is considered unlikely that any mammal of any nature conservation value could be affected.
- 4.1.3 Blanket bog was the most important vegetation type surveyed within the study area. Blanket bog is generally regarded to be of international importance due to the importance of Scottish bogs in a world context. The M19b area of blanket bog covering the eastern side of the proposed development (see Figure 2) is largely intact active blanket bog with indications of gully recovery in places (infilling and re-vegetation) and is regarded to be of up to international importance for nature conservation. The other vegetation types present within the existing disturbed area of the proposed north construction compound boundary are of negligible value and are not considered further. The unrestored quarry area containing *Montbretia* is negative (adverse) for nature conservation. In the surrounding surveyed area (250m buffer) the M17b, while still blanket bog although degraded and inactive (not actively forming peat at present), is considered to be capable of recovery and is evaluated as nationally important from a nature conservation perspective. The acidic grassland habitats within and outside the proposed north construction compound are regarded as being of low local nature conservation value only and are not considered further (with the exception of GWDTE characteristics).

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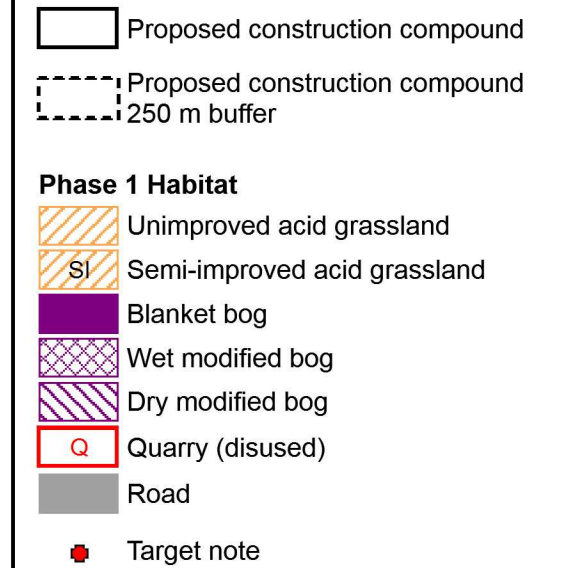
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FIGURES

NORTH CONSTRUCTION COMPOUND

FIGURE 1
Phase 1 Habitat Survey

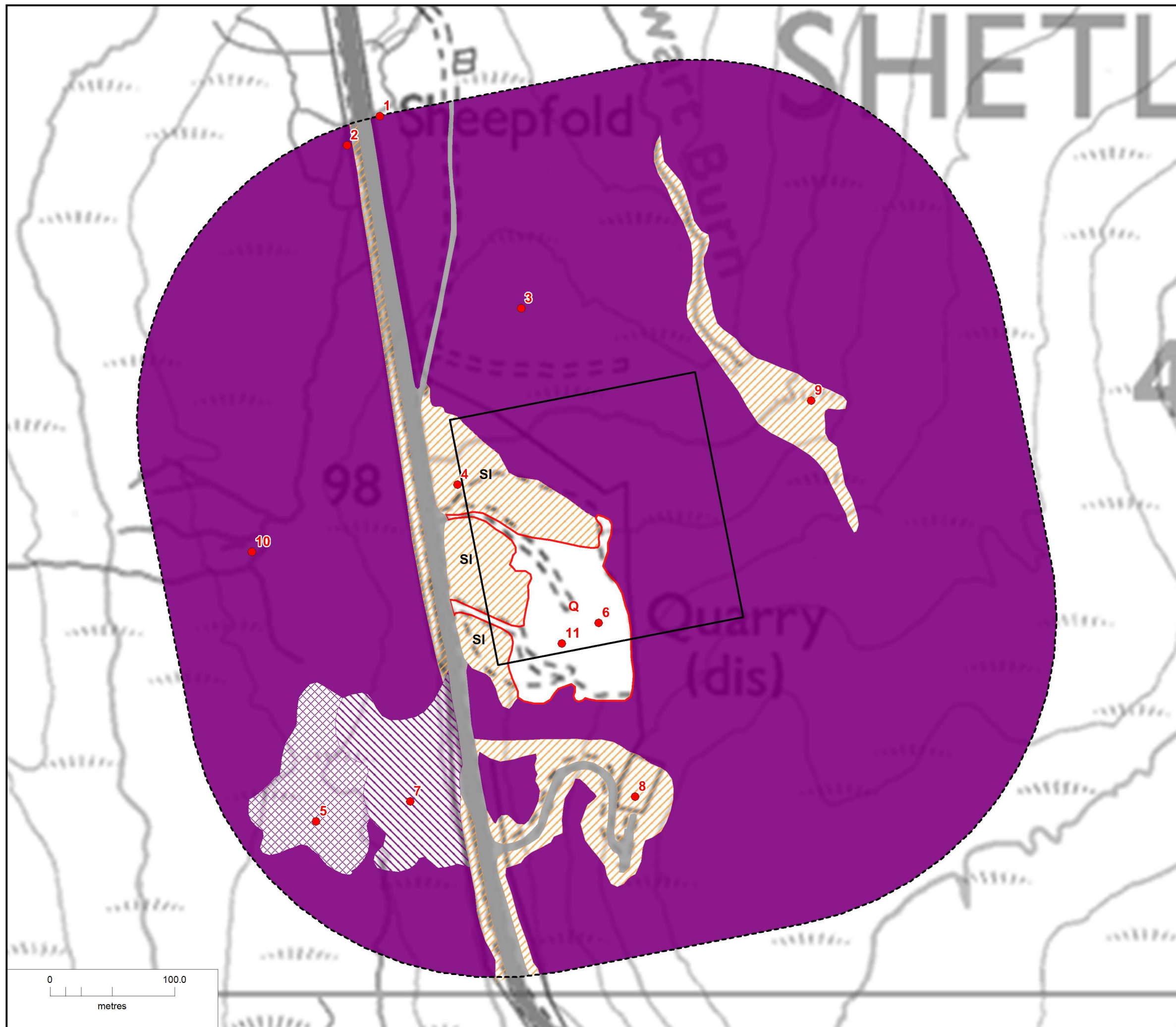


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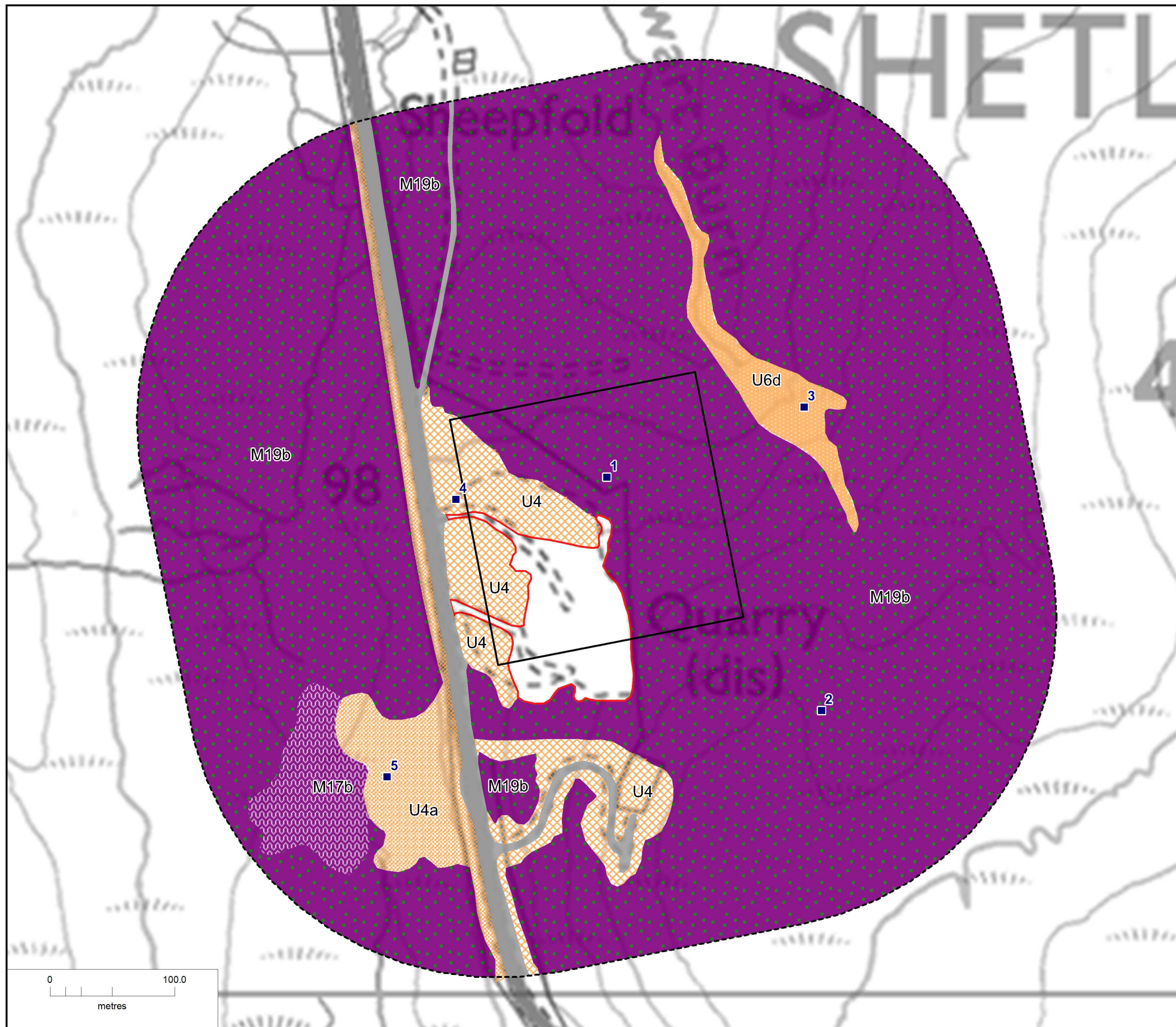
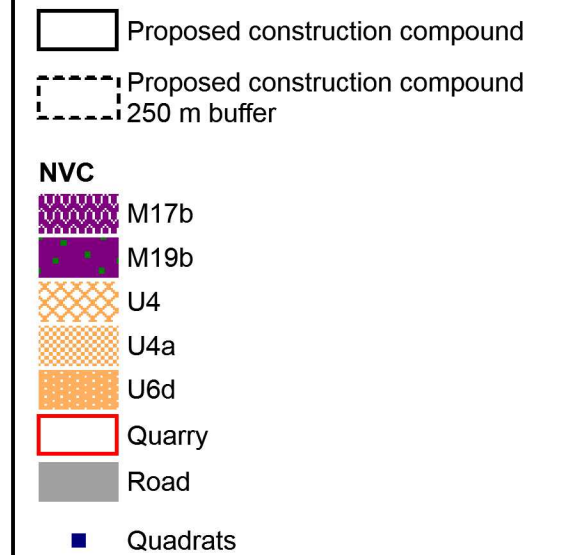
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Rev. By	CR	Drg. No.	N/A
Chk. By	AM	Date	20/06/2019
Appr. By	AM	Layout	N/A

Figure
1



NORTH CONSTRUCTION COMPOUND

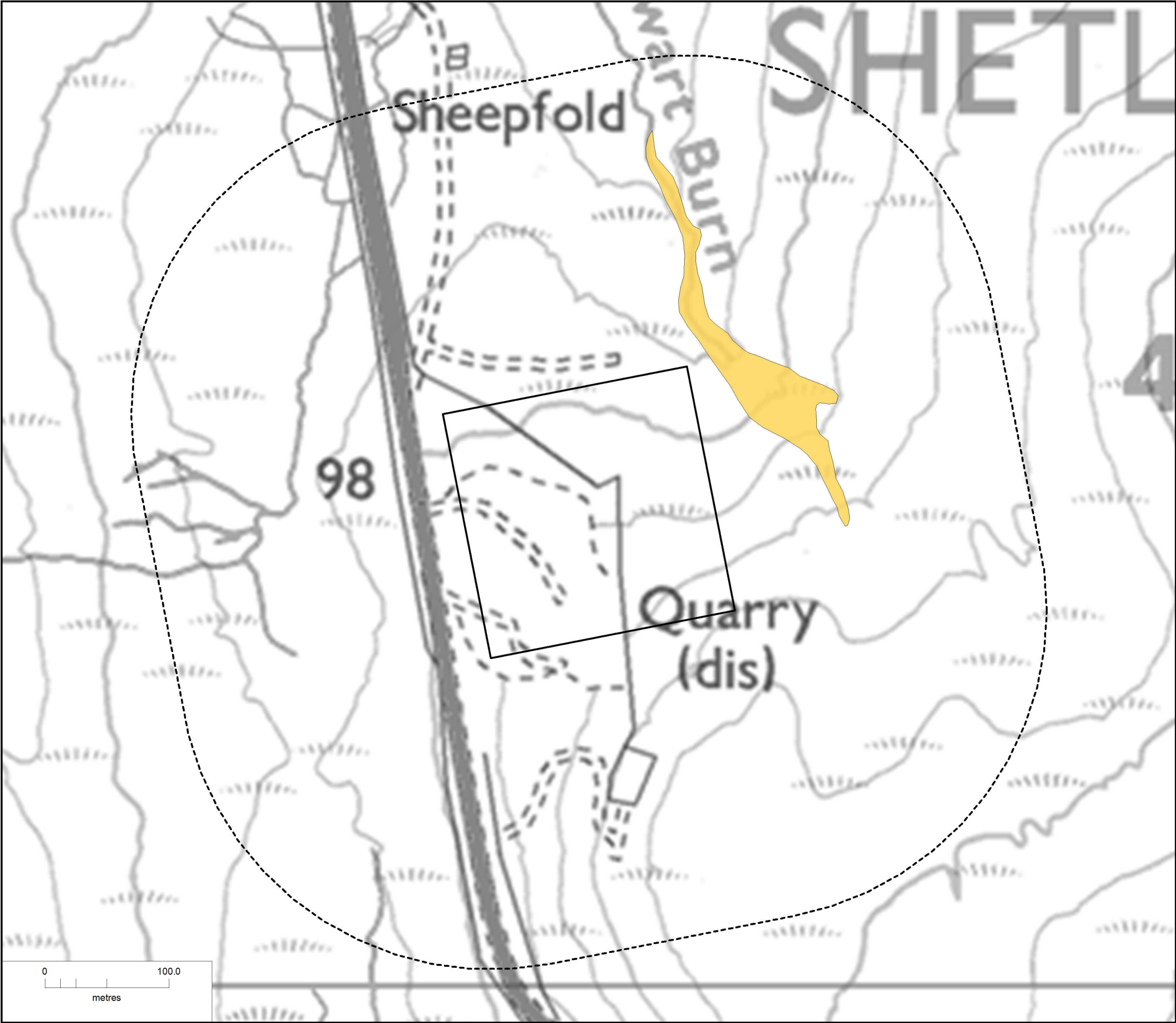
FIGURE 2
National Vegetation
Classification Communities



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NORTH CONSTRUCTION COMPOUND

FIGURE 3
Groundwater Dependent
Terrestrial Ecosystems

- Proposed construction compound
- Proposed construction compound
250 m buffer
- Groundwater Dependent Terrestrial
Ecosystems**
- Moderately groundwater dependent
(U6d)

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**Figure
3**