Achlachan 2 Wind Farm

Volume 1: Environmental Statement

May 2015

Whirlwind Renewables

Preface

This Environmental Statement (ES) has been prepared by Whirlwind Renewables in support of a planning application for consent to build and operate the proposed Achlachan 2 Win Farm, a three-turbine extension to the consented Achlachan Wind Farm. The project would occupy land between the consented Achlachan project and the operational Causeymire wind farm to the south.

Achlachan 2 largely occupies the footprint of the previously consented Causeymire Extension, planning consent for which expired in November 2013. The previous Causeymire Extension also consisted of three wind turbines, was consented by Scottish Ministers under Section 36 of the Electricity Act in 2005, but was not constructed.

The Achlachan 2 proposal effectively represents a revised iteration of the previous Causeymire Extension, with a redesign of the previously consented layout to better relate to the adjacent Causeymire and Achlachan projects.

The ES comprises four volumes and a Non Technical Summary, as follows:

- Non-Technical Summary - provides a summary of the information presented in Volume 1;
- Volume 1: Environmental Statement - (this document) is the full text of the Environmental Statement and contains full details of the environmental impact assessment that has been completed following the various technical assessments;
- Volume 2: Figures - contains supporting figures supplementing the findings presented within Volume 1;
- Volume 3: Landscape and Visual Figures – contains visualisations and other figures in support of Chapter 6: Landscape and Visual, to illustrate how the Achlachan 2 project would appear, both on its own and in combination with other wind energy developments;
- Volume 4: Technical Appendices

The application and the full ES are available for inspection at The Highland Council planning offices in Inverness and Wick, and can also be viewed on the Council's planning website.

Copies of the ES can be requested from Whirlwind Renewables at the address given below (copies on CD-ROM will be provided free of charge; however, a charge will be made for hard copies to cover the cost of printing and postage).

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1 Introduction

1.1 Background

1.1.1 The proposed Achlachan 2 Wind Farm is located on moorland at Mybster, centred at approximately ND 152 512. The site's location is shown on **Figure 1.1**.

1.1.2 The area is considered as being a landscape of low to medium sensitivity by SNH, within Zones 1 and 2 of their Strategic Locational Guidance for Windfarms[1]. This identifies areas with low to medium natural heritage sensitivity to wind farms where 'where wind turbines can be accommodated with appropriate scale, siting and design.'

1.1.3 The site is located between the operational Causeymire Wind farm to the south and the consented Achlachan wind farm to the north. The operational Causeymire wind farm consists of 21 turbines with a tip height of 100m and the consented Achlachan project consists of five turbines with a tip height of 110m. There are two other consented wind farm projects in the immediate area: the Bad á Cheò Wind Farm which comprises 13 turbines and situated west of the A9; and the 15 turbine Halsary wind farm situated east of the A9. Halsary received planning consent in October 2013 and Bad á Cheò was consented on appeal in May 2014.

1.1.4 This Environmental Statement (ES) accompanies an application for planning consent to construct and operate the three turbine Achlachan 2 Wind Farm, submitted to the Highland Council. The project is henceforth referred to as the Achlachan 2 Wind Farm or the Achlachan Extension.

1.2 The Landowner

1.2.1 The site is owned by Innes Miller. Innes also owns the land where the Causeymire Wind Farm is located. As an avid wind energy enthusiast, he has long wanted to realise the additional three turbines that were consented in 2005 and never built.

1.3 The Developer

1.3.1 Whirlwind Renewables LLP (Whirlwind), the applicant, is an independent wind farm developer based in Huddersfield, West Yorkshire, which focuses on developing on-shore wind energy schemes.

[1] "Strategic Locational Guidance for Onshore Wind Farms in Respect of the Natural Heritage: Policy Statement No 02/02", SNH, March 2009.

1.3.2 Whirlwind is currently developing a number of wind energy developments across the UK. The closest Whirlwind sites to Achlachan and the Achlachan Extension are the two Wathegar Wind Farms. Wathegar Wind Farm was granted planning consent in May 2010 (five turbines of 2.05 megawatts (MW) each) and is now operating. The neighbouring Wathegar 2 Wind Farm (nine turbines, around 18 MW), received consent on 20th March 2012, and construction is programmed to commence in 2016/2017.

1.4 The Proposed Development

1.4.1 Achlachan 2 is to be located on moorland at Mybster in the administrative area of Highland Council. The location is shown on the map at **Figure 1.1.**

1.4.2 As stated above, the site of the proposed Achlachan 2 wind farm is located between the consented Achlachan and operating Causeymire wind farms. The site occupies an area of approximately 168Ha (incorporated by the red line boundary in **Figure 1.2** and **Figure 1.3**). The total area of land, which will be permanently occupied by structures and hard surfaces within this area will be approximately 0.99Ha (9,909.75m^2). A breakdown of these areas is provided in **Table 3.1**.

1.4.3 The layout of Achlachan 2 is shown in **Figures 1.2** and **1.3**. Each of the three turbines is expected to have a capacity of up to 2.5MW, with the project therefore having an overall generating capacity of up to around 7.5MW.The proposed wind turbines would be the same type and dimensions as those to be installed at Achlachan. Each wind turbine will have a maximum height to blade tip of 110m, although the exact turbine generating capacity and dimensions will depend upon the final specification of turbines used at Achlachan and Achlachan 2. The design of the candidate turbine is shown in **Figure 4.1**.

1.4.4 The development will also comprise the following associated infrastructure, (further details of which are contained in **Chapter 3: Project Description**):

- new on-site access tracks, totalling around 1,220m; and
- underground cables.

1.4.5 The wind farm will generate electricity for a period of up to 30 years after which time it will either be removed or the life of the wind farm may be extended (subject to a further grant of planning permission).

1.4.6 Achlachan 2 will be connected to the local distribution network via the consented Achlachan electrical control building. Cables exporting power from each turbine will congregate at the electrical control building, which will house the switchgear and metering equipment. Connection from the consented Achlachan electrical control building to the local distribution network will be made via an underground cable connection into the existing 33 kilovolt (kV) network at the nearby Mybster substation.

1.5 The Consultation Process

1.5.1 This ES has been prepared following consultation with the Highland Council, statutory consultees and other relevant consultees as detailed in **Table 1.1** below.

Reason Consulted	Consultee
Statutory Consultees	Scottish Environment Protection Agency (SEPA)
	Scottish Ministers
	Scottish Natural Heritage (SNH)
	Scottish Water
	The Health and Safety Executive
Archaeology and Cultural Heritage	Caithness Archaeological Trust
	Highland Council – Archaeology Unit
	Historic Scotland
Aviation Interests	Civil Aviation Authority
	Ministry of Defence: Defence Estates
	National Air Traffic Services
	Wick Airport
Ecology	Royal Society for the Protection of Birds
	SNH
Geotechnical	Highland Council – TEC Services
Landscape and Visual Matters	Highland Council – Landscape
	SNH
Noise	Highland Council – TEC Services
Radio and Telecommunications	Arqiva Services Limited
	CSS Spectrum Management Services Limited
	Joint Radio Company
	Ofcom
	Scottish & Southern Energy plc
	T-Mobile
Television reception	British Broadcasting Corporation
Traffic and Transport	Agents for Scottish Government – Trunk Roads
	Highland Council – TEC Services

Table 1.1 - List of Consultees

1.5.2 As part of the wider consultation process, representatives of the applicant have personally visited or sent information to the following to introduce the proposed development:

- representatives of Halkirk Community Council; and

- newsletters to all residents within 4km, whilst discussed with the majority of households within 2.5km of Achlachan 2.

1.6 The Environmental Statement

1.6.1 This Environmental Statement (ES) presents the findings of technical environmental studies carried out as part of an Environmental Impact Assessment (EIA) and accompanies a planning application for consent to construct and operate the Achlachan 2 Wind Farm to Highland Council.

1.6.2 This ES and planning application have been submitted to the Highland Council for planning permission under the Town and Country Planning (Scotland) Act 1997. The project falls within Schedule 2 of the Environmental Impact Assessment (Scotland) Regulations 1999 (as amended) and as such an EIA of the proposed development has been undertaken.

1.6.3 The EIA process is discussed further in **Chapter 2: EIA and Design Evolution.**

1.7 Scoping Report

1.7.1 The EIA Regulations provide that a person who is minded to make an EIA application may ask the relevant planning authority to provide a written opinion as to the information to be provided in the Environmental Statement. This is known as a "Scoping Opinion".

1.7.2 Whirlwind submitted a request for a Scoping Opinion to Highland Council on 10 October 2014, and the Council issued its Scoping Opinion on 24 November 2014. This is included in **Appendix 3.1**.

1.7.3 Comments received from all consultees have been taken into account in the design, layout and progress of this project. Where relevant, further details of how the project has developed as a result of such comments are provided in each of the technical chapters.

1.7.4 The bodies and organisations consulted by Highland Council as part of the scoping process are included in the list of consultees listed in **Table 1.1**.

1.8 Approach and Expertise

1.8.1 This ES has been project managed by Whirlwind, with technical input from a range of specialist consultants with expertise in wind farm developments.

1.8.2 Whirlwind has provided input on the proposed development, the site selection process and any mitigation measures required to minimise any potential

environmental effects of the wind farm. The iterative site layout design process has been led by Whirlwind, but is the result of input from all parts of the project team.

1.8.3 Whirlwind has adopted a multidisciplinary approach, appointing and managing a team of expert consultants to provide technical input. **Table 1.2** below identifies the various areas of expertise required to carry out the EIA for Achlachan 2, together with the consultant responsible and the area in which they are based.

Area of Expertise	Consultant
Landscape and Visual Assessment	TEW
Ecological Surveys	ECUS
Ecological Assessments	ECUS
Aviation Assessment	TEW
Heritage Assessment	TEW
Radio-communications	TEW
Noise Assessment	Hayes McKenzie
Community Consultation	TEW
Transport Assessment	TEW
Hydrogeology	ECUS

Table 1.2 - The Project Team

12 Archaeology and Cultural Heritage

12.1 Introduction

12.1.1 This chapter of the ES provides an assessment of the cultural heritage assets on the proposed wind farm site and in the surrounding area, and the potential impact that the development may have on this resource. This includes the potential impacts of the proposed wind farm upon the setting of cultural heritage assets.

12.1.2 It is largely an updated version of the previous assessment of the neighbouring Achlachan project as the previous work encompassed the sites of both Achlachan and Achlachan 2.

12.1.3 The construction and decommissioning phases of the proposed development have the potential to affect the significance of heritage assets through physical damage to their fabric, but may also lead to their protection and enhancement. The impacts may be direct, for instance where an asset is disturbed during ground-breaking works, or indirect, for example when changes in hydrology lead to waterlogged archaeological deposits becoming desiccated and degraded.

12.1.4 During its operational phase, the proposed development may affect the significance of cultural heritage assets through changes in their setting. Such impacts will generally be visual but, in some instances, other factors such as noise or traffic activity and historic relationships may also need to be considered.

12.1.5 The objectives of this assessment are to:

- Describe the location, nature and extent of known heritage assets and areas of archaeological potential which may be affected by the proposed development;
- Provide an assessment of the importance of these assets;
- Assess the likely scale of any predicted impacts on the heritage resource posed by the development;
- Outline suitable mitigation measures to avoid, reduce or offset any predicted significant adverse effects; and
- Provide an assessment of any residual effects remaining after mitigation.

12.1.6 For the purposes of this assessment cultural heritage assets have been defined as:

- World Heritage Sites;
- Scheduled Monuments;
- Listed Buildings;
- Conservation Areas;

- Inventory Parks and Gardens; and
- Undesignated heritage assets that have significance because of their archaeological, architectural, artistic or historic interest.

12.2 Site Description

12.2.1 The application area covers an area of moorland, approximately 168ha in extent. The current proposal seeks consent to construct 3 turbines, construction/access tracks and associated services. The turbines are to be sited in the southern half of the application area, with access being taken directly from the consented Achlachan wind farm immediately to the north.

12.3 Potential Impacts

12.3.1 The development may affect the cultural heritage resource in the following ways:

- Direct physical effects as a result of groundworks and plant movement;
- Indirect physical effects resulting from changes in drainage; and
- Direct setting effects resulting from visual intrusion.

12.4 Methodology

Legislation, Policy and Guidance

12.4.1 This assessment has been undertaken with reference to relevant legislation, which includes Scottish Planning Policy, and local planning guidance relating to cultural heritage. An overview of relevant legislation and planning policy that have been consulted is provided below:

Legislation

12.4.2 **The Ancient Monuments and Archaeological Areas Act 1979**: Scheduled ancient monuments are sites of national importance that have been afforded legal protection under 'The Ancient Monuments and Archaeological Areas Act 1979'. Historic Scotland works on behalf of the Scottish Ministers to compile, maintain and publish a schedule of these monuments. Any work directly affecting these sites can only be carried out with the consent of the Scottish Ministers, following guidance by Historic Scotland.

12.4.3 **The Listed Buildings and Conservation Areas) (Scotland) Act 1997 (as amended)**. The Act states that "the planning authority, in determining any application for planning permission for development that affects a listed building or its setting, is required to have special regard to the desirability of preserving the building, or its setting, or any features of special architectural or historic interest which it possesses." (Section 59(1))

National Policy & Guidance

12.4.4 The Scottish Government's planning policy in relation to Cultural Heritage is set out in paragraphs 135-151 of Scottish Planning Policy (SPP) (June 2014) which is further supported by the following documents:

- Scottish Historic Environment Policy (SHEP) (December 2011)
- Historic Environment Strategy for Scotland (March 2014)
- Managing Change in the Historic Environment – Historic Scotland's guidance note series (2010)
- Planning Advice Note 2/2011: Planning and Archaeology (July 2011)
- Planning Advice Note 71: Conservation Area Management
- Scottish Historic Environment Databases

12.4.5 The underlying aim of these policies and guidance documents is to manage development in such a way that the special character and values of the historic environment are preserved. The SPP provides guidance for the protection of the historic environment within the context of the planning system. It requires planning authorities to take into account planning policy and guidance regarding the historic environment when determining planning applications, and developers to do likewise when formulating development proposals. The SPP states that, in most cases, the historic environment can accommodate change that is sensitively managed without the loss of its special character, but in some instances this may not be possible. Where this is the case, planning decisions should be based on a clear understanding of the importance of the heritage asset.

12.4.6 As part of its *Managing Change* series, Historic Scotland has issued a guidance document entitled 'Setting'. This document provides very broad guidance regarding the setting of heritage assets, with little indication of how setting impacts should be assessed. Consequently, it is difficult to be certain of Historic Scotland's approach in any specific case. Experience indicates that their primary concerns will revolve around:

- Topographic separation. Historic Scotland generally appears to prefer that wind farms are not sited on the same topographic feature as the asset in question;
- Sense of place. Where, for instance, isolation is an important part of an asset's sense of place, Historic Scotland will wish to see turbines drawn back to maintain this; and
- Key sight lines. Where assets have a visual relationship with other assets or topographic features, Historic Scotland will wish to see these maintained.

Local Policy & Guidance

12.4.7 The **Highland Wide Local Development Plan** (2012) covers cultural heritage under the *Safeguarding Our Environment* heading. The LDP identifies three categories features of natural, built and cultural heritage based on their importance (local/regional, national, international). Policy 57 (Natural, Built and Cultural Heritage) states that development proposals will be assessed taking into account the level of importance and type of heritage features, the form and scale of the development, and any impact on the feature and its setting. Policy 67 (Renewable Energy Developments) states that the Council will support such proposals which will not be significantly detrimental overall, either individually or cumulatively with other developments, having regard in particular to any significant effects on several interests, including natural, built and cultural heritage features.

12.4.8 The Highland Wide LDP superseded the **Caithness Local Plan** (2002) and no retained policies from this document are relevant to this assessment.

12.4.9 The Highland Council has produced specific guidance for wind energy developments in the **Highland Renewable Energy Strategy and Planning Guidelines** (2006). **Policy R.2** of this document states "Devices should be positioned to avoid direct disturbance of scheduled heritage sites and to protect the landscape in the immediate vicinity of prime visited sites". Parts of the Renewable Energy Strategy have been superseded by the ISG for Onshore Wind Energy (2012), which discusses Policies 57 and 67 in more detail in relation to wind turbine developments. The spatial framework presented in the ISG includes natural, built and cultural heritage features within Stage 1 and 2 areas. Chapter 5 of this ES (Planning and Policy Context) discusses the above policies and the ISG guidance in more detail.

12.4.10 Highland Council have also published Standards for Archaeological Work (March 2012), which sets out standards for undertaking cultural heritage assessments for Environmental Statements.

12.5 The Assessment Process

12.5.1 The cultural heritage assessment has been carried out in the following stages:

- Desk-based study leading to the identification of heritage assets potentially affected by the development;
- Definition of baseline conditions, based on results of the desk-based study, visits to assets and onsite investigations;
- Selection of assets that merit inclusion in assessment, following discussion with consultees;
- Identification of predicted impacts on heritage assets, informed by baseline information, site visits, Zone of Theoretical Visibility (ZTV), wirelines

and photomontages;

- Assessment of the magnitude of identified impacts;
- Assessment of the sensitivity of cultural heritage assets affected by the development;
- Assessment of the significance of effects, broadly a product of the asset's sensitivity and the magnitude of the effect;
- Proposal of appropriate mitigation measures; and
- Recognition of residual effects.

Definition of Significance

12.5.2 The starting point for the assessment of impacts on heritage assets is an analysis of what constitutes the *heritage significance* or importance of an asset. This importance is the sum of the values we attach to an asset because of its historic and cultural significance. It includes the portion of the values that derive from the setting of the asset.

12.5.3 The actual assessment of effects involves consideration of the *magnitude* of the predicted impacts (positive or adverse) on the *heritage significance* of the asset and the *sensitivity* of the asset to arrive at a conclusion regarding the *significance* of the effects (using significance here in the context of EIA).

Impact Magnitude

12.5.4 Magnitude of impact is a measure of the degree to which the significance of a heritage asset will be increased or diminished by the proposed development. In determining the magnitude of impact, the asset's heritage significance is defined. This allows the identification of key features and provides the baseline against which the magnitude of change can be assessed; the magnitude of impact being proportional to the degree of change in the asset's baseline significance.

12.5.5 The criteria used to assign a value to impact magnitude are set out in Table 12.1 (below). These criteria should be treated as an aid to professional judgement and cannot offer exact descriptions of what will occur in all cases.

12.5.6 In cases where the only potential impact is on the setting of a heritage asset, only that part of the significance derived from setting can be affected. This portion must be identified and the assessment of magnitude weighted proportionately.

Magnitude of impact	Criteria
Major positive	Alteration of the asset or change in its setting leads to major increase in the significance of the asset OR the significance of the asset is preserved where it would be lost if the 'do nothing' scenario was played out.
Moderate positive	Alteration of the asset or change in its setting leads to a considerable increase in the significance of the asset OR the asset is preserved by record, where it would be lost if the 'do nothing' scenario was played out.
Slight positive	Alteration of the asset or change in its setting leads to a slight increase in the significance of the asset OR the asset is preserved by record where it would otherwise continue to degrade if the 'do nothing' scenario was played out.
Negligible	Very slight loss or alteration of the asset or change in its setting, not materially affecting the significance of the asset.
Slight adverse *	Alteration of the asset not affecting key elements or change in its setting, leading to a slight reduction in the significance of the asset.
Moderate adverse *	Loss or alteration of one or more key elements of the asset or change in its setting, leading to a considerable reduction in the significance of the asset.
Major adverse **	Total loss or major alteration of the asset or change in its setting, leading to the total loss or major reduction in the significance of the asset.

Table 12.1 - Criteria for determining the magnitude of impacts on the significance of a heritage asset

Asset Sensitivity

12.5.7 The sensitivity of an asset to impacts on its significance is a measure of its heritage importance and therefore the degree of protection it is afforded in statute or policy. Table 12.2 sets out the criteria for assigning assets to one of three levels of sensitivity.

12.5.8 Nationally and internationally designated assets are assigned to the highest level of sensitivity, as are B Listed Buildings. Category C Listed Buildings are assigned to an intermediate level, reflecting the level of policy protection provided by Scottish Historic Environment Policy (SHEP). Most heritage assets are not formally designated; the sensitivity of undesignated heritage assets is assigned to the appropriate category according to the professional judgment of the assessor.

Sensitivity of the asset	Criteria
High	World Heritage Sites, Inventory Historic Gardens, Scheduled Monuments, Protected Wreck Sites, Registered Battlefields, Category A and B Listed Buildings, Conservation Areas, and undesignated heritage assets of equal importance
Medium	Category C Listed Buildings, heritage assets with regional designations and undesignated assets of equal importance
Low	Undesignated heritage assets of lesser importance

Table 12.2 - Criteria for determining the sensitivity of heritage assets to impacts on their significance

Significance of Effects

12.5.9 The significance of an effect on the significance of a heritage asset is the product of the magnitude of the impact and the sensitivity of the asset. The matrix in Table 12.3 provides a guide to decision-making regarding levels of significance but is not a substitute for professional judgement and interpretation, particularly where the sensitivity or impact magnitude levels are not clear or are borderline between categories. It should be noted that in each case these effects can be either adverse or positive.

	Magnitude of Change				
Level of Sensitivity		Major	*Moderate*	Slight	Negligible
	High	Major	*Major/ Moderate*	Moderate	Moderate/ Minor
	Medium	Major/Moderate	*Moderate*	Moderate/ Minor	Minor
	Low	Moderate	*Moderate/ Minor*	Minor	Negligible

Table 12.3 - Matrix for determining the significance of effects

Study Areas

12.5.10 The assessment utilised the following study areas:

- Inner Study Area (**Figure 12.1**), consisting of the inner study area for the Achlachan assessment, which was slightly wider than the application area for that project, plus the additional area (to the south) covered by the

Achlachan 2 application area. Within this study area all cultural heritage assets were considered in relation to both direct and indirect effects. The potential for previously unrecorded assets to be affected by the Development was also considered; and

- Outer Study Area (**Figure 12.2**), extends 5km from the proposed turbine locations. Within this area all designated cultural heritage assets were considered in relation to potential operational effects upon setting and to inform the potential for previously unrecorded cultural heritage assets within the Inner Study Area. Additionally, non-designated cultural heritage assets recorded in the Highland Council Historic Environment Record (HER) were considered to further inform the assessment of the potential for previously unrecorded cultural heritage assets to exist within the Inner Study Area.

Data Sources

12.5.11 The desk-based study utilised the following sources:

- Databases of designated assets held by Historic Scotland;
- Highland Council Historic Environment Record (HER);
- Historic mapping held by the National Library of Scotland;
- Other readily accessible published and online sources.
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12.5.12 A targeted walkover survey of the Inner Study Area was carried out on the 7th August 2012 guided by modern mapping and a handheld GPS system. The area covered included both the Achlachan and Achlachan 2 Inner Study Areas. The intention of the walkover was to assess the presence/absence, character, extent and condition of known assets and to identify any previously unrecorded assets. Highland Council Historic Environment Team also searched the HER in April 2015 for additional undesignated sites within the extended Inner Study Area, and confirmed no additional sites have been identified in the area since the original HER search.

12.5.13 The identified assets in the Outer Study Area were visited on 8th August 2012 – for the Achlachan proposal – in order to gather baseline setting data. No additional assets have been identified within this area.

12.6 Baseline

The Inner Study Area

Desk-Based Assessment

12.6.1 There is evidence of prehistoric activity within the Inner Study Area, including a hut circle, a possible cairn and a Scheduled broch (SM521). The majority of known features are however of post-medieval date and relate to the agricultural use of the land and associated structures such as dwellings, sheepfolds and a millpond. Extensive evidence of post-medieval land improvements and property divisions and re-divisions was also observed on the site.

12.6.2 A number of the existing field boundaries are shown on the 1st and 2nd edition Ordnance Survey maps. These boundaries include a substantial earth embankment, which runs approximately north-south across the centre of the site (**Figure 12.1**).

12.6.3 Ballone broch (SM521) comprises a large mound, approx 39m in diameter, which has been quarried away on its north-east side and considerably reduced by the construction of a road. At the bottom of the north slope is a course of stones, possibly the remains of a broch wall. On the south slopes, further sections of possible walling are discernible. Its setting is the agricultural land immediately around the broch, particularly the area to the west as the higher ground to the east results in shorter views.

Summary of Archaeological Potential of the Application Area

12.6.4 Given the low intensity of landuse across the Inner Study Area, archaeological assets are likely to have survived as upstanding features, although the land improvement ditches and peat cutting may have cut through some features. Areas of peat were observed within the Inner Study Area. There is therefore potential for palaeoenvironmental remains to be present on the site and for remains relating to prehistoric activity to be preserved beneath the peat deposits.

HA No	SM No	HER No.	Site Name
		MHG18878	Ballone Farmstead
		MHG19785	Ballone Cottage
		MHG19788	Rig and furrow (field of)
		MHG19790	Ruins of house
		MHG19793	Hut Circle
		MHG19803	Mybster Farmstead
		MHG40086	Stack Stand
		MHG42511	Watermill at Mybster Farm
	521		Ballone, broch 360m NE of, Spittal
HA 1			Possible cairn
HA 2			Possible mill leat
HA 3			Millpond
HA 4			Sheepfold

Table 12.4 - Heritage Assets within Inner Study Area

The Outer Study Area

Scheduled Monuments

12.6.5 There are 20 Scheduled Monuments within the Outer Study Area (two of which have two locations); they are detailed in Table 12.5 and their locations are shown in Figure 12.2. They include seven brochs, a medieval castle, two late medieval religious sites, four cairns, two standing stones and a group of stone rows.

12.6.6 The earliest monument is the chambered cairn known as Fairy Hillock (SM528), an oval, turf-covered mound with clearly defined edges. The centre of the cairn has been disturbed at some time, exposing walling and cairn material. This asset has intrinsic value as it will contain evidence of prehistoric funerary practice.

12.6.7 Other prehistoric monuments in the study area include the two standing stones (SM5301) left in clearings in a forestry plantation at Halsary. The significance of these stones derives from their potential contribution to an understanding of prehistoric

ritual beliefs. They have contextual value deriving from the relationship between the two stones – although any appreciation of this has been diminished by the planting of woodland around them.

12.6.8 The grass covered remains of The Shean cairn, 500m west-northwest of Achanarras, (SM475), is now surmounted by an Ordnance Survey triangulation pillar and lies within forestry. Two further cairns are located west of Westerdale (SM496 and SM494). These assets have intrinsic value for the evidence they will contain about prehistoric funerary practice, they also have contextual value which derives from the relationship between them. This is most appreciable with the two cairns at Westerdale which lie in close proximity to one another.

12.6.9 There are thirteen or fourteen rows of small upright stones (SM446) in heather moorland some 300m west-southwest of the graveyard at Dirlot. The rows radiate outwards slightly to the east-southeast from a large and a small mound, which may be heather-covered cairns. Each row has several stones fallen or missing, but the overall pattern is clear. The heather vegetation has masked many of the stones, but the more southerly group of rows appears to be the better preserved. The length of the longest row has been about 35m. Such radiating alignments, running down gentle slopes with an eastward outlook, are typical of Caithness stone rows. Stone rows are generally classed as ritual monuments, although their precise purpose is unknown. Their relationship to the formation of peat cover and to other monument types in the vicinity has led to their being ascribed a prehistoric, possibly Bronze Age, date (perhaps in the second millennium BC). The Dirlot stone rows have intrinsic value as an example of this prehistoric monument type. They have a contextual value, which derives from their position and apparent orientation towards the east. The stones are not prominent or readily visible in the wider landscape and being oriented to the east it is the view from them in this direction which contributes most to their significance.

12.6.10 The brochs vary in the degree of their preservation, but all are large, turf covered stony mounds. The two brochs at Achies (SM509 and SM2235) are intervisible with one another, though they may not be contemporary. The brochs at Cnocc Donn (SM541) and Dale Farm (SM545) would have been intervisible until the forestry was planted, though again their relationship is unknown. All the brochs have intrinsic value for the archaeological evidence they will contain; they have a contextual value deriving from the relationships between them although only intrusive investigation would confirm the relative dates of use of these monuments.

12.6.11 Dirlot Castle (SM5897) may date from the fifteenth century. It occupies a steep sided rock outcrop on the west bank of the River Thurso. The outcrop, over 20m high, is naturally well defended with sheer drops on all sides. The monument is of national importance as a small medieval castle of considerable strength. The setting of the monument is its highly defensible position on a rock outcrop within the River Thurso.

The monument has intrinsic value as an example of a small medieval castle, whilst its contextual value derives mainly from its highly defensible position.

12.6.12 St Magnus' church, hospital and graveyard (SM5413) is situated on the farm of Spittal Mains. The hospital was an important stage on two pilgrimage routes and is first recorded in a Royal charter of 1476. There was a church attached to it mentioned as, "the rectory of the church of (Spittal) called the hospital of St Magnus in Caithness." The chapel of the hospital served as the parish church of Spittal until the sixteenth century. The surviving upstanding remains belong to the chapel, the hospital having been demolished in the nineteenth century. The chapel sits within a raised stony bank, containing a burial ground used by the Clan Gunn. Burials partly overlie the footings of the hospital buildings, the south wall of which can be seen in the stony bank to the south of the chapel. The monument has intrinsic value for its archaeological evidence of religious practice, and evidence of medical conditions and treatment, which may be present in the skeletal remains buried at the site. It has associative value for its use as the parish church and later a burial ground for the Clan Gunn. The contextual value is not apparent at the site but derives from its relationship with historic pilgrimage routes.

12.6.13 St Peter's Chapel (SM5296), Halkirk consists of the remains of a late medieval chapel situated on the north bank of the Olgrinbeg Burn. The chapel is a representative example of a simple chapel, which dates from late medieval period. It provides evidence, and has the potential to provide further evidence through excavation and analysis, for ecclesiastical architecture, material culture, and settlement evolution and distribution in the area during the period of its use and subsequent abandonment; this forms the intrinsic value of the monument. Its setting is the secluded riverside position.

SM No	Name
446	Dirlot, stone rows 550m SW of
475	The Shean, cairn 500m WNW of Achanarras
494	Tulach an Fhuarain, cairn 310m NW of Bridge of Westerdale
496	Tulach Lochain Bhraseil, cairn 310m WNW of Bridge of Westerdale
509	Achies,broch 180m E of
528	Fairy Hillock, chambered cairn SE of Spittal Mains
534	Cairn Merk, broch 800m SSE of Bridge of Westerdale
541	Cnoc Donn, broch 600m ESE of Dale Farm, Halkirk
545	Dale Farm,broch 800m SE of
561	Knockglass,broch E of
582	Spittal Farm, broch 180m E of
593	Tulach Mor, broch,E bank of River Thurso
2235	Achies, broch 800m NE of
2400	Achanarras, cairn 800m NW of
2401	Achanarras, cairn 800m NW of
2402	Achanarras,hut circle
5296	St Peter's Chapel,Halkirk
5301	Halsary,standing stones 450m WNW of and 620m NW of
5413	St Magnus' church,burial ground and hospital
5897	Dirlot Castle

Table 12.5 - Scheduled Monuments within Outer Study Area

Listed Buildings

12.6.14 There are six listed buildings within the Outer Study Area, five of which are associated with buildings at Westerdale.

12.6.15 Dale House (HB7793) is a plain, harled building, the oldest part of which was built in the 16th century and occupies the centre part of the present building which is 18th century in date. The house was extended to the north (in 1910) and south (in 1933) and it has three storeys. The house was the home of Murray Thriepland whose family held the house for several generations and was one of the major landowners of Watten Parish. Their lands included the Inner Study Area. A 19th century walled garden to the south includes a 17th or 18th century dovecote (LB7794). The house is approached along a tree-lined avenue which is aligned east-northeast to west-southwest. Views from the house along this avenue are curtailed by an area of woodland. The setting of the house, garden and dovecote is the inter-relationship of these three assets and its riverside setting.

12.6.16 Westerdale Bridge is a twin arched rubble bridge (LB7805) with dressed rubble arch rings and triangular cut-waters rising as buttresses built in 1834. It has dressed rubble-coped parapets pierced by small square drainage vents above each arch ring and a slightly splayed approach. The significance of the bridge derives from its historic fabric and its location on an historic crossing point of the River Thurso. A second, single arched, bridge of similar build and apparently contemporary date is situated approximately 80m to the west of Westerdale Bridge and crosses a blocked off channel leading to a ruined watermill on the left bank of the River Thurso.

12.6.17 Westerdale church (LB7806) was constructed in 1844 on a simple low T-plan. It is built of rubble with tooled rubble dressings. The churchyard is enclosed by a simple roughly coped drystone wall with a pair of wooden gates with Gothic detailing. At the time of the site visit the church has been converted to a private dwelling. The setting of the asset is its location within the small community of Westerdale.

12.6.18 Causeymire church is also a simple T-plan church. Built by subscription in 1842, the building (LB14977) replaced an earlier mission church. The rubble-built church with rubble dressings and a graded Caithness slate roof is sited close to the boundary of Latheron Parish, which formerly served the scattered communities of Causeymire and Achavanich. Formerly Church of Scotland and later United Free Church the building is no longer in ecclesiastical use.

HB No	Name	Category
7793	Westerdale Dale House	B
7794	Westerdale Dale House dovecote	B
7794	Westerdale Dale House walled garden	B
7805	Westerdale bridge over River Thurso	B
7806	Westerdale church wall and gates	B
14977	Causeymire church	C(S)

Table 12.6 - Listed Buildings within Outer Study Area

Conservation areas and inventory landscapes in the Outer Study Area

12.6.19 There are no Conservation Areas or Inventory Gardens within the Outer Study Area.

12.7 Assessment of Effects

12.7.1 This section of the chapter provides an assessment of the predicted impact of the development on the heritage resource. It includes consideration of the construction, operation and decommissioning of the development and identifies impacts on both the fabric and setting of heritage assets.

12.7.2 A summary of the identified impacts, and the significance of these effects, is presented in Table 12.7.

Types of Effect

12.7.3 Potential effects of the proposed development on the cultural heritage resource can be described in three categories:

- Direct physical effects;
- Indirect physical effects; and
- Effects on setting.

Direct Physical Effects

12.7.4 Direct physical effects describe those development activities that directly cause damage to the fabric of a heritage asset. Typically, these activities are related to

construction works; in the present case they could include excavation of foundations for the turbines, the creation of access tracks and the excavation of service trenches, as well as groundworks to create temporary site compounds. It follows that this category of effect will only be experienced within the application site.

12.7.5 Further direct physical effects are unlikely to be experienced during the operational life of the wind farm. Similarly, the decommissioning of the wind farm will not lead to further direct physical effects, assuming that the works are carefully managed and restricted to areas already disturbed during construction.

Indirect Physical Effects

12.7.6 Indirect physical effects describe those processes, triggered by development activity, that lead to the degradation of heritage assets. A typical example of a process is the lowering of a groundwater table as a result of mineral extraction leading to the drying out of formerly waterlogged archaeological deposits in the area surrounding the extraction site. The result can be the total loss of organic materials in these deposits and therefore most of their cultural value.

12.7.7 Peat deposits of possible archaeological and palaeo-environmental interest are present within the development site; the potential is un-quantified and these may be affected by the construction of the turbines. The construction footprint is, however, very small relative to the extent of the peat bog reducing these potential effects.

Effects on Setting

12.7.8 Effects on the setting of heritage assets describes how the presence of a development changes the surroundings of a heritage asset in such a way that it affects (positively or negatively) the heritage significance of that asset. Visual effects are most commonly encountered but other environmental factors such as noise, light or air quality can be relevant in some cases. Effects may be encountered at all stages in the life cycle of a development from construction to decommissioning but they are only likely to be considered significant during the operational life of the development.

12.7.9 In the case of the proposed development, the wind turbines would be tall and conspicuous structures, which would be visible from some distance. This visibility will be enhanced by the rotation of the blades when the turbines are operating. The proposed development therefore has the potential to generate significant effects on the settings of heritage assets, but only where the wider landscape already makes a substantive contribution to their significance.

12.7.10 Other predicted environmental impacts which could have the potential to effect the settings of heritage assets, have also been considered, but have subsequently been discounted. These include night-time illumination (not considered to be a significant issue as the heritage assets in the study area are not generally appreciated in the

dark), and increase in noise (not of sufficient magnitude to affect the experience of a visitor to any of the heritage assets in the study area).

12.8 Construction Phase

12.8.1 Construction works within the application site have the potential to affect both known heritage assets and other, currently unrecorded, archaeological features.

12.8.2 As noted above, there is potential for construction works to affect other, currently unrecorded, archaeological features but it is not possible to assess these effects in any detail. These unrecorded features are most likely to be small or isolated features of prehistoric date buried beneath later peat deposits. It is considered highly unlikely that any such unrecorded features will be of more than low sensitivity and any adverse impact on them greater than moderate magnitude. As a result any impacts will be of no more than minor significance.

12.9 Operational Period

Selection of assets for assessment

12.9.1 The heritage assets selected for assessment reflect the combined judgment of the current assessor and consultees in Highland Council and Historic Scotland.

12.9.2 The assessment of operational impacts on these assets has been assisted by a range of technical aids which predict the degree and nature of visual change that will be experienced. These comprise mapped ZTV for turbine blade tip (Figure 6.1) and photomontages from selected viewpoints. Heritage assets which the ZTV indicates will not have visibility of the turbines have been excluded from this assessment.

Scheduled Monuments

12.9.3 All twenty Scheduled Monuments in the Outer Study Area, plus the one within the Inner Study Area, are included in the assessment due to their high sensitivity to impacts.

12.9.4 The ZTV predicts no visibility from the following assets, which have therefore been excluded from the assessment:

- 475 The Shean, cairn 500m WNW of Achanarras
- 2235 Broch 800m NE of Achies
- 2400 Cairn 800m NW of Achanarras
- 2401 Cairn 800m NW of Achanarras
- 2402 Achanarras hut circle

12.9.5 Site visits confirmed that the following assets will have no visibility of the turbines, due to the presence of trees and other vegetation close by, and they have also been excluded from the assessment:

- 509 Broch 180m E of Achies
- 541 Cnoc Donn, broch 600m ESE of Dale Farm, Halkirk
- 545 Broch 800m SE of Dale Farm
- 561 Broch E of Knockglass
- 582 Broch 180m E of Spittal Farm
- 5301 Halsary, standing stones 450m WNW of and 620m NW of Halsary

12.9.6 It is considered that five out of the remaining ten heritage assets do not draw any part of their significance from the wider landscape. The significance of these assets derives in the main from their intrinsic values or from historic associative values, and where they have contextual values the setting of the assets is of a local scale. Assets in this category are:

- 494 Tulach an Fhuarain, cairn 310m NW of Bridge of Westerdale
- 496 Tulach Lochain Bhraseil, cairn 310m WNW of Bridge of Westerdale
- 528 Fairy Hillock, chambered cairn SE of Spittal Mains
- 5296 St Peter's Chapel, Halkirk
- 5413 St Magnus' church, burial ground and hospital

12.9.7 This leaves five assets where the surrounding landscape has the potential to contribute to significance:

- 446 Stone rows 550m SW of Dirlot
- 521 Ballone, broch 360m NE of Spittal
- 534 Cairn Merk, broch 800m SSE of Bridge of Westerdale
- 593 Tulach Mor, broch, E bank of River Thurso
- 5897 Dirlot Castle

Dirlot, stone rows 550m SW of

12.9.8 This prehistoric monument of probable ritual function is aligned to the east, and it is this presumed relationship with the rising sun which contributes to the value of this asset. The proposed turbines are to the northeast of the stone rows. It is concluded that the proposed development will have no impact on the significance of the Dirlot Stone Rows.

Ballone, broch 360m NE of

12.9.9 The significance of this monument derives from its intrinsic value. Any contextual value of the relationship between the asset and its former landholdings has been diminished because the agricultural land around the broch has been significantly altered since the time of its construction. The proposed turbines in addition to the consented Achlachan turbines will represent a further change to this landscape, but the agricultural land will still be visible from the broch.

12.9.10 The turbines will be visible from the broch and will lie between Ballone broch and the broch at Cairn Merk. The inter-relationship of these two brochs is unknown and they may not be contemporary. The photomontages shown in Figure 12.3 and Figure 12.4 illustrate that the two brochs are not clearly visible from one another as they are not prominent features in long range views. The addition of turbines to the view from Ballone broch will appear as an extension to the existing wind farm at Causeymire, and will not impact on the appreciation or understanding of Ballone broch.

Cairn Merk, broch 800m SSE of Bridge of Westerdale

12.9.11 This monument comprises a conspicuous, grass-covered mound rising from the water's edge on the western side of the River Thurso. It is cut off from the moorland by a well-defined ditch opening on the river bank, which is wet in the bottom and fills when the river is in flood. The monument is a typical example of a Caithness broch built on its own mound and surrounded by a wall and ditch. It was presumably surrounded by an associated secondary settlement but the whole monument is now isolated and relatively un-disturbed. The setting of the broch is its riverside position is mirrored by two further brochs Tulach Mor which is Scheduled, and a further un-named broch which is undesignated, both of which lie upstream of Cairn Merk in similar riverside positions beside the River Thurso. The inter-relationship of these brochs is considered to contribute to the significance of these assets although they are not now prominent features in the present landscape and are not intervisible with one another. The proposed turbines will not impact on this inter-relationship and there is considered to be no impact to the significance of Cairn Merk or its setting.

Tulach Mor, broch, E bank of River Thurso

12.9.12 Like the broch of Cairn Merk, this asset lies on the banks of the River Thurso, and its possible relationship with the two other brochs along the banks of the River Thurso contribute to its significance. As these assets are not intervisible the contextual value and understanding of the monuments derives from map evidence rather than an appreciation on the ground. The turbines will form an extension to the existing Causeymire wind farm, and the consented Achlachan wind farm, and as there are no clear views of the brochs from one another at present there is considered to be no impact to the significance of Tulach Mor.

Dirlot Castle

12.9.13 The significance of this monument derives from the contextual value apparent from its highly defensible position on a rock outcrop in the River Thurso. Views of the wider landscape are limited to views along the river valley to the east and west of the monuments location. The turbines will be sited to the north east and their presence will not impact on the understanding of this defensible position which is most apparent when facing the castle from the banks of the river. It is concluded that the proposed development will have no impact on the significance of Dirlot Castle.

Listed Buildings

12.9.14 All six Listed Buildings within 5km of the proposed turbines are included in the assessment due to their sensitivity to impacts.

12.9.15 It is considered that the majority of the listed buildings do not draw any part of their significance from the wider landscape. Assets in this category are:

- 7794Walled Garden at Dale House
- 7794Dovecote at Dale House
- 7805Westerdale Bridge
- 7806Westerdale church, wall and gates
- 14977 Causeymire Church

12.9.16 This leaves Dale House (LB7793), which derives its significance from its architectural interest, and its historical associations with the Thriepland family. The approach to the house along a tree lined avenue forms an attractive view both of and from the house; however the area of woodland opposite the entrance to this avenue curtails views and will screen visibility of the turbines from the house. There is considered to be no impact to the significance of Dale House.

12.9.17 In summary no significant impacts on Listed Buildings or their settings are predicted.

12.10 Decommissioning Phase

12.10.1 When the wind farm is decommissioned, it is expected that all surface aspects of the site will be removed and reinstated. This will include the crane and hardstandings, with the wind turbine foundations reduced to below surface level before the ground is re-vegetated and reinstated. At present, it is generally accepted that removal of cables and electrical infrastructure is more damaging than leaving them *in situ* so this is the current preferred option.

12.10.2 All of this work will take place in parts of the site already disturbed during construction. A carefully controlled programme of demolition and reinstatement

should not lead to any further adverse impacts on those heritage assets already affected by the construction works.

Cumulative effects

12.10.3 There is potential for heritage assets to experience cumulative effects due to the operation of the proposed turbines in combination with other wind farms in the vicinity. This potential has been considered within the cultural heritage impact assessment, including the impact of all existing, consented and proposed wind farms within 35 km.

12.10.4 The proposed turbines would be visible in conjunction with the Achlachan, Bad á Cheò, Causeymire and Halsary wind farms in views from the following assets:

- 521 Ballone, broch 360m NE of Spittal
- 534 Cairn Merk, broch 800m SSE of Bridge of Westerdale
- 593 Tulach Mor, broch,E bank of River Thurso

12.10.5 The Achlachan 2 turbines would appear as an extension to the existing, consented and proposed wind farms rather than as an additional and separate wind farm. The cumulative visual change to the setting of these assets is considered to be minor.

HB No	SM No	Name	Sensitivity of Asset	Magnitude of Impact	Significance of Effect
7793		Westerdale Dale House	High	None	None
7794		Westerdale Dale House dovecote	High	None	None
7794		Westerdale Dale House walled garden	High	None	None
7805		Westerdale bridge over River Thurso	High	None	None
7806		Westerdale church wall and gates	High	None	None
14977		Causeymire church	Moderate	None	None
	446	Dirlot, stone rows 550m SW of	High	None	None
	521	Ballone, broch 360m NE of Spittal	High	Negligible	Minor
	534	Cairn Merk, broch 800m SSE of Bridge of Westerdale	High	Negligible	Minor
	593	Tulach Mor, broch, E bank of River Thurso	High	Negligible	Minor
	5897	Dirlot Castle	High	None	None

Table 12.7 - Summary of impacts

12.11 Mitigation

Construction Phase

12.11.1 In accordance with SPP and PAN 2/2011, the preferred option for mitigation is the in-situ preservation of important remains, and by record where preservation is not possible.

12.11.2 Impact significance cannot be meaningfully assessed for unknown assets, as neither the sensitivity of the receptor nor the magnitude of the impact is known. Consequently, only the likelihood of construction impact is considered here.

12.11.3 There is low potential for previously unrecorded assets within the Inner Study Area. The likelihood of previously unrecorded assets lying within the construction footprint and thus being affected by groundworks is likewise considered to be low. Any construction impacts upon previously unrecorded cultural heritage assets will be mitigated through on-site monitoring, the scope of which would be approved by the Highland Council Archaeologist. This programme will allow for any features that may be uncovered to be recorded appropriately and is likely to comprise a watching brief on ground-breaking works with further work being undertaken as appropriate.

12.11.4 The construction of the turbines may impact on the palaeo-environmental interest of the peat deposits present on the site and it is proposed that a programme of assessment (in the form of an auger transect) and an archaeological watching brief to be agreed with Highland Council, should be implemented as part of the programme of the archaeological works.

Operational Period

12.11.5 The assessment has shown that operation of the wind turbines will affect the setting of two designated heritage assets in the vicinity for the duration of the operational life of the project. The assets that will be affected are the Scheduled Ballone and Cairn Merc brochs. The predicted visual effects on the settings of these assets will, however, be minor and would be fully reversed when the wind turbines are decommissioned.

12.11.6 No significant adverse effects on the significance of heritage assets have been identified for the operational period of the proposed development. No mitigation measures are therefore proposed.

Decommissioning Phase

12.11.7 Groundworks during decommissioning have the potential to damage archaeological features in previously undisturbed areas of land. The decommissioning phase should, therefore, be designed to avoid any such further disturbance, particularly of any previously unknown archaeological features encountered during construction works. All site works should be carefully controlled to minimise the potential for accidental

damage. A decommissioning management plan would be prepared in advance, in line with relevant legislation, guidance and policy at the time

12.12 Statement of residual significance

Construction Phase

12.12.1 The successful implementation of an approved programme of archaeological works will fully mitigate the adverse effect of the construction works. It is concluded that there will be no residual effects.

Operational Period

12.12.2 The effects on the setting of heritage assets will persist for the duration of the operational life of the wind farm but would then be fully reversed on decommissioning. Any predicted effects are, however, not considered to be significant. No mitigation of these effects will take place.

Decommissioning Phase

12.12.3 The careful management of the decommissioning process will ensure that there are no accidental adverse impacts on the heritage resource of the application site. There will, therefore, be no adverse impacts and no residual effects.

12.13 References

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Achlachan 2

Figure 12.1

Heritage Assets Inner Study Area

- Non-Designated Heritage Asset Point
- Non-Designated Heritage Asset Linear
- Non-Designated Heritage Asset Area
- Scheduled Monument
- Boundary 1st Edition
- Boundary 2nd Edition
- Application Area
- Study Area (Inner)
- Turbine
- Crane Hardstanding
- New Access Track
- Electrical Control Building
- Consented Turbine
- Consented Crane Hardstanding
- Consented Access Track
- Consented Construction Compound

PROJECTION SYSTEM	AUTHOR
OSGB 1936 BNG	M MORGAN

SCALE

0 55 110 220 330 440 m

1:10,000

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Drawing Number	Figure 12.1 - Heritage Assets (Inner).pdf
Date Of Drawing	05/05/2015

Achlachan 2

Figure 12.2

Heritage Assets Outer Study Area

Listed Building CATEGORY

- A
- B
- C(S)
- SAM
- 5km Buffer of Proposed Turbine
- Turbine
- Application Area
- Landownership Boundary
- Crane Hardstanding
- New Access Track
- Electrical Control Building
- Consented Turbine
- Consented Crane Hardstanding
- Consented Access Track
- Consented Construction Compound

PROJECTION SYSTEM	AUTHOR
OSGB 1936 BNG	M MORGAN

SCALE

0 195 390 780 1,170 1,560 m

1:40,000

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Drawing Number	Figure 12.2 - Heritage Assets Outer.pdf
Date Of Drawing	05/05/2015