

**Scottish Water
Bragar, Mains Water Replacement
Archaeological Desk-Based
Assessment and walk over survey**

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Contents

1	Introduction	1-1
1.1	General	1-1
2	Planning and Legislative Background	1-2
2.1	General	1-2
2.2	Scheduled Ancient Monuments	1-2
2.3	Listed Buildings	1-3
2.4	Other Archaeological Sites and Monuments	1-3
2.5	Planning Consideration	1-4
3	Methodology	1-4
3.1	Report Structure	1-4
3.2	Aims and Object	1-4
3.3	Spatial Scope	1-5
3.5	Assessment of Potential Impacts	1-5
4	Archaeological and Historical Background	1-5
4.1	General	1-5
4.2	Historical Background	1-6
5	Results	1-8
5.1	Cultural Heritage of the Study Area	1-8
5.2	Assessment of the Cultural Heritage Significance of the Known Site	1-10
5.3	Mitigation and Enhancement	1-11
5.4	Unknown or Buried Archaeology	1-12
6	Conclusion	1-12
	Appendix A - Cartographic References	1-13
	Appendix B - Vertical Aerial Photographs	1-13

Appendix C - Bibliographic Rreferences	1-13
Appendix D - Site Gazetteer	1-15
Appendix E - Photographic Plates	1-22
Figure 1	1-24

1 Introduction

1.1 General

- 1.1.1 Jacobs UK has been commissioned by Scottish Water Solutions to carry out a desk-based assessment and walk over survey of the Cultural Heritage resource that may potentially be affected by the upgrade of the water mains within the village of Bragar. The main route of the pipeline runs from eastern road into the village, along the main street, then traverses southwards across a field within the western section of the pipeline to meet up with the existing main on the A858 (NGR: NB 297 477 to NB 285 478). The section of pipeline walked as part of the walkover survey revealed the presence of several archaeological sites of Post Medieval Date.
- 1.1.2 The assessment found a total of twenty one sites of archaeological and historical interest along and close to the route of the proposed water main replacement, mainly of Post Medieval and modern date. Archaeological remains of Regional importance were noted within the wider landscape, though predominantly most were of Local importance within the corridor of the proposed water main.
- 1.1.3 The risk to the archaeological heritage posed by the proposed pipeline excavation includes the destruction of unknown archaeological remains which may survive below ground. These are undetectable until they are unearthed in the process of cutting the service trench.
- 1.1.4 To mitigate against the risk posed to any surviving archaeological remains surviving along the pipeline route it is anticipated that a limited and targeted programme of archaeological monitoring will be recommended by Mary Macleod of Comhairle nan Eilean Siar. Further mitigation is proposed at the end of this document including careful routing of the new water main to closely follow the route of existing water mains where possible. In addition, in some areas, to prevent vehicular damage to earthwork features, it is proposed that geotextile membranes could be used to create temporary trackways as a means of preventing damage.
- 1.1.5 Jacobs UK conforms to the standards of professional conduct outlined in the Institute of Field Archaeologists Code of conduct, and relevant Standards and Guidance documents. Jacobs UK is a Registered Archaeological Organisation (RAO) with the Institute of Field Archaeologists (IFA). This status ensures that there is regular monitoring and approval by external peers of our internal systems, standards and skills development.

Terms of reference

- 1.1.6 This Desk Based Assessment considers the affects of the proposed development on the entire historic environment including archaeological sites and monuments, historic buildings and their environs, historic gardens and landscapes.
- 1.1.7 For the purposes of this study, all readily available sources of information held by the relevant heritage bodies, were consulted, as well as secondary documentary sources, some manuscript sources, historic maps and aerial photographs. Data on the historic environment was acquired from the following sources:

- Comhairle nan Eilean Siar Archaeology Unit for archaeological sites and monuments and early maps;
- Historic Scotland for Ancient Monuments, Listed Buildings, Designed Landscapes, Parks and Gardens and Historic Battlefields;
- National Monuments Record of Scotland (NMRS)
- Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS);
- Vertical and Oblique Aerial Photographs held by the RCHAMS
- Early Maps held in the National Map Library of Scotland

1.1.8 The historic environment is protected by a number of statutory and non-statutory designations which include the following:

- Scheduled Ancient Monuments;
- Identified archaeological sites;
- Conservation Areas;
- Listed historic buildings and structures;
- Locally listed historic buildings and structures;
- Historic Gardens
- Designed Landscapes.

2

Planning and Legislative Background

2.1 General

2.1.1 This Desk Based Assessment has been carried out within the framework of the following legislation and planning policy:

- Ancient Monuments and Archaeological Areas Act 1979 (hereafter 1979 act);
- Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997 (1997 Act);
- National Planning Policy Guideline 5, Archaeology and Planning (NPPG 5);
- National Planning Policy Guideline 18, Planning and the Historic Environment (NPPG 18); and
- Planning Advice Note 42, Archaeology (PAN 42).
- Western Isles Local Plan

2.2 Scheduled Ancient Monuments

2.2.1 There are two known scheduled monuments close to or near (within assessment area) the proposed water mains replacement (sites **17** and **19**) therefore the following information is relevant to the developer. A new development must not impact upon the area of a Scheduled Ancient

Monument without the prior formal consent of Historic Scotland. This principle is described in National Planning Policy Guidelines:

2.2.2 *“Scheduled ancient monuments are of national importance and it is particularly important that they are preserved in situ and within an appropriate setting. Developments, which would have an adverse effect on scheduled monuments or the integrity of their settings, should not be permitted unless there are exceptional circumstances. Scheduled monument consent is required from the Scottish Ministers through Historic Scotland for any development affecting a scheduled ancient monument, and notification to Historic Scotland of any planning application affecting the site of such a monument is required under article 15 (1) of the Town and Country Planning (General Development Procedure) (Scotland) Order 1992”.*

(NPPG5 April 1999, Section 17)

2.2.3 Under the 1979 Act the Scottish Ministers are required to compile and maintain a Schedule of monuments considered to be of national importance. The statutory consent of the Scottish Ministers is required before any works are carried out which would have the effect of demolishing, destroying, damaging, removing, repairing, altering, adding to, flooding or covering up a Scheduled Ancient Monument (SAM).

2.2.4 A formal process of application to conduct such works known as Scheduled Monument Consent (SMC) is administered on behalf of the Scottish Ministers by Historic Scotland. Effects of proposed development works upon the setting of a SAM form an important consideration in the granting or refusal of consent to conduct development works. Further information on development control procedures relating to SAMS is provided in NPPG 5 and PAN 42.

2.2.5 There are currently approximately 7500 Scheduled Monuments in Scotland. Approximately 200 of these are located in the Western Isles. In addition, it is estimated that there may be more than twice this number which meet the necessary requirements for designation.

2.3 Listed Buildings

2.3.1 Under the 1997 Act, the Scottish Ministers are required to compile a list of buildings of special architectural or historic interest. These buildings are classified into Categories A, B and C (S), in decreasing order of importance. This statutory protection covers not only the building itself, but also other features within its curtilage (e.g. stables and garden walls).

2.3.2 There is a presumption against development that will adversely affect the character of a listed building or its setting, and planning authorities are required to have a special regard for the desirability of preserving listed buildings and their settings. Further policy information on listed buildings is published in NPPG 18. Additional guidance is published in the Memorandum of Guidance on Listed Buildings and Conservation Areas 1998 (hereafter ‘memorandum’; Historic Scotland 1998).

2.4 Other archaeological sites and monuments

2.4.1 Archaeological sites and monuments without statutory protection are curated by the local planning authority. NPPG 5 and PAN 42 provide national planning policy guidance and advice on the treatment of this resource. PAN 42 indicates that the principle that should underlie all planning decision-

making is preservation of cultural resources, in situ where possible, and by record if destruction cannot be avoided. It is recognized in that document that preservation may not always be possible, and where damage is unavoidable various mitigation measures may be proposed.

2.5 Planning Considerations

- 2.5.1 Mary Macleod of Comhairle nan Eilean Siar is the archaeological advisor to the local planning authority and has been consulted by Jacobs UK on archaeological matters pertaining to the proposed development proposals and the development of the mitigation strategy.

3

Methodology

3.1 Report Structure

- 3.1.1 In undertaking this desk-based assessment, data was sought for all sites monuments and buildings of potential Cultural Heritage interest. Each site has been assigned a "Site Number" unique to this assessment, and the gazetteer includes information regarding the type, grid reference, NMRS number, statutory protective designation, and other descriptive information, as derived from the consulted sources, for each Site. Site numbers allocated to sites and monuments and mentioned within the text will be in bold and parentheses.
- 3.1.2 Each archaeological or historical site, monument or building referred to in the text is plotted on the location maps (Figure 1) at the end of this report, using the assigned site numbers. In addition, a number of photographic plates have been included to aid site identification.

3.2 Aims and Objectives

- 3.2.1 The main objective of this study is to identify the archaeological resource of the study corridor. The evidence presented, and the conclusions reached, aim to offer a comprehensive basis for further decisions regarding the direction of the pipeline and the formulation of a mitigation strategy, should this be required.
- 3.2.2 The scope of this desk-based assessment meets the requirements of current planning regulations set out in NPPG 5 and PAN 42 and also the Institute of Field Archaeologist's (1994, revised 1999) "Standard and Guidance for Archaeological Desk Based Assessments".

3.3 Spatial Scope

- 3.3.1 The study aims to identify all known and potential sites within a limited corridor, approximately 1km wide along the water mains replacement route. However, some sites have been included that are located beyond this corridor as their presence can have an impact on the likely presence/absence of areas of archaeological activity along the route of the pipeline itself.

3.3.2 The desk-based assessment has been designed to identify and assess the archaeological sites and monuments present on, or close to, the pipeline corridor in order to assess the likely impact of the works and to propose mitigation measures.

3.4 Assessing the potential

3.4.1 The archaeological potential of the site is assessed by examining a variety of evidence for remains in, and around, the area.

3.5 Assessment of potential impacts

3.5.1 Direct impacts from the proposed development include potential damage to any unknown archaeological features that may be present along the pipeline corridor. The main possible impacts from construction works are considered to be as follows:

- direct loss of site, or damage to part of the site
- indirect damage through burial, compression, alteration of drainage, vibration or subsidence
- severance of linked features

3.5.2 Normally, for each site, structure or area, the potential negative impact would be determined as follows:

- **Slight:** sites affected by proposed development, but where the impact on the site or setting is minimal;
- **Moderate:** sites which would be affected by the proposed scheme but where loss or impact on the setting would be partial (including severance);
- **Severe:** sites where the majority of the site will be affected, but not completely lost, or where the setting is considerably altered; or
- **Very Severe;** sites where the proposed scheme would result in total loss of a site.

3.5.3 Where sites or monuments identified are directly or indirectly affected by the proposed development, a suitable mitigation has been proposed.

4

Archaeological and Historical Background

4.1 General

4.1.1 The earliest Monuments in Scotland comprise very slight traces of temporary settlements left behind by hunters and gatherers, while some of the most recent comprise the remains of recently deserted farmhouses or WWII defensive structures.

4.1.2 The four main categories of archaeological remains that may be encountered are:

- upstanding remains: built structures such as buildings, field boundaries, and features such as standing stones and stone circles;
- earthworks: soil-covered remains that can be seen as surface undulations at ground level. These can include ruined buildings or their foundations, banks, mounds, ramparts, ditches, gullies and hollows;
- buried features: soil-covered remains which have no visible trace at ground level (possibly revealed by aerial photography); and
- artefact scatters: scatters of potsherds, flint, tools, metal objects, animal bones, worked stone, mortar or human remains.

4.1.3 Palaeoenvironmental evidence may also be found in association with archaeological remains. Specialised analysis of palaeoenvironmental data can provide useful dating evidence and an indication of past land-use.

4.2 Historical Background

The prehistoric periods

4.2.1 Human occupation of Scotland began with the arrival of Mesolithic hunter-gatherer groups around 7,000 BC. Mesolithic occupation of the Western Isles is indicated by the presence of shell middens and flint scatters along coastlines and rivers. Although no direct evidence for Mesolithic activity has been discovered on Benbecula or the Western Isles generally, its probable presence has been suggested by palaeoenvironmental evidence found in peat deposits at Callanish on Lewis.

4.2.2 With the introduction of agriculture in the Neolithic period, around 3500 BC, communities became more settled and land was cleared for farming. Stone axes which may have been used for woodland clearance have been discovered at Newmarket and other sites near Stornoway. Other such axes attest links with the north of Ireland and mainland Scotland. Peat accumulation on the Western Isles has obscured most Neolithic settlement sites, so the majority of evidence for the Neolithic occupation of the island comes from ritual monuments and communal burial mounds such as the large chambered cairn of Cnoc na Croich, in the grounds of Lews Castle, Stornoway. Stone circles and standing stones began to be erected by about 2500 BC, towards the end of the Neolithic period, possibly for ritual activities associated with the lunar, stellar and solar cycles.

4.2.3 The archaeological landscape of the subsequent Bronze Age (c. 2,000 BC to 700 BC) continues to be dominated by ritual and burial monuments. The period is characterised by a change from communal to individual burial, often with grave goods, including new styles of pottery and bronze artefacts. Although a number of Bronze Age settlements have been discovered on Lewis, the general picture is somewhat limited. There is clear indication of Bronze Age activity with the discovery of the Early Bronze Age farm at Callanish, (near to the stone circle). This site revealed the remains of a preserved field systems in the form of distinctive rig and furrow and the remains of stone field walls. From this discovery it became evident that the peat blanket within the interior of the island has potentially buried a wide range of prehistoric sites and structures.

4.2.4 In contrast to earlier periods, the archaeological record of the Iron Age is dominated by settlement evidence. In Atlantic Scotland the early Iron Age is characterised by Atlantic roundhouses (brochs, duns etc). These structures vary considerably in architectural complexity; while this may be partly a chronological development, it could also derive from variations in the wealth or status of the occupants. While they may appear initially to be defensive structures, they were all probably primarily farmhouses. By around the start of the 1st millennium AD, a new type of house appears. These 'wheelhouses' are characterised by semi-subterranean construction with a circular outer wall and radial internal divisions. These were themselves superseded by cellular buildings. There was considerable overlap in the occupation of these types, and they often occupied the same sites, with no apparent break in occupation. Other Iron Age structural types found on Lewis include crannogs, for example Dun Bharabhat at Loch Baravat.

The Early Historic period

4.2.5 Occupation of many monument types continues into the Early Historic period, especially of sites in machair areas. Pictish occupation of monuments such as the broch at Loch na Berie is characterised by construction of cellular structures within the broch itself, often associated with metalworking activities. Other sites on the west coast of Lewis such as Cnip and Bostadh show similar continuity of use.

4.2.6 Lewis, like many of the isles of Scotland was subject to extensive settlement by Norse invaders/settlers from the late 8th century onwards. This occupation by the Norse is primarily evident through toponymy (place-name evidence) which maintain a distinct combination of Scandinavian and Celtic origin, as well as historical and archaeological evidence. By the end of the 11th century the Western Isles formed part of the Norse Kingdom of Man and the Isles. Norse rule continued until 1266, when the kingdom was ceded to Alexander III of Scotland after King Haakon was defeated at the Battle of Largs in 1263. Norse settlements such as Bostadh demonstrate a radical change in building style, with rectangular longhouses replacing the earlier circular or cellular building traditions. This building influence continued in practice until the 18th-19th century in the form of traditional Black houses, which have comparisons with the Viking Longhouse. Burial sites are also known, for instance at Valtos, while the hoard of chess pieces (Lewis Chess Men) found at Uig represent one of the most impressive artefactual finds of recent years.

The Medieval and Post-Medieval periods

4.2.7 The 18th and 19th centuries marked a period of conflict over land throughout the Highlands and Islands of Scotland. The large landowners found the traditional crofting economy to be unprofitable, and there was a growing tendency towards 'improvement' of agriculture. This took various forms, including the establishment of larger farms and the spread of sheep farming, but one of the main effects was to push the bulk of the rural population onto a smaller proportion of the land, often through evictions or even forced emigration (the 'Highland clearances').

4.2.8 Cartographic evidence reveals that the village of Bragar has over time, evolved and adapted to the changing demands and approaches to the surrounding land. Scholars have concluded that the settlement at Bragar has been subject to three main phases of development/reorganisation. The

first phase is the Pre-crofting settlement which was noted by Moll in 1726 as Bragar. It was composed of small irregular clusters of settlements referred to as clachans, located within the northern boundary of the arable land near Port Mòr Bhragair. These individual settlements had names, many of which the 1st edition OS (1853) denotes (although abandoned) and this indicates that there was a level of organisation within the scattered settlement. This was superseded by an early abandoned attempt at a purpose set-out system of crofts, spaced along two N-S roads, running through the southern half of the arable land. It may be at this point where the formation of South and North Bragar is initially established as Chapman in his 1821 map notes the separate settlements. The crofts which formed this crofting settlement are all marked as 'ruins' by the 1st edition OS map (1853) and have been replaced by the third and final phase, believed to have taken place around 1840-50. This saw the initial formation of the 'modern' crofting settlement, two adjacent linear clachan, running E-W across the southern boundary of the arable land.

4.2.9 The reasoning behind the formation of South and North Bragar from Bragar is unclear however Dodgshon (1993, 427) concludes that two paths could have been taken. The first is that the scattered settlements were formally grouped as Bragar for fiscal reasons and then re-organised into their separate states (South and North Bragar) as a means of regulating joint control over the arable resources. In contrast the settlements could have been grouped together as a means of organising the overall farming of the area. As the population of the area increased, more regulation was required, resulting in the formation of South and North Bragar. This differentiation between the two villages appears to have continued in use until recent years, when the two townships are collectively referred to as Bragar.

4.2.10 As is the case throughout the Western Isles, cultivation earthworks ('rig and furrow' and lazy-beds) are visible in many areas not considered suitable for arable farming today; such cultivation of poor land is a feature of subsistence farming and overpopulation. Around Bragar the distinctive and erratic system of lazy-beds survives, and can clearly be identified around the site 17, the horizontal mill, site 8 and 6, north Bragar township, site 16, a croft and the strip field system to the north of the village, part of site 12.

5 Results

5.1 Cultural Heritage of the Study Area

5.1.1 The following sites of Cultural Heritage importance were identified within the study area (more detailed descriptions of each individual site are given in Appendix D :

Table 1 - Cultural Heritage Sites

Site No	Name/Short Description	NGR
Site 1	Bragar: Horizontal Mill	NB 2841 4802
Site 2	Bragar: Enclosure	NB 2915 4823

Site 3	Ceann An Droma: Farmstead	NB 2932 4822
Site 4	Bragar: Enclosures	NB 2934 4811
Site 5	Bragar: Building	NB 2977 4827
Site 6	Bragar: Township; Field-System	NB 2992 4800
Site 7	North Bragar: Crofting Township	NB 2950 4790
Site 8	North Bragar: Township	NB 2960 4770
Site 9	Jawbone Arch: Whalebone arch	NB 2916 4772
Site 10	Bragar: Farmstead; Building; Enclosures; Walls	NB 2920 4760
Site 11	South Bragor: Corn-Drying Kiln	NB 2864 4786
Site 12	Bragar (General): Village; Townships; Crofting Townships; Head Dykes; Lazy Beds	NB 2850 4790
Site 13	South Bragor: Horizontal Mill	NB 2842 4794
Site 14	South Bragor: Horizontal Mill	NB 2841 4791
Site 15	South Bragor: Horizontal Mill	NB 2844 4784
Site 16	40 Bragar: Croft	NB 2839 4769
Site 17	South Bragor; Allt Na Muilne: Horizontal Mill	NB 2861 4764 NB 2859 4769
Site 18	Loch An Duna: Crannog (Possible)	NB 2848 4734
Site 19	Dun Loch An Duna: Broch	NB 2855 4740
Site 20	Bragar: Enclosures	NB 2882 4736
Site 21	Bragar: Head-dykes	NB 2917 4739

The Prehistoric period

5.1.2 Known evidence for prehistoric archaeology within the study area is limited however, it is unlikely that the area was completely unoccupied during the Prehistoric Period.

The Early Historic and Medieval periods

5.1.3 Although little is documented about the Early Historic, Norse or Medieval period of the area concerned, the crannog and Broch (sites **18** and **19**) at Loch an Duna means we may speculate to there having being activity in the Early Historic to medieval period as well as medieval predecessors to some of the later settlement.

The Post-Medieval period

5.1.4 Although this is a period of great unrest, witnessing agricultural reform which resulted in the Highland Clearances, this period in history had various affects on the communities across Lewis, witnessing the partial de-population of areas and even the entire removal of inhabitants to make room for large scale sheep farming.

5.1.5 In the area concerned, the evidence for the Highland Clearances is not as clear, however we can see that for other, unknown reasons the original crofting communities failed. This resulted in its partial abandonment and the subsequent shift of the focal point of the township to the south of the arable land. The 1st edition OS (1853) indicates that the two townships were prosperous, with the establishment of several corn mills and a smithy within South Bragar.

5.1.6 There are a number of significant changes in the rural landscape during the mid 19th century that can easily be seen between the 1st and 2nd editions of the Ordnance Survey map (1853 and 1898). Although subtle, it can be seen that by the 2nd edition OS (1898) both townships were re-organised and moved by up to two hundred meters to the south, forming a uniform linear settlement. North Bragar moved the most, bringing it into alignment with South Bragar. The reason for this overall relocation is unknown and may be a combination of primarily aligning the townships for the establishment of the road, linking the two townships together. The remains of a sequence of enclosures which formed part of the original houses at the north eastern end of North Bragar can be seen in the 2nd edition OS (1898), marking the original line of the township.

Potential unknown remains

5.1.7 Two archaeological sites of Medieval or earlier date are known in the study area (sites **18** and **19**), therefore there is likely to be earlier activity in the area. As outlined previously (section 5.1.3) vast areas of Lewis are covered by blankets of peat, therefore we must acknowledge the potential of further concealed remains of prehistoric or later date.

5.2 Assessment of the Cultural Heritage significance of the known Sites

5.2.1 The methodology set out above was applied to assess the significance of the known sites, with the results set out below:

Site No	Name/short description	Significance
Site 1	Bragar: Horizontal Mill	Local
Site 2	Bragar: Enclosure	Local
Site 3	Ceann An Droma: Farmstead	Local
Site 4	Bragar: Enclosures	Local
Site 5	Bragar: Building	Local
Site 6	Bragar: Township; Field-System	Local
Site 7	North Bragar: Crofting Township	Local
Site 8	North Bragar: Township	Local
Site 9	Jawbone Arch: Whalebone arch	Regional
Site 10	Bragar: Farmstead; Building; Enclosures; Walls	Local
Site 11	South Bragar: Corn-Drying Kiln	Local
Site 12	Bragar (General): Village; Townships; Crofting Townships; Head Dykes; Lazy Beds	Local
Site 13	South Bragar: Horizontal Mill	Local
Site 14	South Bragar: Horizontal Mill	Local
Site 15	South Bragar: Horizontal Mill	Local
Site 16	40 Bragar: Croft	Local
Site 17	South Bragar; Allt Na Muilne: Horizontal Mill	National
Site 18	Loch An Duna: Crannog (Possible)	Local
Site 19	Dun Loch An Duna: Broch	National
Site 20	Bragar: Enclosures	Local
Site 21	Bragar: Head-dykes	Local

- 5.2.2 Potential unknown archaeological remains could be of any value and archaeological period.
- 5.2.3 A total of 21 sites were identified along the study corridor by the desk-based assessment and walk-over survey.
- 5.2.4 The presence of numerous sites of Post Medieval date close to or within the study corridor indicates that prehistoric archaeological remains are likely to have been damaged during cultivation, creation of areas of rig and furrow and lazy-beds as well as the extensive development of the area. The potential within the study area/corridor for unknown/buried archaeological remains are therefore low due to the extensive development of the area.

Potential Impacts

- 5.2.5 A range of construction activities could have direct, adverse, permanent and irreversible impacts upon archaeological features or deposits. The pipeline construction and associated access/working wayleave will create a corridor approximately 10-15m wide within which known or unknown archaeological features will be damaged or lost. The erection of earthfast fencing may also damage features and deposits. Other above ground activities that could have an adverse impact upon the cultural heritage resource include vehicular movements, laying and removing of geotextile membranes, creation of temporary buildings, car parking areas and storage areas for materials.
- 5.2.6 Five sites or features were identified along the study corridor during the assessment process, where there may be an impact upon a site, they are listed and described below.

Conservation Areas

- 5.2.7 There are no conservation areas within the study corridor

Designed Landscapes

- 5.2.8 There are no designed landscapes within the study corridor.

Other Sites of Archaeological Importance

- 5.2.9 The majority of the sites within the study area are considered to be of local importance, comprising of farmsteads, townships, enclosures and mills, all of which are indicative of a Post Medieval settlement. The landmark Whalebone Arch (site **9**) is B listed and of Regional importance. In addition there are two Scheduled Ancient Monuments (SAM), Allt Na Muilne Horizontal Mill (site **17**) and Dun Loch An Duna Broch (site **19**). The potential for unrecorded sites can not be dismissed and caution must be applied along the length of the proposed route of the pipeline.

5.3 Mitigation and Enhancement

- 5.3.1 The preferred mitigation strategy is to preserve *in situ* and in an appropriate setting all cultural heritage resources. Site-specific mitigation measures are proposed below to avoid, reduce and offset some of the potential impacts detailed above.

- 5.3.2 For the most part, the proposed route of the water main runs along the grassy verge of the central road through Bragar. In addition it follows the route of the existing water mains, with one slight deviation within the central section. The road was first denoted on the 2nd edition Ordnance Survey map (1898) initially as a track. Until that point this land appears to be uncultivated ground.
- 5.3.3 The proposed route of the upgraded water main passes solely through the village of Bragar, following the main road. In doing so it passes through one main area of archaeological importance with extensive evidence of post-medieval development and settlement, namely sites **7**, **12**, and **11**.
- 5.3.4 Sites **7**, **11** and **12** form the post-medieval archaeological background within this village, many of the remains of which are up-standing throughout the village though mostly in a ruinous but stable condition. The most prevalent problem occurs with the numerous Blackhouse ruins which dominate the land adjacent to the road (within the property boundaries). The vertical aerial photographs indicate that the main period of movement from this traditional form of housing to 'modern' housing occurred around 1950-70. All of the modern houses are sited away from the road and in doing so the remains of the Blackhouses were left *in situ*. The proximity of these structural remains to the road mean they fall within the wayleave of the proposed route. As a result they will be subject to moderate-severe damage though passing machinery as well as the truncation of archaeological deposits within the proximity of the dwellings. Mitigation required would be archaeological monitoring as well as careful protection and consideration of where machine traffic may cause damage to the upstanding Post Medieval archaeology.

5.4 Unknown or buried archaeology

- 5.4.1 There is always the potential for buried and unknown archaeology to be present. However, if, the existing route of the water main is followed as much as possible, then less potential damage is expected. However, the final decision on any mitigation will be made by Mary Macleod the Western Isles Archaeologist.

6 Conclusion

- 6.1 The assessment has to date identified a total of twenty one sites close to and within the route of the water main pipeline route. The most common sites recognised are Post Medieval structures. To mitigate against any potential damage to any of these sites, it is suggested that archaeological monitoring is carried out throughout the length of the pipeline upgrade though Bragar. However, the final decision on the type and scale of mitigation works lies with Mary Macleod the Western Isles archaeologist.

Acknowledgements

The author wishes to thank, Mary Macleod for advice and assistance during the preparation of this report.

Appendix A – Cartographic References

1725	Moll, H.	Map of the North West part of the Western Isles
1776	Mackenzie, M.	'A Maritime Survey of Ireland and the West Coast of Great Britain' Plate XXXI
1804	Heather, W.	A new and improved chart of the Hebrides
1821	Chapman, J.	Plan of the Island of Lewis
1822	Thomson, J.	Northern Part of the Western Isles
1853	1 st Edition Ordnance Survey	Island of Lewis (Ross-shire), sheet 8, 1:10560
1898	2 nd Edition Ordnance Survey	Island of Lewis (Ross-shire), sheet 8, 1:10560
1912	Bartholomews, J.G.	Survey of Scotland

Appendix B – Vertical Aerial Photographs

Sortie	Frames	Date	Scale	Lib
540/A/430	3050-054 4050-4054	3.03.1950	1:10,000	B280
OS/67175	2336-2339	11.05.1	1:10,000	-
60688	001-002	29.04.1988	1:24,000	C231
OS/99/263	020-018 031-033	28.07.1999	1:78,000	C230

Appendix C – Bibliographic References

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| Fenton, A. | 1978 | The Island Blackhouse, and a guide to 'The Blackhouse', <i>No 42 Arnol</i> , 2 nd edition (1995), Historic Scotland. |
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Appendix D - Gazetteer

Site No. 1
Name Bragar
Type of remains: Horizontal Corn Mill
NGR: NB 2841 4802
NMRS No NB24NE 16
Local SMR No N/A
Status/Source: Local: Field survey/NMRS/cartographic

Description: Mill (Corn), depicted on the 1st edition (1853, Island of Lewis (Ross-shire) sheet 8). Marked on the 2nd edition OS (1898, Island of Lewis (Ross-shire) sheet 8). Reduced to a pile of rubble and out of use before the Great War.

Site No. 2
Name Bragar
Type of remains: Enclosure
NGR: NB 2915 4823
NMRS No NB24NE 8.18
Local SMR No N/A
Status/Source: Local: Field survey/NMRS/cartographic

Description: A small enclosure is depicted on the 1st edition OS (1853, (Island of Lewis (Ross-shire) sheet 8). What may be the same enclosure is shown on the current edition of the OS 1:10000 map (1974).

Site No. 3
Name Ceann An Droma
Type of remains: Farmstead
NGR: NB 2932 4822
NMRS No NB24NE 8.16
Local SMR No N/A
Status/Source: Local: Field survey/cartographic

Description: A farmstead, comprising two unroofed buildings is depicted on the 1st edition OS (1853, Island of Lewis (Ross-shire) sheet 8). In the 2nd edition OS (1898, Island of Lewis (Ross-shire) sheet 8) the site not shown, though the name remains. This may be part of a larger crofting township.

Site No. 4
Name Bragar
Type of remains: Enclosure
NGR: NB 2934 4811
NMRS No NB24NE 8.21
Local SMR No N/A
Status/Source: Local: Field survey/cartographic

Description: Three enclosure are depicted on the 1st edition OS (1853, Island of Lewis (Ross-shire) sheet 8). Two of these enclosures are illustrated on the 2nd

edition OS (Island of Lewis (Ross-shire) sheet 1898) and again on the current edition of the OS 1:10000 map (1974).

Site No. 5
Name Bragar
Type of remains: Building
NGR: NB 2977 4827
NMRS No NB24NE 8.19
Local SMR No N/A
Status/Source: Local: NMRS/cartographic

Description: What may be a single unroofed building is depicted on the 1st edition OS (1853 Island of Lewis (Ross-shire) sheet 8). Does not appear on the 2nd edition OS (189, Island of Lewis (Ross-shire) sheet 8).

Site No. 6
Name Bragar
Type of remains: Township; Field Systems
NGR: NB 2992 4800
NMRS No NB24NE 8.09
Local SMR No N/A
Status/Source: Local: Field survey/NMRS/cartographic

Description: A township, comprising seven unroofed buildings, twelve enclosures and a field-system is depicted on the 1st edition of the OS map (1853, Island of Lewis (Ross-shire) sheet 8). It is partly overlain by NB24NE 8.11. One unroofed building and three enclosures are shown on the current edition of the OS 1:10000 map (1974).

Site No. 7
Name North Bragar
Type of remains: Crofting Township
NGR: NB 295 479
NMRS No NB24NE 8.11
Local SMR No N/A
Status/Source: Local: Field survey/NMRS/cartographic

Description: A linear crofting township, comprising thirty-five roofed, three unroofed buildings and twenty-six enclosures is depicted on the 1st edition of the OS map (1853, Island of Lewis (Ross-shire) sheet 8). It has been replaced by the present crofting township shown on the current edition of the OS 1:10000 map (1974) which is situated a little distance to the S of that depicted on the OS 1st edition map.

Site No. 8
Name North Bragar
Type of remains: Township
NGR: NB 2960 4770
NMRS No NB24NE 8.12
Local SMR No N/A
Status/Source: Local: Field survey/NMRS/cartographic

Description: A township, comprising five unroofed buildings and five enclosures is depicted on the 1st edition of the OS map (1853, Island of Lewis (Ross-shire) sheet 8), but it is not shown on the current edition of the OS 1:10000 map (1974).

Site No. 9
Name Jawbone Arch
Type of remains: Monuments/ Whalebone Arch: Category: B Listed
NGR: NB 2916 4772
NMRS No NB24NE 50/ HBN 5767
Local SMR No N/A
Status/Source: Regional/Field survey/NMRS/cartographic

Description: Large whalebone arch (Blue Whale, lower jaw bone) erected as gateway to a private house; symbolic of an industry in which local men were involved, though this specimen was from a beached whale with a harpoon embedded in its back. Mounted by metal brackets on pair substantial rubble-built piers and braced at the top with a harpoon slung underneath (Plate 3). Site visited during walkover survey, the jaw bones underwent extensive restoration in 2000, and as a result they have been encased in fibreglass to protect them from the elements.

Site No. 10
Name Bragar
Type of remains: Farmstead; Building; Enclosures; Walls
NGR: NB 2920 4760
NMRS No NB24NE 8.13
Local SMR No N/A
Status/Source: Local/NMRS/cartographic

Description: A farmstead, comprising two unroofed buildings and four enclosures, and one unroofed building attached to a field wall, and an enclosure is depicted on the 1st edition OS (1853, Island of Lewis (Ross-shire) sheet 8). A field-system and some enclosures are shown on the current edition of the OS 1:10000 map (1974).

Site No. 11
Name South Bragar
Type of remains: Corn-Drying Kiln
NGR: NB 2864 4786
NMRS No NB24NE 10
Local SMR No N/A
Status/Source: Local/Field survey//NMRS/cartographic

Description: N/A

Site No. 12
Name Bragar (General)
Type of remains: Village; Townships; Crofting Townships; Head-Dykes; Lazy Beds
NGR: NB 2850 4790
NMRS No NB24NE 8.00
Local SMR No N/A
Status/Source: Local/Field survey/NMRS/cartographic

Description: (Plate 1, 2 and 5) North and South Bragar are shown on Gibbs map of 1817 (surveyed by G Chapman 1807-9) as a series of small scattered settlements within the township boundaries. By the 1st edition of the OS map (1853, Island of Lewis (Ross-shire) sheet 8) a more complex plan is shown. Dodgshon (1994) interprets this complex plan into three phases.

The first phase comprising the small scattered settlement shown on Gibbs map and also shown on the OS 1st edition OS. The second phase is an early but unsuccessful attempt at a crofting system laid around two N/S roads with some attempt to lay out a field-system. The third phase was the establishment of a further crofting township, laid out in a linear fashion near or at the edge of the arable area. R A Dodgshon 1994.

Re-examination of the 1st edition of the OS 6-inch map (1853, Island of Lewis (Ross-shire) sheet 8) broadly confirms Dodgshon (1994) interpretation. The 1st phase is a number of scattered settlements within the present arable land some of which are shown on Gibbs map (1817). Each of these settlements or townships have been abandoned, probably when the first crofting system was introduced (NB24NE 8.01, 8.02, 8.03, 8.04)

The first crofting phase comprises two groups, laid out along two N-S roads with the croft boundaries running E-W. In addition an extensive system of head-dykes (NB24NE 52), which may be partly associated with these townships, lies to the S. This pattern starting with scattered settlement, followed by a failed crofting system and then a linear crofting township is not restricted to North and South Bragar and may be seen in a number of nearby townships eg. Arnol, South Shawbost and Barvas.

Site No.	13
Name	South Bragar
Type of remains:	Horizontal Mill
NGR:	NB 2842 4794
NMRS No	NB24NE 15
Local SMR No	N/A
Status/Source:	Local/Field survey/NMRS/cartographic

Description: Appears on the 1st an 2nd edition OS (1853 and 1898, Island of Lewis (Ross-shire) sheet 8). Scottish Industrial Archaeological Survey: Roofless remains of horizontal watermill, with walls mostly intact (also with surviving millstone and meal box). Visited, 09/07/1984.

Site No.	14
Name	South Bragar
Type of remains:	Horizontal Mill
NGR:	NB 2841 4791
NMRS No	NB24NE 14
Local SMR No	N/A
Status/Source:	Local/Field survey/NMRS/cartographic

Description: Appears on the 1st an 2nd edition OS (1853 and 1898, Island of Lewis (Ross-shire) sheet 8). Scottish Industrial Archaeological Survey: Roofless remains

of horizontal watermill, with walls mostly intact (with surviving millstone). Visited, 09/07/1984

Site No. 15
Name South Bragor
Type of remains: Horizontal Mill
NGR: NB 2844 4784
NMRS No NB24NE 13
Local SMR No N/A
Status/Source: Local/Field survey/cartographic

Description: Corn Mill. Noted on the 1st edition OS (1853, Island of Lewis (Ross-shire) sheet 8). No trace - cartographic evidence only. Out of use before the Great War.

Site No. 16
Name 40 Bragar
Type of remains: Croft
NGR: NB 2839 4769
NMRS No NB24NE 9
Local SMR No N/A
Status/Source: Local/NMRS /cartographic

Description: N/A

Site No. 17
Name South Bragar; Allt Na Muilne
Type of remains: Industrial/ Horizontal Mill
NGR: NB 2861 4764
NMRS No NB24NE 11 & 12 SAM 5412
Local SMR No N/A
Status/Source: Local/Field survey/NMRS/cartographic

Description: Scheduled with NB24NE 12 as Allt na Muilne, horizontal water-mills, Bragar. Information from Historic Scotland, scheduling document dated 9 October 1992.

Scheduled with NB24NE 11 as Allt na Muilne, horizontal water-mills, Bragar. Information from Historic Scotland, scheduling document dated 9 October 1992

Both sites are marked on the 1st and 2nd edition OS (1853 and 1898) as small rectangular roofed structures. They are clearly identifiable on the vertical aerial photographs, though gradually loose definition from 1950 onwards.

Site No. 18
Name Loch An Duna
Type of remains: Crannog (Possible)
NGR: NB 2848 4734
NMRS No NB24NE 56
Local SMR No N/A
Status/Source: Local/Field survey/NMRS/cartographic

Description: The remains of a possible crannog lie submerged in Loch an Duna about 60m to the SW of the islet on which the broch sits (NB24NE 2). A few stones with a modern cairn built on top are visible above the surface, but there are also the remains of a possible causeway leading from the broch islet towards the possible crannog.

Location is identifiable on the vertical aerial photographs.

Site No. 19
Name Bragor: Dun Loch An Duna
Type of remains: Broch
NGR: NB 2855 4740
NMRS No B24NE 2/ SAM 1671
Local SMR No N/A
Status/Source: Local/Field survey/NMRS/cartographic

Description: Marked on the 1st edition OS (1854, Island of Lewis (Ross-shire) sheet 8) as a circular structure, sitting on a man-made promontory (Plate 4). The broch (Dun Loch an Duna), measures about 16.5m in diameter over walls about 3.5m thick, standing to about 3.0m maximum height, generally as described and planned. The tumbled remains of a wall can be seen across the neck of the promontory on which the broch stands, but it is uncertain whether this is contemporary.

A fragment of vitrified material was recovered from the outer wall of the broch in its northern arc. The area of burning is not extensive. A small piece of the vitrified mass has been deposited at the Callanish Archaeological Research Centre'. I B M Ralston and P G Topping 1986.

On the W shore of the islet are the remains of a possible causeway leading SW towards the possible crannog lying submerged about 60m away (NB24NE 56). A similar relationship of submerged and visible remains in the same loch is recorded at Loch an Duin, Shader (NB35SE 4 and 6). Information from RCAHMS (SMDG) 7 February 2005

The aerial photographs (540/A/430 3.03.1950) clearly show the circular outline of the broch but by the time of the 1967 AP's, the definition has somewhat been lost, indicating further collapse of the upstanding walls.

Site No. 20
Name Bragar
Type of remains: Enclosures
NGR: NB 2882 4736
NMRS No NB24NE 8.20
Local SMR No N/A
Status/Source: Local/NMRS/cartographic

Description: Two enclosures, one of which is attached to a short length of head-dyke (see NB24NE 8.23) are depicted on the 1st edition of the OS (1853, Island of Lewis (Ross-shire) sheet 8), but they are not shown on the current edition of the OS 1:10000 map (1974).

Information from RCAHMS (AKK) 18 February 1997

Site No. 21
Name Bragar
Type of remains: Head-Dykes
NGR: NB 2917 4739
NMRS No NB24NE 8.23
Local SMR No N/A
Status/Source: Local/NMRS/cartographic

Description: Three head-dykes systems are depicted on the 1st edition OS (1853, Island of Lewis (Ross-shire) sheet 8). The main head-dyke system (NB 2830 4957 to 3000 4789) extends from the northern edge of the township around the buildings to the SE side close to the River Arnol. The second or middle head-dyke (NB 2865 4732 to 3036 4751) exists as four fragments extending from Loch an Duna to Loch Grinavat and then finishing near the River Arnol. The third head-dyke is similar to the second head-dyke as it runs from the SE end of Loch an Duna to the River Arnol and is in three separate lengths. Only part of the first or main head-dyke system is shown on the current edition of the OS 1:10000 map (1974). Information from RCAHMS (AKK) 18 February 1997

Appendix E – Photographic Plates



Plate 1: Part of site 12, remains of Blackhouse at No. 46: from S



Plate 2: Part of site 12, remains of Blackhouse now boundary wall at No. 59: from S



Plate 3: Site 9, Upstanding Whalebone arch: from E



Plate 4: Site 19, Remains of Loch an Duna Broch: from N



Plate 5: General photograph of the village of Bragar: from W

Figure 1

