

## **14 Cultural Heritage**

This chapter assesses the direct and indirect impacts of the proposed scheme on known and potential sites of cultural heritage importance in the study area.

The study area is defined by contrasting historic landscapes north and south of the Firth of Forth. To the north, a major transport corridor and older ferry passage routes dominate with the medieval burgh of North Queensferry providing a contrast to the major road and rail works of the modern age. To the south, there are numerous archaeological and built heritage sites dating from the prehistoric to the modern period. There are areas of archaeological potential and sensitivity at Inchgarvie where stone lined cists and Roman artefacts were revealed during the 19<sup>th</sup> century. Linear cropmarks, possibly prehistoric in origin have been identified in the Echline, Dundas and Humber areas while the Historic Gardens and Designed Landscapes of Hopetoun, Dundas, Newliston and Dalmeny estates are all within or close to the study area. There are also numerous sites and Listed Buildings associated with the defence of Britain and naval tradition from the 19<sup>th</sup> century to more recent times located both north and south of the Firth of Forth.

An archaeological desk based assessment and walkover survey identified 356 sites of cultural heritage importance, ranging in date from the Mesolithic period to the recent past. Potential direct impacts on 17 sites were noted and indirect impacts upon a further 23 sites were noted.

Proposed mitigation includes a programme of archaeological evaluation incorporating trial trenching, geophysics and further evaluation excavation. For potential direct impacts on built heritage, a programme of building recording and vibration monitoring has been proposed. Mitigation for impacts on setting has been detailed in Chapter 13 (Visual).

With mitigation, two residual direct impacts on cultural heritage sites would be of Moderate significance, and in terms of residual impacts on setting three would be of Substantial significance and two of Moderate significance. All other residual impacts would be of Slight or Neutral significance.

### **14.1 Introduction**

14.1.1 This chapter presents the results of the Stage 3 assessment of the impacts of the proposed scheme on cultural heritage and describes the mitigation that has been proposed to avoid or reduce impacts upon the cultural heritage resource. The chapter is supported by the following, which are cross-referenced in the text where relevant:

- Appendix A14.1: Summary of Marine Geophysics Assessment; and
- gazetteer of cultural heritage sites (available on CD from Transport Scotland).

14.1.2 The assessment was undertaken in accordance with the guidance provided in the Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3, Part 2 Cultural Heritage (HA208/07) (Highways Agency et al., 2007). The chapter considers the effects of the proposed scheme upon Cultural Heritage under the sub-headings of 'archaeological remains' (including historic buildings) and 'the historic landscape'.

14.1.3 The key objectives of the assessment are to:

- identify known and potential features of cultural heritage interest and assess their importance;
- characterise the wider historic landscape;
- identify and assess the magnitude and significance of the impact of the proposed scheme on each site;
- assess the potential for impacts on unforeseen and unknown features of cultural heritage importance, especially archaeological remains;
- propose measures for avoiding or reducing potential impacts; and
- identify the likely residual impacts taking proposed mitigation into account.

## **14.2 Approach and Methods**

### **Study Area**

14.2.1 The study area extended to at least 500m in all directions from the furthest extent of the proposed scheme. The three study areas are described in detail below:

- the northern study area extends from the north bank of the Firth of Forth at St. Margaret's Hope and includes sites that may be directly or indirectly affected by the proposed scheme as far as the existing A90 Admiralty roundabout.
- the Main Crossing study area encompasses those sites that may be directly or indirectly affected by the potential construction, operation and maintenance of the Main Crossing and extends from St. Margaret's Hope on the north side incorporating the burgh of North Queensferry and extends as far south as the proposed Queensferry Junction. North Queensferry has been included because of its Historic Burgh and its location close to the existing Forth Rail and Road Bridges. Sites selected by Historic Scotland for assessment of the impacts upon their setting are assessed in the Main Crossing section.
- the southern study area extends southwards from the proposed Queensferry Junction and includes those sites in the Echline and Dundas Estate areas and the area around the M9 Junction 1A.

14.2.2 Additional information was gathered from a wider surrounding area to place this baseline information in its regional context, and to allow the identification of individual sites at a greater distance from the proposed scheme that may be vulnerable to impacts on setting. Any sites that are partly within the study area have been incorporated in the site database. This includes those sites identified by Historic Scotland for inclusion in the assessment of impacts on setting, located up to 6km from the proposed Main Crossing. These sites are assessed and described in the Main Crossing section. The additional locations as indicated on Figure 14.3 are:

- Aberdour Castle (1285);
- Blackness Castle (1286);
- House of the Binns tower (1287);
- Dundas Castle keep tower (849);
- Inchcolm Abbey (1288);
- Hopetoun House viewing platform (1290);
- Dunfermline Abbey (1289); and
- Hound Point, Dalmeny (1291).

### **Determination of Baseline Conditions**

14.2.3 Baseline conditions were initially identified through a DMRB Stage 2 assessment (Jacobs Arup, 2009). For this Stage 3 assessment, baseline information contained in the earlier Stage 2 survey was updated by means of the following:

- a review of existing archaeological information including any revisions of designations, scheduling or recently published reports;
- a second walkover survey of a study area at least 500m in all directions from the edge of each of the connecting road alignment options, undertaken in December 2008 and January 2009. This walkover survey was designed to identify and confirm known sites and to detect any other previously unidentified sites;
- review of any additional relevant information and;
- preparation of a cultural heritage baseline report and gazetteer (available on request).

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#### Consultation

- 14.2.4 Details of the consultation process are provided in Chapter 6 (Consultation and Scoping) with a summary of key issues raised through consultation provided in Appendix A6.3 (Summary of Key Issues). Consultations of particular relevance to this assessment included Historic Scotland, City of Edinburgh Council, Fife Council and West Lothian Council (West of Scotland Archaeology Service).
- 14.2.5 City of Edinburgh Council advised of numerous World War II remains in the vicinity of Cramond and Inchgarvie, and Historic Scotland requested the additional assessment described in paragraph 14.2.2 (Figure 14.3).

#### **Legislative and Policy Context**

- 14.2.6 In addition to DMRB guidance, other policy documents and published guidelines taken into account in the preparation of this chapter included:
- Policy Advice Note (PAN) 42: Archaeology – The Planning Process and Scheduled Monuments Procedures (Scottish Office, 1994);
  - Scottish Historic Environment Policy (Historic Scotland, 2008a);
  - Scottish Planning Policy (SPP) 23: Planning and the Historic Environment (Scottish Government, 2008);
  - Standard and Guidance on Archaeological Desk-Based Assessments (The Institute of Field Archaeologists, 1994);
  - Scoping of Development Proposals: Assessment of Impact on the setting of the Historic Environment Resource - Some General Considerations (Historic Scotland, 2008b);
  - Dunfermline and the Coast Adopted Local Plan 2002 – 2006;
  - Edinburgh and the Lothians Structure Plan (ELSP) 2015;
  - Fife Structure Plan 2001-2011; and
  - West Lothian Local Plan 2005.
- 14.2.7 For trunk road schemes, Historic Scotland is responsible for providing policy advice and commenting on the implications of a trunk road scheme for the historic environment.
- 14.2.8 The heritage policies of City of Edinburgh Council, Fife Council and West Lothian Council are set out in the Local Plans and Structure Plans for these local authorities. Further details are contained in Chapter 20, (Policies and Plans). Generally, these promote the preservation, enhancement and conservation of archaeological sites, historic buildings and historic garden and designed landscapes and their settings. In general, there is a presumption against developments which would adversely affect such sites and their settings and a presumption of preserving important archaeological remains in situ where feasible.
- 14.2.9 The regulatory framework of relevance to the protection of cultural heritage sites taken into account during this assessment is summarised below in paragraphs 14.2.10 to 14.12.14.

#### Scheduled Ancient Monuments

- 14.2.10 Some archaeological sites are afforded statutory protection as Scheduled Ancient Monuments (SAMs) protected under the Ancient Monuments and Archaeological Areas Act 1979, and are by definition of national importance. Prior written consent of the Scottish Ministers, known as Scheduled Monument Consent (SMC), is required to undertake any works which would have the effect of demolishing, destroying, damaging, removing, repairing, altering, adding to, flooding or covering up a SAM.

#### Listed Buildings

- 14.2.11 Buildings of special architectural or historic interest are listed by the Scottish Ministers and divided into non-statutory categories A, B or C<sub>(S)</sub>. The purpose of listing is to ensure that any demolition, alteration, repair or extension that would affect the buildings special interest is controlled. When determining planning applications, Sections 14(2), and 59(1) of the Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997 place a duty on Councils to have special regard to the desirability of preserving a Listed Building, or its setting, or any features of special architectural or historical interest which it possesses. Listed Building consent must be obtained where proposals will alter the character of the Listed Building. The criteria by which the Scottish Ministers define the necessary quality and character are broadly: age and rarity, architectural interest and close historical association.
- 14.2.12 Scottish Planning Policy (SPP) 23 'Planning and the Historic Environment' provides information to developers and local authorities in their consideration of development proposals affecting amongst others Listed Buildings and their setting, Conservation Areas and other historic buildings. Paragraph 13 of SPP 23 states that *'Listed Buildings are buildings of special architectural or historic interest and are listed by Historic Scotland on behalf of the Scottish Ministers. The term "building" includes structures such as walls and bridges. Listing covers the whole of a building including its interiors and any ancillary structures within its curtilage providing that they were constructed before 1 July 1948. Change should be managed to protect a buildings special interest while enabling it to remain in active use'*. SPP23 also confirms that planning authorities are responsible for handling applications for Listed Building Consent and for assessing the impact of development proposals on Listed Buildings and their settings, in accordance with the processes described in the current Scottish Historic Environment Policy (SHEP).

#### Conservation Areas

- 14.2.13 The Town and Country Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997 imposes a duty on local planning authorities to designate and protect the historic character and appearance of some areas through their designation as Conservation Areas. These are areas of special architectural or historic interest, the character or appearance of which it is desirable to preserve or enhance. The main implication of this designation is that consent will be required for specific types of development that would not otherwise require it, such as 'conservation area consent' for applications to demolish unlisted buildings in conservation areas.

#### Historic Gardens and Designed Landscapes

- 14.2.14 Historic Scotland compiles and maintains a national inventory of Historic Gardens and Designed Landscapes. Under Article 15 of the Town and Country Planning (General Development Procedure) (Scotland) Order 1992 (as amended April 2007), planning authorities must consult with Historic Scotland on any proposed development that may affect a site contained in the Inventory. The Scottish Minister's policies for gardens and designed landscapes are set out in Scottish Historic Environment Policy (SHEP) (Historic Scotland, 2008a).

### **Evaluating the Archaeological Resource**

#### Receptor Sensitivity to Change

- 14.2.15 An assessment of the sensitivity (value) of each cultural heritage receptor within the study area has been made on a six point scale of 'very high', 'high', 'medium', 'low', 'negligible' and unknown, according to the criteria given in Table 14.1 below. This is based on DMRB Volume 11, Section 3, Part 2 Cultural Heritage (HA208/07) (Highways Agency et al., 2007). Existing statutory and non statutory designations will be taken into account in the assessment of value.
- 14.2.16 Although Listed Buildings are statutorily designated sites and are technically all of national importance and therefore of high value, they are divided into three categories (A, B and C(s)),

which in itself recognises that the buildings do vary significantly in importance and quality. Around 42% of Listed Buildings are Category C(s), the lowest designation, and it is acknowledged that there is significant variation of importance and value within this category. For the purposes of this assessment, therefore, all Category A Listed Buildings have been assumed to be of high value, Category B Listed Buildings are graded as either high or medium value and Category C(s) Listed Buildings are of low value, based on a site-by-site assessment that uses criteria set out in the Memorandum of Guidance for Listed Buildings and Scottish Planning Policy (SPP23: Planning and the Historic Environment; Scottish Government, 2008). Buildings of no historical, architectural note or of intrusive character were considered to be of negligible value.

**Table 14.1: Criteria to Assess Sensitivity and Value of Cultural Heritage Receptors**

<b>Value/ Sensitivity</b>	<b>Criteria</b>
Very High	<p><u>Archaeological Remains:</u>  World Heritage Sites (including nominated sites).  Assets of acknowledged international importance.  Assets that can contribute significantly to acknowledged international research objectives.</p> <p><u>Historic Buildings:</u>  Structures inscribed as of universal importance as World Heritage Sites.  Other buildings of recognised international importance.</p> <p><u>Historic Landscape:</u>  World Heritage Sites inscribed for their historic landscape qualities.  Historic landscapes of international value, whether designated or not.  Extremely well preserved historic landscape with exceptional coherence, time-depth or other critical factor(s).</p>
High	<p><u>Archaeological Remains:</u>  Scheduled Monuments (including proposed sites).  Undesignated assets of schedulable quality and importance.  Assets that can contribute significantly to acknowledged national research objectives.</p> <p><u>Historic Buildings:</u>  Scheduled Monuments with standing remains.  Category A Listed Buildings.  Other Listed Buildings of that can be shown to have exceptional qualities in their fabric or historical associations not adequately reflected in the listing grade.  Conservation Areas containing very important buildings.  Undesignated structures of clear national importance.</p> <p><u>Historic Landscape:</u>  Inventory Designed Landscapes and Historic Gardens.  Designated historic landscapes of outstanding interest.  Undesignated landscapes of outstanding interest.  Undesignated landscapes of high quality and importance, and of demonstrable national value.  Well preserved historic landscapes, exhibiting considerable coherence, time-depth or other critical factor(s).  Some undesignated sites assessed as of high sensitivity using methodology in paragraph 14.2.8.</p>
Medium	<p><u>Archaeological Remains:</u>  Designated or undesignated assets that contribute to regional research objectives.</p> <p><u>Historic Buildings:</u>  Category B Listed Buildings.  Historic (unlisted) buildings shown to have exceptional qualities in their fabric or historical associations.  Conservation areas containing buildings that contributes significantly to its historic character.  Historic Townscape or built-up areas with important historic integrity in their buildings, or built setting (e.g. including street furniture and other structures).</p> <p><u>Historic Landscape:</u>  Designated special historic landscapes.  Undesignated historic landscapes that would justify special historic landscape designation, landscapes of regional value.  Averagely well-preserved historic landscapes with reasonable coherence, time-depth or other critical factor(s).  Undesignated sites assessed as of medium sensitivity using methodology in paragraph 14.2.16.</p>

Value/ Sensitivity	Criteria
Low	<p><u>Archaeological Remains:</u>  Designated and undesignated assets of local importance.  Assets compromised by poor preservation and/or survival of contextual associations.  Assets of limited value, but with potential to contribute to local research objectives.</p> <p><u>Historic Buildings:</u>  Category C (s) Listed Buildings.  Historic (unlisted buildings of modest quality in their fabric or historical association.  Historic Townscape or built-up areas of limited historic integrity in their buildings, or built settings (e.g. including street furniture and other structures).</p> <p><u>Historic Landscape:</u>  Robust undesignated historic landscapes.  Historic landscapes with importance to local interest groups.  Historic landscapes whose value is limited by poor preservation and/or poor survival of contextual associations.  Undesignated sites assessed as of low sensitivity using methodology as described in paragraph 14.2.8.</p>
Negligible	<p><u>Archaeological Remains:</u>  Assets with very little or no surviving archaeological interest.</p> <p><u>Historic Buildings:</u>  Buildings of no historical or architectural note; buildings of an intrusive character.</p> <p><u>Historic Landscape:</u>  Landscapes with little or no significant historical interest.</p>
Unknown	<p><u>Archaeological Remains:</u>  The importance of the resource has not been ascertained.</p> <p><u>Historic Buildings:</u>  Buildings with some hidden (i.e. inaccessible) potential for historic significance.</p>

Receptor Sensitivity to Change of Setting

- 14.2.17 Setting is a material consideration in government planning policy for the historic environment, as defined in SPP23 (Scottish Government, 2008), and is recognised often to form an intrinsic part of a site’s special interest. Impacts upon setting therefore have the potential to affect the understanding and appreciation of a cultural heritage site.
- 14.2.18 There is currently no statutory guidance for the assessment of setting impacts, however, Historic Scotland has recently released an appendix/guidance note (Historic Scotland, 2008b). Although the document is designed to provide guidance for assessment of impact with particular reference to windfarms, there is general guidance given to what constitutes the setting of an archaeological site or a listed building:

*‘In determining what constitutes the setting of any particular site Historic Scotland does not consider that there are any fixed criteria which can be universally applied. Much will depend upon the circumstances of the individual case. Including such variables as the nature, extent, design, location of the development proposed, the nature, extent and significance of the asset in question, its current relationship with its surroundings and the degree to which that would be altered by the development proposed.*

*Different attributes will be important both singly and in combination for different sites and situations. In general it is the relationship of the historic environment asset with its current surroundings, not with any hypothetical sense of “original” (i.e. historic) setting which is of concern, though clearly any elements of original, historic setting will be very important. In the case of archaeological sites in particular, such potentially rare survivors might, in certain circumstances, constitute part of the site rather than its setting’.*

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- 14.2.19 For each site, the elements which contribute to its setting were identified against the following aspects:
- physical relationship with or characteristics of the site;
  - demonstrable former physical relationship; or
  - perceptual non-physical relationship (e.g. public perceptions of the site, historical associations etc).
- 14.2.20 The importance of each element was assessed on a three-point scale of 'low', 'medium' and 'high' to define its level of contribution to the setting of the site as a whole. Assessment of impact on setting of designated sites considered to be indirectly affected and those sites selected by Historic Scotland was undertaken with input from a landscape architect. Details of the Landscape and Visual character of the study area are provided in Chapter 12 (Landscape), and Chapter 13 (Visual).

### Impact Magnitude

- 14.2.21 The magnitude of impact is the degree of change that would be experienced by the asset and its setting if the proposed scheme were completed, compared with the baseline (existing) situation. Table 14.2 below presents the criteria taken into account in assessing the magnitude of direct impact and/or impact on setting on archaeological remains, historic buildings, and historic landscapes respectively. The percentages and figures provided in Table 14.2 are guided by professional judgement and are necessarily approximate as per DMRB.

**Table 14.2: Criteria to Assess Magnitude of Impact for Archaeological Remains, Historic Buildings and Historic Landscapes**

Magnitude	Criteria
Major	<p><u>Archaeological Remains:</u> Where there would be complete or nearly complete demolition or loss (of more than approximately 80%) of a site to the development. Change to all or most key archaeological materials, such that the resource is totally altered. Comprehensive changes to setting.</p> <p><u>Historic Buildings:</u> Change to key historic building elements, such that the resource is totally altered. Comprehensive changes to the setting.</p> <p><u>Historic Landscape:</u> Change to most or all key historic landscape elements, parcels or components; extreme visual effects; gross change of noise or change to sound quality; fundamental change to use or access; resulting in total change to historic landscape unit.</p>
Moderate	<p><u>Archaeological Remains:</u> Where there would be partial loss (between approximately 50% and 80%) of a site to the development. Changes to many key archaeological materials, such that the resource is clearly modified. Considerable changes to setting that affect the character of the asset.</p> <p><u>Historic Buildings:</u> Change to many key historic building elements, such that the resource is significantly modified. Changes to the setting of an historic building, such that it is significantly modified.</p> <p><u>Historic Landscape:</u> Change to many key historic landscape elements, parcels or components, visual change to many key aspects of the historic landscape, noticeable differences in noise or sound quality, considerable change to use or access; resulting in moderate changes to historic landscape character.</p>
Minor	<p><u>Archaeological Remains:</u> Where there would be loss of part (between approximately 15% and 50%) of a site Changes to key archaeological materials, such that the asset is slightly altered. Slight changes to setting.</p> <p><u>Historic Buildings:</u> Change to key historic building elements, such that the asset is slightly different.</p>

Magnitude	Criteria
	Change to the setting of an historic building, such that it is noticeably changed. <u>Historic Landscape:</u> Change to few key historic landscape elements, parcels or components, slight visual change to few key aspects of historic landscape, limited changes to noise levels or sound quality, slight changes to use or access; resulting in limited changes to historic landscape character.
Negligible	<u>Archaeological Remains:</u> Where would be a minimal loss of part of a site (up to 15%). Very minor changes to archaeological materials, or setting. <u>Historic Buildings:</u> Slight changes to historic building elements or setting that hardly affect it. <u>Historic Landscape:</u> Very minor changes to key historic landscape elements, parcels or components, virtually Neutral visual effects, very slight changes in noise levels or sound quality, very slight change to use or access; resulting in a very small change to historic landscape character.
No Change	<u>Archaeological Remains:</u> No change. <u>Historic Buildings:</u> No change to fabric or setting. <u>Historic Landscape:</u> No change to elements, parcels or components; no visual or audible changes; no changes arising from amenity or community factors.

Impact Significance

- 14.2.22 Impact significance was determined by reference to the sensitivity of the receptor (cultural heritage site) and the magnitude of potential impact. As described in detail below, this assessment was undertaken separately for direct impacts (e.g. damage or severance), and indirect impacts (i.e. changes to setting due to visual intrusion or impacts from vibration and noise).
- 14.2.23 DMRB, Volume 11, Section 3 (as modified by HA208/07) (Highways Agency et al., 2007), states that impacts are assessed in relation to the change to the ‘historic legibility’ of the cultural heritage resource, defined as:
- ‘...the way in which a historic monument or landscape can be ‘read’ through an understanding of the development of its features, character, setting and context through time’.*
- 14.2.24 Physical damage to a site will affect its historic legibility through removal of features or character. Even without a physical effect, impacts on historic legibility in terms of “*character, setting and context*” may still arise.
- 14.2.25 Significance of impact was determined as a combination of the site sensitivity (value/importance) and impact magnitude in accordance with the matrix shown in Table 14.3. Five levels of significance were defined which apply equally to beneficial and adverse impacts. To provide consistency with other environmental assessments presented within this ES, some of the significance terms used in Table 5.4 of HA 208/07 have been substituted in this cultural heritage assessment with the following terms, which are the same as those used in Chapter 12 (Landscape) and Chapter 13 (Visual):
- Neutral (Neutral);
  - Slight (Moderate);
  - Moderate (Moderate);
  - Substantial (‘Large’ in HA 208/07); and
  - Severe (‘Very Large’ in HA 208/07).



**Table 14.3: Significance of Impacts Matrix**

Magnitude Sensitivity	No Overall Change	Negligible	Minor	Moderate	Major
<b>Very High</b>	Neutral	Slight	Moderate or Substantial	Substantial or Severe	Severe
<b>High</b>	Neutral	Slight	Moderate or Slight	Moderate or Substantial	Substantial or Severe
<b>Medium</b>	Neutral	Neutral or Slight	Slight	Moderate	Moderate or Substantial
<b>Low</b>	Neutral	Neutral or Slight	Neutral or Slight	Slight	Slight or Moderate
<b>Negligible</b>	Neutral	Neutral	Neutral or Slight	Neutral or Slight	Slight

14.2.26 Professional judgement was used to assign one of the above categories, based on the range of significances identified in Table 14.3. This included consideration of additional qualitative factors such as group value or local interest.

Mitigation

14.2.27 It should be noted that while archaeological and building recording works can reduce impacts by production and retention of an archive and wide dissemination of results (preservation by record), they cannot mitigate the impact completely, due to the disturbance and removal by the proposed archaeological mitigation works. In the case of sites of low or negligible value/sensitivity, the reduction to the potential impact is normally sufficient to reduce the residual impact to Neutral.

14.2.28 For higher value/sensitivity sites, reduction of the impact magnitude through archaeological and building recording works may still result in a residual impact significance greater than Neutral. This reflects the loss of potential information which may be only possible to gain from future improvements in recording techniques and greater scientific understanding of archaeological remains.

**Limitations to Assessment**

14.2.29 With regard to the assessment of cultural heritage impacts in accordance with DMRB, no limitations to this assessment were identified.

**14.3 Baseline Conditions**

14.3.1 The section outlines the cultural heritage of the study area in chronological order and describes the sites that were identified by the assessment. A more detailed archaeological and historical background and details of the individual sites within the study area, are provided in a gazetteer (available on request, in CD-ROM format).

**Cultural Heritage of the Study Area**

General Landscape Context

14.3.2 While the Royal Burghs of North and South Queensferry and Inverkeithing have had a significant role in shaping the character of the study area, especially with regard to settlement based on trade and the passage of goods and people north and south across the Firth of Forth, the present landscape is largely a product of estate improvements of the 17th, 18th and 19th centuries. More recent influences have included a steadily increasing industrial and military presence on either side of the Firth of Forth with extractive industries such as coal, quarrying and shale oil mining followed by the construction of large Naval complexes at Rosyth and Port Edgar Barracks. In addition,

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extensive coastal and naval defence works were constructed during both World War I (WWI) and World War II (WWII).

#### Prehistoric Period

- 14.3.3 Prehistoric human activity within the wider area includes the earliest dated human settlement ever found in Scotland. Evidence for a Mesolithic camp, in the form of stone tools, tool waste and hazelnut shells, has been recovered from Cramond just east of the Forth Rail Bridge. Activity in this camp has been dated to about 8500 BC. Two stone axes (Sites 234 on Figure 14.2a and 818 on Figure 14.2i) were recovered from within the study area and are likely to be Neolithic in date and it is possible that the stone axe heads found in a field beside the farmhouse of Ferry Barns (Site 346, on Figure 14.2c) also date to this period. The large stone cairn at Cromwell's Mount, Craigdhu (Site 344; now destroyed) may have been constructed in the Neolithic period.
- 14.3.4 Evidence for Bronze Age activity within the wider area comprises two short cists excavated in advance of the construction of the Forth Road Bridge (Site 743, on Figure 14.2g) and Site (87) (located just outside the study area at Masterton). Finds recovered from the former included a bronze dagger and a jet necklace. The finds recovered from the cists inserted into the stone cairn at Cromwell's Mount, Craigdhu (Site 344, now destroyed) indicate a Bronze Age date for these.
- 14.3.5 Evidence for later prehistoric activity is scant and comprises a Late Bronze Age socketed bronze axe that was found near Kirkliston. However within the wider area, Middlebank Souterrain (Site 82) located to the north of the study area (a Scheduled Ancient Monument), which is likely to date to the Iron Age, and Middlebank ring ditch (Site 90) have both been recognised from aerial photographs. Souterrains are curving, underground passageways which are usually lined with stone. Such sites are known across all of Scotland but particularly, north of the Firth of Forth, with a large concentration on Tayside. The function of such sites is not known but it has been suggested that they were associated with either storage of valuable commodities or alternatively had an important ritual function. Most souterrains were deliberately filled in and ritually closed towards the end of the Roman occupation of Lowland Scotland.
- 14.3.6 The area to the east of Inchgarvie House (Site 543, on Figure 14.2e) has been the focus of considerable activity during the prehistoric, Roman and later periods. To the southwest an extant cairn (Site 573, on Figure 14.2e) is preserved within a modern housing development and now forms part of a grassed area. This site may date to the Neolithic or Bronze Age. A second cairn 'Sentry Knowe' was situated c.18m to the northeast of Inchgarvie House and a cist burial was discovered to the east of the cairn which is now destroyed. The First Statistical Account (Stat Acct 1791-99, 238) notes that, during the middle of the 18<sup>th</sup> century, ruins (Site 534, on Figure 14.2e) in the form of a large carved window, a square pillar and hewn stones were discovered (and removed to Dunkirk), and although assumed to have been Roman in date, it may be that these remains originally came from the Carmelite monastery at South Queensferry. In addition, several silver medals of Marcus Antoninus date (138-161AD) showing a victory on the reverse, a single patera handle and a sherd of samian pottery were discovered in the area. Further discoveries (Site 543, on Figure 14.2e) occurred during ground improvement and levelling works, comprising a series of trenches edged with stone flags containing human remains, with detached graves between them. These graves may date to the later Iron Age and are known as long cists. This form of burial, with extended inhumation within a stone lined coffin or long cist, is commonly of early Christian date from the 5<sup>th</sup> to the 10<sup>th</sup> centuries AD and known from the wider geographical area, for example the Catstane cemetery at Edinburgh Airport (NMRS no. NT17SW.2). Such sites frequently contain up to 200 or more burials. Other sites in this area known to date to the prehistoric period include a flint scatter (Site 244, on Figure 14.2a).
- 14.3.7 To the west of the study area, the presence of the Antonine Wall, the fort at Carriden and to the east, the fort at Cramond, attest to a substantial Roman presence in the area during the 2<sup>nd</sup> century AD. Urns recovered from Middlebank in the 19<sup>th</sup> century (Site 94) were attributed to the Roman period although this date and origin is not definite. There are few known Roman sites within the study area, however, there is good potential for previously unknown remains to exist. As noted

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above, Roman material, including a patera handle and a possible building were noted in the 19<sup>th</sup> century close to Inchgarvie House (Site 534, on Figure 14.2e). Recent excavation has demonstrated that the possible Roman enclosure at Inchgarvie visible on aerial photographs (Site 706, on Figure 14.2e) was a misinterpretation of geological features (O'Connell, 2005), while evaluation excavation (Lawson, J, 2000) also revealed no trace of the postulated Cramond to Antonine Wall Roman Road at South Queensferry (Site 745, on Figure 14.2g).

#### Early Medieval

- 14.3.8 Although there is little in the way of known Early Medieval sites within the area, the presence of sites in the wider area (particularly towards the upper reaches of the Firth of Forth) indicates that there is good potential for the presence of previously unknown sites. To the north of the study area, a pre-12<sup>th</sup> century AD sculptured stone was previously located close to the old mansion house of Duloch and the west lodge of Fordell. This stone was broken up for road metal in the 19<sup>th</sup> century.

#### Medieval

- 14.3.9 The Royal Burghs of North and South Queensferry and Inverkeithing have their origins in the Medieval period. The presence of great houses such as at Abercorn, Dundas and Niddry Castle are likely to have had associations with the Carmelite friary at South Queensferry. While the present keep of Dundas Castle dates to the 15<sup>th</sup> century, the castle may have its origins in the 12<sup>th</sup> century. It is also known that there was a medieval hospital at North Queensferry (Site 425, on Figure 14.2c) although the precise location of this site is unknown. Greig's Hill to the west of Kirkliston, now the site of a modern housing development, is traditionally the site of an encampment of Edward I (Site 1002, on Figure 14.2m) while a now destroyed area of rig and furrow at Dalmeny Junction (Site 1234, on Figure 14.2i) may have dated to the medieval period.

#### Post Medieval and Modern (Industrial) Period

- 14.3.10 The cultural heritage of the study area is characterised by sites dating to the Post Medieval and modern periods, with 260 sites dating to this period identified within the study area.
- 14.3.11 The present landscape of the wider area around the study area was shaped by the formation of country estates, all with substantial designed landscapes and organised parkland including Dundas Castle Designed Landscape (Site 1111, on Figures 14.2e-h), Newliston Designed Landscape (Site 1112, on Figures 14.2l-n) and Hopetoun House (Site 403, 1103 et al, on Figures 14.2e) all of which are recorded on the Inventory of Gardens and Designed Landscapes. All of these estates retain several Category A, B and C (s) Listed Buildings within their grounds. Hopetoun and Dundas Estates also retain SAMs within their grounds with the Old Dundas Castle, sundial and dovecot comprising a single Scheduled Ancient Monument within Dundas Estate. Within the boundaries of Hopetoun Estate there are a total of three SAMs. Two of these (Abercorn Fort which is Iron Age in date and the remains of Abercorn Castle) are located on the western periphery of the estate and comprise sites unrelated to the estate. Staneyhill tower is an estate folly, located to the south of Hopetoun House comprising of a square tower, underlain by two vaulted cellars. The influence of these large estates extended beyond their present boundaries with the creation of planned villages such as Dalmeny and the sponsorship of industrial and extractive industries also having a large influence on the wider landscape. The extractive industry was not purely functional but also important aesthetically in enhancing estate vistas.
- 14.3.12 Extractive industries may be characterised by two forms, surface extraction and subsurface mining. Surface extraction in the northern study area is predominately of limestone and sandstone/freestone whereas in the southern study area whinstone (quartz dolerite) is more commonly quarried with several cases of limestone and sandstone also occurring (Kirkdale, 1994). The first Statistical Account for the parish of Abercorn notes that the freestone columns in front of Hopetoun House were quarried in the parish, and that in former times Abercorn was the principal

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source for limestone, indeed the fortifications of Dunkirk were constructed from it (Stat Acct 1791-99, Sites 389-90).

- 14.3.13 Subsurface mining consists of the extraction of coal and oil shale, with the former predominant to the north of the study area and the latter in the wider southern area. The extraction of coal from Halbeath to the north of the study area, originally a Dutch owned enterprise, led to further industrial ventures with foreign trade leading to the construction of a timber wagon road, five miles in length to Inverkeithing and the subsequent development of salt pans (Stat Acct 1791-99, Site 507). Other industries to benefit from the coal extraction would likewise have been the distillery, brewery and iron foundry (Stat Acct 1791-99, Site 503). A further form of subsurface mining, lead extraction, flourished briefly in the middle of the 18<sup>th</sup> century at Castlandhill before abandonment (Stat Acct 1791-99, 515).
- 14.3.14 As noted above the predominant extractive industry in the southern study area was of oil shale, however small scale coal prospection occurred on the Earl of Hopetoun's land of Auldcaithy in the 18<sup>th</sup> century and note was made of its presence on the Dundas estate of Newhalls (Stat Acct 1791-99, 236). A small coal mine was worked at Priestinch in Abercorn parish during the 19<sup>th</sup> century (Stat Acct 1834-45, 20). During the later part of the 19<sup>th</sup> century oil shale extraction on a large scale was conducted around Duddingston with four pits operated by the Oakbank Oil Company Ltd, the last of these closing in 1956. At Totlewells, Young's Paraffin Light and Mineral Oils Company Ltd operated a mine to the immediate south of the Duddingston works ceasing operation in 1960. These sites were linked to the main railway line at Winchburgh via a mineral tramway. Further extraction took place at Dalmeny with two pits operated by the Dalmeny Oil Shale Company. When these closed the company extended its lease to feed the Rosshill pit situated to the north of Dalmeny village. It is not noted when these operations ceased (ERM, 1996).
- 14.3.15 The area around the Forth Rail Bridge, particularly on the eastern side, became an increasingly important location for the Royal Navy during the period following the construction of the Rosyth Naval Dockyard in 1906. As a result, the requirement for air and sea defences within the area, particularly during WWII, led to the construction of numerous and varied defence installations. There are a number of air defence batteries, pill boxes and barrage balloon mooring sites as well as the Category B listed former admiralty headquarters, arch, gatelodge and piers at St. Margaret's Hope (Sites 300 and 303, Figure 14.2c). Notable amongst the military built heritage sites for its excellent preservation and quality is the Category B Listed former Royal Naval hospital, prison, hospital, air raid shelter and boiler room and barrack complex at Port Edgar (Site 484, on Figure 14.2e). Port Edgar Barracks were a training base for motor torpedo boats prior to WWI. During WWII it was renamed HMS Lochinvar and was later the training base for minesweeping and fishery patrol work until 1975 when the base was decommissioned.
- 14.3.16 The Firth of Forth became the focus for increasing industrial activity from the 18<sup>th</sup> century onwards with the advent of coal mining and associated salt panning, thus beginning a long history of industrial activity along the shores of the Firth of Forth, particularly around Inverkeithing upon construction of the railway bridge. This process is well illustrated by map progression. The 1856 Ordnance Survey 1<sup>st</sup> edition 6" to 1 mile (Fife and Kinross), sheet 39, shows two quarries, Ferrytoll (NGR: NT 124 816) and Welldean (NGR: NT 124 813) in operation (Sites 1295 & 1297, on Figure 14.2b) extracting whinstone and freestone respectively, Welldean quarry was serviced by a natural bay for transportation with a breakwater (NGR: NT 124 813) (Site 1275, on Figure 14.2b) adding further protection for shipping. It is also assumed that this harbour was used to transport the whinstone extracted from Ferrytoll quarry. To the immediate southeast of the Ferrytoll quarry a smithy (NGR: NT 124 815) (Site 1296, on Figure 14.2b) is depicted, and this may have supplied both Ferrytoll and Welldean quarries with tools. To the northwest two smaller whinstone quarries are depicted at Whinnyhill and North Ferry (NGR: NT 123 817 and 123 820, on Figure 14.2b) (Sites 1299 & 1298, on Figure 14.2b), and a well at Limpet Ness (NGR: NT 121 818) (Site 1300, on Figure 14.2b).
- 14.3.17 By the time of the 1896 Ordnance Survey 2<sup>nd</sup> edition 6" to 1 mile (Fife and Kinross), sheet 39 map, quarrying operations have ceased at Welldean quarry (Site 1295, on Figure 14.2b) and the harbour mouth is depicted as closed, presumably as a result of land reclamation. Activity has also stopped

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at Whinny Hill (Site 1299, on Figure 14.2b). Ferrytoll quarry has expanded, resulting in the loss of the Smithy (Site 1296, on Figure 14.2b), and it is now serviced by a wharf (NGR: NT 12390 81550) (Site 289, on Figure 14.2d). A new quarry has been opened at St. Margaret's Hope (NGR: 124 809) (Site 1293, on Figure 14.2c). The 2<sup>nd</sup> edition Ordnance Survey 6" to 1 mile (Fife and Kinross) sheet 39 map also heralds the railway age with the depiction of the Forth Bridge Railway and the Inverkeithing and North Queensferry Branch line. The construction of the Forth Bridge Railway has resulted in the reduction of a section of Muckle Hill presumably to obtain material for the Jamestown viaduct embankment with the resultant levelled area creating a level space for Inverkeithing cemetery (NGR: NT 12498 82278) (Site 256, on Figure 14.2b). The well at Limpet Ness (Site 1300, on Figure 14.2b) is no longer depicted and North Lodge (NGR: NT 122 822) (Site 1294, on Figure 14.2b) has been built.

- 14.3.18 By the 1921 edition Ordnance Survey 6" to 1 mile (Fife and Kinross), sheet 39 map, the Rosyth Branch line has opened. Ferrytoll quarry (Site 1297, on Figure 14.2b) has undergone further expansion and is serviced by a pier (NGR: 123 816) (Site 1279, on Figure 14.2b) and a tramway (NGR: NT 124 816) (Site 1280, on Figure 14.2b). Reclamation has continued and resulted in the formation of a large pool or settlement pond (NGR: 1239 8129) (site 1091, on Figure 14.2b). A new quarry, an extension to Welldean quarry, is depicted (NGR: NT 1250 8120) (Site 1282, on Figure 14.2b), and Welldean lodge has been built (NGR: NT 1240 8110) (Site 1292, on Figure 14.2c).
- 14.3.19 By the 1938 edition Ordnance Survey 6" to 1 mile (Fife and Kinross), sheet 39 map the Ferrytoll quarry tramline (Site 1280) is no longer in use and Welldean Lodge (Site 1292) has been demolished. A pier (NGR: NT 123 814) (Site 1283, on Figure 14.2b) is depicted serviced by rail lines that connect with the North Queensferry Branch line and an engine shed (Site 1301, on Figure 14.2b). Further activity in this area in the form of a collection of buildings is captured by a 1946 aerial photograph supplied by the Fife Council Archaeological Unit and it may be that this activity is military in nature. Indeed it is a possibility that the Ferry Hill tunnel on the North Queensferry branch line was used as a wartime munitions store, with warships ammunitioning at the pier (Site 1283). The Welldean quarry extension (Site 1282) is no longer in use.
- 14.3.20 Finally by the time of the 1961 edition Ordnance Survey 6" to 1 mile (Fife and Kinross), sheet 39 map quarrying activity at Ferrytoll (Site 1297, on Figure 14.2b) has ceased, the North Queensferry Branch line has been dismantled and land reclamation to its current extent is underway. Elsewhere the presence of the large country estates precluded larger scale industrial activity in these areas which have since been preserved as designed landscapes.
- 14.3.21 A number of wrecks have also been identified in the Firth of Forth (on Figure 12.1f). The majority of these are 19<sup>th</sup> century cargo ships which sank after striking Beamer Rock. Many vessels then travelled some distance before sinking therefore there may be previously unknown wrecks in the general area.

#### Identified Sites of Cultural heritage Interest

- 14.3.22 A total of 348 sites of cultural heritage interest were identified and assessed within the study area. With the addition of the eight sites in the wider area listed in para 14.2.2 as requested by Historic Scotland, the total increases to 356 sites. Tables 14.4 and 14.5 provide a break-down of the identified sites by their designation and sensitivity and value with those assessed sites outwith the 500m corridor shown in bold and in parentheses in Table 14.4. The locations of all sites within the study area are shown on Figures 14.2a to 14.2n. Those sites on the Figures that are unnumbered are included for broad background context only.

**Table 14.4: Summary of Identified Sites**

Designation	Site Number	Total Sites
Scheduled Ancient Monument (SAM)	<b>(849, 1285, 1286, 1288 &amp; 1289)</b>	5
Inventory of Historic Gardens and Designed Landscapes	1103, 1111 & 1112	3
Category A Listed Building	427, 762, <b>(452, 849)</b>	4
Category B Listed Building	225, 252, 253, 267, 279, 300, 303, 321, 323, 335, 345, 355, 358, 484, 721, 723, 770, 771, 783, 784, 792, 808, 814, 817, 819, 996, 1005, 1007, 1009, 1016, 1018 & 1020 <b>(1287 &amp; 1290)</b>	34
Category C (S) Listed Building	208, 251, 257, 334, 336, 439, 482, 532, 680, 759, 763, 764, 766, 768, 773, 775, 780, 785, 791, 793, 795, 796, 798, 801, 815, 822, 828, 909, 919, 990, 1020	31
Conservation Area	1250 & 1114	2
Areas of archaeological importance	200 & 388	2
No Designation	All remaining sites <b>(1291)</b>	275
<b>Total</b>		<b>356</b>

Note: Those sites outwith the 500m buffer requested by Historic Scotland are shown in bold and parentheses

**Table 14.5: Breakdown of all identified sites by value and sensitivity**

Period	Total Sites
High	12
Medium	39
Low	91
Negligible	121
Unknown	93
<b>Total</b>	<b>356</b>

**Table 14.6: Breakdown of all identified sites by archaeological/historical period**

Period	Total Sites
Prehistoric (unknown date)	5
Neolithic (4000 – 2401 BC)	4
Bronze Age (2400 – 551 BC )	4
Roman (79 – 409 AD)	7
Early Medieval ( 561 – 1057 AD)	2
Medieval (1058 – 1559 AD)	20
Post Medieval ( 1560 – 1900 AD)	204
Modern ( 1901>)	56
Unknown	51
Multi-Period	3
<b>Total</b>	<b>356</b>

## Historic Landscape

### Known sites

- 14.3.23 Based on the Historic Landscape Characterisation data provided by the Royal Commission for Ancient and Historic Monuments (RCAHMS), a total of 67 separate character areas were identified, grouped into the 18 historic landscape types. Table 14.7 below provides a summary of the historic

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landscape character types identified within the study area along with an assessment of their sensitivity. The locations of the historic landscape areas are shown on Figure 14.4a-c.

- 14.3.24 The study area is characterised by 18<sup>th</sup>-19<sup>th</sup> century amalgamated and rectilinear fields, urban and industrial areas with three 17<sup>th</sup>-19<sup>th</sup> century designed landscapes and country estates and an area of 17<sup>th</sup>-19<sup>th</sup> century Policies and Parkland Landscape Character Type. The study area is also bisected by the A90 over most of its length.

**Table 14.7: Summary of Historic Landscape Character Types within the Study Area**

Historic Landscape Character Type	Number of Character Areas	Sensitivity
17th-19th Century Country Estate	1	High
17th-19th Century Designed Landscape	2	High
17th-19th Century Policies and Parkland	1	Medium
18th Century-Present Cemetery	1	Medium
18th-19th Century Planned Village: Agricultural	1	Medium
18th-19th Century Rectilinear Fields	9	Negligible
18th-20th Century Managed Woodland	5	Negligible
19th Century Rail Bridge	14	High
19th Century-Present Amalgamated Fields	9	Negligible
19th Century-Present Maritime Installation	2	Medium
19th Century-Present Quarry	2	Medium
19th Century-Present Railway	5	Low
19th Century-Present Urban Area	7	Low
20th Century Road Bridge	1	High
20th Century Coniferous Plantation	2	Negligible
20th Century Holdings	3	Negligible
Late 20 <sup>th</sup> Century-Present restored agricultural land	1	Negligible
Medieval Village Core	1	High

## 14.4 Potential Impacts

### Introduction

- 14.4.1 This section lists all sites that may experience impacts due to the proposed scheme and provides an assessment of the significance of potential impacts on each known site, in line with the methodology described above. The potential direct and indirect impacts are detailed within the context of each study area i.e. northern, Main Crossing and southern study area.
- 14.4.2 It should be noted that this section reports potential impacts in the absence of mitigation, with residual impacts identified in Section 14.6 taking account of proposed mitigation.

### Historic Landscape

- 14.4.3 As most of the northern route is online with the existing road network, potential impacts on historic landscape types are of Negligible significance (predominantly '19<sup>th</sup> century to present amalgamated and rectilinear fields').
- 14.4.4 To the south of the Firth of Forth, historic landscape types '17-19<sup>th</sup> century Country Estate' and '17-19<sup>th</sup> century designed landscapes are concurrent with Inventory Dundas Estate, Hopetoun Estate, Newliston Estate Designed Landscapes and St. Margaret's Hope parklands and policies, all of High Value.

**Archaeological Remains (including Historic Buildings)**

Northern Study Area

*Direct Impacts*

- 14.4.5 A potential direct impact on one site has been identified, as detailed in Table 14.8 below. The site of a 19<sup>th</sup> century wharf is located under the embanked section of the proposed realignment of the B981 on the eastern side of the reclaimed St. Margaret's Marsh, and is upstanding to a height of 1.5m above present ground surface.
- 14.4.6 While located within the footprint of the proposed scheme, sites 1080, 260, 262, 299 and 1094 (locations indicated on Figures 14.2a-c) have been previously destroyed by road and rail construction. No impact on these sites has been identified and they are therefore not included in the summary table or considered further in the assessment.

**Table 14.8: Summary of Potential Physical Impacts – Northern Study Area**

Site	Site Name	Designation	Sensitivity	Potential Impact (unmitigated)	
				Magnitude	Significance
289	St. Margaret's Hope Rosyth, Wharf	None	low	minor	Slight

*Impacts on Setting*

- 14.4.7 Impacts upon the setting of eight Listed Buildings were assessed, comprising five Category B and three Category C (s). Only one impact was noted as detailed in Table 14.9 below. Most of the proposed scheme is on the line of the existing A90 or sited within a cutting which reduces the visibility and prominence of the proposed scheme.

**Table 14.9: Summary of Potential Impacts on Setting – Northern Study Area**

Site	Site Name	Designation	Sensitivity	Potential Impact (unmitigated)	
				Magnitude	Significance
267	Inverkeithing, Jamestown Viaduct	Category B Listed Building	medium	negligible	Neutral

Main Crossing

*Direct Impacts*

- 14.4.8 Potential direct impacts on a total of 11 sites of cultural heritage interest were identified. While there are several shipwrecks listed in the vicinity of Beamer Rock, this has been counted as one site.
- 14.4.9 The potential impact on part of St. Margaret's Hope Relict Country Estate (Site 1102, on Figure 14.2c) where the siting of the north abutment is proposed has been assessed as being of Moderate significance. In addition, there is the potential for a direct impact upon St. Margaret's Hope Category B Listed Building from construction of the Main Crossing. Vibration from rock cutting, machine movements in addition to dust and noise may impact directly upon St. Margaret's Hope (the former Admiralty House). In addition, (during construction and thereafter during operation), the existing road to St. Margaret's Hope via a new opening to the north of the boundary walls and Category B Listed gatelodge and piers may be used for access by Main Crossing construction and maintenance traffic. As a result, the permanent dismantling of the Category B Listed arch over the access road to St Margaret's Hope may be required. The arch has two stone panels that originate from an Edinburgh house now demolished, incorporated within it. If dismantled, the magnitude of



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potential impact on the arch has been assessed as moderate and therefore of Moderate significance.

- 14.4.10 Beamer Rock (426, on Figure 14.2d), which is proposed as a base for the Central Tower of the Main Crossing, has the base of a beacon potentially constructed in 1826 sited on it. Although not listed by Historic Scotland, the beacon is of considerable local historic interest. The significance of potential impact on the beacon is considered to be Moderate.
- 14.4.11 One of the viaduct piers is proposed to be sited close to the northern edge of the Category B Listed Port Edgar Barracks complex (Site 484, on Figure 14.2e) curtilage. In addition, the construction of a temporary (during construction) haul road across the barracks complex is proposed and this, allied to the viaduct construction, would have an impact of negligible magnitude on the barrack complex. This potential impact has been assessed as being of Negligible significance. There may also be a direct effect from noise, dust and vibration during construction at this site and mitigation has been proposed to alleviate this impact.
- 14.4.12 The Category C(s) Listed Inchgarvie House (Site 532, on Figure 14.2e) is sited close to the site of the proposed construction of the Main Crossing deck and as a result there may be a direct effect from noise, vibration and dust during the proposed five year construction period. Mitigation has been proposed to reduce this impact and is detailed in Section 14.5. The potential impact has been assessed as being of low magnitude and Slight significance.
- 14.4.13 A number of sites recorded in the area of Inchgarvie House (Site 532) including a possible barrow (Site 526), graves (Site 543) and Roman finds (Site 534, all on Figure 14.2e) suggest activity in this area dating to the Prehistoric Roman and Later Iron Age periods. This area is therefore considered to have a high potential for the presence of unknown archaeological remains on which the proposed scheme could have an impact. The condition of the aforementioned sites will remain unknown until archaeological evaluation and potential excavation and recording had taken place. These sites are 534 (Roman artefacts find spot) 543, Inchgarvie House (possible graves), plus 811 and 1118 (linear cropmarks).
- 14.4.14 Based on the locations provided by National Monuments Record for Scotland (NMRS), the UK Hydrographic Office and a study of the marine geophysics by underwater archaeological experts (Appendix A14.1) a single shipwreck (site number not allocated as there are several wrecks listed for the immediate vicinity) has been identified on the eastern side of Beamer Rock, approximately 70m from the existing beacon. On the basis of present information, no impact is predicted for this identified wreck. However, the potential for direct physical impacts on unidentified shipwrecks particularly in the vicinity of Beamer Rock and other areas of marine works remains.

**Table 14.10: Summary of Potential Physical Impacts – Main Crossing Study Area**

Site	Site Name	Designation	Sensitivity	Potential Impact (unmitigated)	
				Magnitude	Significance
426	Beamer Rock Beacon	None	Medium	Major	Moderate
1102	St. Margaret's Hope Relict Country estate	None	Medium	Minor	Slight
484	Port Edgar Barracks complex	Category B Listed Building (complex)	Medium	Minor	Slight
532	Inchgarvie House	Category C(s) Listed Building	Low	Minor	Slight
300	St. Margaret's Hope Arch	Category B Listed Building	Medium	Moderate	Moderate
300	St. Margaret's Hope (former Admiralty House)	Category B Listed Building	Medium	Minor	Slight
534	Inchgarvie House, Roman finds	None	Low	Minor	Slight
543	Inchgarvie House, Springfield	None	Low	Major	Moderate

Site	Site Name	Designation	Sensitivity	Potential Impact (unmitigated)	
				Magnitude	Significance
	House, graves				
811	Inchgarvie House, Linear cropmarks	None	Low	Minor	Slight
1118	South Queensferry Linear Cropmark	None	Medium	Moderate	Moderate
410-417, 419-20, 424	Beamer Rock - shipwrecks	None	Medium	Moderate	Moderate

*Impact on Setting*

- 14.4.15 Potential adverse impacts upon the setting of a total of 15 sites were identified with a beneficial impact on one further site making a total of 16 sites. No potential for change to the setting of a further three sites (Sites 1287-1289) was identified and these are therefore not included in Table 14.11.
- 14.4.16 The complexes of regionally important Category B Listed Buildings at St. Margaret’s Hope (Sites 300 and 303, on Figure 14.2c) and at Port Edgar Barracks (Site 484, on Figure 14.2e) will be spanned or partially spanned by the proposed Main Crossing, introducing a new prominent element into the setting of these sites. The significance of impact on the setting of these sites has been assessed as Substantial. The Main Crossing would also have an impact on the setting of Inchgarvie House (Site 532; a Category C(s) Listed Building) and its associated gate lodge (Site 530, on Figure 14.2e). The significance of impact on the setting of this site has been assessed as Moderate.
- 14.4.17 The location of the houses, principal facades, driveway and gate lodges would suggest that Hopetoun House (grouped under Site 1290-Viewing platform as requested by Historic Scotland) and the associated Designed Landscape (Site 1103) were constructed to take advantage of views eastwards along the Firth of Forth and that these views, which now include the Forth Rail Bridge (Site 435) and Forth Road Bridge (Site 427), now form an important element in the setting of Hopetoun Estate which the proposed Main Crossing would alter. However, the dominant aspect of the view is the Forth Rail Bridge with the Forth Road Bridge less visible due to its slight and elegant construction. The significance of this impact on setting has been assessed as Slight.
- 14.4.18 The nationally important complex of Category A-C(s) Listed Buildings and Scheduled Ancient Monument at Blackness Castle (Site 1286, on Figure 14.3) consists of a 15<sup>th</sup> century castle situated on a coastal promontory on the Firth of Forth to the east of Bo’ness, including the castle walls and towers. The site also includes Blackness House, the Governor’s House and a loading pier, which were later additions to the castle during the 19<sup>th</sup> century. The position of the castle on the coast provides the site with panoramic views across the Firth of Forth. The proposed Main Crossing would be visible to the east, although it would be 6km distant and would be seen against the backdrop of the Forth Rail and Forth Road Bridges. As the Forth Rail Bridge is a much more substantial structure than the slim design of the Main Crossing, the only elements that would be visible would be the towers, which would not be considered to cause a significant change to the setting of the castle. The impact of the Main Crossing on the setting of Blackness Castle has therefore been assessed as being of Slight significance.
- 14.4.19 The regionally important Category B Listed House of the Binns tower is a standalone structure constructed to the east of the House of the Binns. The position of the tower at the top of Binns Hill provides the structure with panoramic views across the Firth of Forth and the surrounding countryside. While the views are generally attractive, they are disturbed by intrusive modern elements, including the busy roads of the M9 and the A904 and the Rosyth Europarc industrial facility to the east. The Forth Road Bridge and Forth Rail Bridge are visible in the distance to the

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east, but would generally be considered to be positive features in the landscape. The Main Crossing would be visible to the east, although it would be quite distant and would be seen against the backdrop of the existing bridges. The main deck of the Main Crossing would visually blend in with the more substantial structure of the Forth Rail Bridge behind it, and while the towers would be visible, they would not cause any significant change to views and therefore the setting of the tower. Due to the distance of the proposed Main Crossing from the site, it is considered unlikely that the setting of the tower will be affected. The significance of impact upon the House of the Binns tower has therefore been assessed as Neutral. This site is not included in Table 14.11 as no potential for change to the setting of the site was identified.

- 14.4.20 The Category B Listed Dundas Mains, Rose Acre, Brown Acre and Lilac Cottage (Sites, 819-20, on Figure 14.2f) are part of the Category A Listed Dundas Castle complex and comprise a row of terraced houses situated at the western edge of Dundas Estate. The houses are relatively sheltered from the adverse visual impacts of the urban development in South Queensferry due to the rolling landform and established woodland on the estate whilst during the winter, the properties have views through the trees in their gardens across farmland towards Rosyth Europarc and Dunfermline. The houses are largely surrounded by mature woodland, which helps to shelter them from any significant views of the proposed scheme, and are of a small scale that is only discernible from close proximity. The proposed Main Crossing would not appear in any views towards the houses. The impact has therefore been assessed as of Neutral significance.
- 14.4.21 The Category A Listed and SAM Dundas Castle complex and associated buildings are situated within the designed landscape (Site 1111, on Figures 14.2e-h) to the south of South Queensferry. The castle has been constructed on the rising ground of Dundas Hill, which would have originally provided the castle with commanding views over the Firth of Forth and the surrounding area. The mature woodland across the estate ensure that the proposed scheme will have little effect on the setting of the Castle and its designed landscape with the primary views towards the Castle and designed landscape from the south and east across the grounds which in recent years have been developed as a golf course. The viewing tower at the top of the castle keep (a central tower) has views to the Firth of Forth as it is high enough to see over the trees, although not a publicly accessible position (i.e. limited to visitors to the castle who request a visit to the keep rather than the general public). The wooded hillside of the Dundas Estate represents a significant feature in the landscape for views across the Firth of Forth, but the mature woodland that surrounds the Dundas Estate significantly limits views of the castle, with the top of the tower just visible above the tree tops from the A904.
- 14.4.22 The dense, mature woodland adjacent to the northern side of the castle would be likely to effectively screen the Castle and grounds from any intervisibility with the proposed Main Crossing and associated road network. Furthermore, the density of the woodland around the edge of the estate effectively screens the castle to such a degree that it is no longer visible from a distance. As a result of this there are no significant views towards the castle that would be affected by the proposed Main Crossing. The impact significance has therefore been assessed as being Slight.
- 14.4.23 The historic South Queensferry Conservation Area, although outside the study area is considered here and consists of a group of over 70 Listed Buildings of varying classification throughout the older centre of the settlement particularly along the historic high street. The position of the settlement on the coast and rising hillside affords many of the buildings attractive views across the Firth of Forth, although the views for the buildings on the high street appear to be coincidental rather than designed, as the main orientation appears to be towards the street itself rather than the coast. The views that are available are dominated by the Forth Rail and Forth Road Bridges, which are positioned to either side of the conservation area, and provide an iconic view that attracts tourists from all over the world. The introduction of the Main Crossing would not result in any significant change to the setting of the historic buildings. The Main Crossing would be visible behind the Forth Road Bridge, so would not alter any existing views, only introducing the slender towers to the background very occasionally if one was walking along the street. The primary views towards South Queensferry come from the north shore of the Firth of Forth, particularly from North Queensferry and Dalgety Bay. The Main Crossing could not alter these views as it would be positioned to the west of the existing bridges. The Main Crossing would be visible in views along

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the Firth of Forth from the west, but it would be seen against the backdrop of the existing Forth Rail Bridge and Forth Road Bridge, so would not represent a significant change. The impact upon the setting has therefore been assessed as being of Slight significance.

- 14.4.24 The small settlement of North Queensferry (Site 388, on Figure 14.2c) includes nearly 50 Listed Buildings of varying classification, with the greatest concentration located around the old waterfront and piers constructed for the ferries that give the settlement its name. The position of the buildings on the hillside and promontory give many of the buildings attractive views over the Firth of Forth, although the views are dominated by the structures of both the Forth Rail and Forth Road Bridges. The arrangement of the buildings around the waterfront suggest that the views were not essential for the working settlement, although it is assumed that they would have been more important for the larger dwellings situated on the hillside. The Main Crossing would be visible to the west of the existing Forth Road Bridge, with the northern tower and piers situated in close proximity to the settlement. While the structures would be close, the setting of the conservation area has become so enmeshed with the views of the existing Forth Rail and Forth Road Bridges that the Main Crossing would not represent a significant change to the views.
- 14.4.25 The main views of North Queensferry come from South Queensferry and from the coastal routes on the southern shore. The proposed Main Crossing would not significantly alter the setting of the settlement which are already dominated by the existing Forth Rail and Forth Road Bridges. Views from along the Firth of Forth to the west would be possible underneath the Main Crossing with no significant impact, with the Main Crossing visible against the backdrop of the existing Forth Rail and Forth Road Bridges. The impact has therefore been assessed as being of Slight significance.
- 14.4.26 The remains of the Scheduled Ancient Monuments of Inchcolm Abbey and extensive coastal defence works dating from both World Wars are situated on the island of Inchcolm (Site 1288, on Figure 14.3) east of Dalgety Bay in the Firth of Forth. While the position of the island in the Firth of Forth affords the site attractive views to both shores, the rising landform on the western side of the island helps to limit views to the west from the abbey buildings. The Forth Rail and Forth Road Bridges can be seen from the higher ground and from the coastal areas of the island, with the more substantial structure of the Forth Rail Bridge the more significant feature in views. The position of the Main Crossing in relation to the island would mean that the majority of the structure would be hidden from view behind the North Queensferry promontory and the existing Forth Rail Bridge, with the towers likely to be visible behind the Forth Rail Bridge. The introduction of the towers to the views would not cause any change to the setting or character of the site. The position of the island means that for views from the west, it is only partially visible from the Forth Road Bridge. The position of the Main Crossing means that it would not affect any views towards the island and abbey from the west. For views from the east, the towers of the Main Crossing would be visible in the background of the views, but would not significantly alter views. The significance of impact has therefore been assessed as being of Neutral significance. This site is not included in Table 14.11 as no potential for change to the setting of the site was identified.
- 14.4.27 The remains of the Scheduled Ancient Monument and Category A Listed Dunfermline Abbey (Site 1289, on Figure 14.3) and associated structures are situated close to the town centre of Dunfermline, to the north of Pittencreiff Park. The position of the abbey on the higher ground near the western edge of town affords the site commanding views to the south towards the Firth of Forth, although views are partially disrupted by urban development around the town. The existing Forth Rail and Forth Road Bridges are visible to the southeast, although due to the distance they represent very small elements in the landscape. From areas of the abbey site, the Main Crossing would be visible in the distance. The slender design of the Main Crossing and the distance of the structure from the site would mean that the new crossing would not affect the setting of the abbey. Due to the distance of the structure from the abbey, the Main Crossing would not appear in any views towards the abbey. The impact significance has therefore been assessed as being Neutral. This site is not included in Table 14.11 as no potential for change to the setting of the site was identified.
- 14.4.28 The Category A Listed Forth Road Bridge (Site 402, on Figure 14.2c) is situated alongside the Forth Rail Bridge and is an iconic and world famous structure. The present juxtaposition of the

Forth Road and Rail Bridges has created an iconic and dramatic view, particularly when viewed from South Queensferry. The emergence of these two structures from the hillside on the North side of the Forth adds to the dramatic siting and location of these two bridges. While the more gentle viaduct approach to the rolling landscape on the southern shore adds a different dimension, character and setting to the bridges where they make landfall. It is considered that the construction of the Main Crossing would not adversely affect the setting of the Forth Road Bridge and would complement and enhance the setting of the existing bridges. Construction of the Main Crossing would create a unique view with the progressive development in bridge design and construction materials visible in the three bridges enhancing the setting of the two existing bridges. Therefore, the significance of impact upon the setting of the existing Forth Road Bridge by construction of the Main Crossing could be assessed as having an impact of Slight beneficial significance.

**Table 14.11: Summary of Potential Impacts on Setting – Main Crossing**

Site	Site Name	Designation	Sensitivity	Potential Impact (unmitigated)	
				Magnitude	Significance
300	St. Margaret's Hope, (former Admiralty House) Including Gatelodge, piers, Boundary Walls, Walled Garden To South And Archway On Drive To North	Category B Listed Building	Medium	Major	Substantial
334	Ferry Craig, North Queensferry	Category C(s) Listed Building	Low	Major	Moderate
1290	Hopetoun House/Viewing platform	Category A Listed Building	High	Minor	Slight
482	Port Edgar West Pier	Category C(s) Listed Building	Low	Minor	Slight
484	Port Edgar Harbour Barracks Complex	Category B Listed Buildings	Medium	Major	Substantial
532	Inchgarvie House	Category C(s) Listed Building	Low	Major	Moderate
530	Inchgarvie House Lodge	None	Low	Major	Moderate
1102	St. Margaret's Hope Relict Country Estate	None	Medium	Major	Substantial
1103	Hopetoun House Designed Landscape	Inventory of Gardens and Designed Landscapes	High	Minor	Slight
1286	Blackness Castle	Category A, B & C, SAM	High	Negligible	Light
819-21	Dundas Mains, Rose Acre, Brown Acre and Lilac Cottage	Category B Listed Buildings	Medium	Negligible	Neutral
1111	Dundas Castle and Designed Landscape	Category A Listed Building (part of Category A group) Inventory of Designed Landscapes, SAM (Castle)	High	Negligible	Slight
1114	North Queensferry Conservation Area	Numerous Category A, B & C Listed Buildings	High	Minor	Slight
358	North Queensferry, Craighdu	Category B Listed Building	Medium	Minor	Slight
323	North Queensferry, Northcliff House, Gate piers, Gates and Railings	Category B Listed Building	Medium	Negligible	Slight
427	Forth Road Bridge	Category A Listed Building	High	Neutral	Slight (beneficial)

## Southern Study Area

### Direct Impacts

- 14.4.29 Potential physical impacts on five sites have been identified, as detailed in Table 14.12 below. These impacts are all direct and potentially permanent. The impact on Dundas Castle Designed Landscape (Site 1111, on Figure 14.2e-h) has been assessed as being of Moderate significance. Two small settlement ponds are proposed discreet and sheltered locations on the eastern periphery of the boundaries of Newliston Designed Landscape and will have a negligible effect on the designed landscape. The significance of the impacts on other sites, all of which are archaeological, have been assessed as ranging from Neutral to Slight.
- 14.4.30 Most of the affected sites are agricultural or industrial in nature and range from clearance cairns to tanks.

**Table 14.12: Summary of Potential Direct Impacts – Southern Study Area**

Site	Site Name	Designation	Sensitivity	Potential Impact (unmitigated)	
				Magnitude	Significance
1111	Dundas Castle Designed Landscape	Inventory of Gardens and Designed Landscapes	High	Moderate	Moderate
1112	Newliston Designed Landscape	Inventory of Gardens and Designed Landscapes	High	Negligible	Slight
150	Newbigging Cobbled Surface	None	Low	Major	Slight
1147	Echline Strip Clearance Cairns	None	Negligible	Major	Slight
1149	Newbigging Tank/Spring	None	Negligible	Major	Slight

### Impact on Setting

- 14.4.31 Potential impacts on the setting of 10 sites or site groups have been identified, as detailed in Table 14.13 below. The significance of the potential impact on the setting of the Inventory Dundas Castle Designed Landscape (Site 1111, on Figure 14.2e-h) has been assessed as Substantial while the impact upon Newliston Designed Landscape (Site 1112, on Figure 14.2l-n) has been assessed as Neutral.
- 14.4.32 The Category A Listed Dalmeny 12<sup>th</sup> century church (Site 762, on Figure 14.2i) has no inter-visibility with the proposed road although the Main Crossing would be visible from the rear of the Church. As elements of the existing Forth Road and Rail bridges are already prominent, the potential impact magnitude has been assessed as Negligible. This has resulted in an impact of Negligible significance. The Dalmeny Conservation Area contains one Category A Listed Building, five Category B Listed Buildings and 15 Category C(s) Listed Buildings. While the conservation area is not inter-visible with the proposed road network in the southern study area, the Main Crossing towers would be occasionally visible in the distance through a belt of trees located to the northwest. As elements of the existing Forth Road and Rail bridges are already visible, the potential impact magnitude has been assessed as Negligible. This has resulted in a Slight significance of impact. The Category B Listed Echline Farmhouse (Site 721, on Figure 14.2e) located to the east of the proposed A904 junction has been assessed as Slight while the impact upon the adjacent Category C(s) Listed Echline Cottages (Sites 723-730, on Figure 14.2e) has been assessed as Negligible. The impact upon the setting of the Category B Listed Grouping at Dundas Mains Farm (Site 814) and the Newbigging Farmhouse (Site 815, both on Figure 14.2g) Category C(s) Listed Building have been assessed as being of Slight significance. There are several Category B and C(s) Listed Buildings located in the Kirkliston area, however as most of these sites are not expected to have their setting affected by the proposed scheme, they are not discussed in detail.

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- 14.4.33 The Inventory Designed Landscape of Dundas Castle complex encompasses a large area of, open estate parkland on the eastern side, now a golf course with occasional specimen trees that has sweeping views to Edinburgh in the east. On the western side of the castle complex the landscape changes to a more sheltered, rolling and occasionally wooded arable (largely pasture) landscape with occasional estate houses and former workshops. On the southern side of the castle complex there is a quiet, wooded and sheltered valley at the base of which is Dundas Loch complete with the Category B Listed boat house “lodge” sited partially on stilts extending over the loch with a Category B Listed wooden bridge at the eastern end of Dundas Loch. To the north of the castle complex between Echline fields and the castle complex, there are belts of dense woodland and planting of rhododendrons and yew. The landscape to the north of the woodland is predominantly one of agricultural farmland and open fields with a large shelter belt known as the Echline Strip sited between South Queensferry and further dense mature tree plantations and belts of rhododendrons and the castle complex to the south.
- 14.4.34 Map progression has shown that the creation of the Echline Strip was carried out in the 19<sup>th</sup> century and it could be argued that the boundary of the designed landscape was actually located closer to the former Dundas Mains farm track rather than extending all the way to the A904 as the current designation boundary suggests. Furthermore, it is suggested that when the boundary of Inventory Designed Landscape was drawn up, it was decided to use the boundary of the wider estate ground alongside the A904 to delineate the designated area, thus incorporating a substantial area of what was essentially agricultural land into the wider designed landscape to the south.
- 14.4.35 The proposed road is in cutting where it crosses under the existing A904 (Queensferry Junction) and then curves to the east to merge with the existing A90. As the road passes the Echline Strip, the road is in a slight hollow reducing the impact upon the landscape further. The impact upon the setting of the Dundas Castle Designed Landscape has therefore been assessed as Moderate.
- 14.4.36 The Category B Listed Echline Farmhouse is located to the east of the proposed Queensferry Junction on the A904 with the aspect of the building to the east. While this building is located close to the proposed junction, the impact upon its setting is reduced by the general topography of the area with the former farmhouse located in a hollow with the proposed approach road additionally screened by the more recent housing on its western (rear) side. Therefore the impact upon the setting of this Category B Listed Building has been assessed as being Slight.
- 14.4.37 The row of Category C(s) Listed terraced cottages at Echline are close to the proposed Queensferry Junction on the A904. The cottages are located back from the A904 with the existing road slightly elevated above the front gardens of the cottages. This height difference requires up to three steps to reach the existing pavement which has the effect of screening the cottages from not only the proposed A904 junction 260m to the west, but also the proposed connecting road to the A90 located 360m to the south. The impact upon their setting has been assessed as Slight.
- 14.4.38 The proposed connecting roads between the existing A90 and the Main Crossing approach road passes across the open fields to the front of the Category B Listed Dundas Mains Home Farm Nos. 16-18. The existing A90, industrial estate and Dakota Hotel have already largely urbanised the context and setting of this Category B Listed complex. From the complex, there are existing good open views to the Forth Road Bridge and Forth Rail Bridge. From the boundary of Dundas Mains towards the existing A90, the topography is initially flat, however, beyond where it is proposed to locate the road, the ground slopes away to the north. This will have the effect of screening the road from view and reducing the impact upon the complex. However, the road will be closer to the complex, increasing the impact upon the setting of the complex. The potential impact upon the setting of Dundas Home Farm has therefore been assessed as of Slight significance.
- 14.4.39 The Category C(s) Listed Newbigging farmhouse (815) is located to the east of Dundas Mains (814, both on Figure 14.2g) and as such is screened from the proposed road construction to the north by Dundas Mains and as such the significance of impact upon the setting of Newbigging farmhouse has been assessed as being Slight.

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- 14.4.40 The Category B Listed North Gate Lodge of Dundas Castle (Site 817, on Figure 14.2i) is located close to where improvements to the A8000 and a public transport corridor link to the A90 are proposed. While these works are close to the Lodge, it is not expected to have a significant effect on the setting of the gate lodge and therefore the impact upon the setting of the gate lodge has been assessed as being Slight.
- 14.4.41 The existing and recently completed M9 Spur has already partially urbanised the setting of Humble Cottages (Site 909) and Humble Farmhouse (Site 919) Category C(s) Listed Buildings (both on Figure 14.2k). Whilst improvements at the M9 Junction 1A are proposed, the proposal is generally online in this area and not expected to greatly increase the impact upon the setting of the Listed Buildings at Humble. The significance of impact on the setting of these sites has therefore been assessed as Slight.

**Table 14.13: Summary of Potential Impacts on Setting – Southern Study Area**

Site	Site Name	Designation	Sensitivity	Potential Impact (unmitigated)	
				Magnitude	Significance
1111	Dundas Castle designed Landscape	Inventory of Gardens and Designed Landscapes	High	Moderate	Moderate
1112	Newliston Designed Landscape	Inventory of Gardens and Designed Landscapes	High	Negligible	Slight
1250	Dalmeny Conservation Area	Category A-C Listed Buildings	High	Negligible	Slight
762	Dalmeny Church	Category A Listed Building	high	negligible	Slight
721	Echline Farmhouse	Category B Listed Building	Medium	Minor	Slight
723	Echline Cottages	Category C (s) Listed Buildings (group)	Low	Minor	Slight
814	Dundas Mains Home Farm 6-18	Category B Listed Building (grouping)	Medium	Minor	Slight
815	Newbigging Farmhouse	Category C (S) Listed Building	Medium	Negligible	Slight
817	Dundas Castle North Gate Lodge	Category B Listed Building	Medium	Negligible	Slight
909, 919	Humble Cottages and Farmhouse	Category C Listed Buildings	Low	Negligible	Slight

#### Summary of Potential Impacts

- 14.4.42 St. Margaret's Hope (former Admiralty House) Category B Listed Building complex and the Category B Listed Port Edgar Barracks may have substantial effects upon their setting. There is also the potential for a minor direct impact on the boundary of the barracks curtilage. The proposals for road construction south of South Queensferry may have a direct impact on part of Dundas Castle Designed Landscape, although this area comprises mainly arable farmland and is screened by substantial shelter belts. There are also potential impacts upon an area of archaeological sensitivity within which Roman artefacts and long cist graves were noted during the 19<sup>th</sup> century to the immediate east of Inchgarvie House, a Category C(s) Listed Building. There are several cropmark complexes in the Main Crossing and southern study areas that will be directly affected by the proposed road construction and mitigation has been proposed for these sites. With the exception of potential impacts on Designed Landscapes (Sites 1111, on Figures 14.2e-h), the impacts on the Historic Landscape Character areas were not significant. This assessment was based on the proposed impacts when compared to the existing landscape character areas. Two areas of archaeological importance are within the 500m study corridor, Inverkeithing and North



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Queensferry. However, there are no expected direct impacts upon these areas. As there were few historic and Listed Buildings directly affected by the proposals, it was decided to combine the Historic Building section with the Archaeological Remains section.

## 14.5 Mitigation

### Mitigation of Direct Impacts

#### Identified Sites

14.5.1 Identification of known sites of cultural heritage interest in the study area has informed route corridor selection at DMRB Stage 2, and the refinement of design (such as horizontal alignment of mainline and junctions) at Stage 3 to avoid direct impacts on sites where feasible. However, there are several cropmarks known along the route of the proposed scheme in the southern study area and these can be targeted with trenching prior to construction during the evaluation phase. This may result in the need for mitigation by excavation, recording and reporting prior to its construction. In the northern study area the remains of the upstanding St. Margaret's Wharf have been located within the reclaimed land at St. Margaret's Marsh and the proposals to construct connecting roads in this area are expected to impact directly upon the wharf. Therefore, excavation and recording and reporting is proposed to identify the extents of known archaeological remains that may be affected and to assess areas of unknown archaeological potential prior to construction (mitigation item CH1).

#### Built Heritage

14.5.2 Inchgarvie House and the Port Edgar Barracks complex are all located close to proposed construction areas at Inchgarvie and on the foreshore while construction of the north abutment is proposed close to St. Margaret's Hope. It is proposed that to protect these buildings from risk of physical damage, a programme of building recording works (mitigation item CH2) is carried out prior to the start of construction, with weekly vibration monitoring during construction for works that may create a risk of vibration damage (mitigation item CH3).

14.5.3 St. Margaret's Hope Arch may be relocated to an alternative location to be agreed with Historic Scotland. Prior to dismantling or relocation a programme of building recording is required to document the location, setting and features of the arch (mitigation item CH4).

14.5.4 The following works are proposed:

- St. Margaret's Hope, former Admiralty House (Site 300, on Figure 14.2c) - a programme of building recording and vibration monitoring during construction (mitigation items CH2-CH3).
- Inchgarvie House (Site 532, on Figure 14.2e) - a programme of building recording prior to the start of construction and vibration monitoring during construction (mitigation items CH2-CH3).
- Port Edgar Barracks Complex (Site 484 on Figure 14.2e) - a programme of building recording prior to construction and vibration (mitigation items CH2-CH3).
- St. Margaret's Hope Arch - a programme of building recording prior to relocation or dismantling (mitigation item CH4).

#### Unrecorded Archaeology

14.5.5 The north and south coastlines of the Forth Estuary are known to have been occupied since very early prehistoric times (Mesolithic 10,000BC) and on this basis it is considered likely that additional archaeological remains are present in the study area, particularly on the south side of the Firth of Forth in the region of Inchgarvie. The area around Inchgarvie House is considered to be an area of particularly high archaeological potential as there have been numerous finds of Roman artefacts from this area. Prehistoric barrows were sited here as well burials that are potentially of Iron Age date which were noted during the 19<sup>th</sup> century. It is therefore proposed that a detailed programme

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of archaeological evaluation is implemented in this area prior to confirmation of the full scope of mitigation works required for the overall proposed scheme (mitigation item CH5). This would ensure that the full scope of archaeological remains in the area are identified, excavated and fully recorded prior to any proposed construction works.

14.5.6 This staged programme of archaeological trial trenching, set piece excavation and evaluation (mitigation item CH5) would be required sufficiently far in advance of construction to permit the design and implementation of pre-construction mitigation works, if required. The aims of the evaluation works would be to:

- identify any unknown archaeological remains that may be affected by the proposed scheme;
- enable a more confident assessment of the impact of construction of the proposed scheme on archaeological remains;
- enable the identification and design of any measures that may be necessary to mitigate the impact of the proposed scheme on newly-identified archaeological remains; and
- to enhance available information about known archaeological remains, where additional information is required to inform further assessment of impact or the design of mitigation measures.

14.5.7 To address these aims, it would be necessary to undertake evaluation works both in relation to known archaeological sites and in areas of archaeological potential. The pre-construction programme of works (mitigation item CH5) is likely to involve non-intrusive surveys applied to relatively large areas, followed by intrusive techniques targeted on specific areas. Some level of evaluation would be required within all areas in which ground disturbance would take place (such as drainage, service re-routing, and areas of ecological or landscape planting) i.e. all land made available to the contractor within which groundbreaking may occur for example borrow pits, and contractor compound locations.

14.5.8 The surveys could include a combination of any of the following depending on anticipated sensitivity or likelihood of significant finds, which would be confirmed in a Written Scheme of Investigation approved by Historic Scotland:

#### Non Intrusive

- field walking (i.e. the systematic search for artefacts on the surface of ploughed fields);
- magnetometer survey or magnetometer scanning followed by survey in selected areas;
- magnetic susceptibility survey;
- resistivity survey; and
- watching brief during any planned geotechnical ground investigation (already partially completed).

#### Intrusive

- intrusive trial trenching and/or trial pitting. This could be targeted at sites and features identified by the methods outlined above or in blank areas where no sites have been identified.

14.5.9 Historic Scotland has particular responsibility to safeguard the cultural heritage resource in relation to major trunk road schemes. Historic Scotland would approve any Written Scheme of Investigation, and directly commission the work to be carried out by a suitably qualified archaeological contractor. The contractor would then undertake the works on behalf of Transport Scotland. These works would be supervised and monitored by the employer's consultant and overseen by Historic Scotland. The following works are recommended as part of a programme of archaeological evaluation works:

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- St. Margaret's Hope, Wharf (site 289, on Figure 14.2b) - a wharf noted during field survey and a previous watching brief. Excavation and recording (mitigation item CH1).
- Beamer Rock Beacon (Site 426, on Figure 14.2d) - a beacon light. Topographic survey and recording, further building recording, dismantling and storage in a suitable location, leaving open the possibility to re-erect the beacon at a suitable site later if appropriate (mitigation item CH6).
- Beamer Rock - shipwrecks, (410-417, 419-20, 424, on Figure 14.2d) - a detailed underwater survey prior to construction is proposed for areas of the seabed that may be directly affected during construction within 50m of the low tide mark at Beamer Rock, to check to check for the presence of historic wrecks or debris (mitigation item CH17). The known vessels shipwrecked on within the vicinity of Beamer Rock are to be included within the programme of archaeological evaluation works (mitigation item CH17).
- Inchgarvie House, Springfield, Graves, (Site 453, on Figure 14.2e). Geophysical survey followed by trial trenching (mitigation item CH8).
- Linn Mill Burn, Dalmeny, cropmark (Site 561, on Figure 14.2e). Geophysical survey followed by trial trenching (mitigation item CH8).
- Inchgarvie House, Linear cropmark, (Site 811, on Figure 14.2e). Geophysical Survey followed by trial trenching (mitigation item CH8).
- South Queensferry, Linear cropmark (Site 1118, on Figure 14.2e). Geophysical Survey followed by trial trenching (mitigation item CH8).
- South Queensferry, Echline Strip Clearance Cairn (Site 1147, on Figure 14.2g). Trial Trenching followed by excavation if required (mitigation item CH9).
- South Queensferry, Newbigging Clearance cairns (Site 1148, on Figure 14.2g). Trial trenching followed by excavation if required (mitigation item CH9).
- South Queensferry, Newbigging tank/spring (Site 1149, on Figure 14.2g). Trial trenching followed by excavation if required (mitigation item CH9).
- South Queensferry, Dundas Castle Designed Landscape (Site 1111, on Figure 14.2e-h). Trial trenching followed by excavation if required (mitigation item CH9).

#### Mitigation of Impact on Setting

- 14.5.10 In some circumstances, the potential impact on the setting of cultural and built heritage sites can be reduced through landscape design, including integration of the alignment and earthworks with the surrounding topography; and provision of stone walls and planting mixed or scrub woodland, hedges and standard trees to reflect existing boundaries and/or provide screening (mitigation item CH10). Mitigation is proposed in Chapter 12 (Landscape) and Chapter 13 (Visual) to avoid or reduce adverse visual impacts and to improve integration of the proposed scheme into the landscape, and is shown on Figure 12.4.
- 14.5.11 Noise can also affect cultural heritage setting, and proposed noise barriers are also shown on Figure 12.4. This may help reduce the potential impacts on setting, such as at Dundas Mains Home Farm (mitigation item CH10).
- 14.5.12 These measures have taken into account known sites of cultural heritage value and have been reviewed as appropriate to determine residual impacts on setting.

## 14.6 Residual Impacts

### Direct Impacts

- 14.6.1 While archaeological and building recording works can reduce impacts by production and retention of an archive and wide dissemination of results (preservation by record), they cannot mitigate the impact completely, due to the disturbance and removal by the proposed archaeological mitigation works. In the case of sites of low or negligible value, the reduction to the predicted impact is normally sufficient to reduce the significance of impact to Neutral.
- 14.6.2 For more sensitive and significant sites, the reduction of an impact magnitude may still result in an impact significance greater than Neutral. This reflects the loss of potential information which may be only possible to gain from future improvements in recording techniques and greater scientific understanding of archaeological remains.
- 14.6.3 The proposed scheme would have a potential impact on 19 known sites, or groups of sites, of cultural heritage significance in the three study areas of the proposed scheme. It is considered that all impacts can be mostly mitigated by the archaeological recording works proposed in the mitigation section above.
- 14.6.4 The proposed removal and storage of Beamer Rock Beacon would not reduce the significance of potential impact, and the residual impact therefore remains as of Moderate significance. It should be noted that if the beacon were to be subsequently re-erected at a suitable site it is likely that this residual impact would change to Neutral.
- 14.6.5 Residual impacts taking into account proposed mitigation are summarised in Table 14.14.

**Table 14.14: Residual Impacts (Direct)**

Site No.	Site Name	Potential Impact Significance	Residual Impact Significance
289	St. Margaret's Hope Rosyth, Wharf	Neutral	Neutral
426	Beamer Rock Beacon	Moderate	Moderate
1102	St. Margaret's Hope Relict Country estate	Slight	Neutral
484	Port Edgar Barracks complex	Slight	Neutral
532	Inchgarvie House	Slight	Neutral
300	St. Margaret's Hope Arch	Moderate	Slight
300	St. Margaret's Hope (former Admiralty House)	Slight	Neutral
534	Inchgarvie House, Roman finds	Neutral	Neutral
543	Inchgarvie House, Springfield House, graves	Moderate	Neutral
811	Inchgarvie House, Linear cropmarks	Slight	Neutral
1111	Dundas Castle Designed Landscape	Moderate	Moderate
150	Newbigging Cobbled Surface	Slight	Neutral
1147	Echline Strip Clearance Cairns	Slight	Neutral
1149	Newbigging Tank/Spring	Slight	Neutral

- 14.6.6 Table 14.15 compares the potential direct impacts with the anticipated residual direct impacts.

**Table 14.15: Comparison of Potential and Residual Impacts (Direct)**

Potential Impact Significance	Totals	Residual Impact Significance	Totals
Severe	0	Severe	0
Substantial	0	Substantial	0
Moderate	4	Moderate	2

Slight	8	Slight	1
Neutral	2	Neutral	11
<b>Total</b>	<b>14</b>	<b>Total</b>	<b>14</b>

### Impacts on Setting

14.6.7 The proposed scheme would result in a permanent change to the setting of 24 cultural heritage sites within the three study areas associated with the proposed scheme. The significance of the potential impacts on setting ranges from Neutral to Substantial. Wherever possible, specific mitigation measures have been proposed as shown on Figures 12.4, and the residual impacts of the proposed scheme on the settings of sites taking into account mitigation are detailed on a site by site basis. Table 14.16 provides the residual impact significance on sites in the study area while Table 14.17 compares potential impacts and residual impacts.

**Table 14.16: Residual Impacts on Setting (Indirect)**

Site No.	Site Name	Potential Impact Significance	Residual Impact Significance
267	Inverkeithing, Jamestown Viaduct	Neutral	Neutral
300	St. Margaret's Hope (former Admiralty House), Gatelodge, Piers, Boundary Walls, Walled Garden To South And Archway On Drive To North	Substantial	Substantial
334	Ferry Craig, South Queensferry	Moderate	Moderate
1290	Hopetoun House/Viewing Platform	Slight	Slight
482	Port Edgar West Pier	Slight	Slight
484	Port Edgar Harbour Barrack Complex	Substantial	Substantial
532	Inchgarvie House	Moderate	Moderate
530	Inchgarvie House Lodge	Moderate	Moderate
1102	St. Margaret's Hope Relict Country Estate	Substantial	Substantial
1103	Hopetoun House Designed Landscape	Slight	Slight
1114	North Queensferry Conservation Area	Slight	Slight
358	North Queensferry, Craigdhu	Slight	Slight
323	North Queensferry, Northcliff House, Gate piers, Gates and Railings	Slight	Slight
402	Forth Road Bridge	Slight (beneficial)	Slight (beneficial)
1111	Dundas Castle Designed Landscape	Moderate	Slight
1250	Dalmeny Conservation Area	Slight	Slight
1112	Newliston Designed Landscape	Slight	Neutral
762	Dalmeny Church	Slight	Slight
721	Echline Farmhouse	Slight	Neutral
723	Echline Cottages	Slight	Neutral
814	Dundas Mains Farm 6-18	Slight	Neutral
815	Newbigging Farmhouse	Slight	Neutral
817	Dundas Castle North Gate Lodge	Slight	Slight
909, 919	Humbie Cottages and Farmhouse	Slight	Neutral

**Table 14.17: Comparison of Potential and Residual Impacts on Setting (Indirect)**

Potential Impact Significance	Totals	Residual Impact Significance	Totals
Severe	0	Severe	0
Substantial	3	Substantial	3
Moderate	4	Moderate	3

Slight	16	Slight	11
Neutral	1	Neutral	7
<b>Total</b>	<b>24</b>	<b>Total</b>	<b>24</b>

## 14.7 Ongoing Design Development

### Alternative Construction Compound

- 14.7.1 An addition to the scheme proposals is the inclusion of an alternative location for the construction compound to the west of South Queensferry. This alternative was identified in response to concerns raised by local residents during the ongoing consultation process, and it locates the compound further to the west.
- 14.7.2 This alternative site was identified subsequent to the completion of the assessment of potential impacts of the proposed scheme on land use as reported in this chapter. An assessment of its impacts on cultural heritage is provided separately in Chapter 19 (Disruption Due to Construction).

### Ferry Hills Rock Cuts

- 14.7.3 The proposed scheme design as assessed in this chapter includes significant rock cuts to the north and south of Ferrytoll Junction. Detailed design may allow these rock cuts to be avoided or reduced. Design development indicates that there could be potential for a westward shift of the proposed scheme alignment of up to approximately 15m between approximate chainage ch7500-7800 (southwest of Jamestown) and ch8150-8500 (west of Hope Street Cemetery) to allow the rock cuts to be avoided.
- 14.7.4 Environmental review of this refinement indicates that this could reduce adverse impacts associated with the rock cuts without materially increasing other environmental effects. If this option were taken forward it would not affect any new sites of cultural heritage interest or change the assessment provided in this chapter.

## 14.8 References

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## **Forth Replacement Crossing**

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### **Chapter 14: Cultural Heritage**

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