

# REPORT

## **Millport Coastal Flood Protection Scheme: Environmental Statement**

### Chapter 14 Infrastructure and Utilities

Client: North Ayrshire Council

Reference: PB4749-RHD-ZZ-XX-RP-Z-0014

Status: Final/P01.01

Date: 31 January 2020

HASKONINGDHV UK LTD.

74/2 Commercial Quay  
Commercial Street  
Leith  
Edinburgh  
EH6 6LX  
Industry & Buildings  
VAT registration number: 792428892

+44 131 5550506 **T**  
info.edinburgh@uk.rhdhv.com **E**  
royalhaskoningdhv.com **W**

Document title: Millport Coastal Flood Protection Scheme: Environmental Statement

Document short title:

Reference: PB4749-RHD-ZZ-XX-RP-Z-0014  
Status: P01.01/Final  
Date: 31 January 2020  
Project name: Millport Coastal Flood Protection Scheme  
Project number: PB4749  
Author(s): Amy Savage

Drafted by: Amy Savage

---

Checked by: Abbie Garry

---

Date / initials: 22/01/2020

---

Approved by: Nick Cooper

---

Date / initials: 23/01/2020

---

Classification

Project related



## Disclaimer

*No part of these specifications/printed matter may be reproduced and/or published by print, photocopy, microfilm or by any other means, without the prior written permission of HaskoningDHV UK Ltd.; nor may they be used, without such permission, for any purposes other than that for which they were produced. HaskoningDHV UK Ltd. accepts no responsibility or liability for these specifications/printed matter to any party other than the persons by whom it was commissioned and as concluded under that Appointment. The integrated QHSE management system of HaskoningDHV UK Ltd. has been certified in accordance with ISO 9001:2015, ISO 14001:2015 and ISO 45001:2018.*

## Table of Contents

<b>14</b>	<b>Infrastructure and Utilities</b>	<b>1</b>
14.1	Introduction	1
14.2	Policy, Legislation and Guidance	1
14.3	Consultation	4
14.4	Methodology	5
14.5	Existing Environment	10
14.6	Impact Assessment	16
14.7	Cumulative Impact Assessment	19
14.8	Inter-relationships	20
14.9	Summary	20
14.10	References	22

## Table of Tables

Table 14-1	Summary of key international legislation and policy relevant to this proposed scheme	2
Table 14-2	Summary of key national legislation and policy relevant to this proposed scheme	2
Table 14-3	Relevant local planning policies	4
Table 14-4	Consultation responses	5
Table 14-5	Definitions of Sensitivity Levels for Receptors	6
Table 14-6	Definitions of the Different Value Levels for Receptors	7
Table 14-7	Definitions of magnitude levels	7
Table 14-8	Impact significance matrix	8
Table 14-9	Impact significance definitions	8
Table 14-10	Existing coast protection structures	10
Table 14-11	Embedded mitigation measures for infrastructure and utilities	16
Table 14-12	Embedded mitigation through Best Practice and Policy	17
Table 14-13	Inter-topic relationships	20
Table 14-14	Potential Impacts Identified for infrastructure and utilities	20

## Table of Figures

Figure 14a and 14b Utilities

## Acronyms

<b>Acronym</b>	<b>Acronym description</b>
<b>CARs</b>	Controlled Activities Regulations
<b>CIA</b>	Cumulative Impact Assessment
<b>EIA</b>	Environmental Impact Assessment
<b>ES</b>	Environmental Statement
<b>EU</b>	European Union
<b>FPS</b>	Flood Protection Scheme
<b>GES</b>	Good Environmental Status
<b>NPF</b>	National Planning Framework

## Glossary

### Glossary Term

### Glossary Text

#### **Environmental Impact Assessment (EIA)**

A statutory process by which certain planned projects must be assessed before a formal decision to proceed can be made. It involves the collection and consideration of environmental information, which fulfils the assessment requirements of the EIA Directive and EIA Regulations, including the publication of an Environmental Statement.

#### **Environmental Statement (ES)**

A document reporting the findings of the EIA and produced in accordance with the EIA Directive as transposed into UK law by the EIA Regulations.

#### **Millport Coastal Flood Protection Scheme (FPS)**

The scheme consists of offshore rock armour structures which will be built in the vicinity of the rock islets within Millport Bay. Onshore works will include flood walls, improvement works to existing coast protection structures, and works to raise the level of existing grass areas. Works on the foreshore include shore-connected rock armour breakwaters and rock armour revetments.

## 14 Infrastructure and Utilities

### 14.1 Introduction

1. This chapter of the Environmental Statement (ES) considers the potential impacts of the proposed Millport Coastal Flood Protection Scheme (the proposed scheme) on infrastructure and utilities.
2. This chapter provides a summary description of key aspects relating to existing infrastructure and utilities followed by an assessment of the magnitude and significance of the effects upon the baseline conditions resulting from the construction, operation and decommissioning of the proposed scheme as well as those effects resulting from cumulative interactions with other existing or planned projects.
3. The potential effects on infrastructure and utilities are assessed conservatively using realistic worst-case scenarios for the proposed scheme.
4. All figures referred to in this chapter are provided in Volume II of this ES.
5. The assessment of potential effects has been made with specific reference to Scotland's National Planning Framework and Planning Policy. These are discussed further in **Chapter 2 Policy and Legislation** and outlined below in Section 14.2. These are the principal decision-making documents for flood protection schemes.
6. This chapter has been prepared by Royal HaskoningDHV in accordance with the relevant legislation and policies, adhering to the methodology for Environmental Impact Assessment (EIA) and Cumulative Impact Assessment (CIA) as discussed in Section 14.4.
7. This chapter should be read in conjunction with the following related chapters:
  - **Chapter 13 Commercial and Recreational Navigation**, for issues relating to navigation infrastructure and access for navigation;
  - **Chapter 18 Water Resources and Flood Risk**, for issues relating to water quality and quantity, with impacts to water resources infrastructure assets discussed in this chapter;
  - **Chapter 20 Traffic and Transport**, for impacts to roads and other traffic and transport infrastructure, including public access along the Millport seafront; and
  - **Chapter 23 Tourism and Recreation**, for impacts to public access to the beaches and rock foreshore.

### 14.2 Policy, Legislation and Guidance

8. There are a number of pieces of legislation applicable to infrastructure and utilities. The following key pieces of International and UK legislation which are relevant to this chapter. Further details are provided in **Chapter 2 Policy and Legislation** on the following legislation.
9. The policies and plans outlined throughout this section have also been reviewed for their relevance to infrastructure and utilities when undertaking the EIA for the proposed scheme.

### 14.2.1 International Legislation and Policy

10. ~~Table 14-1~~~~Table 14-1~~ below provides a brief summary of the key international legislation and policy relevant to the scheme.

Table 14-1 Summary of key international legislation and policy relevant to this proposed scheme

Legislation	Relevance
Water Framework Directive (2000/60/EC)	Council Directive 2000/60/EC establishing a framework for community action in the field of water policy requires that all European Union (EU) Member States must prevent deterioration and protect and enhance the status of aquatic ecosystems. This means that EU Member States must ensure that new schemes do not adversely impact upon the status of aquatic ecosystems, and that historical modifications that are already impacting it (such as infrastructure and utilities) need to be addressed.

### 14.2.2 National Legislation and Policy

#### 14.2.2.1 National Legislation

11. ~~Table 14-2~~~~Table 14-2~~ below provides a brief summary of the key national legislation and policy relevant to the scheme.

Table 14-2 Summary of key national legislation and policy relevant to this proposed scheme

Legislation	Relevance
Marine (Scotland) Act 2010	The act defines the requirement for marine licences in Scottish waters which includes the “construction of any works in or over the sea, and on or under the seabed” and the carrying “out of any form of dredging within the Scottish marine area (whether or not involving the removal of any material from the sea or sea bed)”. The application for a licence must have regard to the need to protect the environment, protect human health, prevent interference with legitimate uses of the sea and other matters considered relevant by Scottish Ministers.
Marine and Coastal Access Act 2009	The Act provides executive devolution to Scottish Ministers of the new marine planning and conservation powers in the offshore region (12-200 nautical miles), coinciding with the existing executive devolution of marine licensing. The Marine (Scotland) Act 2010 provides the legislation for marine planning, licensing and conservation activities in the inshore region.
Water Environment and Water Services (Scotland) Act 2003 (WEWS Act)	This arose from the Water Framework Directive 2000/60/EC becoming law in Scotland. It commits Scotland to achieve good qualitative and quantitative status of all water bodies by 2015 with the final deadline for meeting objectives being 2027
Controlled Activity Regulations 2017 (as amended)	The Controlled Activities Regulations 2011 (CARs) (and its amendments in 2013 and 2017) apply regulatory controls over activities which may affect Scotland’s water environment. The regulations cover rivers, lochs, transitional waters (estuaries), coastal waters, groundwater and groundwater dependent wetlands.
The Marine Strategy Regulations 2010	The Marine Strategy Framework Directive 2008 (Directive 2008/56/EC) was transposed into UK law in 2010 through the Marine Strategy Regulations. Both establish a framework for community action in the field of marine environmental policy and aims to achieve Good Environmental Status (GES) of marine waters by 2020 and to protect the resource base upon which marine-related economic and social activities depend

### 14.2.2.2 National Planning Policy

#### National Planning Framework:

12. Scotland's third National Planning Framework (NPF) (Scottish Government, 2014a) includes the following ambitions relevant to the marine environment at Millport, and these have been considered when undertaking the EIA for the proposed scheme:
13. *Para 4.10 The 2020 Challenge for Scotland's Biodiversity aims to promote and enhance Scotland's nature, and to better connect people with the natural world. Maintaining our natural capacity to provide services makes economic sense – to help achieve this, biodiversity in Scotland needs to be viewed at a landscape scale;*
14. *The coast and islands will capitalise on their world-class environment.*
15. *Para 4.29 The environment of our coastal areas, on land and at sea, is an outstanding, internationally important resource. These natural assets support quality of life and underpin important economic sectors like tourism, outdoor recreation and food and drink.*
16. *Para 4.30 The marine environment, and its natural resources, are central to this. National and Regional Marine Plans will provide policies to achieve sustainable development, protection and, where appropriate, enhancement of the marine area.*

#### Scotland's National Marine Plan: A Single Framework for Managing Our Seas

17. Scotland's National Marine Plan includes the following policy in relation to infrastructure and utilities:  
*GEN 4 Co-existence: Proposals which enable coexistence with other development sectors and activities within the Scottish marine area are encouraged in planning and decision making processes, when consistent with policies and objectives of this Plan.*

#### Clyde Regional Marine Plan

18. A pre-consultation on the draft Clyde Regional Marine Plan took place between 18th March and 27th May 2019. The first version of the SPP for the Clyde Regional Marine Plan was given Ministerial approval in December 2017. This version has since been updated to reflect changes in the pre-consultation draft phase. The most recent version was given Ministerial Approval in December 2018.
19. The Plan will create a framework for integrated, sustainable and co-ordinated planning and management of the Clyde Marine Region's environmental, economic and community resource.

#### Scottish Planning Policy

20. Scotland's Planning Policy (SPP) (Scottish Government, 2014b) contains the following Policy Principles with regards to Valuing the Natural Environment and these have been taken into consideration when undertaking the EIA for the proposed scheme:
21. *The planning system should:*
  - *Facilitate positive change while maintaining and enhancing distinctive landscape character;*
  - *Conserve and enhance protected sites and species, taking account of the need to maintain healthy ecosystems and work with the natural processes which provide important services to communities;*
  - *Promote protection and improvement of the water environment, including rivers, lochs, estuaries, wetlands, coastal waters and groundwater, in a sustainable and co-ordinated way;*

- Seek benefits for biodiversity from new development where possible, including the restoration of degraded habitats and the avoidance of further fragmentation or isolation of habitats; and
- Support opportunities for enjoying and learning about the natural environment.
- The planning system should support an integrated approach to coastal planning to ensure that development plans and regional marine plans are complementary.

### 14.2.3 Local Planning Policy

22. The proposed scheme falls within the North Ayrshire Council local authority boundaries.
23. North Ayrshire Council have adopted a new Local Development Plan for North Ayrshire on 28th November 2019 (North Ayrshire Council, 2019), the LDP covers a 20 year period. For the purpose of the Local Plan, Millport and the footprint of the proposed scheme is categorised to be within 'Developed Coast'.
24. The Ayrshire Joint Structure Plan 'Growing A Sustainable Ayrshire' (North Ayrshire Council, East Ayrshire Council and South Ayrshire Council, 2007) establishes a framework that brings together the aspirations of communities with those of business and industry, and the area's many supporting agencies and organisations, to provide a strategic land use context to the year 2025. The Plan classes Great Cumbrae as a 'potential area' for a woodland strategy.
25. [Table 14-3](#) provides details of the local planning policy documents and the relevant policies for infrastructure and utilities. These policy document have been considered when undertaking the EIA for the proposed scheme.

Table 14-3 Relevant local planning policies

Document	Policy / Guidance	Policy / Guidance purpose	ES Reference
Adopted Local Development Plan (LDP2) (North Ayrshire Council, 2019)	Policy 32: Safeguarding of Workable Mineral Resources.	"Development that would result in the sterilisation of workable mineral resources which are of economic or conservation value will not be supported."	Not included, mineral resources are not affected by the proposed scheme.

## 14.3 Consultation

26. To inform the ES, North Ayrshire Council has undertaken a thorough pre-application consultation process, which has included the following key stages:
- Scoping Reports submitted to Marine Scotland and North Ayrshire Council (Royal HaskoningDHV 2017); and
  - Scoping Opinion received from Marine Scotland and North Ayrshire Council (2017).
27. Full details of the proposed scheme consultation process to date is presented within **Chapter 3 EIA Methodology and Consultation**.
28. Specific consultation with key stakeholders, of particular relevance to infrastructure and utilities, is presented in [Table 14-4](#).

Table 14-4 Consultation responses

Consultee	Date	Comment	Response / Where addressed in the ES
Scottish Water	Meeting, 1 <sup>st</sup> October 2019	Discussion of potential constraints on the proposed scheme due to the location of Scottish Water assets, and mitigation measures.	Identified mitigation measures discussed in Section 14.6.1 (embedded mitigation).
Community consultation meetings and questionnaires	Consultation events held: <ul style="list-style-type: none"> <li>• November/December 2016</li> <li>• March 2017</li> <li>• February 2019</li> <li>• August 2019</li> </ul>	<p>The consultation questionnaires asked for comments on issues with and potential improvements needed to local infrastructure, such as drainage, lighting and seating.</p> <p>Many questionnaire responses commented on inadequate surface water drainage throughout Millport, particularly at Marine Parade, and Glasgow Street (College Street and Mountstuart Street).</p> <p>Comments were also provided about the need to ensure adequate drainage through and/or past the proposed flood protection structures.</p> <p>Comments were provided on the need to maintain suitable seating provision, and to consider what will happen to the existing memorial benches.</p> <p>The existing amenity lighting along Stuart Street and Glasgow Street should be retained.</p> <p>The lack of public toilets at Kames Bay was highlighted.</p>	Incorporation of surface water drainage into scheme design discussed in Section 14.6.1 (embedded mitigation).

## 14.4 Methodology

29. This section describes the methodology used to obtain baseline data, characterise the infrastructure and utilities of the area and undertake the EIA.

### 14.4.1 Baseline Data and Study Area

30. The study area for this chapter is defined by the distance over which impacts on infrastructure and utilities may occur due to the proposed scheme, and by the location of any receptors that might be affected by those potential impacts.

31. The onshore infrastructure for the proposed scheme is detailed in **Chapter 5 Project Description**, and represented in Figure 1-1, in summary it will include:

- Onshore and foreshore works – improvements to coastal defence structures;
- Improvements to existing sea walls;
- New flood wall; and

- Raised ground levels.
32. Baseline data was obtained from utility company service drawings, site visits and the Ground Investigation undertaken in January 2017.

#### 14.4.2 Impact Assessment Methodology

33. General methods for EIA are discussed in **Chapter 3 EIA Methodology and Consultation**. The following sections describe the methodology used to assess the potential impacts of the proposed scheme on infrastructure and utilities in more detail.
34. The approach to determining the significance of an impact follows a systematic process for all impacts. This involves identifying, qualifying and, where possible, quantifying the sensitivity, value and magnitude of all ecological receptors which have been scoped into this assessment. Using this information, a significance of each potential impact has been determined. Each of these steps is set out in the remainder of this section.
35. For the impacts on infrastructure and utilities a number of discrete receptors can be identified. These include:
- Existing flood and coast protection structures;
  - Sub-surface and above ground infrastructure and utilities on land;
  - Outfalls extending over the foreshore, including surface water discharge;
  - A culverted outfall discharging the Mill Burn into West Bay, located adjacent to the junction of Crawford Street and Millburn Street;
  - Street lighting, street furniture and public toilets; and
  - Community facilities located at the Garrison House.

##### 14.4.2.1 Sensitivity, Value, Magnitude

36. The sensitivity and value of discrete receptors and the magnitude of effect are assessed using expert judgement and described with a standard semantic scale. These expert judgements of receptor sensitivity, value and magnitude of effect are guided by the conceptual understanding of baseline conditions.
37. The sensitivity of a receptor (~~Table 14-5~~[Table 14.5](#)) is dependent upon its:
- Tolerance: the extent to which the receptor is adversely affected by an effect;
  - Adaptability: the ability of the receptor to avoid adverse impacts that would otherwise arise from an effect; and
  - Recoverability: a measure of a receptor's ability to return to a state at, or close to, that which existed before the effect caused a change.

Table 14-5 Definitions of Sensitivity Levels for Receptors

Sensitivity	Definition
<b>High</b>	High value activity / activity fundamental to the operator or infrastructure is asset of international or national economic importance. No redundancy available in event of impact. Asset very sensitive to the impact. For example, gas pipeline, electrical infrastructure or telecommunication cable supporting UK or European activity.
<b>Medium</b>	Medium value activity. Impact to asset would significantly reduce operators' activities but not result in complete failure to continue operations. Limited redundancy available. Asset regionally important.

Sensitivity	Definition
	Asset has limited tolerance of impact. For example, gas pipeline, electrical infrastructure or telecommunication cable supporting the area, where asset owners have some potential for redundancy planning.
<b>Low</b>	Low value activity. Impact to asset would have limited implications on operator/public either due to the availability of redundancy or limited pathway for impact. Asset has some tolerance of impact. For example, electrical or telecommunication cable with ability to undertake redundancy planning to limit impact.
<b>Negligible</b>	Low value activity, operators' activities would not be significantly reduced by impact. Asset generally tolerant of impact. Limited impact to asset owners or local community in case of damage or failure.

38. In addition, a *value* component may also be considered when assessing a receptor ([Table 14-6](#)~~Table 14-6~~). This ascribes whether the receptor is rare, protected or threatened.

Table 14-6 Definitions of the Different Value Levels for Receptors

Value	Definition
High	Receptor is designated and/or of national or international importance for infrastructure and utilities. Likely to be rare with minimal potential for substitution. May also be of significant wider-scale, functional or strategic importance
Medium	Receptor is not designated but is of local to regional importance for infrastructure and utilities.
Low	Receptor is not designated but is of local importance for infrastructure and utilities.
Negligible	Receptor is not designated and is not deemed of importance for infrastructure and utilities.

### Magnitude

39. The magnitude of the impact is assessed according to:
- The extent of the area subject to a predicted impact;
  - The duration the impact is expected to last prior to recovery or replacement of the resource or feature;
  - Whether the impact is reversible, with recovery through natural or spontaneous regeneration, or through the implementation of mitigation measures or irreversible, when no recovery is possible within a reasonable timescale or there is no intention to reverse the impact; and
  - The timing and frequency of the impact, i.e. conflicting with critical seasons or increasing impact through repetition.
40. [Table 14-7](#)~~Table 14-7~~ summarises the definitions of magnitude that have been used for the receptors relating to infrastructure and utilities.

Table 14-7 Definitions of magnitude levels

Magnitude	Definition
High	Major impacts on the infrastructure asset, which would have a substantial impact on the infrastructure users and/or which

Magnitude	Definition
	could affect the long-term performance or use of the asset without substantial reconstruction works.
Medium	Impacts which may affect the performance of the asset and its users in the short to long-term, but which can be addressed with minor to moderate repair works.
Low	Minor impacts, either of sufficiently small-scale or of short duration to cause no long-term harm to the asset or its users.
Negligible / No Impact	A potential impact that is not expected to affect the infrastructure asset in any way, therefore no effects are predicted.

### 14.4.2.2 Impact Significance

41. Following the identification of receptor importance and magnitude of the effect, it is possible to determine the significance of the impact.
42. Impacts are unlikely to be significant where features of low importance are subject to small scale or short-term effects. If an impact is found not to be significant at the level at which the resource or feature has been valued, it may be significant at a more local level.
43. Following the identification of receptor importance and magnitude of effect, the significance of the impact has been considered using the matrix presented in [Table 14-8](#) below and knowledge of the ecological features affected.
44. The assessment of potential impacts has been undertaken assuming implementation of embedded mitigation and commitments for the proposed scheme. Residual impacts include any additional mitigation measures required. An assessment of residual impacts is then made, after assuming implementation of additional mitigation measures where required, i.e. the significance of the effects that are predicted to remain after the implementation of all committed mitigation measures.

Table 14-8 Impact significance matrix

		Negative Magnitude				Beneficial Magnitude			
		High	Medium	Low	Negligible	Negligible	Low	Medium	High
Sensitivity	High	Major	Major	Moderate	Minor	Minor	Moderate	Major	Major
	Medium	Major	Moderate	Minor	Minor	Minor	Minor	Moderate	Major
	Low	Moderate	Minor	Minor	Negligible	Negligible	Minor	Minor	Moderate
	Negligible	Minor	Minor	Negligible	Negligible	Negligible	Negligible	Minor	Minor

45. The impact significance categories are defined as shown in [Table 14-9](#).

Table 14-9 Impact significance definitions

Impact Significance	Definition
Major	Very large or large change in receptor condition, both adverse or beneficial, which are likely to be important considerations at a regional or district level because they contribute to achieving

Impact Significance	Definition
	national, regional or local objectives, or, could result in exceedance of statutory objectives and / or breaches of legislation.
Moderate	Intermediate change in receptor condition, which are likely to be important considerations at a local level.
Minor	Small change in receptor condition, which may be raised as local issues but are unlikely to be important in the decision making process.
Negligible	No discernible change in receptor condition.
No Change	No impact, therefore no change in receptor condition.

46. Note that for the purposes of the EIA, major and moderate impacts are deemed to be significant. In addition, whilst minor impacts are not significant in their own right, it is important to distinguish these from other non-significant impacts as they may contribute to significant impacts cumulatively or through interactions.
47. Embedded mitigation has been referred to and included in the initial assessment of impact. If the impact does not require mitigation (or none is possible) the residual impact remains the same. However, if mitigation is required, an assessment of the post-mitigation residual impact is provided.
48. For the purposes of this ES, 'major' and 'moderate' impacts are deemed to be significant (in EIA terms). In addition, whilst 'minor' impacts may not be significant, it is important to distinguish these from other non-significant (negligible) impacts as they may contribute to significant impacts cumulatively.
49. Following initial assessment, if the impact does not require additional mitigation (or none is possible) the residual impact will remain the same. If, however, additional mitigation is proposed there will be an assessment of the post-mitigation residual impact.

#### 14.4.2.3 Cumulative Impact Assessment

50. For an introduction to the methodology used for the Cumulative Impact Assessment (CIA), please refer to **Chapter 3 EIA Methodology and Consultation**. This chapter includes those cumulative impacts that are specific to infrastructure and utilities.
51. The CIA involves consideration of whether impacts on a receptor can occur on a cumulative basis between the Project and other activities, projects and plans for which sufficient information regarding location and scale exist.
52. The potential for cumulative effects has been considered for the construction, operation and decommissioning of the proposed scheme cumulatively with other projects.
53. It is assumed that any consented development would be subject to mitigation and management measures which would reduce impacts to non-significant unless there were exceptional circumstances, it is accepted that such projects or schemes may contribute to a wider cumulative impact.

54. In cases where this proposed scheme has negligible or no impact on a receptor (through for example avoidance of impact through routing or construction methodology) it is considered that there is no pathway for a cumulative impact.

## 14.5 Existing Environment

### 14.5.1 Overview

55. The island of Great Cumbrae is located in the Firth of Clyde about 1.5km from the mainland. Millport Bay faces south, and within the bay there are large rock outcrops, known as the Eileans, the Leug and the Spoig, which provide shelter to the central section of Millport Bay against waves from the south.
56. Millport is occupied predominantly by residential properties, with occasional commercial premises servicing the needs of the local community.
57. The underground services present in Millport support the surrounding infrastructure, commercial and residential properties. A summary plan of the infrastructure and utilities within Millport is provided in Figures 14-1a and 14-1b.

### 14.5.2 Existing Coast Protection Structures

58. The form and condition of the existing coast protection structures to Millport Bay is summarised in [Table 14-10](#) ~~Table 14-10~~.

Table 14-10 Existing coast protection structures

Location / Length / Residual Life	Summary of condition of defences	Example Photograph
Location: Marine Parade Length: 500m Residual Life: 30 years	The northern part of Marine Parade (to the junction with Kames Bay) is protected by vertical masonry walls which are in a <b>fair</b> condition, showing limited signs of undermining or damaged pointing.	
Location: Kames Bay and Kelburn Street Length: 400m Residual Life: 30 years	A low concrete revetment is present along the northern part of the bay, which has minor damage in places but is generally in a <b>fair</b> condition.  The defences along the eastern side of Millport Bay (Kelburn Street) are intermittent masonry revetments between rock outcrops. In places the pointing is missing and the toe has been undermined, indicating potential voiding, although there is no evidence of collapse. There is limited risk of erosion in this area due to the presence of the rock outcrops.	

Location / Length / Residual Life	Summary of condition of defences	Example Photograph
<p>Glasgow Street (Kelburn St to Crocodile Rock)</p> <p>Length: 235m</p> <p>Residual Life: 30 years</p>	<p>A masonry revetment is the primary defence in this area, which is in <b>fair</b> condition. This revetment is founded on and between natural rock outcrops, which reduce the risk of defence failure in this area.</p> <p>A low masonry wall is present on the landward side of the promenade, which is in moderate condition. This is not designed as a flood protection structure.</p> <p>Properties in this area are very exposed to flooding from wave overtopping due to the low crest level of the defences.</p>	
<p>Glasgow Street (Crocodile Rock to College Street)</p> <p>Length: 265m</p> <p>Residual Life: 20 years</p>	<p>The concrete and masonry jetty located at 'the Crocodile' is in <b>poor</b> condition. If this was to fail there would be a risk of loss of the beach and increased exposure of the ultimate defence line.</p> <p>A low masonry revetment is the primary defence in this area and this is in a <b>fair</b> condition, however properties remain very exposed to flooding.</p>	
<p>Glasgow Street (College Street to Clifton Street)</p> <p>Length: 150m</p> <p>Residual Life: 10 years</p>	<p>Vertical masonry walls form the defences to the western part of Millport Bay. These are in variable condition with repairs recently undertaken to some sections to infill voids. One section of wall is badly cracked between the masonry wall and its concrete capping.</p> <p>The concrete and masonry jetty located at the western end of the bay is in <b>poor</b> condition. If this was to fail there would be a risk of loss of the beach and increased exposure of the ultimate defence line.</p>	
<p>Location: Guildford Street</p> <p>Length: 150m</p> <p>Residual Life: 30 years</p>	<p>Vertical masonry walls form the defences fronting the War Memorial area. These are in <b>fair</b> condition, although there is evidence of recent repointing and repairs to the toe of the walls. The concrete toe repairs are being undermined in places.</p>	
<p>Location: Stuart Street</p> <p>Length: 150m</p> <p>Residual Life: 30 years</p>	<p>The Stuart Street defences comprise a vertical masonry wall with a concrete crest wall, 4-5m high. Whilst there are a number of significant vertical cracks in this wall, there is no evidence of instability and no deterioration in the condition of the defences since the previous inspection. This defence is considered to be in a <b>moderate</b> condition.</p>	
<p>Location: Harbour</p> <p>Residual Life: 30 years</p>	<p>Millport Pier consists of a low masonry and concrete pier section and a timber section. The timber section is in poor condition and is currently closed to use. The masonry section is in <b>fair</b> condition. A raised masonry wall is present along the southern section of Millport Pier which is in good condition.</p>	

Location / Length / Residual Life	Summary of condition of defences	Example Photograph
Location: Clyde Street and Crichton Street, Millburn Street and West Bay Road) Length: 250m Residual Life: 20 years	<p>Properties on Clyde Street are protected by the natural rock outcrops south of Millport Pier, with low garden boundary walls above. The south west end of Clyde Street is protected by a sloping masonry wall with a substantial concrete toe which is in <b>good</b> condition apart from being undermined at its west end. The concrete toe is understood to protect an operational pumped water main.</p> <p>Seaward of the road, the coast protection structures along Crichton Street consist of masonry revetments (<b>fair</b> condition) integrated with a grass bank and the natural rock outcrops.</p>	
Location: Millburn Street and West Bay Road) Length: 200m Residual Life: 30 years	<p>Millburn Street and West Bay Road are protected by vertical masonry walls which are in a <b>fair</b> condition, showing only limited signs of undermining or damaged pointing.</p>	

59. The existing coast protection structures are currently overtopped by waves during storm events. This wave overtopping causes flooding of properties in Millport and damage to the seafront area. This risk of flooding is the reason for progressing the proposed scheme.
60. The existing coast protection structures are also at risk of failure, with breaches predicted to occur in a number of locations over the next 10 to 30 years. Failure of a structure would result in the wash out of retained material by the sea, causing the breach to grow in width and depth inland. Within 5 years of the breach, it would be expected that part of the coastal could be lost and property would begin to be affected. Prior to the complete loss of these assets, there would be regular flooding of the road and adjacent properties as waves run through the breach. The frequency of flooding would also be expected to increase with a breach of the defences. The flood protection scheme will also be designed to improve the protection provided against erosion of the coast.

### 14.5.3 Existing Water and Waste Water Infrastructure

61. Scottish Water have an extensive piped water supply and waste water network throughout Millport, as shown in Figures 14-1a and 14-1b.
62. The pumped water supply main is located beneath the footpath adjacent to the sea wall along Marine Parade. It then continues around Kames Bay, located beneath the seaward edge of the grass area, to connect with a pumping station located at the western end of Kames Bay. The pumped water main continues along Kelburn Street, beneath the seaward edge of the grass area, continuing around the seaward side of the Cross House and beneath the grass areas along Glasgow Street. In these areas, the pumped water main is located close to the construction area of the proposed scheme.
63. To the western end of Glasgow Street (from College Street) and along Guildford Street and Stuart Street, the pumped water main is located beneath the seaward side of the road, outside the proposed scheme construction area.

64. From the south west end of Clyde Street to Crichton Street, a pumped water main is located on the seaward side of the properties, encased in concrete. This is immediately adjacent to the western end of the proposed Clyde Street rock revetment. This water main then continues west, beneath the road along Crichton Street, Millburn Street and West Bay Road. This water main is close to the proposed scheme construction area in places along Crichton Street and Millburn Street (north of Crawford Street).
65. Along Marine Parade, the foul sewer is located under the road, outside the construction area for the proposed scheme. This sewer then runs from the junction of Kames Bay and Marine Parade, under the grass area to the north of the promenade, to an inspection chamber and outfall at the western end of Kames Bay.
66. Along Kelburn Street, the foul sewer is located beneath the landward side of the road, connecting into an outfall located to the east of the Cross House. The foul sewers serving Glasgow Street (east of College Street) are located under the road and footpath and also connect into this outfall. Apart from at the outfall, these sewers are outside the construction area for the proposed scheme.
67. The foul sewers to Stuart Street, Clyde Street, Crichton Street, Millburn Street and West Bay Road are located beneath the roads, generally outside the working area for the proposed scheme. At the south end of Clyde Street, the sewer connects with an inspection chamber and outfall, with the inspection chamber adjacent to the proposed rock armour revetment. At the junction of Crichton Street and Millburn Street the sewers connect into an outfall, close to the end of a proposed section of concrete flood wall.
68. Scottish Water has stated that the pumped water main and foul sewer pipes are generally located close to the surface beneath the roads, due to the high bedrock level throughout Millport. These plastic pipes can be damaged by construction vehicle movements and vibration transmitted through the bedrock.
69. There are various abandoned septic tanks located within the wider proposed scheme area.

#### **14.5.4 Existing Surface Water Drainage Infrastructure**

70. Surface water drainage from the Millport seafront area is generally achieved by water flowing out to sea over the crest of the existing flood protection structures, as for most of Millport the crest level is the same as for the adjacent path.
71. Along Marine Parade, the kerb between the road and the footpath may restrict surface water drainage from inland to sea. There are a few small scupper holes providing additional drainage beneath the path and through the sea wall at irregular intervals along the northern part of Marine Parade. A surface water (and possibly groundwater) culvert is located in the centre of Kames Bay. Surface water is able to drain along the access paths around Kames Bay and Kelburn Street.
72. There are surface water drainage gullies located along the seaward side of the carriageway along Glasgow Street and Stuart Street, which connect into outfalls discharging into Millport Bay. There are further gullies within the footpath kerb along West Bay Road.
73. The Mill Burn is culverted beneath Crawford Street, discharging into West Bay via a pipe through the masonry sea wall.

74. Comments provided on the community consultation questionnaires referred to a lack of capacity in the surface water drainage network, particularly for Marine Parade and Glasgow Street (at Mount Stuart Street and College Street). Existing surface water drainage outfalls can become blocked by beach sediments or be tide-locked, preventing discharge to sea.

#### **14.5.5 Outfalls**

75. Foul drainage and surface water drainage outfalls discharge into Millport Bay at various locations, as shown in Figures 14-1a and 14-1b, including:
- West end of Kames Bay
  - Southern end of Kelburn Street, to the east of the Cross House;
  - Glasgow Street, to the east of the public toilets;
  - Stuart Street, adjacent to Churchill Street;
  - Knox's Port, to the south west of Millport Pier; and
  - Southern end of Crichton Street.
76. There are various abandoned outfalls located around the foreshore of Millport Bay. It is intended that the removal of redundant outfalls would be undertaken as part of the scheme, subject to agreement with Scottish Water.

#### **14.5.6 Electricity, Gas and Telecommunications Infrastructure**

77. A summary plan of the electricity and telecommunications infrastructure within Millport is provided in Figures 14-1a and 14-1b. The services plans do not show any gas mains within the wider site area.
78. Electricity cables are located beneath the footpath adjacent to the sea wall along West Bay Road. For the remainder of the project area, electricity cables are generally located beneath the footpath on the landward side of the road, adjacent to properties, and therefore outside the construction area of the proposed scheme.
79. Telecommunications cables are located beneath the footpath on the seaward side of the road along Stuart Street, Glasgow Street, Kelburn Street, Kames Bay and Marine Parade. Along West Bay Road, cables are located under the footpath on the landward side of the road so are therefore outside the construction area of the proposed scheme. There are no telecoms cables within the project area along Millburn Street and Crichton Street.

#### **14.5.7 Existing Public Realm Infrastructure**

80. Street lighting is provided throughout Millport. In the following locations, streetlights are positioned within the working area of the proposed scheme:
- Around the landward edge of the grass area to Kames Bay and Kelburn Street;
  - Within the grass verge on Millburn Street, to the south of Crawford Street; and
  - Seaward side of the footpath on West Bay Road.
81. Coloured amenity lights are in place along Glasgow Street and Stuart Street, strung between posts which also hold hanging baskets. Along Stuart Street, these posts are located adjacent to the crest of the sea wall. Near to the Garrison House, the posts are approximately along the alignment of the proposed flood wall. East of College Street the posts are located on the landward side of the grass area, outside the proposed construction area. The lighting continues around Kames Bay, with the

posts located along the edge of the seaward side of the grass areas. Comments provided on consultation questionnaires have highlighted that this lighting should be retained and extended if possible.

82. Benches are provided at frequent intervals around Millport Bay. Many of these have memorial plaques. Comments provided on consultation questionnaires gave a range of views on these benches, with some respondents wanting to reduce the number of benches and others keen to ensure that the existing benches (and memorial plaques) are retained. Comments were also made about the need to ensure any seating provision (e.g. integrated into the proposed flood walls) is suitable for use by Millport residents, many of whom are elderly.
83. Public toilets are located on Glasgow Street (adjacent to the Crocodile Rock).
84. Bus shelters are located at the centre of Kames Bay and on Glasgow Street (adjacent on to College Street).
85. Other public realm infrastructure includes planters, refuse and dog waste bins, lifebuoys and various signs located at intervals along Glasgow Street, Kelburn Street and Kames Bay. A rubbish bin store is located at the western end of Kames Bay. A flagpole is located on the promenade at the Crocodile Rock.

#### **14.5.8 Other Infrastructure and Facilities**

86. Community facilities located at the Garrison House include the Museum of the Cumbraes, Millport Library and the Cumbrae Medical Centre. Whilst the Garrison House is close to the proposed scheme area, it is not within the working area and therefore access to this facility will not be affected by the proposed works.
87. There is no evidence of any critical offshore infrastructure such as marine cables or pipelines located within the study area.
88. A review of the unexploded bomb risk map produced by Zetica for the North Scotland region was undertaken to determine the potential for unexploded ordnance (UXO) within the area during the preparation of the Scoping Report. The proposed scheme footprint (including the scheme options) has been assigned a category of low risk for UXO. In addition, no World War II targets are identified on the mapping within the vicinity of the Isle of Cumbrae.

#### **14.5.9 Anticipated Trends in Baseline Conditions**

89. North Ayrshire Council plans to implement a Flood Protection Scheme for the Mill Burn within the next two years. It is currently expected that works will take the form of a culvert discharging into West Bay which will act as a diversion channel during periods of extreme flows.
90. Based on consultation with Scottish Water it is understood that there are no current plans to make changes to the water and wastewater infrastructure within Millport.
91. Changes may need to be made to the existing surface water outfalls in the future, to address the impacts of climate change.

## 14.6 Impact Assessment

92. Following the methodology presented in Section 14.4 above, the impacts associated with the infrastructure and utilities receptors described in Section 14.5 have been assessed and are presented in this section. Where measures over and above the embedded mitigation described in Section 14.6.1 are required to avoid, reduce, remedy/compensate or enhance the adverse impacts of the proposed scheme, this information has been provided.

### 14.6.1 Embedded Mitigation

93. Embedding mitigation into the proposed scheme design is a type of primary mitigation and is an inherent aspect of the EIA process. A full account of embedded mitigation measures is contained in **Chapter 5 Project Description**.
94. With regard to infrastructure and utilities, the scheme design has been developed with consideration of the constraints imposed by the location of existing infrastructure. Embedded mitigation measures and changes made to the scheme design to address constraints relating to infrastructure and utilities are described in [Table 14-11](#)~~Table 14-11~~. Additional mitigation measures are also included to follow best practice and policy requirements and are described in [Table 14-12](#)~~Table 14-12~~.

Table 14-11 Embedded mitigation measures for infrastructure and utilities

Constraint	Mitigation measures embedded into the scheme design
Pumped water main and associated water infrastructure along Marine Parade, Kames Bay, Kelburn Street and Glasgow Street	The alignment of the proposed scheme along Marine Parade, Kames Bay, Kelburn Street and Glasgow Street has been adjusted to be as far away from the water main as possible. This includes reducing the width of the steps to Kames Bay and terminating these to the east of the pumping station and inspection chamber located on the west side of Kames Bay. The design of the crest wall to Marine Parade Street has been adjusted to minimise excavation requirements. The extent of flood walls along Glasgow Street and Kames Bay has been minimised, with ground raising proposed as the method of flood protection wherever possible.
Pumping station and outfall at Knox's Port (south west of Millport Pier)	A rock armour revetment was previously proposed for this area. The design of the rock revetment to Clyde Street has been adjusted so that it will reduce wave energy reaching the area to the north of Knox's Port, removing the need for a revetment adjacent to the pumping station.
Proposed structures interrupting surface water drainage flow paths	The layout of the proposed flood walls considers surface water drainage flow paths and maintains flow routes via access paths wherever possible. The proposed scheme also includes improvements to the capacity of existing surface water drainage gullies, with the addition of further gullies if required.
Changes to seating provision	The proposed flood walls along Glasgow Street would be located along the current alignment of the (memorial) benches. The flood walls will be designed so that they can be used as seats. Appropriate locations for reinstatement of the (memorial) benches will be agreed with the local authority.
Changes to street lighting and amenity lighting	Some street lights and post supporting the amenity lighting may need to be removed to enable construction works. Any requirements for temporary lighting provision by the contractor would be agreed with the local planning authority.  Street lighting will be reinstated in the same location wherever possible, or in alternative suitable locations to be agreed with the local planning authority.

Constraint	Mitigation measures embedded into the scheme design
Residual risks to buried utilities.	Mitigation measures to address the remaining risks to buried utilities will be agreed with the appropriate utilities provider during the detailed design phase for the proposed scheme.

Table 14-12 Embedded mitigation through Best Practice and Policy

Parameter	Mitigation measures through Best Practice and Policy
Best practice for construction	<p>Method statements will be agreed between North Ayrshire Council, the construction contractor and the relevant utilities operators which include requirements on the contractor for appropriate mitigation of potential impacts on infrastructure and utilities.</p> <p>These method statements will include a ground-penetrating radar survey to check the position of buried services immediately prior to construction commencing.</p> <p>Method statements will need to state how utilities assets will be protected during construction, including any assets that may be exposed during excavation works, and those which could be affected by construction vehicle movements.</p>

## 14.6.2 Potential Impacts during Construction

95. This section discusses the potential impacts which may occur to infrastructure and utilities during activities associated with the construction of the proposed scheme. Impacts to commercial and recreational navigation, including Millport Pier and the jetties on Newtown Beach, are considered in **Chapter 13 Commercial and Recreational Navigation**. Impacts to groundwater and surface water quantity and quality are addressed in **Chapter 18 Water Resources and Flood Risk**. Impacts to traffic and transport, including pedestrian access along the Millport seafront are covered in **Chapter 20 Traffic and Transport**. Impacts to public access to the beaches and rock foreshore and to recreation facilities are considered in **Chapter 23 Tourism and Recreation**.

### 14.6.2.1 Construction Impact 1: Potential for damage to buried utilities during construction

96. The proposed scheme has the potential to impact on buried utilities on land and existing outfall pipes on the foreshore. Damage could be caused by excavations required to remove material to enable construction of the proposed flood walls and crest walls, where these works are close to buried services. The works to raise ground levels on Kelburn Street and Glasgow Street will require placement of fill material over existing buried utilities. There is also a residual risk of damage from construction vehicle movements over buried services or over outfalls on the foreshore.
97. The buried utilities within Millport are of local importance and have limited tolerance of impact and therefore are assessed to have **medium value and sensitivity**.
98. If the risk of damage is not managed in an appropriate manner and damage occurred to water and wastewater utilities there could be impacts on residents of Millport in terms of the supply of fresh water or foul drainage. The magnitude of the impact on residents has been assessed to be of **medium to high significance**, although most likely to be localised in extent and of short duration.
99. The risk of damage can be greatly mitigated through use of good practices by the construction contractors. Embedded mitigation includes finalising the detailed design of the scheme in the vicinity of buried utilities through agreement with the relevant utilities operations, agreement of appropriate method statements and adherence to construction best practice. These measures greatly reduce the risk of occurrence and likely significance of damage to buried utilities.

100. The residual impact on buried utilities will be of **moderate adverse** significance.

### 14.6.3 Potential Impacts during Operation

101. This section discusses the potential impacts which may occur to infrastructure and utilities during operation of the proposed scheme. Impacts to commercial and recreational navigation, including Millport Pier and the jetties on Newtown Beach, are considered in **Chapter 13 Commercial and Recreational Navigation**. Impacts to groundwater and surface water drainage are considered in **Chapter 18 Water Resources and Flood Risk**. Impacts to traffic and transport are considered in **Chapter 20 Traffic and Transport**.

102. Four potential impacts on infrastructure and utilities receptors resulting from the operation stage have been identified. These are:

- Reduced risk of flooding and erosion to existing infrastructure;
- Improvements to surface water drainage;
- Removal of redundant outfalls; and
- Changes to street furniture.

#### 14.6.3.1 Operation Impact 1: Reduced risk of flooding and erosion to existing infrastructure

103. The proposed scheme will reduce the flooding and erosion risk to existing infrastructure on land. This will include reduced incidence of damage to seafront public realm infrastructure. This impact is assessed to be of **major beneficial** significance.

#### 14.6.3.2 Operation Impact 2: Improvements to surface water drainage

104. The consideration of surface water drainage requirements as part of the design of the proposed scheme, and the expected inclusion of additional surface water drainage gullies along Glasgow Street and Stuart Street has the potential to improve the general surface water drainage of Millport.

105. Existing surface water drainage outfalls can become blocked or be tide-locked, preventing drainage to sea. The proposed scheme will include the installation or replacement of flow return valves to existing outfalls as required to prevent tidal intrusion. Suitable flap valves will be installed or replaced on the end of the outfalls to minimise the risk of sediment blockage.

106. The surface water drainage infrastructure in Millport is of local importance, and therefore of **medium** value.

107. There is some redundancy within the local system so these infrastructure assets are assessed as having **low** sensitivity.

108. The operation and maintenance plans for the scheme should include provision for monitoring of the performance of the surface water drainage outfalls.

109. The proposed improvements to surface water drainage are assessed to be of **minor beneficial** significance.

#### 14.6.3.3 Operation Impact 3: Removal of redundant outfalls

110. The construction of the proposed scheme includes plans to remove redundant outfalls from the foreshore in Millport Bay. The removal of unsightly and potentially unsafe outfall pipes is considered to be an enhancement to the amenity value of the beach. Full removal, or where not feasible, blocking

of existing redundant outfalls may also help to maintain coastal water quality by preventing the discharge of any residual materials from within the pipes.

- 111. The method of removal of the redundant outfalls will be agreed with Scottish Water as part of the detailed design phase for the scheme.
- 112. The existing outfalls are redundant, so these assets are of **low** value and sensitivity.
- 113. The removal (where possible) of redundant outfalls from the Millport frontage is assessed to be of **minor beneficial** significance.

#### 14.6.3.4 Operation Impact 4: Changes to street furniture

- 114. The construction of the proposed flood walls along Glasgow Street will mean that some benches will need to be moved. The extent of these changes is limited, and there is additional seating available elsewhere. Therefore the existing public realm infrastructure is assessed as being of **low** value and sensitivity.
- 115. It is not currently expected that any benches will be removed from Millport following completion of construction of the proposed scheme, although the location of the benches may need to change. This impact is therefore assessed to be of **negligible** significance.
- 116. The provision of extra seating as an additional function of the flood walls is assessed to be of **minor beneficial** significance. This seating will need to be designed to be appropriate for use by the relatively elderly residents of Millport.

#### 14.6.4 Potential Impacts during Decommissioning

- 117. No decision has been made regarding the final decommissioning policy for the onshore infrastructure of the proposed scheme as it is recognised that industry best practice, rules and legislation change over time. The detail and scope of the decommissioning works will be determined by the relevant legislation and guidance at the time of decommissioning and agreed with the regulator. As discussed in **Chapter 5 Project Description**, a decommissioning plan will be submitted for approval by the regulatory authorities prior to construction.
- 118. Decommissioning of the proposed scheme is most likely to consist of removal of the flood protection structures. As such, for the purposes of a worst-case scenario, impacts no greater than those identified for the construction phase are expected for the decommissioning phase.

### 14.7 Cumulative Impact Assessment

- 119. The potential for cumulative impacts in relation to infrastructure and utilities has been assessed, including consultation with North Ayrshire Council planning team regarding other plans, projects and activities. The only project which could cause cumulative impacts with the proposed scheme is the Mill Burn Flood Scheme which currently includes two options for diverting and upgrading the existing Mill Burn culvert. However, this scheme is due to be completed at the latest before Summer 2021, with the Millport Flood Protection Scheme due to begin construction in Autumn 2021, so unless there is a change to the Mill Burn programme, these schemes will not overlap.
- 120. No cumulative impacts are expected during the operational phase of the proposed scheme.

121. Cumulative impacts during the decommissioning phase would depend on the nature of the works required to decommission the scheme, and any projects ongoing in the vicinity of the decommissioning works at that time.
122. If any of the operators of existing infrastructure and utilities in Millport need to undertake works to their assets during the construction phase for the proposed scheme then the requirements for those works, including construction method statements, would need to be agreed between the operator, North Ayrshire Council and the construction contractor for the proposed coastal flood protection scheme.

## 14.8 Inter-relationships

123. ~~Table 14-13~~~~Table 14-16~~ lists out the inter-relationships between other chapters within the ES.

Table 14-13 Inter-topic relationships

Topic	Related Chapter	Where addressed in this chapter	Rationale
Commercial and Recreational Navigation	13	Not included	Impacts to infrastructure relating to commercial and recreation navigation, such as Millport Pier and jetties on Newtown beach are fully addressed in Chapter 13.
Water Resources and Flood Risk	18	Section 14.5.2, Section 14.5.4, Section 14.6	Impacts to surface water drainage infrastructure and to existing flood and coast protection infrastructure are addressed in this Chapter 14, with impacts to water quality and quantity addressed in Chapter 18.
Traffic and Transport	20	Section 14.6	Impacts to roads and other traffic and transport infrastructure, including public access along the Millport seafront, are fully addressed in Chapter 20. Potential impacts due to construction vehicle movements in the vicinity of buried utilities are addressed in this Chapter 14.
Tourism and Recreation	23	Not included	Impacts to public access to the beaches and rock foreshore are fully addressed in Chapter 23.

## 14.9 Summary

124. The main potential impacts of the proposed scheme on infrastructure receptors have been identified, with one potential impact during construction and four potential impacts during operation. A summary of the potential impacts and proposed mitigation is presented in ~~Table 14-14~~~~Table 14-14~~.

Table 14-14 Potential Impacts Identified for infrastructure and utilities

Potential Impact	Receptor	Value	Magnitude	Significance	Examples of Potential Mitigation Measures	Residual Impact
Construction						
Impact 1: Potential damage to utilities infrastructure	Residents and businesses	Medium	High	Moderate adverse	Detailed design of scheme and construction method statements to be agreed with utilities operators.	Moderate adverse

Potential Impact	Receptor	Value	Magnitude	Significance	Examples of Potential Mitigation Measures	Residual Impact
					Best practice methods of construction.	
Operation						
Impact 1: Reduced risk of flooding and erosion to existing infrastructure	Residents and businesses	Medium	High	Major beneficial	Not applicable, as impact is beneficial.	Major beneficial
Impact 2: Improvement to surface water drainage	Residents and businesses	Low	Low	Minor beneficial	Not applicable, as impact is beneficial.	Minor beneficial
Impact 3: Removal of redundant outfalls	Residents and visitors	Low	Low	Minor beneficial	Not applicable, as impact is beneficial.	Minor beneficial
Impact 4: Changes to street furniture	Residents and visitors	Low	Low	Minor beneficial	Design and construction of scheme for flood walls to provide additional seating.	Minor beneficial
Decommissioning						
As a flood prevention scheme, the proposed scheme is anticipated to be maintained rather than removed, and therefore decommissioning activities are currently unknown. This will be assessed at the time of any decommissioning activities required.						

## 14.10 References

National One Call Service Search response dated 14.07.2016, including:

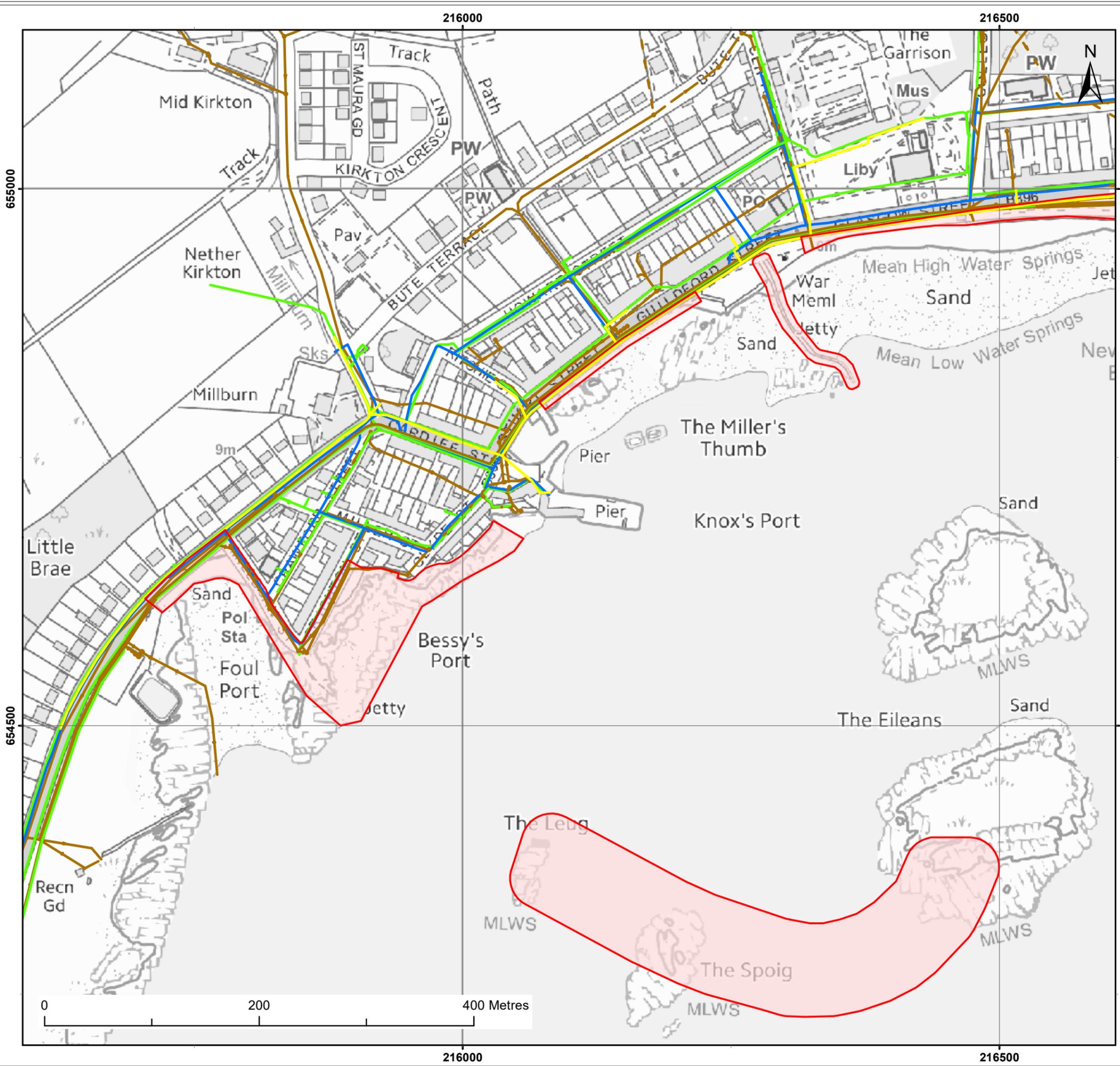
- BT Openreach letter dated 28.06.2016 including maps ref. WYW02178C, FIQ021858, ALN02184S, UAH02196W, GBR02198D
- CityFibre plan of Millport dated 27.06.2016
- Coal Authority Letter dated 14.07.2016
- Scotia Gas Networks Letter dated 07.07.2016
- Scottish and Southern Energy maps of Millport dated 28.06.2016
- Scottish Water maps of Millport dated 07.07.2016

North Ayrshire Council, East Ayrshire Council and South Ayrshire Council (2007) Ayrshire Joint Structure Plan. Available at: <https://www.south-ayrshire.gov.uk/documents/ayrshire%20joint%20structure%20plan%202007.pdf>. Accessed: 20.11.19.

North Ayrshire Council, 2019 Local Development Plan 2. Available at: <https://www.north-ayrshire.gov.uk/planning-and-building-standards/ldp/ldp2.aspx> Accessed: 29.01.20.

Scottish Government (2014a) National Planning Framework (NPF) Available at: <https://www.gov.scot/publications/national-planning-framework-3/> Accessed: 20.11.19.

Scottish Government (2014b) Scotland's Planning Policy (SPP). Available at: <https://www.gov.scot/publications/scottish-planning-policy/> Accessed: 20.11.19.



**Legend**

- Redline Boundary
- Working Area

**Utilities**

- Communications
- Electricity
- Sewer
- WATER\_DISTRIBUTION

© HaskoningDHV UK Ltd.  
 © Crown copyright and database rights 2019 Ordnance Survey 100023393.  
 Use of this data is subject to terms and conditions.

Client: North Ayrshire Council	Project: Millport Flood Protection Scheme - EIA Report
-----------------------------------	---

Title: <b>Utilities</b>
----------------------------

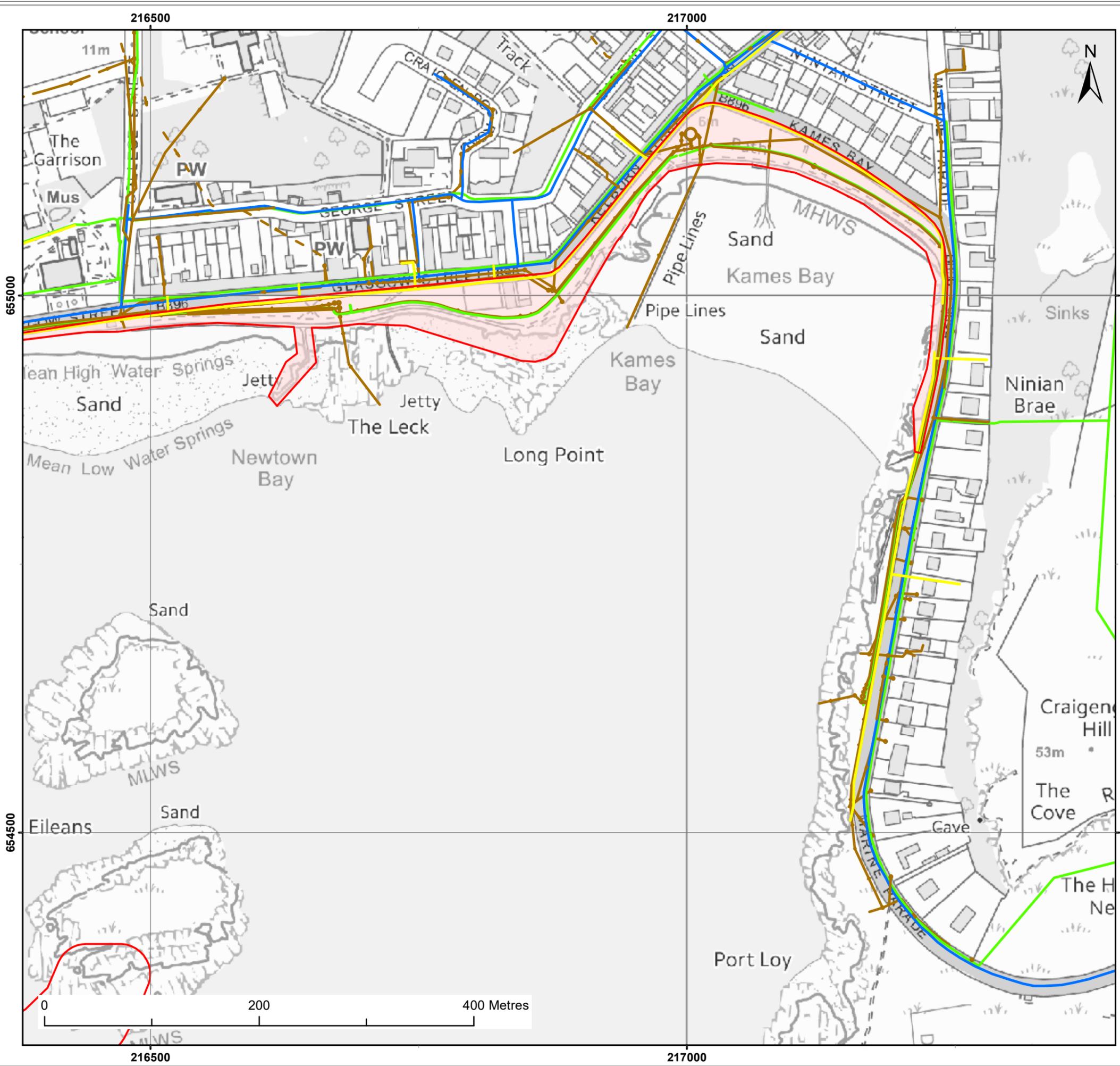
Figure: 14.1a	Drawing No:
---------------	-------------

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
0	04/02/2020	TC	AS	A3	1:3,500

Co-ordinate system: British National Grid

**Royal HaskoningDHV**  
Enhancing Society Together

**ROYAL HASKONINGDHV**  
 Marlborough House  
 Marlborough Crescent  
 Newcastle-upon-Tyne, NE1 4EE  
 +44 (0)191 211 1300  
 www.royalhaskoningdhv.com



**Legend**

- Redline Boundary
- Working Area

**Utilities**

- Communications
- Electricity
- Sewer
- WATER\_DISTRIBUTION

© HaskoningDHV UK Ltd.  
 © Crown copyright and database rights 2019 Ordnance Survey 100023393.  
 Use of this data is subject to terms and conditions.

Client: North Ayrshire Council	Project: Millport Flood Protection Scheme - EIA Report
-----------------------------------	--

Title: <b>Utilities</b>
----------------------------

Figure: 14.1b	Drawing No:				
Revision:	Date:	Drawn:	Checked:	Size:	Scale:
0	04/02/2020	TC	AS	A3	1:3,500

Co-ordinate system: British National Grid



**Royal HaskoningDHV**  
Enhancing Society Together

**ROYAL HASKONINGDHV**  
 Marlborough House  
 Marlborough Crescent  
 Newcastle-upon-Tyne, NE1 4EE  
 +44 (0)191 211 1300  
 www.royalhaskoningdhv.com