highways england

A63 Castle Street improvements

Preliminary Environmental Information (Updated 2016)

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A63 Castle Street Improvement, Hull

Updated Preliminary Environmental Information

Revision Record

Rev No	Date	Originator	Checker	Approver	Status	Suitability
1	14/12/16	LP/LC			Draft	

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1. Introduction

1.1.1 Highways England is proposing to improve the A63 Castle Street to provide the following benefits:

- Reduce traffic congestion.
- Improve access to the port.
- Improve safety for road users and the local community.
- Improve links between the city centre to the north and the leisure facilities to the south of the A63.

1.1.2 As part of our proposals we are required to make an application for a Development Consent Order (DCO) under the Planning Act 2008. This is submitted to the Planning Inspectorate who will examine the application and make a recommendation to the Secretary of State for Transport, who makes the decision on whether the scheme should go ahead.

1.1.3 We held a consultation exercise in 2013 and presented our proposed road improvements in more detail. We published Preliminary Environmental Information (PEI) to enable consultees to understand likely environmental effects of the proposed improvements and to set out our approach to Environmental Impact Assessment (EIA).

1.1.4 This report provides an update to the PEI that was published in 2013, which can be accessed via the Planning Inspectorate website[1].

1.2 Content of this report

1.2.1 This report explains what new environmental information has been collated since the original PEI was provided in 2013.

1.2.2 The PEI provided in 2013 was also our Scoping Report, which set out our planned approach to carrying out Environmental Impact Assessment (EIA). The Planning Inspectorate consulted on our scoping report and collated the feedback in a Scoping Opinion[2].

[1] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010016/TR010016-000065-130301_112630-AE-01_A63%20Castle%20Street%20Improvements%20Hull_ES%20Scoping%20Report_v1.pdf

[2] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010016/TR010016-000061-130410_TR010016_Scoping%20Opinion.pdf

1.2.3 The report considers each of the environmental topic areas that are considered as part of the EIA process:

- Air Quality
- Noise and Vibration
- Cultural heritage
- Landscape and Visual Impacts
- Nature Conservation
- Road Drainage and the Water Environment
- Geology and Soils
- Materials
- Effects on All Travellers
- People and Communities

1.3 Environmental Impact Assessment

1.3.1 Environmental Impact Assessment (EIA) is a statutory process to identify, predict and evaluate the effects a proposed project will have on the Environment.

1.3.2 Highways England's guidance on environmental assessment is set out in the Design Manual for Roads and Bridges (DMRB), volume 11[3]. This is supplemented by specific Interim Advice Notes (IANs)[4].

1.3.3 EIA considers the effects on the environment when the scheme is open and operational, as well as during the construction stage.

1.3.4 The outcome of the EIA process will be presented in our Environmental Statement (ES). The ES will be submitted as part of the application for DCO.

1.4 Design development

1.4.1 Since 2013, the design of the scheme has continued to progress. The latest scheme design is described in more detail in our Consultation Leaflet - *Have your say: A63 Castle Street improvements - Public consultation January 2017.*

[3] http://www.standardsforhighways.co.uk/ha/standards/DMRB/vol11/index.htm
[4] http://www.standardsforhighways.co.uk/ha/standards/ians/index.htm

1.4.2 We propose to improve a 0.9 mile stretch of dual carriageway between the Ropery Street and the Market Place/Queen Street junction. This will include:

- A split level junction at Mytongate to separate A63 traffic and local traffic.
- Lowering the A63 and provide a new Mytongate bridge to carry Ferensway/Commercial Road traffic over the A63.
- Provide a combined pedestrian, cyclist and disabled user route across the A63 on both sides of the new Mytongate Bridge.
- Replace the signal-controlled pedestrian crossings near Porte Street and at Princes Quay with two new pedestrian, cyclist and disabled user bridges over the A63
- Provide three lanes for eastbound traffic between Princes Dock Street and Market Place.
- Make the junction with Princes Dock Street one way northbound from the A63 and restrict access to the A63 from side roads by closing junctions at Dagger Lane, Fish Street, Vicar Lane and Humber Dock Street.

1.4.3 The key changes to our proposals since 2013 are:

- The scheme has been extended westwards from St. James Street to Redfern Close/Ropery Street to provide safer road marking arrangements between the existing and new road layouts
- Parking restrictions have been introduced on St. James Street on the approach to the junction with English Street to assist traffic using the junction
- To replace the existing amenity area in Trinity Burial Ground which is required to build the scheme, we will be providing an equivalent area of replacement public open space. There are two options under consideration:
    - Demolishing the Myton Centre and converting the area into public open space.
    - Converting a development area located east of the River Hull and north of the Scale Lane bridge approach ramp into public open space.
- An additional lane has been added to the eastbound ‘on’ slip road linking Mytongate junction to Myton Street. This will improve traffic flow through the new junction
- We are considering the demolition of the Grade II listed Earl de Grey public house and Grade II listed Castle Buildings so the scheme can be constructed safely.

- The proposed Market Place bridge has been removed. This decision was made following consultation responses that raised concerns the bridge would distract from the setting of the listed statue of King William III. We propose to replace the bridge with an upgraded route for pedestrians, cyclists and disabled users linking the north and south sides of the A63 via High Street, beneath Myton Swing Bridge.

- The pedestrian, cyclist and disabled user bridge at Princes Quay has changed in its design.

- The proposed location for the drainage outfall pumping station has moved. It will not be located at a low level in the new underpass. This has removed the requirement for a maintenance layby in the new underpass.

- The preferred location for the pumping station is west of Trinity Burial Ground although we are also considering an alternative location adjacent to the westbound slip road.

- Some parking changes and road widening on Humber Dock Street and Blanket Row.

- We have identified a number of vacant development plots as site compounds for the works and will be including the following sites in the Development Consent Order:

    - Waterhouse Lane Coach Park

    - Vacant land east of River Hull (Tower Street Wharf North)

    - Car park east of River Hull (Tower Street Wharf South)

    - Bonus site south of Blackfriargate (Blackfriargate Bonus Site)

    - Site south of Wellington Street West (Wellington Street West Island Wharf)

    - Land south east of Mytongate junction

    - Land south of Neptune Street (Neptune Street South AMI Cold Stores)

    - A63 eastbound layby north of St Andrews Quay

    - Development site at Saxon Way (Saxon Way)

    - Commercial site south of A63 and east of Hessle Haven (Livingstone Road South Humber Properties Ltd)

2.1.1 There is no guarantee that all of these sites would still be available at the proposed start of works if the DCO was granted, so more sites have been identified than would actually be required.

1.5 What happens next?

1.5.1 We will continue to develop the scheme design, and the process of gathering information and identifying what the environmental impacts of the scheme will be ongoing.

2. Air Quality

2.1.1 The air quality topic encompasses three sub-topics:

- Local air quality which focuses on air pollutants which have immediate impacts on human health and ecosystems at a local level.
- Regional air quality which considers total pollutant emissions to account for pollutants which can travel longer distances and have an impact on a regional, national or international scale.
- Climate change which assesses the emissions of greenhouse gases that can contribute to changes in the climate at a global level.

2.2 Approach / Methodology

2.2.1 Since the 2013 PEI, the Defra technical guidance to assess local air quality has been updated from TG.09 to TG.16[5]. The updated version will be used in the assessment.

2.2.2 Additionally, the following Highways England interim advice notes (IAN) have been published since the 2013 PEI:

- 174/13, Updated advice for evaluating significant local air quality effects for users of DMRB Volume 11, Section 3, Part 1 'Air quality' (HA207/07).
- 175/13, Updated advice on risk assessment compliance with the EU Directive on ambient air quality and the projection of Scheme Air Quality Action Plans for users of DMRB Volume 11, Section 3, Part 1 'Air quality' (HA207/07).
- 185/15, Updated traffic, air quality and noise advice on the assessment of link speeds and generation of vehicle data into 'speed bands' for users of DMRB Volume 11, Section 3, Part 1 'Air quality' (HA207/07).

2.2.3 The air quality assessment will be completed in accordance with the guidance provided in the above IANs. IAN 175/13 is currently withdrawn pending a new version, and Highways England has advised to continue to use this as it is the only DMRB associated guidance available for assessing risk related to compliance with the EU Directive on ambient air quality.

2.2.4 It should be noted that IAN 170/12 (Updated air quality advice for the assessment of future NO_x and NO_2 projections for users of DMRB Volume 11, Section 3, Part 1

[5] Defra (2016) Part IV of the Environment Act 1995, Environment (Northern Ireland) Order 2002 Part III: Local Air Quality Management – Technical Guidance LAQM.TG (16), available online at http://laqm.defra.gov.uk/documents/LAQM-TG16-April-16-v1.pdf

Air Quality) has been updated to version 3 since the 2013 PEI, and this more recent version will be used for the air quality assessment.

2.3 Baseline

2.3.1 The Project Site is located within an Air Quality Management Area (AQMA), declared by Hull City Council (HCC) for exceedances of the annual mean NO_2 objective.

2.3.2 HCC and Defra monitor air quality throughout Hull, and more recent data has been published since the 2013 PEI. Data for 2013 to 2015 indicates that NO_2 concentrations exceeded the annual mean NO_2 objective at roadside locations along the A63, within the AQMA. The data also indicates that particulate matter (PM_{10}) concentrations were below air quality objectives.

2.3.3 Additionally, a twelve month (January to December 2015) NO_2 diffusion tube monitoring survey was undertaken at 42 locations within Hull to supplement the existing monitoring data. The data shows that concentrations exceeded the annual mean objective within the AQMA and at two locations in close proximity to Mount Pleasant Road (outside of Hull AQMA, but not representative of human exposure i.e. not in close proximity to residential properties).

2.4 Surveys / data sources

2.4.1 As described in Section 2.3, a twelve month NO_2 diffusion tube monitoring survey was undertaken from January to December 2015.

2.5 Consultation

2.5.1 Consultation was undertaken with HCC to agree the locations of sensitive receptors to be considered in the air quality assessment[6].

2.6 Mitigation

2.6.1 Potential construction dust effects will be suitably controlled using best practise mitigation measures which will be incorporated into the Construction Environmental Management Plan (CEMP). The requirement for mitigation for the operational phase will depend on the outcome of the Project air quality assessment, which is yet to be undertaken.

[6] Email between Mott MacDonald and Air Quality Officer, HCC (David White) on 03/10/16 and telephone conversation between Mott MacDonald and Air Quality Officer, HCC on 07/10/16.

2.7 Likely Impacts

2.7.1 Construction phase activities have the potential to lead to dust soiling effects due to emissions of dust, however these effects can be suitably mitigated using best practice measures, which will be identified in the air quality assessment.

2.7.2 The operational phase of the Project will affect air quality due to:

- A change in vehicular emissions and pollutant concentrations resulting from a change to the flow, speed and composition of traffic on the road network.
- A change in road layout and alignment, leading to a change in vehicular emissions and a change in the distance between vehicular emissions and receptors.

2.7.3 The traffic impacts associated with the Project are yet to be determined and so the air quality impacts are unknown at this stage. The operational phase of the Project does however have the potential to lead to an overall benefit to air quality as a result of reduced traffic congestion within the AQMA.

3. Noise & Vibration

3.1 Introduction

3.1.1 The construction and operation of the proposed A63 Castle Street Improvements Scheme have the potential to give rise to both temporary and permanent noise and vibration impacts that may affect sensitive receptors in the area of the Project.

3.1.2 An assessment of the noise and vibration effects is being undertaken so that the scope to mitigate adverse impacts can be considered.

3.2 Approach / Methodology

3.2.1 The methodology of the assessment of noise and vibration impacts will be undertaken as set out in the 2013 Scoping Report and updated to take into account subsequent changes in relevant best practice and guidance.

3.2.2 Noise and vibration impacts during construction are to be assessed in accordance with the British Standard 5228 'Code of Practice for Noise and Vibration Control on Open Sites – Part 1: Noise and 'Part 2: Vibration' (2009). An amendment was published in 2014 but this does not alter the approach to the assessment.

3.2.3 National Policy Statement for National Networks was published in 2014. Clause 5.195 states:

"*The Secretary of State should not grant development consent unless satisfied that the proposals will meet, the following aims, within the context of Government policy on sustainable development:*

- avoid significant adverse impacts on health and quality of life from noise as a result of the new development;
- mitigate and minimise other adverse impacts on health and quality of life from noise from the new development; and
- contribute to improvements to health and quality of life through the effective management and control of noise, where possible."

3.2.4 The Noise Policy Statement for England (NPSE) introduces the concept of Significant Observed Adverse Effect Level (SOAEL) as being "*the level above which significant adverse effects on health and quality of life occur*". There is currently no strict definition of criteria of thresholds to identify significant adverse effects as it is recognised that this is dependent on the nature of the source and the context in which it is considered. The EIA shall define SOAELs for the impacts considered by the assessment.

3.3 Baseline

3.3.1 Baseline noise surveys were conducted in October 2013 which identified that the main source of environmental noise affecting the majority of the study area was road traffic on the A63 and connecting links.

3.3.2 Noise from building services and activities associated with light industrial/commercial premises adjacent to the A63 were also observed to be features of the baseline noise climate.

3.4 Surveys / data sources

3.4.1 The baseline surveys completed in 2013 will be updated. A description of the baseline will be updated with supplementary surveys to be completed in early 2017.

3.5 Consultation

3.5.1 The scope and methodology shall be agreed in consultation with the Environmental Health department of Hull City Council HCC). Preliminary contact has been made with the Environmental Health Officer.

3.5.2 Consultation for a previous assessment of the Project noted that HCC suggested that a major noise issue, as perceived by local residents and suggested by received noise complaints, comes from noise associated with entertainment premises such as pubs and bars.

3.6 Mitigation

3.6.1 Updated traffic forecasts associated with the Project are yet to be determined and so the noise impacts are unknown at this stage.

3.6.2 Assessment of a previous design iteration for the Project however indicated the following mitigation methods would be appropriate during construction:

- Hours of working and noise limits agreed between Highways England and Hull City Council for inclusion within the contract specifications.
- Agreed measures for the mitigation of noise and vibration to be set out within a Construction Environmental Management Plan.
- Erection of temporary noise barriers around working areas.
- Prioritising the selection of the quietest methods of working.
- Proactive communication with residents, local businesses and road users.
- Minimising the requirements for night working and where it is required, managing the sequencing of works so that noisiest phases are completed before 23:00.

3.6.3 The following mitigation measures were also considered to be appropriate during the operational phase:

- New carriageway surfaces to be applied with a thin layer of stone mastic asphalt (thin surface course).
- Any dwellings at which the predicted level of road traffic noise is found to satisfy the criteria for sound insulation measures in accordance with the Noise Insulation Regulations 1975 would be offered either sound insulation measures or a grant instead.

3.7 Likely Impacts

3.7.1 The impact assessment has not been undertaken since updates to the traffic forecast are pending.

3.7.2 Assessment of a previous design iteration for the Project, however indicated the following likely impacts during the construction phase:

- Temporary impacts arising due to ground-borne vibration from vibratory rolling at receptors under within 5m from the works.
- Temporary impacts due to airborne noise to activities during the daytime works in most phases of work and during night works such as removal of the central reservation, carriageway works, construction of footbridges and electrical ducting.

3.7.3 The previous assessment of operational impacts due to permanent changes in road traffic also predicted that the receptors would experience either increases and decreases in the short and long term, or would not change at all.

3.7.4 Given the relatively high existing levels of noise close to the A63 (i.e. above a Significant Observable Adverse Effect Level of 68 $dBL_{A10,18h}$ façade), small increases as a result of the scheme may indicate potential for significant adverse effects. This may arise where the Project alignment reduces the shortest distance of receptors to the carriageway.

4. Cultural Heritage

4.1 Introduction

4.1.1 Cultural heritage considers the impact of the Project on archaeological remains, historic buildings and historic landscapes.

4.2 Approach / Methodology

4.2.1 The methodology for the assessment of cultural heritage follows guidance contained within *Design Manual for Roads and Bridges (DMRB) Volume 11, Environmental Assessment,* in particular *Section 3, part 2 (HA208/07) Cultural Heritage*. [7]

4.2.2 In addition, the following good practice guidance shall be followed which has been issued since 2013 by the Department for Communities and Local Government (DCLG), Historic England (HE) and the Chartered Institute for Archaeology (CIfA) which is relevant to the Project:

- DCLG, (2014) National Planning Policy Framework: Planning Policy Guidance, London
- HE (2015) Large Burial Ground, Guidance on sampling in archaeological fieldwork projects
- HE (2015) Historic Environment Good Practice Advice in Planning note 2 (GPA2) – Managing significance in decision taking in the historic environment)
- HE (2015) Historic Environment Good Practice Advice in Planning note 3 (GPA3) – The setting of heritage assets
- CIfA (2014) Standard and Guidance for commissioning work on, or providing consultancy advice on, archaeology and the historic environment; historic environment desk-based assessment; archaeological excavation; archaeological field evaluation; archaeological watching brief

4.3 Baseline

4.3.1 The central and eastern parts of the Project lie within the Old Town Conservation Area, which includes listed buildings and structures, the Trinity Burial Ground, as well as underlying archaeological evidence for the town's medieval and Civil War defences.

[7] The Highways Agency/ Transport Scotland/ Welsh Assembly Government/ The Department for Regional Development Northern Ireland 2007 *Design Manual for Roads and Bridges (DMRB) Volume 11, Environmental Assessment, in particular Section 3, part 2 (HA208/07) Cultural Heritage*

4.3.2 The original study area for the assessment of cultural heritage for the Scoping report comprised a 250m wide corridor along the route of the A63 Castle Street, with variations to define Historic Landscape.

4.3.3 This has been extended to include the proposed construction compounds, areas potentially impacted by utility diversions and changes to the road layout in the Old Town area as part of the Project. In accordance with DMRB guidance (2007), the study area has been defined to focus on impacted areas, sites and buildings.

4.4 Surveys / data sources

4.4.1 The cultural heritage assessment draws upon the following additional data sources and surveys which have been undertaken since the 2013 scoping report:

- Humber Field Archaeology (HFA) / Oxford Archaeology North (OAN) 2014 A63 Castle Street Improvements, Kingston upon Hull, Assessment, Mitigation and Deposit Modelling, including results from Watching Brief for 2013 Site Investigations
- HFA / OAN 2016a A63 Castle Street Improvements, Kingston upon Hull, Holy Trinity Burial Ground, Advance Archaeological Works Report.
- HFA / OAN 2016b A63 Castle Street Improvements, Kingston upon Hull, Advance Archaeological Works Report: Site Investigation Works and the Town Defences (Southern Trench)
- HFA / OAN 2016c A63 Castle Street Improvements, Hull, Prince's Quay Footbridge Interim Project Design for Site Clearance Archaeological Works Architectural History Practice (AHP) 2014 Historic Building and Historic Townscape Appraisal, A63 Castle Street Improvements, Hull
- A map regression exercise looking at the cartographic evidence for the land use history of the study area (2016)
- Integration of the above map regression with the unpublished Historic Landscape Characterisation (HLC) data produced by Humber Field Archaeology (HFA) and held by Humber Sites and Monument Record (HSMR)

4.4.2 A walkover survey was undertaken in October and November 2016 to assess current site conditions by members of the assessment team.

4.5 Consultation

4.5.1 We have consulted with Historic England (formerly English Heritage), Hull City Council, the Humber Archaeological Partnership (HAP), the Holy Trinity Church and the Diocese of York.

4.5.2 Regular Project Cultural Heritage Liaison Group meetings have been held since January 2013 with representatives from Historic England, Hull City Council and

Humber Archaeology Partnership. Attendees have included Historic England's Inspector of Ancient Monuments, Regional Scientific Advisor and their Historic Buildings Specialist and Historic Townscapes Advisor.

4.5.3 Continuing discussions regarding Trinity Burial Ground have also taken place with the vicar of Holy Trinity Church, the Parochial Church Council and the York Diocesan Office, as well as with relevant officers of Hull City Council. These discussions would continue for the duration of the Project.

4.5.4 It is noted that Historic England have previously stated that they would not support demolition of any Grade II listed buildings and that every effort should be made to retain listed buildings in-situ.

4.6 Mitigation

4.6.1 Construction of the bridge at Princes Quay has the potential to impact on the Old Town Conservation Area, including Humber Dock, Princes Dock and the Warehouse No. 6. Design of the bridge at Princes Quay has therefore been undertaken following consultation with Historic England and our design aims to be sensitive to historic assets.

4.6.2 We have also considered the potential for underlying archaeology within the locality of Princes Quay. As it is not be possible to investigate the exact impact zone associated with the proposed bridge at Princes Quay, it has been agreed with HAP and Historic England that two archaeological trenches would be excavated to investigate the medieval town defences.

4.6.3 We have already completed one of these two trenches (Southern Trench 2) located to the south of Castle Street, next to Humber Dock Street. The second trench (Northern Trench 1) shall be undertaken as the Project progresses and is proposed to the north of Castle Street, next to Prince's Dock Street. Sealed soil samples collected and stored from the 2013 Site Investigation have also been examined to assess deposits potentially relating to the later Civil War defences.

4.6.4 Historic surface assets (such as the dock walls, mooring posts, winch bases) have been recorded and a scheme for their protection drafted. Features that can be left in-situ will be protected prior to the works within the locality of Princes Quay. Features to be retained that cannot be protected in-situ will be appropriately removed under an Archaeological Watching Brief, safely stored and then until returned at completion of the works.

4.6.5 A targeted Archaeological Watching Brief will also be carried out during works to the northern end of the Humber Dock east wall, on the site of former Warehouse 7 and during service diversions.

4.6.6 For the impacted area of Trinity Burial Ground, all human remains will be removed and either reburied within the unaffected area of the Burial Ground or sealed within the crypt of Holy Trinity Church.

4.6.7 The excavation and clearance of the impacted area of Trinity Burial Ground will be carried out under an archaeological programme of works, under agreement from the Holy Trinity Church and Diocese of York. This will include a Community Engagement Plan to encourage volunteers to become involved in specific research aspects on the Burial Ground.

4.6.8 The archaeological works will also cover the former mortuary and the site of the former gaol to the north of the Burial Ground.

4.6.9 The Project aims to improve the remaining area of Trinity Burial Ground which has been subject to long-term neglect, vandalism and has a poorly maintained appearance.

4.6.10 We plan to re-build the northern boundary wall of Burial Ground using reclaimed bricks from the existing wall, install gates and pillars from the Holy Trinity Church, include interpretation boards, add woodland planting, as well as upgrade and install paths.

4.6.11 The design for the Project includes tree planting along the route which will provide some screening from the visual impact of the road for heritage assets. The design will also consider the type of fences or railings that would be used as barriers and the type of surface used for footways and cycleways (for example the use of York stone paving) in the Old Town Conservation Area.

4.6.12 All construction will be carried out using industry best practice and in accordance with a Construction Environmental Management Plan (CEMP) to mitigate temporary adverse effects during construction.

4.7 Likely Impacts

4.7.1 Along the course of the A63 Castle Street there is the potential for archaeological remains to be impacted by the Project although mitigation measures which have included a programme of archaeological works in the locality of Princes Quay have been developed, in consultation with Historic England and HAP.

4.7.2 Approximately a third of the Trinity Burial Ground will be cleared and permanently impacted by the Project. Impacts to archaeological remains will also be mitigated by a programme of archaeological works during the clearance and reburial of remains. The archaeological recording, analysis and research objectives of the Burial Ground however aims to provide an interpretation of peoples' lives in Hull during the late 18th and early 19th century.

4.7.3 Further appropriate mitigation for other areas of archaeological remains which are assessed as a high value asset and adversely impacted by the Project will be developed (e.g. early settlements of Myton and Wyke).

4.7.4 Temporary adverse impacts to setting of some historic buildings during construction are also likely.

4.7.5 Demolition of the Earl de Grey public house and Castle Street Buildings would be a permanent adverse impact. The Earl de Grey has limited communal significance because it has been derelict for a long period and its internal fittings have been stolen. Castle Street Buildings have high historical value but have never been a public building and have been in poor condition for many years.

4.7.6 The Grade II listed Humber Dock will have a permanent adverse physical impact on its fabric. The north end of the dock has previously been encroached upon by the reconstruction of the A63 in the 1970s.

4.7.7 Temporary and short term adverse impact on the setting of the Old Town Conservation Area are also likely during construction works, in particular along the line of the A63 Castle Street between the Mytongate Junction and the eastern end of the Project.

4.7.8 There is likely to be a permanent adverse impact to setting of the Old Town Conservation Area for example by the reduction in crossing points, location of the new pumping station, new parapet fence along the central reservation and the increased width of the road.

4.7.9 The new bridge at Princes Quay is also likely to have a beneficial impact by connecting the northern and southern areas of the Old Town Conservation Area , improved views from the new bridge, creating sightlines north and south of the Prince's and Humber Dock and re-introducing of a prominent feature.

4.7.10 There will be a permanent beneficial impact on the setting of Australia Houses caused by the stopping-off of Coogan Street and the potential demolition of the Myton Centre to create a public space.

5. Landscape and Visual Impacts

5.1 Introduction

5.1.1 An assessment of the landscape, townscape and visual effects of the Project is being undertaken.

5.1.2 The terms 'landscape' and 'townscape' refer essentially to the same thing. The Project is located in an urban area and the assessment considers its effects on the surrounding townscape character including trees. The term 'landscape' will be used throughout the assessment to refer to all such effects.

5.1.3 Landscape and visual effects are interrelated but distinct. Landscape effects refer to changes in the character of the area caused by the Project (irrespective of their visibility) while visual effects refer to the change in view experienced by people in specific locations.

5.1.4 Landscape and visual assessment relies heavily on reasoned professional judgement. This assessment has been undertaken by Chartered Members of the Landscape Institute (CMLI) with experience of assessing the landscape and visual effects of similar large scale highway and infrastructural projects.

5.2 Approach / Methodology

5.2.1 The methodology for the landscape, townscape and visual assessment draws on two principal sources of guidance:

- Design Manual for Roads and Bridges as modified by Interim Advice Note 135/10, 2010 – 'DMRB'
- Guidelines for Landscape and Visual Impact assessment, Third edition, 2013 – 'GLVIA3'.

5.2.2 GLVIA3 provides more recent guidance than DMRB. Where considered appropriate and relevant to the likely effects of the Project, the approach set out in DMRB has been amended to meet the specific requirements of the assessment. In particular, amendments will be made to the terminology and criteria used to assess landscape susceptibility and value.

5.3 Baseline

5.3.1 The Project is located close to the centre of the City of Hull. There are historic dockland areas located on both sides of the road. In very general terms the landscape context of the Project can be summarised as comprising:

- Residential areas (a mix of both low- and high-rise) to the north west
- The historic town centre to the north east ('Old Town')

- Modern commercial business parks to the south west
- Historic dockland and river-front areas to the south east.

5.3.2 This general picture has been further analysed and 23 distinctive character areas identified. The effects of the Project on each of these character areas will be assessed.

5.3.3 The assessment includes consideration of the susceptibility, value and sensitivity of these different character areas to the changes likely to arise as a result of the Project The more valuable areas of townscape are generally located towards the eastern end of the Project associated with the historic town centre and dockland areas (generally within the Old Town Conservation Area).

5.3.4 The visual assessment will consider the effects of the Project on the views that people experience from various places. These include people's homes, the streetscape, public open spaces, commercial areas and places of employment. Higher levels of visual sensitivity are generally associated with people in their own homes or in recreational or scenic areas where their attention is more likely to be on the available view. Lower levels of visual sensitivity are generally associated with commercial areas and places of employment.

5.3.5 The detailed visual assessment is based on schedules of visual receptors (i.e. the locations where people find themselves).

5.4 Surveys / data sources

5.4.1 The landscape and visual assessment draws on a wide range of desk- and site-based research, surveys and techniques, which is summarised below.

- **Project information -** Drawings and a three dimensional 'fly-through' model of the Project.
- **Planning documentation -** Relevant policy (saved Hull Local Plan, 2000, including Policy NE3 on the replacement of Urban Greenspace), guidance and studies published by Hull City Council regarding the landscape and townscape character of the study area and its value has been reviewed. This has included the Old Town Conservation Area Character Appraisal (2004) which has provided additional understanding of townscape character in this part of the study area.
- **Mapping -** A review of detailed contemporary OS mapping has been undertaken to assist in the identification and analysis of the 23 character areas within the study area.
- **Google Earth -** Google Earth aerial mapping and Streetview has been interrogated to assist in the identification and analysis of the 23 character areas within the study area and to help understand the extent of existing tree cover.

- **Topographical surveys -** Topographical surveys have been undertaken of key parts of the overall site.
- **Arboricultural surveys -** We plan to carry out an updated arboricultural survey to BS5837 of all existing trees on or immediately adjacent to the site prior to submission of the DCO. Earlier stages of assessment have drawn on previous arboricultural surveys of most areas of the site, Bluesky National Tree Map data and Google Earth.
- **Site visits -** Site visits have been undertaken by members of the assessment team.
- **Photomontage -** Photomontage images have been produced that accurately illustrate the Project from eleven fixed viewpoints.

5.5 Consultation

5.5.1 We have consulted with Hull City Council during earlier stages of the development of the Project and the selection of the preferred scheme. We will continue to consult with Hull City Council as we progress the landscape and Visual assessment.

5.6 Mitigation

5.6.1 **Trees -** Our current estimates suggest that approximately 250 trees would need to be removed. Most of these would be from along the existing A63. A relatively small proportion of these would be located within the Old Town Conservation Area. The majority of the trees to be removed have been categorised as relatively small and/or not of particular amenity value. Some larger and more valuable trees would need to be removed at the Trinity Burial Ground (within the Conservation Area). Overall, a similar number of trees are likely to be planted along the highway corridor as will be removed. These will be likely to include some semi-mature nursey stock trees in key locations to replace the loss of mature and high quality trees at the Trinity Burial Ground.

5.6.2 **Urban Greenspace** - Part of the Trinity Burial Ground would be lost to the Project, which would be both a loss of, and an effect upon the remaining, landscape resource. The loss of landscape resource would be compensated by creating an improved area of accessible urban greenspace. The remaining areas of Trinity Burial Ground would be redesigned with landscape improvements to restore its integrity, character and function as a retained green space. This will include new boundary treatments which would incorporate the existing historic brick walls. Effects on other areas of incidental Public Open Space, Urban Greenspace and pocket parks would be mitigated by the overall landscape design of the Project.

5.6.3 **Built Features -** The Myton Centre building and potentially the Earl De Grey public house and Castle Street Buildings would be demolished as part of the Project. The Myton Centre has an at best neutral effect on the townscape character and value of this part of Hull and its removal does not require mitigation of any adverse townscape effect. The Earl de Grey pub and Castle Street

Buildings are historic buildings which contribute to some degree to the historic townscape character of Hull town centre. There are also likely impacts to historic brick walls at the Trinity Burial Ground and at Humber Dock. No specific additional mitigation is recommended, other than the high level of design consideration given to the proposed Princes Quay footbridge which will make a positive contribution to the character of the area.

5.6.4 **Landscape/townscape Character -** The overall design of the project as an underpass minimises loss of connectivity and retains visual openness between areas to the north and south of the A63. Paved areas will include extensive use of natural stone towards the eastern end of the Project and in Old Town to reflect the historic character. The design of the Princes Quay footbridge has been given particularly careful consideration to ensure that it makes a positive and appropriate contribution to the character of the surrounding historic town centre and dockside areas. The signage and lighting scheme for the Project will also be developed to ensure appropriate sensitivity to its local townscape context (in particular within Old Town).

5.6.5 **Visual effects -** Within this urban location, it is likely that visual screening of the Project will not be required in response to the effect on any particular view. Nevertheless, appropriate tree planting and other landscaping will take place along the highway corridor to improve and soften the appearance of the Project. In particular tree planting will take place towards the western end of the project where there are residential areas.

5.7 Likely Impacts

5.7.1 Construction phase effects are likely to occur along the highway corridor and at construction compounds for the duration of the works. These effects would be temporary and would not require mitigation other than the adoption of standard good-practice for construction projects.

5.7.2 The potential for landscape and visual impacts of the scheme is limited by the at-grade or below-grade layout, the urban location and the proposed landscape design. The potentially negative landscape effects of the Project are likely to be successfully mitigated through appropriate landscape design and tree planting (including at the proposed Princes Quay footbridge); the implementation of a scheme of landscape improvements across the remaining extent of the Trinity Burial Grounds; creation of a new Urban Greenspace and Public Open Space at the Myton Centre and streetscape improvements within the narrow internal streetscape Old Town.

6. Nature Conservation

6.1 Introduction

6.1.1 Ecology is the scientific study of living organisms and their inter-relationships. Nature conservation is concerned with maintaining a viable population of the country's characteristic fauna, flora and wildlife communities.

6.2 Approach/Methodology

6.2.1 Since the 2013 scoping report, legislation regarding ecology has remained the same. The Natural Environment and Rural Communities (NERC) Act 2006, Section 40 (1) is a national piece of legislation that requires public and statutory bodies to implement their duties and functions with "regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity". It notes that "conserving biodiversity includes restoring or enhancing a population or habitat" [Section 40 (3)]. Section 41 of this Act is a list published by the Secretary of State of habitats and species which are of principal importance for the conservation of biodiversity in England and Wales. In 2015, Highways England produced the Highways England Biodiversity Action Plan (HEBAP) plan to protect and increase biodiversity on the roads networks as one component part of their forthcoming Environment Strategy. Highways England "expect management to be guided by the principles of Natural England's The Mosaic Approach: Managing Habitats for Species." In addition "expect efforts to target Priority habitats and species (as identified under the NERC Act 2006, Section 41) however it is understood that in certain environments, for example in urban areas with few protected species, other habitats and species may be more suitable."

6.2.2 Planning policies are largely the same with the exception of the publication of the regional East Inshore and East Offshore Marine Plan by the Department for Environment, Food and Rural Affairs (DEFRA) in April 2014. The aim of marine plans is to help ensure the sustainable development of the marine area. Marine plans will contribute to economic growth in a way that benefits society whilst respecting the needs of local communities and protecting the marine ecosystem.

6.2.3 The guidelines for assessment have followed the Chartered Institute of Ecological and Environmental Management's (CIEEM) Ecological Impact Assessment (EcIA) guidance (2016) which revised and replaced the 2006 guidelines.

6.2.4 Guidelines for ecological surveys relevant to the Project which have changed since the 2013 scoping report include the publication by the Bat Conservation Trust of the third edition of the Bat Surveys for Professional Ecologists: Good Practice Guidelines, (Collins, 2016). The new guidelines have been acknowledged and methodologies have been used in bat surveys undertaken on the Project from February 2016, the date of publication.

6.3 Baseline

6.3.1 Since the 2013 scoping opinion, there have been no changes to statutory or non-statutory designated sites. Changes to the Project baseline include the design of the bridge at Princes Quay which will involve piling into the harbour and a floating deck over the water which is an internationally designated site at that point. The scheme extends further to the west along the A63 as far as Ropery Street, with permanent land take of the road and surrounding hard standing and an amenity grassland verge on the eastbound carriageway. The temporary land-take has increased along with the increase in potential site compounds.

6.4 Surveys/Data Sources

6.4.1 Preliminary Ecological Appraisal (PEA) was undertaken within the Project boundary as was by MMSJV on 26 February 2013; 11 June 2013 and 21 August 2013. Additional site compounds were surveyed on 14 March 2014. An updated PEA was undertaken by MMSJV on 23 May 2016 with the most recent potential compound sites surveyed on 07 September 2016. To inform the PEAs, information was obtained on 07 March 2013 through a search from North and East Yorkshire Ecological Data Centre (NEYEDC) for statutory and non-statutory designated wildlife sites and historical records of protected or notable species within 2km of the Project. This information was updated on 21 January 2016 by a repeat search.

6.4.2 The PEAs recommended that Castle Street Buildings, Earl de Grey public house, the Myton Centre (potential area for creation of public open space), disused substation and trees within Trinity Burial Ground SNCI should have bat roost surveys undertaken to establish the presence/likely absence of roosting bats. Bat activity surveys have also been undertaken around the main site to establish whether any major bat commuting routes or foraging areas would be affected by the Project. Bat monitoring surveys using automated bat detectors left to record on site have been undertaken in Trinity Burial Ground SNCI and Castle Street Buildings. These surveys have been undertaken in 2013, 2015 and 2016.

6.4.3 Three Potential site compounds are located adjacent to the Humber Estuary SAC, SPA, Ramsar and SSSI and a further potential site compound is adjacent to the River Hull SNCI which flows into the Humber Estuary approximately 85m to the south of it. These sites contain habitats potentially suitable to support foraging, roosting and ground-nesting waterfowl that the Humber Estuary is designated for. Breeding and wintering bird surveys were recommended in the PEA on these sites to establish the birds' presence/likely absence and use of the site compounds and the adjacent designated sites. The survey results will also inform the Assessment of Implications on European Sites (AIES) that is part of the Habitats Regulations Assessment (HRA) that is required to be approved by Natural England.

6.4.4 Draft reports have been prepared for the PEA, bat surveys and breeding bird surveys.

6.4.5 Surveys to be completed include 4 wintering bird surveys in winter 2016/17 and surveys to keep bat data up to date (2 years old or less).

6.5 Consultation

6.5.1 Since the Scoping Report (MMSJV, 2013) was submitted, a meeting was held with Natural England to give an overview of the Project and its ecological constraints. Natural England stated that potential impacts on protected species (bats) could be mitigated and that they would also be interested in the following aspects of the outfall into the Humber Estuary:

- Location
- Volume of water being discharged
- Quality of water being discharged
- Impact of discharge plume
- Potential scouring of sediments
- In combination impacts with dredging
- In combination impacts with other outfalls
- Impact of changes to groundwater on Humber Estuary
- Construction timing and methodology.

6.5.2 Natural England were to provide MMGJV with more information on the extent of assessment required to assess in combination impacts. They also suggested that the scheme register with the Natural England Discretionary Advice Service (DAS).

6.5.3 The Project was registered with Natural England's DAS in May 2013, principally to seek advice regarding the assessment of impacts upon bats. The Regulation team advised that increased survey effort should be applied at the buildings with high bat roost potential which were unsafe to enter (Castle Building and Earl de Grey public house).

6.5.4 A letter was received dated 25 July 2013 from Natural England in response to the public consultation which was held between 28 June 2013 – 15 August 2013. It was recommended by Natural England that if the HRA screening assessment concluded no Likely Significant Effect, the Highways Agency should produce a 'no likely significant effect report'. This should be agreed with Natural England and submitted to the Planning Inspectorate alongside the Development Consent order (DCO) submission.

6.5.5 Ongoing consultation with Natural England was also undertaken with regard to HRA of the potential impact of the Project on a nearby European designated site. Based on an assessment of potential impact pathways, it was agreed that the Project would have no Likely Significant Effect on the European site and that a full Appropriate Assessment of impacts under the Habitats Regulations would not be required.

6.5.6 A ‘No Significant Effects’ report addressing the main scheme and the surface water outflow into the rock armour in the River Humber was submitted to Natural England on 08 October 2014. At this time, the Princes Quay footbridge design and a stand-alone planning application had been prepared in order to construct the bridge before the road (this Project) in order to have it completed in time for the 2017 City of Culture events. This was then shelved. The new footbridge design is now included in this Project and includes piling into Humber Dock marina.

6.5.7 Further consultation with Natural England should take place as the Project has changed boundaries, so a new AIES will need to be produced to include the new potential site compounds and Princes Quay footbridge.

6.6 Mitigation

6.6.1 Design for remaining area of Trinity Burial Ground will require ecological input. Considerations include that there is to be no lighting in Trinity Burial Ground when works are complete and bat boxes would be placed in suitable mature trees within the remaining area of Trinity Burial Ground SNCI, under the direction of a bat licensed ecologist, to replace some of the potential roosting features within the mature trees removed.

6.6.2 Mitigation for the loss of trees is being considered as replacement being numerically on a like for like basis. Hedgerows, scrub and introduced shrubs will be replaced with native species.

6.6.3 The proposed scheme will retain the existing highway gullies. In addition, new water collection features will be introduced to collect surface water run-off from impermeable areas as attenuation for the additional flow rates. This will restrict surface water flows to the existing flow rates to the public sewer network, Princes Dock and the Humber Dock. The outfall locations have not yet been finalised but would be sited near existing outfalls to discharge water onto rock armour within the estuary.

6.6.4 Mitigation has been considered since the 2013 scoping report for the Princes Quay footbridge. Humber Dock Marina is to be directly impacted by piling to create supports for the deck that will carry the proposed new Princes Quay footbridge. Prior to piling commencing, a trained marine mammal ecologist and ornithologist will act as observers to check that the dock area and up to 100m beyond the dock gates is clear of marine mammals, fish and birds. The dock gates will be closed during piling to control and contain silt and sediment and absorb noise and vibration from entering the Humber Estuary and a soft start-up of machinery to disperse any potential fish, birds or mammals present in the dock. The Humber Dock will take the impacts of disturbed sediments and noise and vibration during piling to prevent impacts further away in the Humber Estuary. Cumulative impacts from the transport of materials by boat through the dock during construction on top of current levels of boat use in the area are also likely to occur. A mitigation plan will be produced and implemented. The ecological mitigation for the footbridge is not finalised and agreed and may be subject to change.

6.6.5 A potential Site Compound contained two stands of Japanese knotweed. If this site is preferred as a compound site, it is recommended that the plant is removed prior to works commencing to prevent its spread and an offence being committed under the Wildlife and Countryside Act 1981 (as amended). A Japanese knotweed management plan should be produced if a fenced-off 7m avoidance buffer zone cannot be maintained around the plants.

6.7 Likely Impacts

6.7.1 At least one third of the area of Trinity Burial Ground SNCI would be permanently removed to accommodate the Project, with a loss of mature trees and grassland habitats. This cannot be replaced.

6.7.2 Mature amenity trees along the length of the Project would be removed during construction. Amenity trees would be replaced with new tree planting as far as possible.

6.7.3 No significant lasting impacts to bats or nesting birds are predicted during the construction or operation phases of the Project. Mitigation measures would include sensitive timing of habitat clearance, erection of bat and bird boxes in the remainder of Trinity Burial Ground SNCI and new tree and shrub planting, including within the new road to restore habitat connectivity across the carriageway.

6.7.4 We cannot rule out impacts on wintering birds at this stage. We will be able to fully report on impacts in the Environmental Statement, when remaining surveys have been completed. We also need to carry out further assessment on any possible impacts on marine species as a result of construction activity in Humber Dock.

7. Road Drainage and the Water Environment

7.1 Introduction

This topic addresses the potential effects of construction and operation of the highway on the quality of surface water and groundwater, on water resources and on flood risk.

7.2 Approach / Methodology

7.2.1 The proposed approach for surface water, groundwater and flood risk assessment remains as described in the 2013 Scoping Report, except for the following guidance and policy updates:

- The Flood Risk and Coastal Change Planning Practice Guidance[8] (PPG) guidance has replaced the Planning Policy statement (PPS 25). The NPPF and the associated PPG documents are now the relevant guidance document that local authorities use in reviewing proposals for development with respect to flood risk.
- The climate change allowance guidance[9] was amended in February 2016. This provides region specific guidance on how climate change should be considered in flood risk assessments.
- The Lead Local Flood Authority (LLFA) now has lead responsibility for managing the risk of flooding from surface water, groundwater and ordinary watercourses. Hull City Council (HCC) is the LLFA in the area of the Project.
- The Environment Agency (EA) withdrew its Pollution Prevention Guidance in December 2015, which included good practice advice as well as guidance on regulatory requirements, and replaced this with guidance on regulatory requirements relating to pollution prevention only.

7.3 Baseline

Surface water and flood risk

7.3.1 The description of the existing surface water environment (i.e. the study area) considers the Application Site and a 1km radius around it. Surface water bodies within the study area include the River Humber, River Hull, Albert Dock, Humber Dock, Railway Dock and Prince's Dock. Included in the Application Site is the new rising main and outfall required for the proposed underpass drainage system.

[8] http://planningguidance.communities.gov.uk/
[9] https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances

7.3.2 The surface water hydrology is dominated by the local topography and the combined sewerage system operated by Yorkshire Water. All surface water is assumed to drain to the combined sewerage system.

7.3.3 The study area falls within the Humber Middle (GB530402609202) transitional water body. The Humber Middle water body also includes Albert Dock, Humber Dock, Prince's Dock and the lower reaches of the River Hull (up to Bransholme; TA 08855 33392) within its extents. The Humber Middle is designated as a Heavily Modified Water Body due to flood protection modifications. The River Humber is estuarine within the study area and is therefore tidally dominated. River flows from the Humber basin are in an eastwards direction.

7.3.4 The Water Framework Directive (WFD) status was assessed from the 2009 cycle 1 in the 2013 Scoping Report, the results from cycle 2 have since been released and will be used as the basis of our current assessment. All current highway drainage within the Application Site discharges into Yorkshire Water combined surface water and foul sewers. The combined sewer ultimately discharges to the Humber Estuary, via Saltend Wastewater Treatment Works (WwTW).

7.3.5 The study area is located within Flood Zone 3a of the EA's flood map for planning, with a 1 in 100 or greater annual probability of river flooding (>1%), or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year. The area is lies within an area benefitting from flood defences.

7.3.6 The study area is subject to potential flooding from tidal, fluvial, pluvial, sewerage and groundwater sources. The eastern half of the Application Site is within the area that was flooded during the 1969 flood event that occurred before the installation of the Tidal Surge Barrier on the River Hull. Surface water flooding during the 2007 floods has been identified in the vicinity of the Application Site. The study area was also flooded during the 5 December 2013 tidal surge event.

7.3.7 New flood defences have been installed at Albert Dock. This was completed in November 2015.

Groundwater

7.3.8 The groundwater study area considered in the 2013 Scoping Report encompassed the Application Site plus a 4km buffer zone.

7.3.9 Since then, the Environment Agency has updated its groundwater Source Protection Zones (SPZ) and the Application Site now falls within the SPZ 3 (total catchment) for a group of public water supply abstractions located approximately 8km northwest and 6km west northwest of the Application Site. Therefore the study area has been extended to include these.

7.3.10 The study area is underlain by up to 30m of superficial deposits and the Chalk. The superficial deposits are described by the Environment Agency as 'unproductive strata' but permeable horizons of reasonable thickness and extent are present and may contain groundwater. The Chalk is a Principal Aquifer.

7.3.11 In addition to the public water supply abstractions, there are a number of licensed groundwater abstractions for industrial, commercial and public services use in the study area, including two within one km of the Application Site.

7.4 Surveys / data sources

7.4.1 The surface water and flood risk assessment will take into account the findings of the following investigations:

- Site walkover survey (April and December 2013) to visually inspect watercourses and surface water bodies in order to gain an understanding of the local topography, hydrological regime, hydrological features, sediment processes and characteristics of the surface water environment.
- Bespoke aerial LiDAR survey (May 2013) to provide existing ground elevations for the flood risk assessment amongst other requirements.
- Collation and review of existing flood and drainage models and supporting data covering the Application Site area from the EA, HCC and Yorkshire Water (YW).

7.4.2 The groundwater assessment will take into account the findings of the following investigations:

- 2013 ground investigation (GI) for the Project (Ground Investigation Report, Mott MacDonald Grontmij, 2014).
- Groundwater monitoring undertaken in boreholes installed as part of the above GI, up to October 2014.
- Pumping tests undertaken on larger diameter boreholes (Pumping Test Report, Mott MacDonald Grontmij, 2014).
- The Ground Contamination Assessment (Mott MacDonald Grontmij, 2014).
- Further ground investigations undertaken in 2015 and 2016 by ESG on behalf of Balfour Beatty and Arup.
- Groundwater monitoring undertaken as part of the above 2015-16 GI.
- Groundwater level and groundwater quality investigation of Hull undertaken by Arup for YW.

7.5 Consultation

7.5.1 In addition to requests for information, consultations of particular relevance to this assessment have been or will be undertaken with key stakeholders, namely:

- The EA to discuss existing flood risk information including models, agree the approach to the flood risk assessment (including scenarios) and the water

quality impact assessment, consult on the drainage strategy and the mitigation measures for flood risk and water quality impacts from the proposed discharge into the Humber. Also the approach to and findings of the groundwater assessment, as well as the groundwater modelling approach.

- Natural England (NE) to discuss water quality impacts and agree principles on the location of the proposed outfall to the Humber to prevent scour and sediment mobilisation.
- HCC to discuss existing flood related data (including models) outcomes of the flood risk assessment, the drainage strategy including the location of the proposed underpass discharge, and discussion of mitigation measures for flood risk impacts. HCC will also be consulted with respect to unlicensed abstractions in the study area.
- YW to discuss the drainage strategy including design requirements to discharge to Yorkshire Water's sewers and opportunity to discharge water from the underpass. YW will also be consulted with respect to the groundwater assessment as the Application Site now lies within the SPZ 3 of its public water supply abstractions.
- British Waterways Marinas Limited (BWML), the Marine Management Organisation (MMO), landowners and local residents throughout the planning and implementation of the pumping test. This is detailed in the Pumping Test Report (Mott MacDonald Grontmij, 2014c).
- MMO and local landowners to discuss the location of the proposed underpass discharge outfall.
- BWML to discuss the potential of discharging underpass drainage to Humber Dock or Railway Dock.

7.6 Mitigation

Construction

7.6.1 Measures to control the risk of pollution to groundwater and surface water receptors during construction would be implemented through a Construction Environment Management Plan (CEMP).

7.6.2 Best practice methodologies would be adopted to control discharges to drains and runoff, and discharges to sewer or surface water, including those from construction dewatering, will only be made with the appropriate consents or permits in place. Any non-compliant discharges would be collected and disposed of off-site.

7.6.3 Mitigation of extreme flooding impacts from tidal, fluvial and pluvial sources during construction should be considered in the CEMP including emergency and evacuation procedures.

7.6.4 Particular issues with respect to groundwater are the complex geology, weak ground, high groundwater levels and significant tidal impact on groundwater levels.

7.6.5 Construction would be designed to mitigate against excessive settlement and groundwater entry into excavations. Ground stabilisation works would minimise groundwater inflow through the base of excavations and ground heave. A piling methodology would be selected to avoid cross-contamination between aquifer units.

7.6.6 A closed drainage system would be put in place to capture surface run-off and there would be no discharge to groundwater. Discharges to sewer or surface water, including those from construction dewatering, will only be made with the appropriate consents or permits in place. Any non-compliant discharges would be collected and disposed of off-site.

7.6.7 Contractors would be required to operate in accordance with the Environment Agency's pollution prevention guidance and the Construction Industry Research and Information Association (CIRIA) Environmental Good Practice on Site (2010) guidance. All fuel, oil and chemicals would be stored in accordance with the requirements of the Control of Pollution (Oil Storage) Regulations 2001.

Operation

7.6.8 Mitigation to control the risk of pollution to the water environment and flooding during operation of the Application Site would be incorporated into the design of the underpass drainage system.

7.6.9 Run-off would be captured by a closed drainage system and there would be no discharge to groundwater.

7.6.10 The underpass drainage would be designed to protect against flooding in a 1 in 100 year return period rainfall event, with an allowance for climate change (in line with guidance and through consultation with HCC). Traffic diversion routes around the underpass are also protected to the same level.

7.6.11 Water from the underpass drainage would be pumped to the River Humber. Emergency procedures would be developed to minimise the risk to road users should the pump cease to operate due to power failure over an extended period of time.

7.6.12 The design of structures and piling extending below the water table, in particular the underpass, would mitigate any risks associated with changes in groundwater heads in the Chalk and superficial deposits, such as groundwater flooding, settlement and migration of existing pollution.

7.7 Likely Impacts

Construction

7.7.1 Potential impacts on the water environment as a result of construction activities are summarised below. All impacts are considered to be adverse, unless stated.

7.7.2 Dewatering during construction, particularly with respect to the underpass excavation and excavations within the Trinity Burial Ground, is likely to result in temporary, local drawdown in the superficial deposits and potentially settlement. Disruption to groundwater heads and flow patterns may affect groundwater receptors such as groundwater abstractions and surface water bodies.

7.7.3 The dewatering discharge may be to sewer or to surface water depending on the temporary works design and groundwater quality. The discharge may have increased suspended solids concentrations.

7.7.4 Construction of temporary and permanent structures within the saturated aquifer such as the underpass, bridge piers, slip roads, and the pumping station and rising main may act as a barrier to flow, resulting in cause changes in groundwater heads and flow patterns within the superficial deposits and the Chalk, potentially causing settlement, impacting on groundwater receptors, and changing flood flow patterns.

7.7.5 Construction of the underpass and other structures may result in contamination of groundwater in direct contact with construction materials (such as cement grouts), mobilisation of existing contamination within the superficial deposits, and/or downwards migration of contaminants into the Chalk. Excavation activities may also increase suspended sediment concentrations in groundwater. Such water quality impacts may persist beyond the end of the construction period.

7.7.6 Excavation trenches for the exhumation of human remains in Trinity Burial Ground may also result in the mobilisation of existing contamination and an increase in suspended solids concentrations.

7.7.7 Earthworks activities such as stockpiling, removal of hardstanding and exposure of made ground and/or soils may result in an increase in suspended sediment concentrations in receiving watercourses, impacting on water quality and reducing channel morphology diversity as fine sediments are deposited. Groundwater quality may also be impacted by an increase in suspended sediment concentrations due to rainwater infiltration through bare surfaces.

7.7.8 Surface water and groundwater pollution may result due to accidental spillages of construction materials, such as concrete, cement, and admixtures, or oils, fuels and chemicals, should these be kept in un-bunded areas and particularly in areas where hardstanding has been removed. Any damage to sewerage and other pipelines due to accidental contact, vibration or settlement during construction works may also result in pollution of groundwater.

7.7.9 Alterations to ground elevations will alter runoff pathways, potentially resulting in the overloading of drainage systems and / or surface water flooding, although impacts also have the potential to be beneficial, depending on the location.

Operation

7.7.10 The main aspects of operation of the Application Site that are considered to have a potential impact on the local water environment are:

- The underpass drainage and its subsequent discharge to the Humber Estuary.
- The impact of the Application Site on the flood depths and flood flow pathways on the Humber floodplain.
- Structures within the saturated aquifer such as the underpass, bridge piers, slip roads, and the pumping station and rising main may act as a barrier to flow, resulting in changes in groundwater heads and flow patterns within the superficial deposits and the Chalk, potentially impacting on groundwater receptors such as abstractions and surface water bodies.
- Any groundwater seepage through the underpass retaining walls may result in limited drawdown in groundwater levels within the superficial deposits, and potentially settlement.
- Mobilisation of existing contamination within the superficial deposits due to changes in groundwater flow patterns, resulting in a reduction in groundwater quality.
- A potential reduction in infiltration area due to the replacement of existing grassed areas with hardstanding. This would have the effect of reducing recharge to the made ground underlying the Application Site.
- There would be no drainage to ground via soakaways or similar. Therefore DMRB Volume 11 Section 3 Part 10 Annex I Method C - Assessment for Routine Runoff on Groundwaters is not applicable.

Discharge to the Humber Estuary

7.7.11 The principal operational risks to the Humber arise from pollutants washed from the road surface by rainwater draining from the site and spillages of fuel or other contaminants as a result of road traffic accidents.

7.7.12 The increase in drainage area due to the proposed underpass would result in higher discharges to the River Humber during the operational phase than the existing situation.

7.7.13 Pollutants washed from the road surface by rainwater draining from the site and spillages of fuel or other contaminants as a result of road traffic accidents are likely to reduce the quality of such discharges to the Humber, subsequently affecting the

dilution potential of the Humber and potentially resulting in the deterioration of the existing WFD status.

7.7.14 This additional pollution load could impact on the Humber's biodiversity and consequently its national and international designations (SSSI, SAC, SPA and Ramsar).

Flood Risk

7.7.15 The flood risk impact of the Application Site is being assessed in the Flood Risk Assessment (FRA) and the risks were previously identified in the supplementary Flood Risk Assessment Report (Mott MacDonald Grontmij, 2014a).

7.7.16 If the project crosses any surface water bodies it could alter the conveyance of flood flow within a surface water body.

7.7.17 Altering the ground levels as part of the Application Site could alter the flood flow route towards the urbanised area.

7.7.18 Potential flood risk impacts range from adverse to beneficial, depending on the location within the study area.

8. Geology & Soils

8.1 Introduction

8.1.1 Geology and soils considers whether the Project can have a significant effect on the underlying geological and soil resources, as well as potential impacts which the Project may have on the soils and geological aspects of the environment (e.g. settlement, instability, heave) due to geotechnical engineering, such as earthworks.

8.1.2 Historic land use may have also resulted in altering the geology and soils by introducing contaminants or disturbed ground. The impacts from the potential presence and disturbance of contaminated soil, groundwater and soil gas are also considered.

8.2 Approach / Methodology

8.2.1 The methodology for the assessment of soils and geology shall be follow:

- DMRB (1993); Volume 11: Environmental Assessment, Section 2: General Principals of Environmental Assessment, Part 5: Assessment and Management of Environmental Effects (HA 205/08)
- DMRB (1993); Volume 11: Environmental Assessment, Section 3: Environmental Assessment Techniques, Part 11: Geology and Soils

8.2.2 Since the 2013 Scoping Report, Hull City Council has produced a new Hull Local Plan (consultation ended in September 2016) which replaces three policies[10] with Policy 48 (Land Affected by Contamination). An additional policy, Policy 41 (Groundwater Protection) has also been added covering the location and design of development in source protection zones. These policies shall be considered in the assessment.

8.2.3 There have also been updates to the methodology for the assessment of potential risks to human health from ground contamination by development of the Category 4 Screening Levels (C4SL) by the Environment Agency/DEFRA and the Suitable for Use Levels (S4UL) by industry[11]. These have been used to re-assess ground investigation data collected in 2013 and the new soil results from the additional ground investigations completed in 2015.

8.2.4 Revisions have been made to the Water Framework Directive guidance/legislation which have changed to the assessment criteria used to assess the impacts to

[10] Policy ME2, ME3 and ME4
[11] LQM/Chartered Institute of Environmental Health

controlled waters from some potential contaminants. These revised criteria have been used to assess the groundwater monitoring data collected to date.

8.3 Baseline

8.3.1 The Environment Agency has re-designated groundwater catchments across the area and the Project is now situated within a Groundwater Protection Zone Total Catchment Zone 3. The Project was previously outside all groundwater protection zones.

8.3.2 The study area includes the footprint of the Project, 500m either side of the A63. Temporary compounds used during the construction are not been included since these shall be used for storage of equipment and materials on a temporary basis only.

8.4 Surveys / data sources

8.4.1 A series of ground investigations have been undertaken since the 2013 Scoping report including:

- Geotechnics October 2013, Ground Investigation at A63, Castle Street Improvement, Hull, Project No: PC135320
- ESG April 2016, A63 Castle Street Improvements Main Site Ground Investigation. Factual Report on Ground Investigation. Ref: A5066-15
- ESG April 2016, Princess Quay Footbridge, A63 Castle Street Improvement, Hull. Factual Report on Ground Investigation. Ref: A5066-15
- ESG April 2016, Trinity Burial Ground, A63 Castle Street Improvement, Hull. Factual Report on Ground Investigation. Ref: A5066-15
- ESG April 2016, A63 Garrison Road, Castle Street Improvement, Hull. Factual Report on Ground Investigation. Ref: A5066-15A

Each investigation included the collection of samples for chemical analysis which have been used to inform the assessment of the potential for contaminants to be present and whether this is likely to result in an impact due to the Project.

8.5 Consultation

8.5.1 Consultation with the Environment Agency and the Environmental Services Department at Hull City Council (HCC) has been undertaken.

8.5.2 Prior the main ground investigation in 2013, discussions were held with the Environmental Health Officer (EHO) at HCC to confirm the scope of ground investigation works and proposed chemical analysis testing suite. Communication continued throughout the works, particularly when any unanticipated ground conditions were encountered.

8.5.3 Details on any Regionally Important Geological and Geomorphological Sites (RIGS) was also updated by consultation with the East Yorkshire RIGS Group

8.6 Mitigation

8.6.1 Given the lack of potential geological or geodiverse receptors, no adverse impacts on geological and soil resources have been identified.

8.6.2 The ground investigation has indicated the presence of some (albeit localised) areas of ground contamination. This not unexpected given the former industrial land use within some areas of the Project.

8.6.3 Soil gas from the underlying natural peat and organic alluvium deposits has also been identified to be present.

8.6.4 Mitigation measures will be implementation during the construction and operational phases to manage potential risks from the presence of localised ground contamination, including the use of safe working practices, appropriate sampling and management of material for disposal / reuse and appropriate segregation of contaminated materials.

8.6.5 Mitigation measures for the presence of soil gas include the use of controlled working areas, installation of gas protection measures and/or venting and selection of materials relating to prevailing ground conditions.

8.6.6 Monitoring works shall also be in place to assess residual geotechnical risks (e.g. potential for heave) during construction.

8.7 Likely Impacts

8.7.1 Measures to be put in place shall comply with best practice and likely to be successful in mitigating impacts from the presence of localised ground contamination and soil gas.

9. Materials

9.1 Introduction

9.1.1 The assessment of materials considers whether the use of materials and generation of waste during the construction and operation of the Project can have a significant impact.

9.1.2 The Project would generate significant volumes of construction, demolition and excavation waste (CDEW), principally from the excavation of soils to form the underpass and slip roads at the existing Mytongate Junction.

9.2 Approach / Methodology

9.2.1 The methodology for the assessment of materials shall follow:

- DMRB (1993); Volume 11: Environmental Assessment, Section 2: General Principals of Environmental Assessment, Part 5: Assessment and Management of Environmental Effects (HA 205/08)
- Interim Advice Note (IAN) 153/11 (October 2011)

9.2.2 Since the 2013 Scoping Report, there have been updates to legislation covering the assessment of wastes (including the Hazardous Waste (Miscellaneous Amendments) Regulations 2015) which have been considered in our assessment.

9.2.3 The Waste Management Plan for England was also published in December 2013 and sets the obligation to implement measures to ensure that at least 70% by weight of construction and demolition waste is subjected to material recovery by 2020. The Waste Prevention Programme for England (published 2013) also sets objectives to help organisations reduce waste. These have also been considered in our assessment.

9.3 Baseline

9.3.1 To assess the impacts from the generation of waste, the volumes of waste generated during construction have been estimated, together with consideration of the likely capacity of regional waste management facilities and the potential for re-use/recycling of waste either on or off-site.

9.3.2 Ground investigations (refer to section 9.4) carried out have incorporated sampling to assess the potential chemical suitability for re-use or disposal options of excavated soils.

9.4 Surveys / data sources

9.4.1 A series of ground investigations have been undertaken since the 2013 Scoping report including:

- Geotechnics October 2013, Ground Investigation at A63, Castle Street Improvement, Hull, Project No: PC135320
- ESG April 2016, A63 Castle Street Improvements Main Site Ground Investigation. Factual Report on Ground Investigation. Ref: A5066-15
- ESG April 2016, Princess Quay Footbridge, A63 Castle Street Improvement, Hull. Factual Report on Ground Investigation. Ref: A5066-15
- ESG April 2016, Trinity Burial Ground, A63 Castle Street Improvement, Hull. Factual Report on Ground Investigation. Ref: A5066-15
- ESG April 2016, A63 Garrison Road, Castle Street Improvement, Hull. Factual Report on Ground Investigation. Ref: A5066-15A

Each investigation included the collection of samples for chemical analysis which have been used to inform the assessment of waste and whether excavated soils are likely to be classed as either hazardous, non-hazardous or inert waste and potentially suitable for re-use.

9.5 Consultation

9.5.1 Information from the Environment Agency has been consulted to determine the capacity of local or regional waste management sites whether there is capacity to deal with the proposed volumes of waste associated with the Project.

9.6 Mitigation

9.6.1 The ground investigation has indicated the presence of some (albeit localised) areas of ground contamination and likely small volumes of hazardous waste generated from the excavation of soils. Further sampling, assessment and segregation to reduce volumes of hazardous waste requiring treatment or disposal shall be in place.

9.6.2 The underpass at Mytongate junction has been designed to minimise the depth, reducing the need for excavation, disposal of soils arisings and use of construction materials.

9.6.3 Options for the waste reduction and re-use of materials off-site shall be fully considered by the Contractor in accordance with the Construction Environmental Management Plan (CEMP) and Site Waste Management Plan (SWMP).

9.6.4 There however is very limited potential for the re-use of excavated soils within the Project due to the site setting constraints, limited areas of landscaping and the geotechnical unsuitability of material.

9.6.5 The re-use of materials on-site is likely to be restricted. Options for the re-use of materials off-site will be fully considered and shall minimise the generation of hazardous waste requiring disposal.

9.6.6 Alternate potential options to road transport (e.g. feasibility assessment of using temporary barge points on the Humber to reduce vehicle movements for the Project) will be considered at the detailed design stage.

9.6.7 Focus will be placed on managing the sourcing and use of materials where possible, through a Material Logistics Plan. The responsible sourcing of materials will be considered through the use of frameworks such as BES 6001: 2014 provides criteria against which sustainable construction products can be assessed and used as part of the specification requirements for materials, where appropriate.

9.7 Likely Impacts

9.7.1 Measures to be put in place shall comply with best practice and likely to be successful in mitigating impacts from the use of material and generation of waste.

10. Effects on all Travellers

10.1 Introduction

10.1.1 Effects on all travellers considers safety, journey times and accessibility for everyone along the route. This includes Non-Motorised Users (NMUs) as well as vehicle travellers.

10.1.2 Effects upon NMUs considers changes to NMU amenities, changes to journey length and amenity.

10.1.3 Effects on vehicle travellers considers levels of driver stress and also views from the road along the A63.

10.2 Approach / Methodology

10.2.1 Our 2013 scoping report included Effects on All travellers as a topic based on Interim Advice Note125/09 Supplementary guidance for users of DMRB Volume 11 'Environmental Assessment', which identified Effects on All Travellers is as a DMRB Topic.

10.2.2 However, the guidance contained within Volume 11, Section 3 has not yet been updated. As a result, the scope of the Effects on All Travellers assessment incorporated two of the "old" DMRB Topics:

- Volume 11, Section 3, Part 8: Pedestrians, Cyclists and Community Effects (Pedestrians, Equestrians and Cyclists only)
- Volume 11, Section 3, Part 9: Vehicle Travellers.

10.2.3 Since 2013, a further Interim Advice Note (IAN) has been issued. IAN 125/15 Environmental Assessment Update sets a new topic format where the elements of Effects on All Travellers would be considered as part of a new topic called 'People and Communities'. However guidance has yet to be published for the 'People and Communities' topic.

10.2.4 Therefore, as our 2013 Scoping Report remains the basis of our ongoing Environmental Impact Assessment, we are retaining the Effects on All Travellers topic, and its original scope.

10.3 Baseline

10.3.1 The proposed scheme is in an urban area with Public Rights of Way (PRoW), footways and cycleways on either side of the A63. There are no bridleways and no equestrian activities have been identified near to the Scheme.

10.3.2 A number of issues have been highlighted for existing PRoWs within Hull's Right of Way Plan such as poor maintenance, inefficient signage and obstructions.

10.3.3 There are currently at grade signalised crossings for the A63, as well as uncontrolled crossings on side roads.

10.3.4 The A63 road is all at grade. Vehicle travellers experience congestion at Mytongate roundabout, and along the A63.

10.3.5 Since our previous PEI, we have carried out some improvements to the crossing at the A63 Castle Street/Dagger Lane junction. We have lowered kerbs, provided a wider crossing and upgraded signalling to allow more people to use it at peak times. It will also make it easier to cross between the city centre and the marina during of the 2017 City of Culture events held throughout the year.

10.4 Surveys / data sources

10.4.1 We carried out NMU surveys in May and September 2013. Both surveys were conducted at eight locations, over 12 hours (7am to 7pm) on a weekday and a weekend day. The September survey was planned to coincide with the Hull Freedom Festival, to make sure we were able to understand the number of users during this event.

10.4.2 In addition to NMU counts, questionnaires were also completed by a number of NMUs recorded using the route for the May 2013 survey. Questionnaires were completed by 4.7% (546 participants) of recorded NMUs for May. Origin-destination information was gathered, as well as an indication of the main reason for undertaking their trip.

10.4.3 We carried out updated NMU surveys over two consecutive days (weekday and weekend) in September 2016, at nine locations. The surveys were again for 12 hours (7am to 7pm), and coincided with the Freedom Festival, as a comparison for previous counts in 2013.

10.5 Consultation

10.5.1 We have consulted with Hull Access Improvement Group (HAIG) about this project and to identify any design and mitigation options that may help to minimise adverse effects or enhance beneficial effects for NMUs. The outcomes of this consultation have helped inform the design of the scheme.

10.6 Mitigation and Design

10.6.1 We have considered measures to minimise adverse effects upon vehicle travellers and NMUs within the design of the Project.

10.6.2 A Construction Environmental Management Plan will be prepared by the appointed Contractor and implemented during construction, whilst Traffic Management will minimise effects on vehicle travellers. All diversions for NMUs will be clearly signed around the site and alternative access maintained.

10.6.3 We have designed the project to current Highways England and DfT standards with regards to visibility, road surfacing and road signing. For vehicle travellers,

this would ensure that journey quality is improved from the existing situation through road resurfacing, and route uncertainty would be minimised by the provision of adequate signing. Signalised crossings would be removed from the main carriageway minimising driver stress caused by congestion associated with the existing need to stop at signals at five locations along the Project length.

10.6.4 A principle of the Project design has been to remove potential conflict between vehicles and NMUs, by replacing existing at grade crossings with alternative crossing facilities.

10.6.5 A 900mm high concrete barrier would be installed in the central reserve for the length of the project which would prevent NMUs from crossing at grade and minimise driver stress.

10.6.6 All pedestrian, cyclist and disabled user bridges would be designed to be compliant with the Equalities Act 2010. Specifically, the bridge deck for the Princes Quay pedestrian, cyclist and disabled user bridge would be widened from standard to five metres, and stepped access would be provided as well as ramped access for both the Porter Street and Princes Quay bridges. For all pedestrian, cyclist and disabled user bridges, double handrails in a contrasting colour would be provided, and all bridges would be lit. The lighting design would ensure that lighting levels are not patchy, which would ensure that the visually impaired are not disproportionately affected.

10.6.7 A combined footway and cycleway would be provided along the length of the Project, on both sides of the A63, which would generally be three metres wide. There are some specific locations where space is restricted and the width would be reduced to a minimum of two metres.

10.6.8 Visibility and safety for NMUs would be improved through the removal of existing dense vegetation as appropriate.

10.7 Likely Impacts

10.7.1 Vehicle travellers are likely to experience reduced stress as a result of less congestion on the A63 and with NMUs no longer able to cross the A63 at road level. The view from the road for vehicle travellers will be changed, as the A63 will be lowered at Mytongate junction and will be in a cutting. Vehicle travellers will also have a view of the landmark design Princes Quay Bridge.

10.7.2 Removing at grade signalised crossings for NMUs will affect journey pattern and amenity. There will also be some increases in overall journey length, particularly for disabled users who will be required to use ramps to access pedestrian, cyclist and disabled user bridges. However, alternative crossings of the A63 will be provided which will have the benefit of separating NMUs from vehicle traffic, and amenity benefits will also be felt in locations where there is a reduction in traffic and NMUs are present.

10.7.3 The layout and design of the crossing at Princes Quay pedestrian, cyclist and disabled user bridge has the potential to better connect the city centre to the waterfront and would accommodate NMUs during the Freedom Festival.

10.7.4 During the construction period, there will be temporary disruption to all travellers. Amenity will be influenced by the presence of construction machinery and activity. NMUs will be required to use diverted routes, which are likely to temporarily increase journey length and time. Vehicle travellers are likely to face higher levels of driver stress from temporary congestion, narrow lane widths and possible route uncertainty.

11. People & Communities

11.1 Introduction

11.1.1 The People and Communities topic considers impacts on humans and the local community, by looking at the following elements:

- Community Facilities – the presence of facilities themselves and how easily accessible the facilities are for users.
- Local Economy - local businesses and employment as well as wider economic impacts.
- Land Use and Housing - land use types that are present, loss of community land, loss of private land, housing or development land.
- Social - the social profile of the local community.

11.2 Approach / Methodology

2.1.2 Our 2013 Scoping Report included a Community and Private Assets topic for the Environmental Statement (ES). This was topic was identified in Interim Advice Note (IAN) 125/09[12]. No topic specific guidance for Community and Private Assets assessment has been published, instead IAN 125/09 points to the relevant sections of two previous DMRB topics:

- Volume 11, Section 3, Part 6 Land Use
- Volume 11, Section 3, Part 8 'Pedestrians, Cyclists and Community Effects' (Community Effects element only, the remainder of the topic will be assessed in Chapter 15 – Effects on all Travellers).

11.2.1 Since 2013, a further Interim Advice Note (IAN) has been issued. IAN 125/15 Environmental Assessment Update sets a new topic format where the elements of the two previous DMRB topics listed above are to be considered as part of a new topic called 'People and Communities'.

11.2.2 No guidance on how to carry out an assessment on People and Communities has been published. Our approach is therefore to proceed with our original scope, with the topic chapter will be renamed People and Communities. We have also included consideration of socio-economic and economic developments, in response to the Scoping Opinion received from Planning Inspectorate.

[12] Highways Agency Interim Advice Note 125/09 Supplementary guidance for users of DMRB Volume 11 'Environmental Assessment'.

11.2.3 DMRB does not provide a set definition of the study area for People and Communities. Therefore, two study areas have been selected:

- A local study area of 250m from the application site has been defined in order to assess impacts on Land Use and Housing, Community Facilities and the Local Economy.
- For other elements (such as the social profile and wider economic impacts), a wider study area of Hull City Council boundary.

11.2.4 The assessment of People and Communities considers the possible impacts that are likely to have significant effects on people and community conditions. This significance is determined by considering the sensitivity of the receptor/resource as well as the magnitude of the impact on the receptors/resources.

11.2.5 The sensitivity of receptors/resources is determined by their capacity to absorb proposed changes. It ultimately reflects their vulnerability to the intervention and their access to additional or alternative resources of a similar nature.

11.2.6 The magnitude of impact is determined by spatial scope (whether impacts are likely to be felt in the local area or more widely), extent (how many people and communities receptors are likely to be impacted), duration (whether the impacts would be short or long-term); and reversibility (whether the impact is permanent or temporary).

11.3 Baseline

11.3.1 The baseline provides the social and economic context for the scheme and presents a snapshot of the relevant surrounding community and business receptors that are likely to experience any effects as a result of the scheme.

11.3.2 The local area is Hull city centre, which has an established pattern of development with a large number of commercial, residential and retail premises. There is also a variety of community facilities, including schools, medical centres, places of worship and leisure and recreational facilities. There are also areas of community land and public open space in the study area.

11.3.3 Areas of development land, and the stage of development in some areas, has changed since the 2013 Scoping Report. We are utilising Major Scheme Planning Applications with status of either pending or approved to identify land under development.

11.4 Surveys / data sources

11.4.1 Data sources consulted as part of our assessment include web-based sources such as the 2011 Census, Nomis and local plans. Site visits were conducted in January 2014 and October 2016.

11.5 Consultation

11.5.1 As part of the consultation process, three previous public exhibitions events have been held at The Royal Hotel, Hull to consult with the local and wider community. A public consultation leaflet was produced, and 2,165 copies were distributed to local residents and deposited at seven local community facilities.

11.5.2 We have held meetings with local residents, businesses and groups to discuss any concerns about the proposed improvements in general or any particular issues. Several of these meetings took place outside the formal consultation period to ensure that relevant comments were able to be considered.

11.5.3 We have had continued dialogue with specific business that are adjacent to the A63 and that are likely to be impacted by the project.

11.5.4 There has been extensive consultation to date with the Cannon associated with the Trinity Burial Ground, representatives of the Parochial Church Council for Holy Trinity Church and the Diocese of York and Hull City Council to ensure adequate mitigation measures are considered.

11.5.5 Hull Access Improvement Group (HAIG) were also consulted on potential impacts on disabled people during the construction and operation stages. The group also provided input on the design of the scheme and potential measures to mitigate adverse effects.

11.6 Mitigation

11.6.1 We have combined the majority of the mitigation into the design of the project, for example to minimise the loss of private land and to minimise disruption to local businesses.

11.6.2 During the construction phase, severance from community facilities would be minimised by ensuring that all temporary pedestrian diversions would be clearly signed, with alternative access arrangements maintained through the full construction period. Existing crossings would only be closed once diversions are in place or the new arrangement have been established.

11.6.3 The area of Public Open Space lost in Trinity Burial Ground will be replaced with an equivalent area in another location. The remaining area of Trinity Burial Ground will be retained as green space, with displaced monuments reinstated.

11.7 Likely Impacts

11.7.1 During the construction phase, access to community facilities and businesses will be temporarily disrupted due to the works required to deliver the scheme.

11.7.2 During the construction phase, some development land would be required temporarily for site compounds, however no long term loss of development land is anticipated.

11.7.3 When the road is open to all users, the two new pedestrian, cyclist and disabled user bridges are likely to allow for greater east/west movement and access to community facilities on either side of the A63. However, the corresponding removal of at-grade crossings along the route may result in some longer journey distances.

11.7.4 There will be a loss of an area of Public Open Space at Trinity Burial Ground. Although the remaining area of the burial ground will be improved for users, it will be a smaller area.

11.7.5 There will be some permanent loss of land for some local businesses, while others will see their access permanently change.

11.7.6 There is potential for the scheme to improve local economic performance, from increased accessibility to the local area. There is potential for both short term and longer term job creation, as a result of construction activity, and from the wider economic uplift resulting from the scheme.

11.7.7 No demolition of housing is anticipated. There would be potential demolition of two private properties: the former Earl de Grey Public House Castle Street Buildings. Both premises are closed.

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Highways England creative job number **N160271.**

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Registered office Bridge House, 1 Walnut Tree Close, Guildford GU1 4LZ
Highways England Company Limited registered in England and Wales number 09346363