A19 Downhill Lane Junction Improvement Scheme Number: TR010024
7.2 Outline Construction Environmental Management Plan

APFP Regulation 5(2)q

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

Volume 7

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The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

A19 DOWNHILL LANE JUNCTION IMPROVEMENT

The A19 (Downhill Lane Junction Improvement) Development Consent Order 201[ ]

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

Regulation Number:	Regulation 5(2)(q)
Planning Inspectorate Scheme Reference	TR010024
Application Document Reference	TR010024/APP/7.2
Author:	A19 Project Team - Costain, Highways England & Jacobs

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GLOSSARY

Term	Meaning
CDM 2015	The Construction (Design and Management) Regulations 2015
CEMP	Construction Environmental Management Plan
COSHH	Control of Substances Hazardous to Health Regulations
DCO	Development Consent Order
DMRB	The Design Manual for Roads and Bridges
EA	Environment Agency
ECI	Early Contractor Involvement
ECoW	Environmental Clerk of Works
ECP	Environmental Control Plan
EHO	Environmental Health Officer
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
Environmental Aspects Register	A tool used by Costain to identify and manage the environmental risks associated with the construction of any project.
EPS	European Protected Species
ES	Environmental Statement
HASEMP	Health, Safety and Environmental Management Plan
HE	Highways England
HEMP	Handover Environmental Management Plan
IAN	Interim Advice Note
ISO 14001	An international standard for environmental management systems
ITP	Inspection and Test Plan
LOLER	Lifting Operations and Lifting Equipment Regulations
LWS	Local Wildlife Site
NMU	Non-motorised user
Principal Contractor	Under CDM 2015, a Principal Contractor is appointed by the client to control the construction of any project involving more than one contractor
PCF	Project Control Framework – Highways England's process for managing the development of major schemes
PINS	Planning Inspectorate
PPE	Personal Protective Equipment
PPG	Pollution Prevention Guidelines
PRoW	Public Rights of Way
PUWER	Provision and Use of Work Equipment Regulations
RAMS	Risk Assessment and Method Statement
REAC	Register of Environmental Actions and Commitments
SHE	Safety, Health and Environmental
SoS	Secretary of State for Transport
Scheme	A19 Downhill Lane Junction Improvement
STC	South Tyneside Council
SCC	Sunderland City Council
SWMP	Site Waste Management Plan
The Costain Way	The Costain Company Management Systems
Toolbox talk	A presentation on any aspect of health, safety or the environment

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APPENDICES

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1 INTRODUCTION

1.1 Scheme Summary

1.1.1 Highways England intends to improve the A19 Downhill Lane junction in South Tyneside, near Town End Farm (see Figure 1); hereafter referred to as the 'Scheme'.

1.1.2 The A19 is a strategic route running from Doncaster to north of Newcastle via York. More locally, it links the Tyne and Wear conurbation with Teesside. From the south, it connects the A1 at Dishforth and areas in between (including Middlesbrough and Sunderland) to South Tyneside.

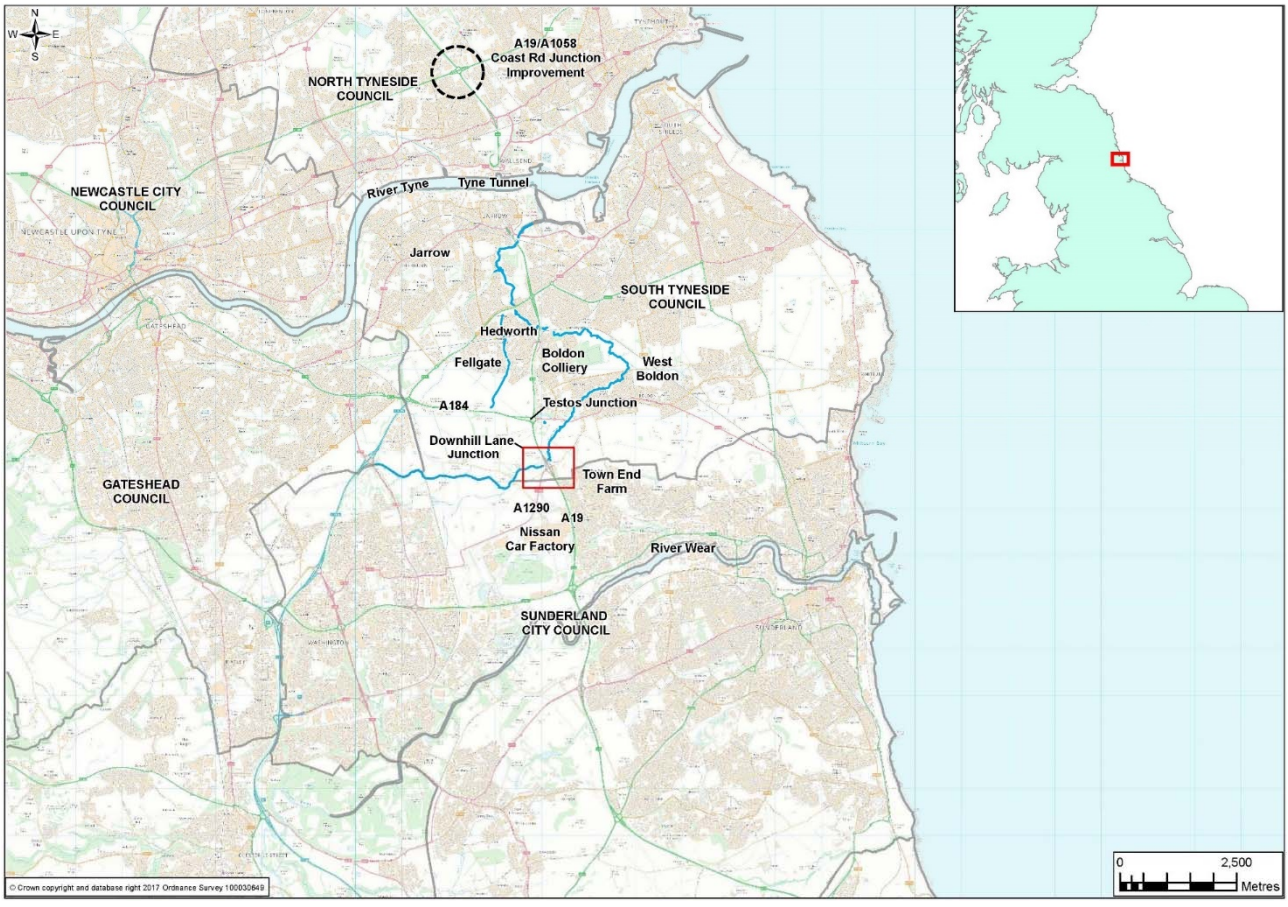
1.1.3 The A19 also forms part of a Tyneside eastern orbital route, crossing the River Tyne via the Tyne Tunnel and meeting the A1 again at Seaton Burn Interchange.

1.1.4 Testo's junction is approximately 1.2 km north of Downhill Lane junction. Highways England made an application to the Secretary of State to improve this junction in July 2017. The Order was made in September 2018. The main construction works are scheduled to commence in early 2019.

1.1.5 The A19 dual carriageway runs approximately north-south under Downhill Lane which crosses above the A19 via an overbridge. The A1290 also joins this junction from the south-west.

1.1.6 The Scheme aims to increase capacity by providing a two bridge, grade separated, signalised roundabout junction.

Figure 1. Location of Downhill Lane



1.1.7 Detailed descriptions of the background to the Scheme, Scheme objectives, the site and its surrounding and the Scheme itself are provided in Volume 1 Chapter 2 of the Environmental Statement (ES) (document reference TR010024/APP/6.1).

1.1.8 A series of preliminary design drawings (Engineering Drawings and Sections - document reference TR010024/APP/2.6) are included as part of the application for the Development Consent Order (DCO) for the Scheme. Relevant drawings include:

- Engineering Drawings (Highways General Arrangement) (document reference TR010024/APP/2.6.1(A) and TR010024/APP/2.6.1(B); and
- Engineering Drawings (Drainage General Arrangement) (document reference TR010024/APP/2.6.4.

1.1.9 A copy of the Scheme Layout Plan (document reference TR010024/APP/2.2) is provided in Appendix A.

1.1.10 The Environmental Masterplan ('Masterplan') is a key document relating to the environmental elements of design. The Masterplan is a drawing or set of drawings which represents the overall illustrative design for the environmental aspects of the Scheme. It includes:

- existing landscape features;
- planning policy designated areas or features e.g. LWS and PRoW;
- the outline highway design with salient environmental features;
- the landscape and ecology design, including mitigation measures; and
- Non-motorised user facilities.

1.1.11 The illustrative Environmental Masterplan is included in Volume 1 of the ES. As it is an important tool in understanding the environmental aspects of the Scheme, and the design and mitigation measures proposed, a copy is provided in Appendix C of this outline CEMP. It should be noted that the features shown on this illustrative Environmental Masterplan are subject to change through detailed design development. Any changes to the landscaping design will be secured through Requirement 5. Any amendments made will be within the parameters of the DCO and the environmental assessment envelope and will therefore not constitute a material change to the Scheme. To ensure that such amendments do not change the consented scheme, they should be assessed using the Highways England Evaluation of Change Register and must be signed off by Highways England prior to being implemented. Further details regarding change control can be found in section 10.

1.2 Strategy and Programme Context

1.2.1 The Scheme is included for delivery in the government's Road Investment Strategy for Road Period 1 (RIS1). It therefore also forms part of Highways England's Delivery Plan for the 2015-2020 period.

1.2.2 Construction work on the Scheme is targeted to commence in autumn 2020 with the Scheme opening targeted in 2022.

1.2.3 The current focus is on progressing the Scheme through the statutory planning process to obtain development consent from the SoS.

1.2.4 The construction phase is expected to last for approximately 19 months.

1.2.5 A proposed outline construction programme with details of the timings of works has been

prepared and is contained in Appendix B. Programme works phasing details are also provided in Section 5 of this outline CEMP.

1.3 Environmental Management Plan Development

1.3.1 Highways England's guidance for the development of Environmental Management Plans (EMPs) is based on the Design Manual for Roads and Bridges (DMRB) Volume 11, Section 2 and Interim Advice Note (IAN) 183/14 Environmental Management Plans. The guidance in IAN 183/14 takes into consideration Environmental Management Plans: Practitioner Best Practice Series, Volume 12 (IEMA, 2008) and BS EN ISO 14001: Environmental Management (BSI, 1996, as amended).

1.3.2 The key aims of EMPs are to:

- Act as a continuous link and main reference document for environmental issues between the design, construction and the maintenance and operation stages of a scheme;
- Demonstrate how construction activities and supporting design will properly integrate the requirements of environmental legislation, policy, good practice and those of the environmental regulatory authorities and third parties;
- Record environmental risks and identify how they will be managed during the construction period from an early stage;
- Record the objectives, commitments and mitigation measures to be implemented together with programme and date of achievement;
- Identify the key staff structures and responsibilities associated with the delivery of the Scheme and environmental control and communication and training requirements as necessary;
- Describe the contractor's proposals for ensuring that the requirements of the environmental design are achieved, or are in the process of being achieved during the Scheme's construction;
- Act as a vehicle for transferring key environmental information at handover to the body responsible for operational management. This will include details of the asset, short and long-term management requirements and any monitoring or other environmental commitments; and
- Provide a review, monitoring and audit mechanism to determine effectiveness of, and compliance with, environmental control measures and how any necessary corrective action will take place.
- The development process typically starts with the production of an outline EMP during development of the preferred option. The outline EMP provides an over-arching framework for environmental management during design, construction and operation and identifies the environmental risks associated with the implementation of the Scheme as identified at that stage.

1.3.3 The Downhill Lane Junction CEMP production has not followed the typical route of CEMP development. Given its proximity to the Testo's Junction Improvement scheme, with many similar scheme impacts, aspects and receptors, and a common project team, this outline CEMP has therefore been developed in accordance with DMRB, whilst also using information available from the latest version of the Testo's CEMP.

1.3.4 For construction, the outline CEMP will be reviewed and developed into a final CEMP for consultation with the relevant planning authority prior to approval by the Secretary of State in accordance with Requirement 4. The final CEMP will take account of detailed design and construction planning and the outcome of the DCO process. The approved

CEMP will be subject to further review as the Scheme progresses. It will be maintained and revised during the construction period to take account of any changes in design or external factors such as regulations and standards, any unforeseen circumstances as they arise, such as new protected species or new archaeological finds, and any failings in environmental performance identified from routine inspections and audits. The scope of the refinement and/or updates will be discussed with the relevant Highways England Environmental Advisor appointed to the Scheme.

1.3.5 Towards the end of the construction period the CEMP is used to develop a Handover Environmental Management Plan (HEMP) which is the main vehicle for passing essential environmental information to the client and crucially to the body responsible for the future maintenance and operation of the Scheme. The indicative contents of the HEMP are detailed in Annex C of IAN 183/14.

1.3.6 The HEMP will address the matters set out in the approved CEMP that are relevant to the operation and maintenance of the authorised development, and must contain:

a) the environmental information needed for the future maintenance and operation of the authorised development;

b) the long-term commitments to aftercare, monitoring and maintenance activities relating to the environmental features and mitigation measures that will be required to ensure the continued long-term effectiveness of the environmental mitigation measures and the prevention of unexpected environmental impacts during the operation of the authorised development; and

c) a record of the consents, commitments and permissions resulting from liaison with statutory bodies.

1.3.7 The authorised development must then be operated and maintained in accordance with the HEMP.

1.4 Objective of this CEMP

1.4.1 This document has been prepared by Costain, Highways England's Early Contractor Involvement (ECI) Contractor. Costain appointed Jacobs to prepare the preliminary design of the Scheme, carry out the EIA and assist in preparation of the application for Development Consent. As ECI Contractor, Costain has been responsible for overseeing development of the ES by Jacobs. Costain is also the appointed Principal Designer and Principal Contractor for the Scheme, as defined under CDM 2015.

1.4.2 The predicted environmental effects of the Scheme identified in the ES, and the related actions and mitigation measures scheduled in the Register of Environmental Actions and Commitments (REAC) (contained in Appendix 1.3 of the ES and Appendix D of this outline CEMP) have formed the basis for developing this CEMP.

1.4.3 The overall objectives of the CEMP are to:

- Identify stakeholder requirements;
- Set out the Environmental Management System requirements (in line with ISO 14001);
- Ensure the relevant DCO Requirements are met;
- Ensure compliance with current legislation;
- Effectively minimise any potential adverse environmental effects during construction including how site-specific method statements will be developed to avoid, minimise and mitigate construction effects on the environment; and

- Translate committed mitigation, set out in the ES, into committed site procedure.

1.4.4 This outline CEMP takes due consideration of the assessments undertaken on behalf of Highways England and the DCO application documents prepared for submission to the Planning Inspectorate, identifying mitigation and environmental issues associated with the following phases of construction:

- Prior to construction (e.g. advanced works, site preparation, vegetation clearance);
- During construction (e.g. works); and
- Post construction, or pre-occupation, including demobilisation.

1.4.5 This outline CEMP has been drafted ahead of the construction phase to ensure that all necessary measures identified during planning are incorporated into the Scheme during construction. Along with the Construction Phase Plan (this being a requirement of CDM 2015), the CEMP forms part of a suite of documents used by Costain to manage the construction of the Scheme. This outline CEMP forms part of the combined Costain Health & Safety and Environmental Management Plan.

1.4.6 This document is intended to be user-friendly and so, where possible, references to other relevant sources of information have been provided, rather than described in detail.

1.4.7 It should also be read alongside the following key documents which are contained in the Appendices of this document:

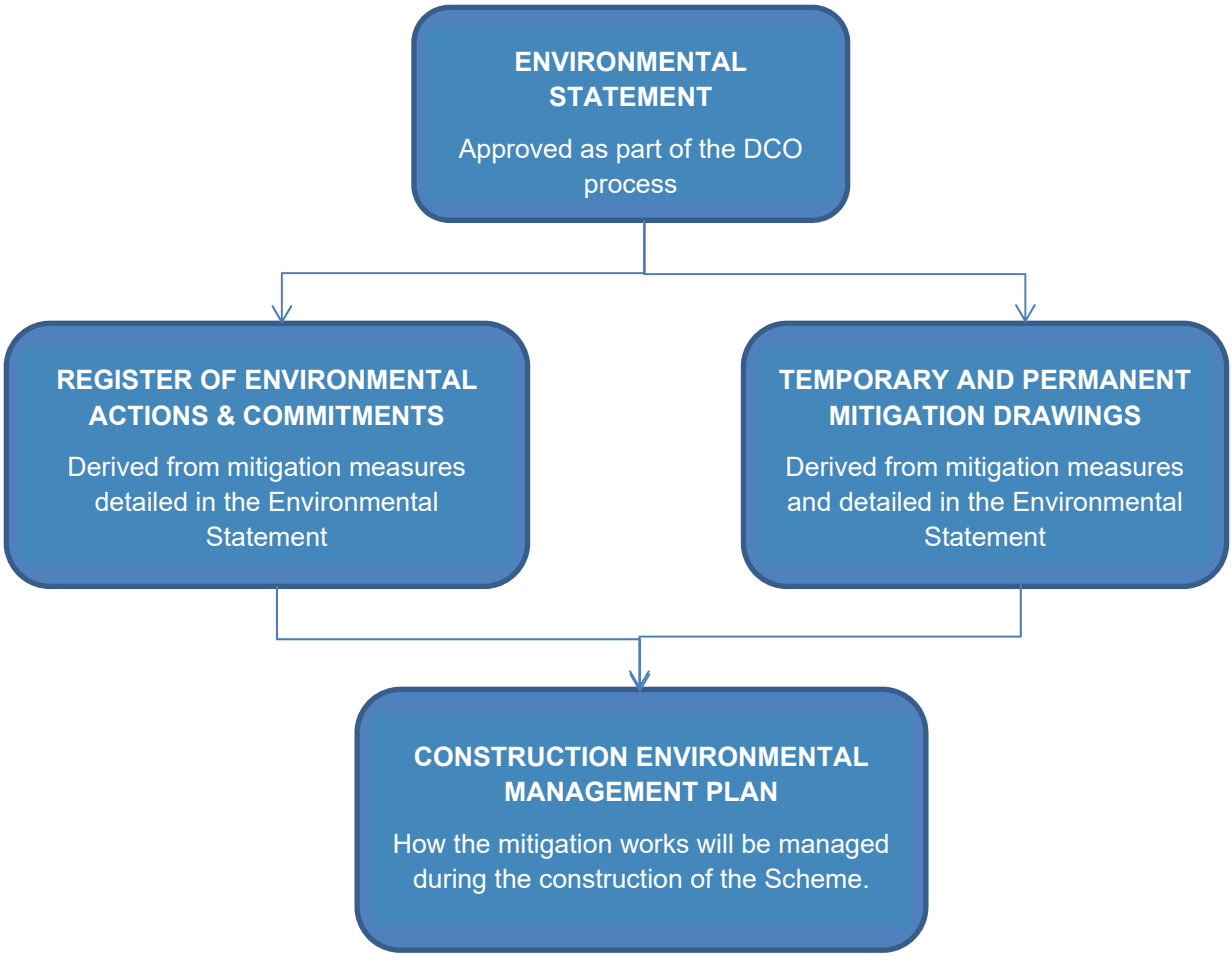
- Environmental Masterplan (Appendix C);
- Register of Environmental Actions and Commitments (REAC) (Appendix D).

1.4.8 Upon completion of construction, the CEMP will be used to form the HEMP as stated above 1.3.5 to 1.3.7.

2 APPROACH TO ENVIRONMENTAL MANAGEMENT

2.1 General Approach

2.1.1 To fulfil the aims of the CEMP and meet all environmental commitments it is important to have a clear approach and structure for environmental management that outlines roles and responsibilities, required communication, appropriate hold points and all the mitigation, conditions, consents, licences and good working practices that need to be implemented. To this end, the CEMP should set out a clear process whereby all these commitments are properly documented, agreed and implemented throughout the lifespan of the Scheme. This process is outlined below:



2.1.2 As noted previously, Costain is Highways England's appointed ECI contractor, and Jacobs is Costain's design and environmental partner.

2.1.3 Costain and Jacobs have provided professional services to Highways England to progress the Scheme through the Preliminary Design stage and will continue to do so in subsequent stages prior to construction. These services have included preparation of the preliminary design of the Scheme, carrying out the EIA and preparing significant parts of the DCO application, including the ES and this outline CEMP. The ES was completed by Jacobs in 2018 and forms part of Highways England's application for Development Consent Order to the Planning Inspectorate.

2.1.4 Information on required environmental actions and mitigation commitments contained within the ES are captured in the REAC (Appendix D) to ensure such items are adequately communicated and addressed during detailed design and construction. Where appropriate such aspects will also be added to design information (e.g. Environmental Masterplan, other drawings and specifications) to highlight issues/protection areas where necessary.

2.1.5 The approved CEMP will draw together all relevant environmental information relating to the new works. These include, but are not necessarily limited to:

- The actions and mitigation measures set out in the ES and REAC;
- Relevant Requirements set out in Schedule 2 of the DCO as granted;
- Any further mitigation measures agreed post publication of the DCO;
- Any other commitments agreed between Highways England and specific landowners or occupiers;
- Any other requirements relating to licences, permits and consents not included as part of the DCO; and
- Environmental best practice measures including those set out by statutory agencies (some of which are also included in the ES/REAC).

2.2 Environmental Control Plans (ECPs)

2.2.1 Environmental Control Plans are key documents which ensure that the construction-related mitigation measures and actions set out in the REAC are successfully implemented on site. ECPs will inform the works and the development of associated task-specific Risk Assessments and Method Statements.

2.2.2 The following ECPs will be prepared, as appropriate, for the Scheme;

- Dust, Noise & Nuisance Management Plan (see Appendix G);
- Site Waste Management Plan (see Appendix H);
- ECP - Invasive Species (see Appendix I);
- ECP - General Ecology (see Appendix J);
- Soil Management Plan (see Appendix K);
- Surface Water Management Plan (see Appendix L);
- COSHH Material, Waste Storage & Refuelling Plan (see Appendix M);
- Energy and Resource Use Management Plan (see Appendix N)
- Materials Management Plan (see Appendix O);
- Contaminated Land Management Plan (see Appendix P);
- Archaeological Control Plan (see Appendix Q);
- Pollution Prevention Plan (see Appendix R);
- Resources Management Plan (see Appendix N);
- Emergency Response Plan (including Environmental Incident Control Plan); and
- Landscape Management Plan (will be completed as part of the HEMP).

2.2.3 A number of draft ECPs or further information on specific ECPs are included as Appendices to this outline CEMP as noted in the list in 2.2.2 above. Those ECPs listed but not currently included as appendices will be developed and added for the approved CEMP. All ECPs will be developed to their full detail for the approved CEMP during the detailed design and construction planning phase.

2.2.4 An Emergency Response Plan is not provided as an appendix to this outline CEMP but a summary of the key measures and processes that will form key parts of it are provided in Section 13.

2.2.5 ECPs are live documents that are subject to updating and refinement as required in response to the changing needs of the works during construction.

2.3 Construction Environmental Roles and Responsibilities

2.3.1 The anticipated site-based roles and the organisation of responsibilities in relation to environmental management are summarised below. Costain will be required to delegate responsibilities to personnel within key areas of the construction site and compounds. The delegation of responsibility will be clearly identified within relevant documents and site files.

Key Scheme Environmental Contacts

2.3.2 Overseeing management of the Scheme will be directed by Highways England. Highways England may delegate some site supervision roles and procure specialist consultants to supervise, monitor or check the Costain's procedures for sensitive activities where required. The current key Scheme contacts for Highways England and Costain related to environmental management are listed in Table 1.

Table 1: Key Site Contacts Related to Environmental Management

ROLE	CONTACT	ORGANSATION	TELEPHONE	EMAIL
Senior Project Manager	Thomas Howard	Highways England	03004702455	Thomas.howard@highwaysengland.co.uk
Construction Contract Leader	Craig Snow	Costain	[redacted]	Craig.snow@costain.com
Environmental Manager	Karl Heath	Costain	[redacted]	Karl.heath@costain.com
Environmental Clerk of Works	TBC	Costain	TBC	TBC
Environmental Specialists	TBC	Costain / Jacobs	TBC	TBC
Community Liaison Manager	Jonathan Byrne	Costain	[redacted]	Jonathan.Byrne@costain.com

Environmental Management Responsibilities

2.3.3 As Principal Contractor, Costain is responsible for all activities on site and for ensuring that all other parties such as its sub-contractors, Highways England (and any delegated consultants acting on their behalf) abide by their responsibilities to comply with the Scheme's environmental policies, relevant environmental legislation and regulations. To do this all persons on site will be made aware of their duty of care to the environment and will be provided with sufficient training, supervision or instruction through site inductions, toolbox talks and specific method statements as necessary.

2.3.4 Sub-contractors shall sign up to the requirements of the CEMP as it forms part of the Costain Health, Safety and Environment Management Plan, to which they all sign up as

part of any contract awarded to them.

2.3.5 Responsibilities for the site environmental management will be delegated to key personnel by Costain who will manage all reporting and monitoring of environmental mitigation during the construction period. Where required, environmental specialists will be consulted to provide advice on specific issues or site activities. The main environmental roles and responsibilities are shown in Table 2.

[Note: Some role titles and individual responsibilities may vary depending on Highways England's and Costain's final Scheme organisation set up].

Table 2: Environmental Roles and Responsibilities

ROLE	MAIN ENVIRONMENTAL RESPONSIBILITIES
Highways England Project Manager	• Overseeing implementation of the Scheme and the individuals undertaking specific roles and duties. To be reported to as per contract requirements and internal organisation Environmental Management Systems.
Costain Contract Leader	• Responsible for management of the construction phase of the Scheme. • Has overall responsibility for the environmental performance of the Scheme. • Regular communication with Highways England and the relevant statutory environmental bodies on all environmental matters (as they arise).
Costain Environmental Manager	• Ensuring compliance with environmental legislation, consents, objectives, targets and other environmental commitments, including those arising from the Environmental Statement. • Maintenance of Environmental documentation • Management of environmental specialists and monitoring compliance of construction activities in line with the Environmental Control Plans and the relevant environmental legislation / licences, reviewing and developing the Environment Control Plans (ECPs) throughout the construction period, and acting as the focal point of contact for all environmental issues on site. • Liaison with relevant consultees/stakeholders. • Accompany statutory authorities on site visits (with Environmental Clerk of Works (ECoW) if necessary). • Compiling applications for unexpected authorisations with assistance of ECoW if necessary. • Investigation of environmental incidents. • Assisting with the delivery of environmental training to the workforce. • Assisting in review of method statements. • Identification of key environmental concerns on site as the Scheme develops. • Instruction and confirmation of key requirements of each section on site as job progresses to site personnel. • Assessing and checking survey results and updating databases, ECPs etc. with any new information. • Identification of cost savings and best practice activities. • Ongoing liaison with contractor's site supervisors, site management team, and general construction workers.

ROLE	MAIN ENVIRONMENTAL RESPONSIBILITIES
Environmental Clerk of Works	• Supporting the site team in delivering the environmental components of the works during the construction phase. • Delivering environmental training to the workforce. • Recording the progress of the environmental works. • Monitoring and supervising construction activities in relation to environmental aspects. • Walkover of all activities on the site and ongoing monitoring of works area to ensure compliance with key environmental legislation compliance and control plans. • Assisting in review of method statements. • Identification of key environmental concerns on site as the Scheme develops. • Instruction and confirmation of key requirements of each section on site as job progresses to site personnel. • Monitoring and updating Environmental Manager on the progress of pre-construction surveys. • Assisting in monthly formal audits with Environmental Manager. • Assessing and checking survey results and updating databases, ECPs etc. with any new information. • Identification of cost savings and best practice activities. • Immediate reporting of incidents to the SHE department. • Ongoing liaison with contractor's site supervisors, site manager, and general construction workers. • Providing daily updates to Environmental Manager on site progress, compliance, issues, problems, successes, etc. • Accompanying statutory authorities on site visits (with Environmental Manager if necessary).
Environmental Specialists	• As required, archaeologists, ecologists, geotechnical engineers and hydrologists, etc. will be responsible for undertaking pre-construction surveys and watching briefs, as well as providing advice on specific issues (as they arise) throughout the construction phase.
Community Liaison Manager	• Communications with the public and interested parties, outreach and education, where appropriate including: o Responding to any concerns or complaints raised by the public in relation to the works; o Supporting the Construction Manager on landowner and community concerns relating to the works; o Ensuring that the HE Project Manager and Costain Contract Leader are informed of any complaints relating to the environment; o Keeping the public informed of scheme progress and any construction activities that may cause inconvenience to local communities; o Assisting the Costain Contract Leader with the implementation of the Stakeholder Information Complaints Procedure.

2.4 Detailed Principal Contractor Responsibilities

Pre-Construction

2.4.1 Costain is responsible for approving the appointment of the site Environmental Manager and any environmental specialists prior to any work starting on site.

2.4.2 Costain is responsible for the following prior to construction commencement:

- Developing this outline CEMP into the approved CEMP;
- Defining roles and responsibilities for their own and their key sub-contractors' personnel relating to environmental issues;
- Developing an environmental training plan covering all personnel and the level of training pertinent to their role;
- Developing a programme of internal and sub-contractor inspections/monitoring;
- Developing scheme-specific emergency procedures for environmental incidents;
- Finalising and implementing a programme for works to allow all pre-construction surveys to be arranged and completed within the required timeframe;
- Agreeing a non-compliance reporting procedure with Highways England to manage any environmental incidents or non-compliance events for the Scheme; and
- Developing the required ECPs. These will be updated as required up to construction commencement to reflect any new, relevant information provided by HE or other statutory consultees (e.g. further consent conditions, landowner agreements) or through design development, construction planning, pre-construction surveys etc.

2.4.3 No part of the authorised development is to commence until, for that part, final pre-construction survey work has been carried out to establish whether European or nationally protected species are present on any of the land affected or likely to be affected by any part of the relevant works, or in any of the trees and shrubs to be lopped or felled as part of the relevant works.

Construction

2.4.4 Costain is responsible on site for delivering the construction period commitments in the ES and REAC, as described within the Scheme design (contained in construction models, drawings, specifications etc.) and controlled by the CEMP.

2.4.5 Costain will implement the procedures set out in the CEMP with technical advice from competent environmental specialists. Costain is responsible for all its sub-contractors on site and for ensuring these sub-contractors comply with the requirements of the CEMP, all of whom are bound to the requirements set out within this outline CEMP through the HASEMP.

2.4.6 Costain is responsible for ensuring that there are no breaches in legislation and that good practice is followed throughout the duration of the construction.

2.4.7 Costain must ensure that all on-site works are adequately monitored.

2.4.8 The RAMS (Risk Assessments & Method Statements) and ECPs will be used to ensure all environmental commitments are delivered on site. The success of implementing the requirements of the RAMS, ECPs and delivery of mitigation measures relating to the construction of the Scheme will be the responsibility of Costain.

2.4.9 Any improvements or deviations relating to environmental matters required to the RAMS and/or ECPs shall be approved by the Environmental Manager and will be subject to HE consent where required.

2.4.10 Costain will provide regular feedback and information to the HE Project Manager and Environmental Manager on the progress and success in delivering all mitigation and commitments on site.

2.4.11 The REAC will be updated to demonstrate progress and will be kept by the Scheme for environmental auditing purposes, with updates periodically sent to the relevant Highways England management personnel.

2.4.12 All site personnel have the responsibility and authority to halt works in any activity where environmental commitments are not being successfully delivered or where legal requirements are being breached.

2.4.13 All site personnel will be encouraged to draw attention to any environmental risk or potential environmental risk arising on site (for example, refuelling being carried out too close to a watercourse or working outside the agreed limits of deviation for any aspect of the works). This approach will be promoted in all site inductions and training.

2.4.14 Any incidents or non-compliance with commitments will be recorded using the Costain management processes contained in the following Costain Way documents:

- SHE-H-610 How to classify incidents/hazards;
- SHE-H-611 How to manage minor incidents; and
- SHE-H-612 How to manage major incidents.

2.4.15 Costain will also:

- Have sole responsibility for pollution prevention measures being successfully implemented;
- Take all reasonable precautions and undertake all reasonable measures within their control to ensure that all legal requirements are complied with and that no unnecessary damage, disturbance or pollution results from undertaking the works; and
- Be available for environmental audits on a monthly basis.

2.4.16 Immediately prior to construction, Highways England's Employer's Agent (or equivalent) and the Costain nominated person will undertake a site condition survey of each section of the Scheme. This survey will usually include a photographic record. This will be used to ensure effective reinstatement following completion of the works and provide a 'baseline' to assess any compensation claims with landowners.

2.4.17 Costain is responsible for delivering the Scheme environmental training programme, including toolbox talks, throughout the construction works, ensuring all staff are trained adequately and to the agreed level prior to starting work on site (see Section 3 for more details).

2.4.18 The environmental aspects of the works shall be inspected on a regular basis as per the Costain processes outlined in the following Costain Way documents:

- SHE-H-618 How to Plan and Undertake Contract Targeted Risk Monitoring;
- SHE-T-436 Targeted Risk Monitoring Planner; and
- SHE-T-437 Risk Based Monitoring Check sheet.

Post-construction

2.4.19 Costain is responsible for correcting defects (as defined under the main construction contract) for 12 months following contract completion. This is known as the 'defects period'. The defects period applies to relevant works following completion of the main

construction works and completion of a subsequent 3-year period where Costain has responsibility for aftercare and management of environmental landscaping and planting. Following this Highways England will continue to monitor the effectiveness of the landscape establishment.

2.4.20 Costain will produce separate HEMPs for the road network maintained by Highways England and for any highways maintained by the Local Authorities (STC & SCC) which are affected by the Scheme. This will be done prior to the end of the 3-year landscape aftercare and management period.

2.4.21 The contents of the HEMPs will be agreed with Highways England and the Local Authorities and will conform to both the requirements set-out within the PCF and the Requirements of Schedule 2 of the DCO. The HEMP will cover the required elements as outlined in Annex C of IAN183/14.

2.5 Communications

2.5.1 Costain will direct all queries regarding the CEMP and actions within it through the Highways England Project Manager prior to initial contact with statutory consultees (e.g. the Environment Agency, Natural England). Costain will typically then act as the primary contact with statutory consultees leading up to and during the construction phase.

2.5.2 Costain will establish and maintain procedures for internal communications between the various levels and functions of the team during construction. Internal communications include:

- Advising of non-conformances to relevant managers;
- Communicating environmental commitments to the construction team;
- Communicating the environmental policy to the construction team;
- Raising awareness of environmental issues to the construction team; and
- Reporting incidents to relevant managers.

2.5.3 Costain will also document and respond to any relevant communications from external interested parties during construction. External communications may include, but will not necessarily be limited to:

- Dealing with complaints from members of the public; and
- Dealing with the media.

2.5.4 Costain will maintain an ongoing liaison with the statutory / regulatory bodies during the construction phase.

2.5.5 Table 3 outlines the proposed communication framework and should be used as an example when defining the communication processes within the detailed ECPs.

Table 3: Communication Framework

Stakeholder	Outline Communication Processes
Highways England	• The Costain's Contract Leader will be responsible for involving Highways England in any safety and / or environmental meetings (as required) via the Highways England Project Manager. • The minutes of the meetings will be issued to Highways England where appropriate and a copy will be retained on site.
Statutory and Non-Statutory Bodies	• We will continue to consult with the statutory and non-statutory bodies (where necessary). This will ensure that all the relevant parties have an opportunity to input to the operation of the site in order to minimise adverse environmental impacts. • Where necessary, method statements will be submitted to the relevant statutory / non-statutory bodies for comment to ensure that no pertinent environmental issues are overlooked. • Key bodies and contact numbers include: o South Tyneside Council – Contact centre 0191 4277000 o Sunderland City Council – Council switchboard 0191 5205555 o Environment Agency – Newcastle office 0870 850 6506 o Natural England – Newcastle office 0300 0600676 o Archaeology Officer – Newcastle City Council 0191 2787878
The Public	• The public shall be kept informed of any operations and developments that may have an effect upon them, such as temporary loss of amenities, changes to pedestrian or vehicle access routes or vegetation clearance. • Any such notification will set out the nature of the operations and the times at which they are to be carried out. • Social media, letter drops, a regularly updated website and newsletters may be used to keep local residents informed of progress on construction and any new operations that are to be carried out. • The information provided will also include details of contacts within the project team (should any issues arise). • Any complaints from the public shall be dealt with in accordance with the 'Stakeholder Information Complaints Procedure'. Contact details for the HE project team have been communicated during consultation. The complaints procedure will be communicated to the public immediately prior to commencement of the site works.
Construction Staff	• Construction staff shall be kept up to date on all operational matters that may have an impact on the safety and environmental factors on site. • The site induction will form the basis for all relevant information provided to construction staff and will be supported at regular intervals by toolbox talks, especially where new or particularly sensitive operations are about to commence. • Regular briefings to staff will also provide an opportunity to update them on any changes in working methods and procedure. • Audits and reviews of the effectiveness of the method statements will highlight any corrective measures and subsequent feedback to construction staff will serve as a means of regulating and ensuring best working practice.

2.5.6 It is expected that weekly construction team meetings will be held, or more frequently as required, where environmental issues will be discussed.

2.5.7 Internal communications will be carried out through the use of toolbox talks with the site workers and site meetings, which will include sub-contractors as detailed in Section 3.

2.6 Monthly Reporting

2.6.1 It is expected that the following reports will be provided to Highways England on the agreed basis as part of the monthly contract Progress Report:

- Monthly environmental reports of key issues;
- Waste management volumes and recycling figures;
- Carbon calculator submitted using the Highways England template; and
- Environmental incidents and near misses.

2.6.2 These would form part of the agenda at formal monthly contract Progress Meetings between Highways England and Costain.

3 TRAINING AND AWARENESS

3.1 General

3.1.1 Costain will comply with the procedures set out within their Costain Way management system detailed in the following documents:

- SHE-H-701 How to Identify and Confirm Safety, Health and Environmental (SHE) Training and Competency; and
- SHE-H-702 How to Ensure that SHE Information is Communicated during Inductions, Toolbox Talks and Briefings.

3.1.2 All personnel on site will be made aware of the company Environmental Policy, the Register of Environmental Legislation, the REAC and the relevant Environment Control Plans included in the CEMP. Relevant pre-construction environmental information has been incorporated into the ES and this outline CEMP.

3.1.3 The team will be briefed on the following topics as a minimum / as appropriate:

- Company Environmental Policy;
- General environmental awareness;
- Cultural heritage/archaeology;
- Waste management;
- Working in or near watercourses;
- Surface water pollution and control;
- Ecology/European Protected Species;
- Spills and emergency response procedures;
- Dust management; and
- Noise management.

3.1.4 Specific training needs will be identified and provided for all personnel involved in work activities that could result in an adverse impact on the environment. The training will include reference to the importance of adhering to the contents of the CEMP and the potential consequences of departure from specified method statements. Environmental training in the form of toolbox talks will also be undertaken on site, evidence of which (along with all other training) will be maintained on record as part of the Costain management system.

3.2 Site Inductions

3.2.1 Prior to commencing work on site, all personnel will undergo a site induction, where Costain will communicate the environmental objectives, requirements and responsibilities to the workforce. Environmental Site Rules will detail site personnel's obligations while on site. This will introduce accountability for personnel working on the Scheme.

3.2.2 The site induction and training shall cover relevant parts of the following areas to a level of sufficient detail for the workforce:

- Environmental site rules;
- Spill kit use and locations;
- Emergency spill procedures;
- Energy management; and
- Biodiversity protection and enhancement.

3.3 Toolbox Talks

3.3.1 In addition, Costain and each of its sub-contractors will establish a regime of toolbox talks such that every employee receives a health, safety & environmental briefing as appropriate, with a target of a minimum of one toolbox talk on an environmental topic per month. For sub-contractors, their supervisors are responsible for conducting these briefings and their implementation will be monitored by Costain. Records must be kept of toolbox talks carried out and who attended them.

3.3.2 Requests for new/specific toolbox talks can be made to the Environmental Manager.

3.3.3 An indicative list of appropriate toolbox talks is provided below. More may be added to this list as the Scheme progresses and as issues arise.

- Dust and air quality;
- Silt management;
- Segregation and storage of waste;
- Archaeology;
- Spill control;
- Cement and concrete;
- Washing down plant and machinery;
- Japanese knotweed and giant hogweed;
- Nesting birds; and
- Protected species.

3.4 Champions

3.4.1 In accordance with Costain procedures, various ‘champions’ shall be appointed to drive improvement. Champions shall be appointed in the following areas related to environmental management:

- Resource Efficiency Champion;
- Waste Champion; and
- Health and Wellbeing Champion.

3.5 In-house Training

3.5.1 Costain will develop an in-house Scheme environmental awareness session which all members of staff employed on the Scheme shall attend. The session shall cover topics including but not limited to:

- Downhill Lane setting in the environment;
- Legislation relevant to the Scheme;
- Ecological aspects; and
- Environmental risks.

4 CONSTRUCTION PROGRAMME

4.1 Main Features & Phasing

4.1.1 The main features and proposed phasing of the construction works are described below.

4.2 Mobilisation

4.2.1 This is proposed to commence in late Summer 2020 (subject to the DCO being granted) and will include pre-construction surveys and any early environmental mitigation works, establishing the site compound and storage areas and installing site-wide fencing and temporary access routes.

4.3 Phase 1 – East Side

4.3.1 Traffic will be maintained on the existing roads, but with narrow lanes and reduced speed limits where required on the A19, Downhill Lane and Washington Road. The following works will be carried out:

- New construction 'off-line' to the east of the existing A19 comprising new southbound on-slip road tie-ins, realignment of Washington Road further east and a temporary section of Washington Road;
- New construction 'off-line' to the east of the existing A19 comprising new southbound off-slip nearside and offside works; and
- New construction 'off-line' of the NMU footbridge eastern approach ramps and abutments.

4.4 Phase 2 – East Side

4.4.1 Traffic will be put on the newly aligned Washington Road and temporary link. A temporary A19 Southbound slip road is also used. The following works will be carried out:

- New construction of the east abutment to the Downhill Lane south bridge;
- New construction of the new A19 southbound on-slip and the east side of Downhill Lane roundabout;
- New construction of the NMU footbridge eastern pier support; and
- After completion of Phase 2 – West Side, construction of the new bridge deck to the south bridge.

4.5 Phase 1 – West Side

4.5.1 Traffic will be maintained on the existing roads, but with narrow lanes and reduced speed limits on the A19, Downhill Lane and A1290 where required. The following works will be carried out:

- New construction 'off-line' to the west of the existing A19 comprising new northbound off-slip road, western side of the new roundabout and new alignment of the A1290 west of the roundabout; and
-
- New construction 'off-line' of the NMU footbridge western approach ramps and abutments.

4.6 Phase 2 – West Side

4.6.1 Traffic will be put on the newly aligned northbound off slip, westbound roundabout off

link to the A1290 and the west half of the new Downhill Lane Roundabout. The following works will be carried out:

- New construction of the west abutment to the Downhill Lane south bridge;
- Completion of construction of west side of Downhill Lane roundabout; and
- New construction of the NMU footbridge western pier support.

4.7 Phase 3

4.7.1 Traffic on Downhill Lane will use both bridges and operate in a gyratory system over the A19. The new slip-roads will be open. The works will comprise:

- Refurbishment to the near-side of the north bridge with traffic in single file on the off-side;
- New construction of the east side A1290 Downhill Lane to the new roundabout; and
- Removal of the A19 temporary southbound on-slip road, the old A1290 alignment to the west of the new roundabout and the northbound part of the Washington Road temporary link.

4.8 Phase 4

4.8.1 Traffic on Downhill Lane continues to use both bridges and operate in a gyratory system over the A19. The new slip-roads will be open. The works will comprise:

- Refurbishment to the off-side of the north bridge with traffic in single file on the near-side; and
- Removal the old A1290 to the east of the new roundabout and removal of the southbound part of the Washington Road temporary link.

4.9 Overall Duration

4.9.1 The main construction phase of the Scheme is likely to last approximately 19 months.

4.9.2 The opening of the completed Scheme is expected in 2022, with landscape aftercare provision (under the main construction contract) lasting a further 3 years.

4.9.3 The main features and phasing described above is shown in more detail on the outline construction programme is contained in Appendix B. This programme will be developed further and updated in the approved CEMP.

5 REGISTER OF ENVIRONMENTAL ACTIONS AND COMMITMENTS

5.1.1 The Register of Environmental Actions and Commitments (REAC) identifies the environmental commitments made during PCF Stage 3 in developing the Preliminary Design and Environmental Statement to address the potential environmental effects of the Scheme.

5.1.2 The REAC is a live document and as such will be reviewed at six monthly intervals and, where required, updated as the Scheme progresses. It will be finalised at the end of construction on completion of the Scheme, where it will inform the development of and be included within the HEMP.

5.1.3 The HEMP will be the main vehicle for passing essential environmental information to the end users, the bodies responsible for the future maintenance and operation of the asset and is described further in 1.3.5-1.3.7.

5.1.4 The REAC is made up of two parts. Part 1 sets out the schedule of mitigation commitments and part 2 is the Environmental Action Plan.

5.1.5 Although the REAC initially forms part of the ES, during the implementation of the Scheme it will be appended to the approved CEMP for the construction period and ultimately shall be appended to the HEMP. Therefore, the REAC should be viewed as a 'live' document.

5.1.6 The REAC acts in part as a 'bridge' between the ES, the EMP, CEMP and HEMP through the lifecycle of a Scheme. Part 2 in particular can be added to during the detailed design phase, and as each objective is deemed to be achieved, the date of achievement will be entered, with the initials of the person signing it off.

5.1.7 The REAC is in Appendix 1.3 of the Environmental Statement Appendices (document reference TR010024/APP/6.3) and a copy is included within this outline CEMP in Appendix D.

6 ENVIRONMENTAL CONSENTS AND PERMISSIONS

6.1 Consent and Agreement Position Statement

6.1.1 The Consent and Agreement Position Statement provided as part of the Scheme DCO application (document reference TR010024/APP/3.3) sets out Highway England's intended strategy for obtaining consents and associated agreements needed to implement the Scheme. It identifies at a high level what consents are expected to be needed for the Scheme, together with how those consents will be obtained.

6.1.2 This chapter outlines the consents, permissions and agreements that will be, or are likely to be, sought by Highways England or Costain, insofar as they relate to the environmental aspects of the Scheme.

6.2 DCO Powers and Consents

6.2.1 The principal consent for the Scheme will be a DCO. The DCO process provides development consent for the works and enables land acquisition, along with many consents and powers to be dealt with at the same time.

6.2.2 At this point (i.e. the submission of the DCO application) the majority of consents and all of the powers required have been included, or addressed, within the DCO as permitted by various provisions of the Planning Act 2008. Those consents relating to environmental aspects are:

- Authorisation of all permanent and temporary works (equivalent of planning permission) (assuming that some of the works relate to environmental aspects of the Scheme);
- Compulsory acquisition of land and of rights over land such as easements, restrictive covenants and the temporary possession of land (assuming that some of the land required relates to environmental aspects of the Scheme);
- Consent to stop up and divert public and private rights of way;
- Consent to carry out tree works (including works to trees subject to a Tree Preservation Order); and
- Consent to remove hedgerows (including any 'important hedgerows').

6.2.3 None of the following 'environmental' consents need to be addressed on this Scheme: scheduled monument consent, listed building consent, conservation area consent, common land consents or SSSI consents.

6.3 Other Environmental Consents to be Obtained

6.3.1 The following environmental permits, consents and agreements may also be required and would be sought separately from the DCO:

- Environmental Permit for discharge to Surface or Groundwater;
- Exemptions for operations such as U1 (import of waste for use in construction) and T15 (crushing of aerosols to minimise hazardous waste) (if exemption limits can be met) [Pollution Prevention and Control Act 1999, Environmental Permitting (England and Wales) Regulations 2016];
- Environmental Permit for waste operations [Environmental Permitting (England and Wales) Regulations 2010];
- Section 61 consent if requested by the Local Authority (LA) [Control of Pollution Act 1974];
- Water abstraction licence (if need to remove more than 20m^3/day) [Water Resources

Act 1991 (as amended by the Water Act 2003), Environment Act 1995, The Water Resources (Abstraction and Impounding) Regulations 2006];

- Use of pesticides within 8m of a watercourse (e.g. if Himalayan Balsam is found at a headwall location and requires to be sprayed) [Control of Pesticides Regulations 1986, as amended];
- CL:aire Materials Management Plan for materials being imported;
- Land Drainage Consent to culvert an Ordinary Watercourse [Section 23 of The Land Drainage Act 1991];
- PRoW closures and diversions [Highways Act 1980, Town and Country Planning Act 1990] (these shall be managed by a Traffic Management Plan).

6.3.2 The above are largely dependent on finalisation of the detailed design, the detailed construction site set up and methodologies, and discussions with stakeholders (e.g. EA and Local Authorities). These are not sufficiently developed at this stage to confirm the requirements and therefore it is not practicable to include them within the DCO.

6.4 Agreements

6.4.1 Agreements with third parties may be required in parallel to the DCO process and may take a variety of forms. Some of these may be related to environmental aspects and will therefore be recorded in this section of the approved CEMP. Examples are provided below in 6.4.2 and 6.4.3.

6.4.2 A fundamental part of the DCO process is the preparation and agreement of Statements of Common Ground (SoCG) with third parties to identify the matters on which parties are in agreement. Such statements have or will be agreed with:

- The Environment Agency;
- Natural England;
- South Tyneside Council; and
- Sunderland City Council.

6.4.3 Other possible forms of agreement alongside SoCG are legal agreements regulating land and works powers undertakings, memoranda of understanding and letters of comfort or no impediment. Again, these will be progressed by Highways England where appropriate.

6.5 Recording

6.5.1 A register of environmental permits and a record of all consents, licences etc. relating to construction activities will be maintained by Costain and made available for audit by Highways England and the Environmental Manager. These records shall be made using the Costain Environmental Consents Checklist (Costain Way SHE-T-319) and Register & Tracker (Costain Way SHE-T-415).

6.5.2 An Environmental Consents Checklist is included within this outline CEMP in Appendix F.

6.5.3 Any conditions related to each consent, permission or agreement will be added to the REAC/ECPs/Method Statements where appropriate. Typically these will be added to the relevant documents within a week of a permit or consent being agreed.

7 KEY ENVIRONMENTAL LEGISLATION

7.1 Awareness

7.1.1 Costain is aware of all legal obligations with regard to control of pollution (to air, water and ground), nuisance (noise and vibration) as well as the regulations relating to waste and the protection of wildlife.

7.1.2 Advice and guidelines on all environmental obligations, both statutory and non-statutory, are in the public domain and are readily available. Care will be taken to ensure these are not overlooked by only concentrating on the site specific ECPs detailed in the CEMP.

7.1.3 It is essential that all site staff are kept informed of those legal requirements that are relevant to their individual roles and activities. This will be achieved through the training proposals set out in Section 3.

7.1.4 Legislative requirements will override requirements in the CEMP in the unlikely event of there being a conflict between the two.

7.2 Summary of Key Legislation

7.2.1 Appendix E contains a summary of key relevant environmental legislation. Although this list is not exhaustive, it includes legislation which is thought likely to be relevant to the Scheme, for example legislation associated with consents to be sought outside of the DCO, as described in Section 6.

8 PROTECTION OF SENSITIVE AREAS

8.1 Identification of Sensitive Areas

8.1.1 Sensitive areas shall be highlighted as appropriate within the Scheme design documentation and/or ECPs.

8.1.2 Sensitive areas identified during consultation and our environmental impact assessment that could potentially be affected by the Scheme's construction are:

- Bridleway B46
- Make-me-Rich Farm
- Elliscope Farm
- River Don & its tributaries
- Make Me Rich Meadow (LWS)
- Elliscope Farm East Hylton Bridge (LWS)
- Residents and users of Downhill Lane
- Downhill Old Quarry
- Nissan plant
- Town End Farm residential properties
- North East Land, Sea and Air museum
- Agricultural land/businesses within and adjacent to the Scheme boundary
- Groundwater beneath the land within and adjacent to the Scheme boundary

8.2 Protection Measures

8.2.1 The above listed areas will generally be sensitive to or potentially affected by nuisance (i.e. dust, noise, vibration and visual effects) and pollution (e.g. sediment, spillages) during construction.

8.2.2 Protection measures will therefore include those set out in the following ECPs:

- Dust, Noise & Nuisance Management Plan (see Appendix G);
- Soil Management Plan (see Appendix K);
- Surface Water Management Plan (see Appendix L);
- COSHH Material, Waste Storage & Refuelling Plan (see Appendix M); and
- Pollution Prevention Plan (see Appendix R).

8.2.3 The list of sensitive areas and associated control measures shall be updated as necessary through detailed design and construction planning, and community liaison prior to and during construction. There may be a requirement to develop specific, localised control measures or ECPs for individual areas or receptors.

9 SCHEME SPECIFIC ENVIRONMENTAL RISKS

9.1 Environmental Risk Assessment

9.1.1 Adverse environmental effects of the Scheme have been avoided and minimised where possible by way of the Scheme design carried out to date. This will continue through incorporating appropriate measures during the detailed design process and the adoption of appropriate working practices during construction, operation and maintenance.

9.1.2 Table 4 provides details of all the potential environmental risks associated with Scheme activities identified to date. Outline mitigation measures to remove or reduce these risks are identified.

9.1.3 The scope of this environmental risk assessment has considered the following subject areas as identified within the ES (the number provided in Table 4 refers to the ES chapter number for that topic):

- Air Quality;
- Cultural Heritage;
- Landscape;
- Ecology and Nature Conservation;
- Geology and Soils;
- Materials;
- Noise and Vibration;
- Effect on all Travellers;
- Community and Private Assets; and
- Road Drainage and the Water Environment

9.1.4 The environmental risk assessment summarised in Table 4 will be developed in more detail for the approved CEMP using the Costain Environmental Aspects Register tool (Costain Way SHE-T-305).

9.1.5 The Environmental Aspects Register represents an overview of the typical environmental risks associated with the construction of any scheme. The Register will be used to assist and guide the development of specific ECPs and RAMS required on the Scheme which will accurately reflect the scheme-specific environmental risks. The initial Aspects Register is completed at the start of the Scheme and is reviewed and updated regularly.

Table 4. Outline Schedule of Environmental Risks of the Scheme

ES Ref.	Environmental Risk	Mitigation Measure	Responsible Organisation
General Environmental Management			
	Detailed design introduces changes to the environmental impacts identified within the ES	Undertake environmental review of design changes to ensure compliance with the ES or identify additional mitigation measures as required.	Jacobs
6. Air Quality			
6.6	Dust deposition at sensitive receptors in the vicinity of the main works and construction compounds during the construction phase.	Appropriate control measures implemented in accordance with best practice pollution control to be secured through the approved CEMP.	Costain
6.7	Plant emissions at sensitive receptors during the construction phase	Appropriate control measures implemented in accordance with best practice pollution control to be secured through the approved CEMP.	Costain
7.Cultural Heritage			
7.7	Temporary reduction in amenity value of cultural heritage assets near the construction works due to noise, dust, etc.	Appropriate control measures implemented in accordance with best practice pollution control to be secured through the approved CEMP.	Costain
8. Landscape			
8.7	Loss of Habitat and vegetation due to construction on a permanent basis	Landscaping and compensatory planting scheme to be included within the design	Jacobs
8.7	Loss of Habitat and vegetation due to construction on a temporary basis	Landscaping and compensatory planting scheme to be included within the design.	Jacobs
		Temporary stockpiles to be positioned to act as visibility screens for sensitive receptors	Costain
8.7	Changes in the assessment of visual intrusion as a result of detailed design such as the NMU bridge creating adverse impacts on views for some properties.	Review the design of the NMU bridge during detailed design and identify additional mitigation measures as required. Mitigation includes identifying areas of existing vegetation to be retained and protected during the construction phase, and identifying areas of new planting.	Jacobs

ES Ref.	Environmental Risk	Mitigation Measure	Responsible Organisation
8.7	Visual impact during construction	Retain and protect, during the construction period, all tree belts, trees, shrub and scrub vegetation existing between Downhill Lane and Washington Road as well as on the existing cuttings of the Downhill Lane junction northbound on and southbound off-slip roads to provide additional screening functions during the construction period; and	Costain
8.7	Visual Impact during construction	Minimise visual effects of temporary storage piles and site compound areas by providing phased storage of materials to ensure easternmost edges of storage areas are maintained until last to help to screen operations and compound areas further west.	Costain
9. Ecology and Nature Conservation			
9.9	Impact upon a European Protected Species (Bats, Otter, Water Vole, Nesting Birds)	Appropriate control measures implemented in accordance with best practice pollution control to be secured through the approved CEMP.	Jacobs and Costain
9.9	Impact upon notable species (Amphibians (Toads), Barn Owls)	Appropriate control measures implemented in accordance with best practice pollution control to be secured through the approved CEMP.	Jacobs and Costain
9.9	Loss of Habitat from permanent land take and temporary works	Compensatory landscaping and planting to be incorporated into the design.	Jacobs
		Temporary compounds to be sized appropriately to avoid unnecessary loss of habitat.	Costain
10. Geology and Soils			
10.6	Use of Natural and finite resources	Identify sources of recycled material and undertake an assessment of the suitability	Costain and Jacobs
10.7	Release and spread of contamination.	Development of a mitigation strategy if required	Costain and Jacobs
10.7	Loss or damage to agricultural land	Preparation of detailed methodology of reinstatement of the areas affected by temporary uses back to agriculture. Soil Resources survey and Soil Management Plan to be prepared to ensure careful stewarding of the soil resources during the works period.	Costain and Jacobs

ES Ref.	Environmental Risk	Mitigation Measure	Responsible Organisation
11. Materials and Waste			
11.7	Impact on Climate change	Develop and implement the approved CEMP to consider methods to reduce the impact of energy use in construction, including consideration of using materials with lower embodied energy such as re-used and recycled materials and locally sourced materials.	Costain
11.7	Depletion of Water Resources	Develop and implement the approved CEMP to consider methods to manage and reduce water use in construction.	Costain
11.7	Material Import and use of finite natural resources	Adopt material efficient design.	Jacobs
11.7	Material Import and use of finite natural resources	Implement good materials management and good practice construction methods, including use of temporary materials storage areas.	Costain
11.7	Material Import and use of finite natural resources	If suitable the follow the CL:aire procedure.	Jacobs and Costain
11.7	Material Import and use of finite natural resources	Use of recycled aggregates from sites producing in accordance WRAP Quality Protocol (The Scheme is expected to require c. 59,000m3 import)	Costain
11.7	Waste sent off site to landfill	Design out waste, where possible. Develop a Site Waste Management Plan early on in the design stage to explore methods to manage waste arising from the construction in accordance with the waste hierarchy.	Jacobs
11.7	Effects of importing materials and exporting waste	Give preference to nearby sources of materials and waste disposal companies. Implement good practice construction methods and reduce haulage distances and/or need to travel	Costain
11.7	Pollution from Waste	Implement good practice construction methods through a Site Waste Management Plan	Costain
Noise and Vibration			

ES Ref.	Environmental Risk	Mitigation Measure	Responsible Organisation
12.7	Disturbance to sensitive receptors due to Construction Phase Noise and Vibration	Consult with Local Authorities (STC&SCC) regarding construction noise and vibration limit levels. Establish a Nuisance, Dust and Noise control plan in accordance with these.	Costain and Jacobs
REAC Part 2	Change in permanent noise level due to the Scheme	Identify all properties where noise levels may change and predict changes for each property. Identify the contribution of the Scheme to the overall noise level for the year of opening and the design year. Take account of changes in design and traffic predictions (if any). Provide results to the District Valuer.	Jacobs
REAC Part 2	Change in permanent noise level due to the Scheme with special reference to Part 1 claims	Identify all properties where noise levels may change and predict changes for each property. Identify the contribution of the Scheme to the overall noise level for the year of opening and the design year. Take account of changes in design and traffic predictions (if any). Provide results to the District Valuer. Publish list of properties within 300m that qualify for noise insulation in local press, or statement that no properties qualify. Take account of changes in design and traffic predictions (if any). Make offers of insulation to eligible properties before construction commences.	Jacobs and HE
13. People and Communities			
13.7	Local residents and businesses within the study area may experience reductions in amenity arising from changes in air quality, visual amenity and noise and disturbance, especially at construction compounds during the night.	Appropriate control measures implemented in accordance with best practice pollution control to be secured through the approved CEMP. Consider the potential to reduce the size of the main site compound by sharing facilities established as part of the Testo's Junction Improvement scheme.	Costain

ES Ref.	Environmental Risk	Mitigation Measure	Responsible Organisation
13.7	Impact on Amenities	Appropriate control measures implemented in accordance with best practice pollution control to be secured through the approved CEMP. Regular liaison through a Communities team	Costain
13.7	Impact on Amenities - NMU	Alternate NMU routes and landscaping	Costain and Jacobs
13.7	Impact on Driver stress during construction	During the construction phase, a traffic management plan and site traffic management plan would be implemented to reduce any increase in stress caused by the roadworks. This would include temporary signage which would be put in place to reduce uncertainty and frustration.	Costain
13.7	Reduction/affects on levels of community severance, accessibility and connectivity	Development of a traffic management plan and site traffic management plan, including temporary signage.	Costain
13.7	Loss of agricultural land	Reinstatement of temporarily used land.	Costain
14. Water Environment			
14.7	Impacts on local water quality from drainage	Develop detailed drainage design in agreement with the Environment Agency with relation to the treatment of pollutants Develop Pollution Prevention Plan, including spillage response measures, and incorporate in the approved CEMP	Costain and Jacobs
14.7	Impacts of local water quality from temporary construction discharge (inc. silt and spill)	Appropriate control measures implemented in accordance with best practice pollution control to be secured through the approved CEMP.	Costain
		Design an Environmental Incident Control Plan (EICP) for the construction period on site to ensure protective measures are implemented to deal with both normal and emergency situations	Costain
14.7	Impacts on Local Water Quality through direct construction works (Ordinary Watercourse)	For any works in an ordinary watercourse, including possible obstructions to flow, obtain land drainage consent from the relevant local planning authority.	Costain

ES Ref.	Environmental Risk	Mitigation Measure	Responsible Organisation
14.7	Impacts on Local Water Quality through direct construction works (Main River)	Minimise work within 8m of the watercourse. Where in-channel work is required (for construction of outfall headwall) minimise disturbance to bank and work in low-flow conditions where possible. For any works in, or within eight metres of, a main river, such possible obstructions to flow, obtain flood defence consent from the Environment Agency.	Costain
14.7	Change in flood risk as a result of the Scheme through construction works	Obtain consent for works in and around watercourses	Costain
14.7	Change in flood risk as a result of the Scheme through construction discharges	Appropriate control measures implemented in accordance with best practice pollution control to be secured through the approved CEMP. Liaise with Environment Agency regarding requirement for Discharge Permit	Costain
14.7	Change in flood risk as a result of the Scheme through permanent land use change	Develop detailed drainage design that provides adequate capacity and green field run-off rate	Jacobs
14.7	Risk of flooding on Construction Compounds	The approved CEMP will include management practices to control temporary drainage on the construction sites, including measures to protect watercourses.	Costain

10 ENVIRONMENTALLY SIGNIFICANT CHANGES

10.1 Change Control Procedure

10.1.1 The design team and site construction team must identify and report any changes to the Scheme design, construction methods, ECPs etc. that would result in a change to the CEMP or affect an environmental commitment or agreement. Only changes which have been approved will be implemented.

10.1.2 Where changes relate to the Scheme design, they should be managed in line with the Costain Way Design Change Management process in accordance with EGD-H-213 How to Implement Design Change Control and will use Highways England's Evaluation of Change Register with all such changes approved and signed off by Highways England before they are enacted. This should be reviewed when any early warnings are raised as to whether it constitutes a change to the consented scheme

10.1.3 For any changes identified on site of an environmental aspect, including those raised as an incident/unexpected find and reported as per the relevant ECP e.g. unexpected contaminated land, or protected species, this shall be notified using the Costain early warning process (Costain Way form CPM-T-1009 Early Warning Notification).

10.2 Responsibility for Approval of Changes

10.2.1 Highways England or their appointed agent will have responsibility for approval of all significant changes to the Scheme design, including those that would result in a change to the CEMP or affect any environmental commitments or agreement. Where applicable, this may require consultation and SoS or other third party approval as set out in the DCO Requirements.

10.2.2 Where necessary Highways England will seek advice from environmental specialists and/or consult with relevant parties and statutory bodies, such as Natural England or the Environment Agency, before approving changes.

11 ENVIRONMENTAL MONITORING REQUIREMENTS

11.1 General Requirements

11.1.1 The ES and REAC propose certain requirements for environmental monitoring to ensure the identified mitigation measures and actions can be tracked and closed out when completed. Some of these are specific e.g. noise monitoring, others are more general e.g. covered by regular inspection / audit or confirmation by the construction team that an element of the Scheme design has been completed.

11.1.2 Table 5 below summarises the monitoring requirements for the Scheme set out by ES chapter heading for those aspects where a monitoring requirement is identified.

11.2 Detailed Requirements

11.2.1 The details of specific monitoring and reporting requirements are still to be developed, some in consultation with third party stakeholders. This will be done through the DCO process and detailed design and confirmed arrangements included in this section of the approved CEMP.

Table 5: Environmental Monitoring Requirements

ES CHAPTER	IMPACT / POTENTIAL IMPACT	SUMMARY OF MITIGATION	MONITORING REQUIREMENTS
Materials	Climate Change	Adopt a material efficient design	Confirmation from the construction team that the Scheme 'As Constructed' is in accordance with the design
		Consider methods to reduce the impact of energy use in construction, including consideration of using materials with lower embodied energy such as re-used and recycled materials and locally sourced materials. Managed through the: - Site Waste Management Plan (SWMP) - Materials Management Plan (MMP) in accordance with CL:AIRE (if required) - Soils Management Plan	Appropriate programme of Environmental Auditing and Reporting
	Depletion of Water Resources	Adopt a material efficient design	Confirmation from the construction team that the Scheme 'As Constructed' is in accordance with the design
		Consider methods to manage and reduce water use in construction.	Appropriate programme of Environmental Auditing and Reporting
	Depletion of Primary Materials	Use land temporarily reserved for material storage to significantly increase the amounts of materials that can be re-used on site. Develop and implement the CEMP to consider and manage the re-use of materials on-site, off-site secondary/recycled materials, locally	Appropriate programme of Environmental Auditing and Reporting

ES CHAPTER	IMPACT / POTENTIAL IMPACT	SUMMARY OF MITIGATION	MONITORING REQUIREMENTS
		sourced materials, and other responsibly sourced materials.	
	Depleting Landfill Capacity (and/or Severance of Access)	Design out waste where possible. Use land temporarily reserved for material storage to significantly increase the amounts of materials that can be re-used on site. Develop a Site Waste Management Plan early on in the design stage to explore methods to manage waste arising from the construction in accordance with the waste hierarchy. Leave hazardous materials (e.g. tar bound planings) in situ where safe and feasible to do so to avoid unnecessary generation of hazardous waste arisings.	Appropriate programme of Environmental Auditing and Reporting
Noise and vibration	Construction noise and vibration affecting residential locations	Location specific measures to be developed in Dust Noise & Nuisance Management Plan in line with good construction practise.	Undertake baseline noise monitoring at residential locations to establish pre-scheme noise levels as agreed with the relevant local planningl Authority. Undertake follow up monitoring during the works, with any mitigation measures in place.
Cultural Heritage	Archaeological remains may be encountered during construction	Identify archaeological remains and achieve preservation by record.	Implement archaeological monitoring during construction as appropriate.
Ecology and Nature Conservation	Operational impacts from habitat loss, disturbance and severance.	Various mitigation planting and ecology enhancements (e.g. bat / bird boxes)	Establishment of a post-construction ecological survey and monitoring programme to be agreed with HE specialist and third parties as appropriate and in accordance with ES.

12 MONITORING TO ENSURE COMPLIANCE WITH THE CEMP

12.1 Regular Inspections and Monitoring

12.1.1 Costain will carry out formal SHE inspections of all work areas at least every 7 days. Inspections shall detail realistic timescales for actions and these will be monitored by the site team. Data from inspections shall be used for trend analysis purposes to allow pinpoint targeting of recurring issues.

12.1.2 As a minimum, the following inspections will be completed:

- Weekly SHE Inspections (SHE-T-437) by a nominated Costain employee;
- Weekly SHE Inspections carried out by each sub-contractor;
- Appointed SHE Advisors Site Set Up Audit (SHE-T-326) by Sector SHE Advisor; and
- Monthly SHE scored inspection by internal independent inspector.

12.1.3 Costain will ensure that competent persons undertake all other statutory inspections at required intervals. Guidance and forms for other statutory inspections e.g. PUWER, LOLER, can be found within the Costain Way.

12.1.4 In addition to the above, Costain shall monitor health, safety and environmental standards and performance as follows:

- Costain Supervisors will monitor their work areas SHE conditions and performance daily/routinely;
- Spot checks of sub-contractors' inspections and documentation (including registers) verifying compliance;
- Sample checks of sub-contractors/Costain briefing of own team on method statements through the use of stop shift audits;
- Sample checks on the training of staff by sub-contractors/Costain;
- Periodic audits, checks & inspections by the SHE Team (this includes the monthly scored inspection);
- Monthly reviews of risk assessments/method statements; and
- Sample checks of compliance with method statements and Permits to Work.

12.1.5 Each sub-contractor must ensure that their line managers, Supervisors or Health, Safety & Environmental Advisors monitor the health, safety and environmental standards of their activities as a normal part of their duties. In addition, each sub-contractor should ensure that a formal and recorded safety and environmental inspection is carried out every week. Inspection records should include confirmation that previous remedial actions have been carried out. These reports shall be copied to the SHE team and will be reviewed at the monthly safety meeting.

12.2 SHE Site Set-Up Audit

12.2.1 The appointed Costain SHE Manager or Advisor, accompanied where possible by the appointed Environmental Manager, will conduct an audit to examine Health, Safety and Environmental systems and performance standards at the earliest opportunity. It will typically be undertaken 4 to 6 weeks after commencement of the contract works on site.

12.2.2 The Costain SHE Site Set-Up Audit, which is in addition to the 'Central' Group Audits undertaken by the Costain SHE Department, may also be undertaken at the request of off-site Senior Management.

12.3 Additional Inspection / Monitoring

12.3.1 Any consent/licence/permit monitoring inspection requirements shall be added into this section and the appropriate ECPs within the appendices.

12.4 Procedures in the Event of Failure to Comply with the CEMP

12.4.1 Any persons who disregard the safety, health or environmental rules and arrangements detailed in this plan will in the first instance receive a written warning from the Contract Leader or nominated person; subsequent misdemeanours will provoke the removal of the person from site. The Contract Leader reserves the right to remove from site instantly any person whose acts or omissions in his opinion constitute a serious danger to people or property.

12.4.2 Moreover, Costain may give reasonable directions to any contractor sharing the site for the purposes of construction (regardless of contractual arrangements) in order for him to comply with duties under CDM Regulations using Confirmation of Direction (SHE-T-214).

12.4.3 The Principal Contractor is given the authority under Regulation 22(1)(e) of CDM 2015 to issue reasonable directions to contractors.

12.4.4 Such directions must:

1. Relate to compliance with the Principal Contractor's duties.
2. Be reasonable given the specific circumstances applicable at the time.

12.4.5 Confirmation of Direction (SHE-T-214) should be completed, discussed with the contractors or site management team/supervisor and formally issued, with a copy forwarded to the contractor's most appropriate Director.

12.5 Review & Close Out Reports

CEMP Review

12.5.1 The CEMP can be reviewed as often as is necessary to include the significant changes in equipment, risk, and scope of works, circumstances, people or other organisational change.

12.5.2 The review will be conducted using the Costain Way HASEMP Review Checklist (SHE-T-238) as a checklist and be recorded.

12.5.3 The suitability of and performance against the CEMP will be reviewed to ensure that it remains valid and reflects the arrangements for managing current activities on site.

SHE Performance Reviews

12.5.4 SHE performance will be reviewed throughout the contract and discussed as appropriate at the following meetings:

- Monthly Progress Meetings;
- Senior Management Team meetings;
- SHE Co-ordination meetings; and
- SHE Committee meetings.

12.5.5 Performance reviews shall identify trends in accidents and incidents giving areas that will be targeted for improvement. This will include a review of the graphs showing the 'reds' scored during the monthly SHE scored inspections.

12.5.6 SHE performance will be reviewed and will be recorded on Costain's 'Capture' on-line reporting database (or equivalent system at the time) by the third working day of the following month being reported.

Subcontractor Performance Reviews

12.5.7 The Costain team will complete sub-contractor's performance reviews at least every 3 months using the Costain commercial management system. Relevant members of the construction team should be consulted during each review.

Contract Review & Close-Out

12.5.8 Close out reports will be prepared in accordance with Costain Management System requirements as detailed in CPM-H-005 How to close out a contract.

12.5.9 The key point of this being:

- The Sector Director will ensure that a formal Contract Review and Report will be conducted within 8 weeks of practical completion to focus on SHE performance and systems. The Sector Director will organise a contract close out meeting in accordance with Contract Close out meeting agenda (CPM-T-023).

12.5.10 Prior to that meeting, the Contract Leader shall ensure that a Contract Close Down Report' is circulated to all those attending, at least 10 working days before the meeting date.

12.5.11 A completion certificate will be issued by HE following confirmation that all contractual obligations have been met.

12.5.12 At the end of the 3-year landscape aftercare and management period, the Environmental Manager will demonstrate to the HE Project Manager that the Works comply with the relevant specifications including the DCO Requirements and construction-related actions and commitments as described in the REAC, prior to the issue of the Landscape and Ecological Aftercare Certificate.

Archiving

12.5.13 All archiving will be carried out in accordance with the Contract Management Plan (CPM-T-003) and the company archiving requirements (see INF-H-001 How to manage company information).

13 SUMMARY OF EMERGENCY RESPONSE PROCEDURES

13.1 General Management

13.1.1 Costain will develop an Emergency Response Plan, incorporating the Environmental Incident Control Plan, for the Scheme prior the start of construction. This will include detailed response plans for potential environmental incidents. A summary of general control measures for different potential environmental emergency situations is provided below.

13.1.2 Each sub-contractor is responsible for ensuring that environmental incidents are reported to Costain. All incidents will be investigated by the sub-contractor or responsible person with full participation and co-operation of any other sub-contractors involved. Where the incident is investigated by a sub-contractor, Costain will be provided a copy of the investigation report detailing any remedial action.

13.1.3 With regards to major environmental incidents, a full report must be compiled with any witness statements and photographs to assist in the final conclusions and recommendations.

13.2 Basic Emergency Principles

13.2.1 If an incident (e.g. large fuel spillage) occurs on site, the following principles should be followed:

- Identify the cause of the emergency or incident and act immediately to prevent it from getting worse;
- Make sure that the appropriate PPE is available to use wherever necessary;
- Report any emergency or incidents to the SHE department immediately, detailing the nature, cause and location so that appropriate action can be taken; and
- Costain will inform the Local Authority, Environment Agency and/or Natural England, as relevant, of the incident.

Do not:

- Ignore the incident, as this could lead to serious disciplinary consequences and/or legal action.

After an incident:

- Ensure that any lessons from the incident are communicated to all relevant staff and appropriate action taken elsewhere on site if necessary;
- Update all relevant method statements, sections of the CEMP, toolbox talks etc. and ensure new information is communicated to all staff.

13.3 Dealing with Objectors

13.3.1 In the event of objectors to the Scheme being present on site, Costain will incorporate and develop the following instructions in their Emergency Response Plan for the site:

- Do not confront any objectors if you encounter them on-site;
- Stop all operations if necessary;
- Contact the site management team immediately;
- Always respect landowners and residents and try to understand their concerns;
- Do not try to deal with objectors by yourself; ask for help from the site management team.

13.4 Accidental Fires

13.4.1 Fire causes damage to surrounding habitats. Costain will incorporate and develop the following instructions in their Emergency Response Plan for the site:

- If safe to do so use firebeaters immediately to prevent fire spreading;
- Report emergency to the relevant site management team immediately;
- Call the fire brigade if the fire cannot be easily contained;
- Inform the landowner/occupier and the HE.

13.5 Emergency Spills and Pollution Incidents

General

13.5.1 Spill of fuel/oil etc. can cause damage to surrounding habitats and watercourses. Costain will incorporate and develop the following instructions in their Emergency Response Plan for the site:

- Make sure personnel have the appropriate PPE before taking action;
- Contain a pollution incident immediately using absorbent materials and booms, or by digging containment facilities or bunds;
- Report the incident to the Costain SHE department; they will contact the Environment Agency if necessary;
- Contact designated spill clean-up company for appropriate assistance.

Do not:

- Dig ditches to drain polluted matter to watercourses;
- Remove booms and bales used to hold or contain polluting materials;
- Ignore an incident because you are afraid of the consequences.

After an incident

13.5.2 All waste generated by clean-up activities should be disposed of in accordance with current legislative requirements and the Site Waste Management Plan and copies of all transfer notes retained.

Unexpected sediment problems

13.5.3 Sediment/silt problems occur in times of heavy rain and can cause damage to surrounding habitats and watercourses. Costain will incorporate and develop the following instructions in their Emergency Response Plan for the site:

13.5.4 Check (monitor where required) watercourses during periods of high rainfall or construction activities with potential for significant run-off;

- Take immediate action if you identify any high sediment which is causing pollution. If unsure if it is significant, consult with the SHE department;
- Implement mitigation actions immediately. Control pollution at source whenever possible. Consider whether the site activity should be halted. Consult the environmental representatives if in doubt;
- Place straw bales, silt fencing, etc. to help control sediment immediately and/or check measures already in place for efficacy;
- Monitor the effectiveness of protection measures daily and re-plan as necessary;
- Remove silted bales/screens, etc. regularly so they do not make problems worse;
- The Environmental Manager and relevant site management representative should talk to the Environment Agency regularly and check plans for emergency

procedures;

- Reconsider working practices which may be causing pollution in poor weather conditions and re-plan/programme.

Accidental release of cement to watercourses

13.5.5 Cement can cause damage to surrounding habitats and watercourses. Costain will incorporate and develop the following instructions in their Emergency Response Plan for the site:

- Stop the action which is causing pollution immediately;
- Inform the environmental representative to identify whether more detailed actions are required;
- Inform the Environment Agency and landowners/occupiers as relevant;
- Monitor effects of spill;
- Learn from the experience and plan site works to avoid pollution happening again.

Do not:

- Think that a concrete spill is not important;
- Ignore a concrete spill;
- Cover up the incident.

Oil spills

13.5.6 Oil causes damage to surrounding habitats and watercourses. Costain will incorporate and develop the following instructions in their Emergency Response Plan for the site:

- Stop the action/event which is causing pollution immediately;
- Take immediate remedial actions;
- Inform the environmental representative to identify more detailed required actions;
- Inform the Environment Agency and landowners/occupiers if the spill has not been contained and dealt with;
- Monitor effects of the spill;
- Remove oil spill response materials and dispose of in accordance with the Site Waste Management Plan;
- Deal with any contaminated soils in accordance with the Site Waste Management Plan;
- Do not think that a fuel spill is not important.

14 HIGHWAYS ENGLAND ENVIRONMENTAL INFORMATION SYSTEM

14.1.1 HE's Environmental Information System (EnvIS) is outlined in the Design Manual for Road and Bridges[1] Vol 10 as supplemented by Interim Advice Note 84/10 Parts 1 and 2.

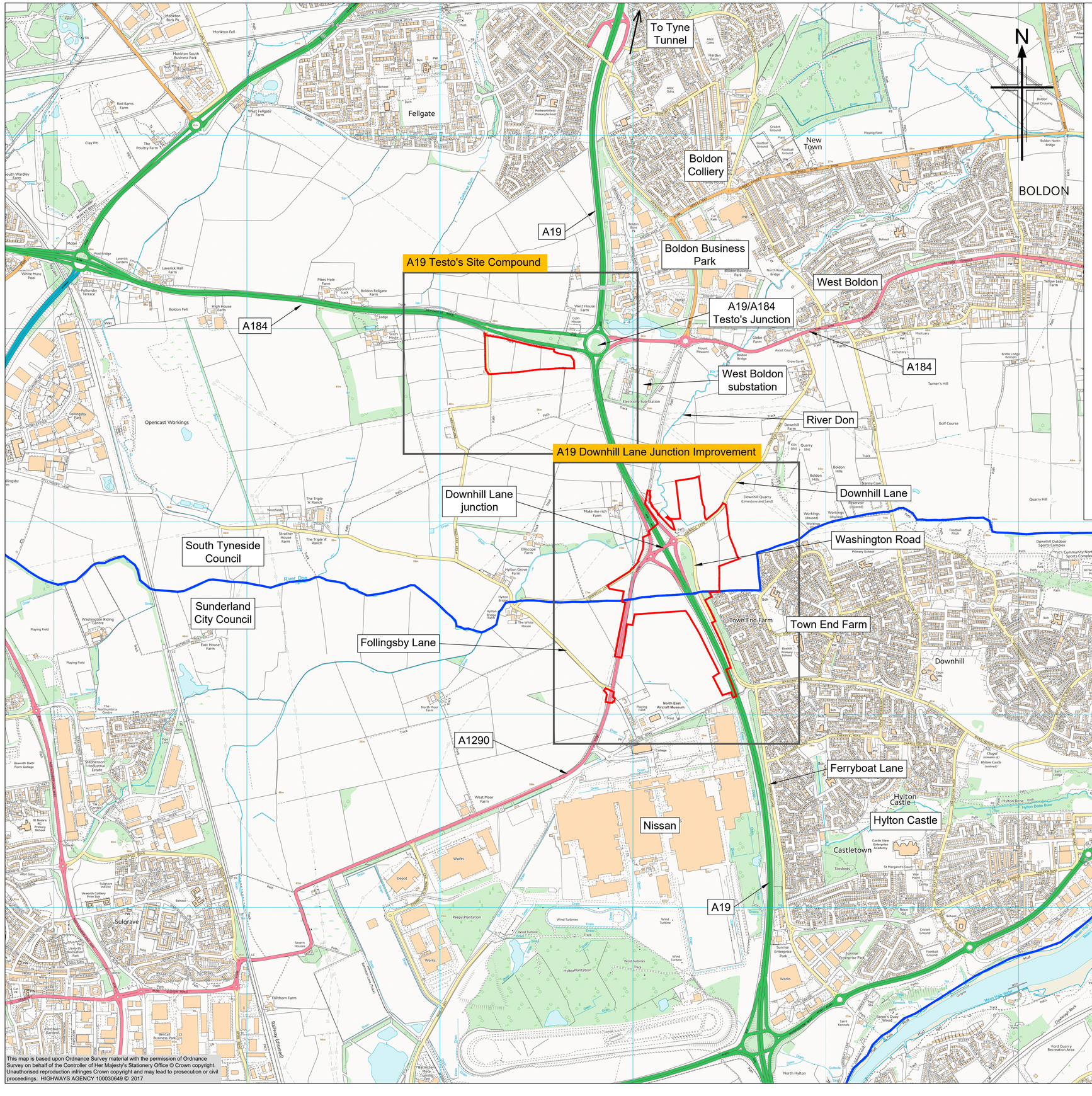
14.1.2 EnvIS is intended to assist the HE and its Service Providers in designing and managing the strategic road network in an accurate, consistently and environmentally sound manner. Specifically, it aims to achieve the following key strategic and operational objectives:

- enable consistent an accurate recording and retrieving of specific environmental data about the strategic road network;
- assist in the review and reporting of environmental performance of both the HE and Service Providers;
- improve understanding of the environmental issues and opportunities that must be considered at different stages of trunk road and motorway management;
- in line with ensuring a value for money approach, assist in the prioritisation of the Element and environmental objectives;
- assist in the handover of environmental data from Designers to Network Management Agents (and vice versa) and the transfer of environmental data from an outgoing Network Management Agent to its successor;
- assist designers and Network Service Providers in the collection of management programmes and strategies, including Environmental Management Plans.

14.1.3 The Planting Drawings (typically as built included in Chapter 8 of the handover documentation) assign both the function and element (as per the DMRB guidance) to all the proposed landscape elements.

14.1.4 Consultation is being held with the Service Providers to ensure that the agreed data in the correct format forms part of the handover package of information. The Service Providers will then 'upload' this additional information as part of their standard submission to the Highways England.

APPENDIX A: LOCATION PLAN & SCHEME LAYOUT PLAN



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NOTES

1. This drawing should be read in conjunction with all plans and documents included in the DCO application.
2. Base map reproduced from Ordnance Survey mapping.
3. This plan is submitted to identify the location of the Scheme at a wide scale. It is not required to be submitted under Regulations 5(2) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009, so is presented at a scale wider than 1:2500.

KEY

- Local Authority boundary
- Limits of land to be acquired or used permanently or temporarily
- Scheme location

0 100 200 300 400 500 600 700 800 900 1000 m

SCALE 1 : 10,000

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
0	03/12/2018	APPLICATION ISSUE	CR	AP	AP	GW

Client: highways england

Designer: JACOBS
1 City Walk, Leeds, LS11 9DX.
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Contractor: COSTAIN

Project: A19 DOWNHILL LANE JUNCTION IMPROVEMENT

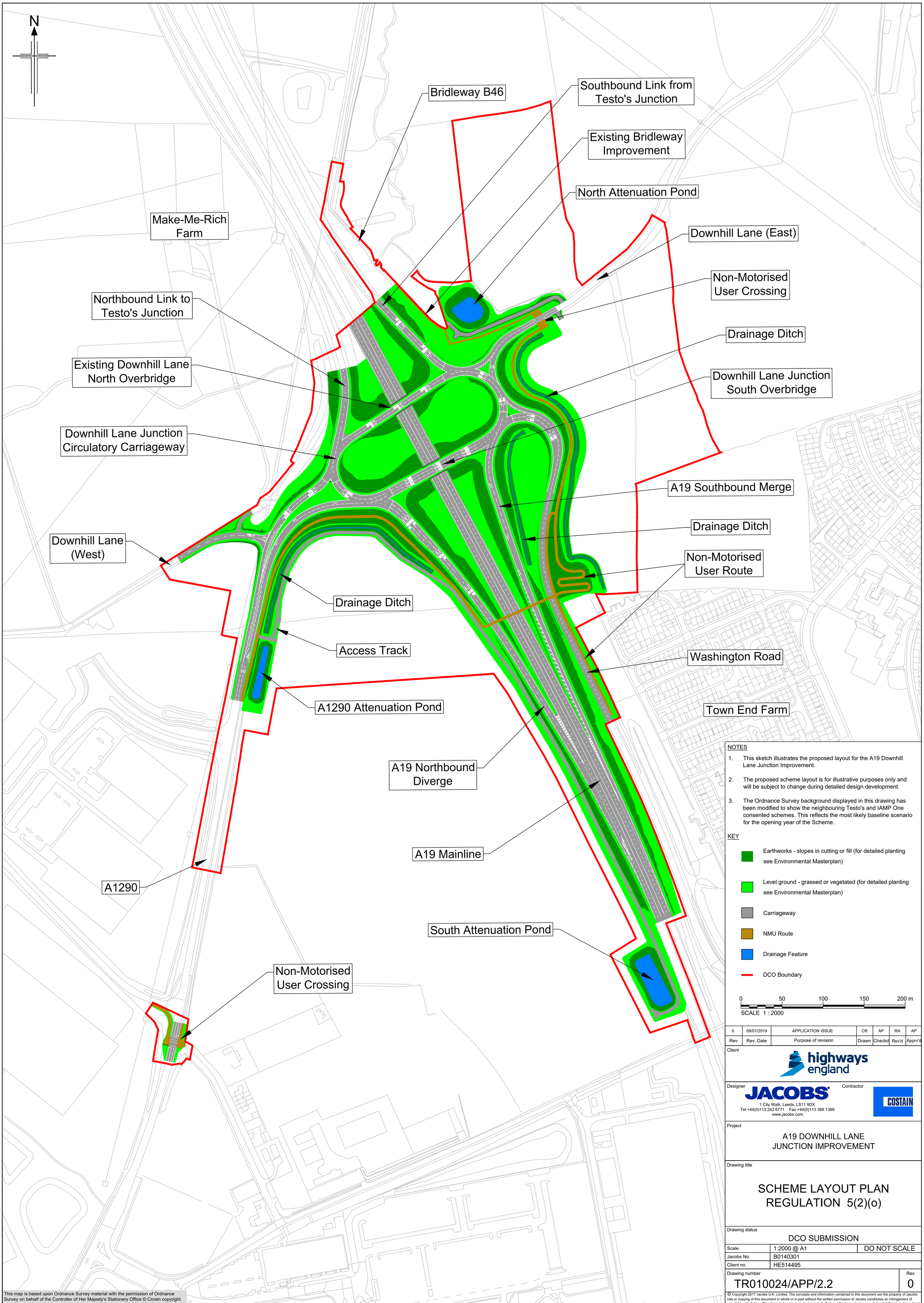
Drawing title: LOCATION PLAN REGULATION 5(2)(o)

Drawing status: DCO SUBMISSION

Scale	1:10,000 @ A1	DO NOT SCALE
Jacobs No.	B0140301	
Client no.	HE514495	

Drawing number: TR010024/APP/2.1

Rev: 0



NOTES

1. This sketch illustrates the proposed layout for the A19 Downhill Lane Junction Improvement.
2. The proposed scheme layout is for illustrative purposes only and will be subject to change during detailed design development.
3. The Ordnance Survey background displayed in this drawing has been modified to show the neighbouring Testo's and IAMP One consented schemes. This reflects the most likely baseline scenario for the opening year of the Scheme.

KEY

- Earthworks - slopes in cutting or fill (for detailed planting see Environmental Masterplan)
- Level ground - grassed or vegetated (for detailed planting see Environmental Masterplan)
- Carriageway
- NMU Route
- Drainage Feature
- DCO Boundary

0 50 100 150 200 m

SCALE 1 : 2000

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
0	09/01/2019	APPLICATION ISSUE	CR	AP	RA	AP

Client: highways england

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Contractor: COSTAIN

Project

A19 DOWNHILL LANE
JUNCTION IMPROVEMENT

Drawing title

SCHEME LAYOUT PLAN
REGULATION 5(2)(o)

Drawing status

DCO SUBMISSION

Scale	1:2000 @ A1	DO NOT SCALE
Jacobs No.	B0140301	
Client no.	HE514495	

Drawing number: TR010024/APP/2.2

Rev: 0

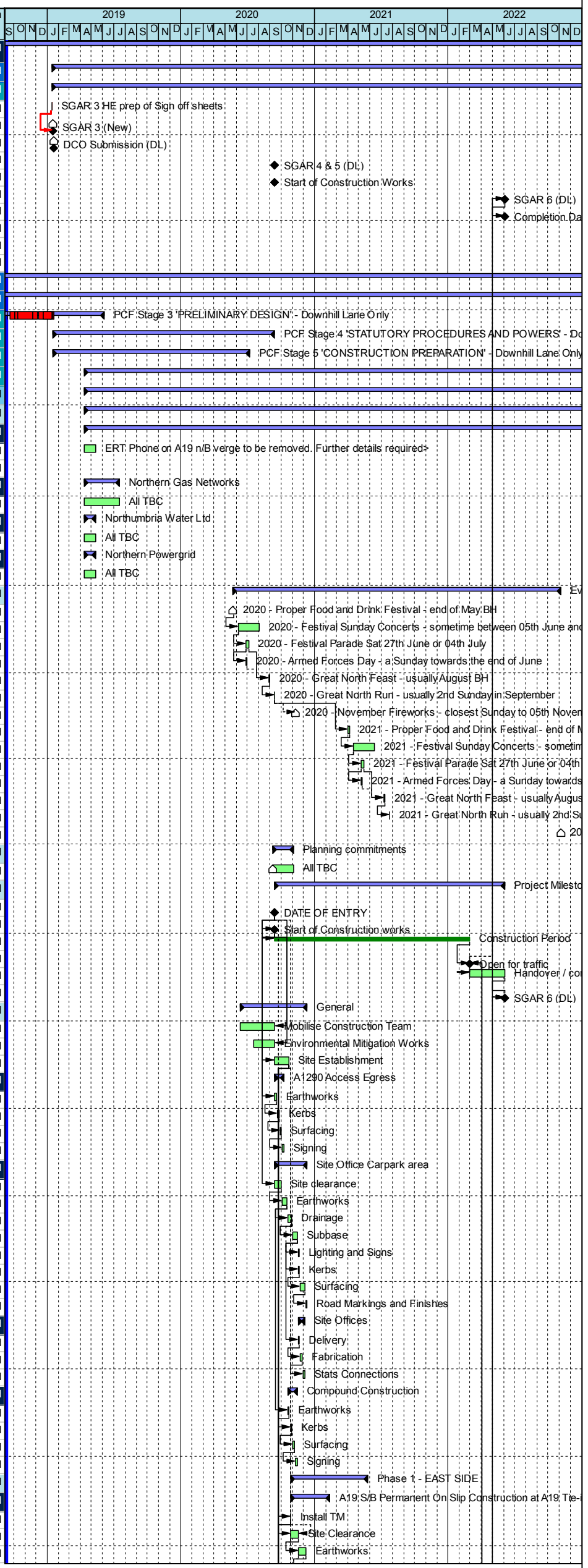
APPENDIX B: OUTLINE CONSTRUCTION PROGRAMME (SEE SECTION 5)

COSTAIN

highways england

Project: A19 Testos Jct Improvements
Client: Highways England
Programme Title: A19 TaDL Junctions Improvement -

Activity ID	Activity Name	Start	Finish	Original Duration
A19 TaDL Junctions Improvement - PCF Stages 1-7 - M		26-Mar-18 A	02-Jul-30	3066.0d
Key Milestones		14-Jan-19	06-Jun-25	1600.0d
Downhill Lane junction		14-Jan-19	06-Jun-25	1600.0d
D-30035	SGAR 3 HE prep of Sign off sheets	14-Jan-19	14-Jan-19	1.0d
D-30025	SGAR 3 (New)	15-Jan-19*		0.0d
D-30365	DCO Submission (DL)		18-Jan-19*	0.0d
D-40001	SGAR 4 & 5 (DL)		14-Sep-20	0.0d
A13305	Start of Construction Works	14-Sep-20		0.0d
D-60001	SGAR 6 (DL)		03-Jun-22	0.0d
D-60011	Completion Date (DL)		03-Jun-22	0.0d
K88610	Defect Date		05-Jun-23	0.0d
D-70001	SGAR 7 (DL)		03-Jun-25	0.0d
D-70011	PCF Stage 7 Completion Date (DL)		06-Jun-25	0.0d
TaDL Combined Scheme		20-Apr-18	03-Jun-25	1779.0d
TaDL Downhill Lane Only		26-Mar-18	02-Jul-30	3066.0d
PCF Stage 3 'PRELIMINARY DESIGN' - Downhill Lane Only		26-Mar-18	04-Jun-19	297.0d
PCF Stage 4 'STATUTORY PROCEDURES AND POWERS' - Downhi		15-Jan-19	14-Sep-20	418.0d
PCF Stage 5 'CONSTRUCTION PREPARATION' - Downhill Lane On		15-Jan-19	08-Jul-20	371.0d
PCF Stage 6 'CONSTRUCTION, COMMISSIONING AND HANDOVER		11-Apr-19	02-Jul-30	2804.0d
Construction - Costain		11-Apr-19	02-Jul-30	2804.0d
Service diversion works / protection works (No impacts/constraints to		11-Apr-19	02-Jul-30	2804.0d
BT Diversions		11-Apr-19	02-Jul-30	2804.0d
A20355	ERT Phone on A19 n/B verge to be removed. Further details requ	11-Apr-19	13-May-19	20.0d
A20345	All TBC	07-May-30	02-Jul-30	40.0d
Northern Gas Networks		11-Apr-19	16-Jul-19	65.0d
A20475	All TBC	11-Apr-19	16-Jul-19	65.0d
Northumbria Water Ltd		11-Apr-19	13-May-19	20.0d
A20515	All TBC	11-Apr-19	13-May-19	20.0d
Northern Powergrid		11-Apr-19	13-May-19	20.0d
K100810	All TBC	11-Apr-19	13-May-19	20.0d
Events - possible TM implications not considered yet		22-May-20	06-Nov-22	899.0d
K100680	2020 - Proper Food and Drink Festival - end of May BH	22-May-20*	25-May-20	4.0d
K100740	2020 - Festival Sunday Concerts - sometime between 05th June a	05-Jun-20	02-Aug-20	59.0d
K100720	2020 - Festival Parade Sat 27th June or 04th July	27-Jun-20	04-Jul-20	8.0d
K100700	2020 - Armed Forces Day - a Sunday towards the end of June	28-Jun-20	28-Jun-20	1.0d
K100760	2020 - Great North Feast - usually August BH	29-Aug-20	30-Aug-20	2.0d
K100780	2020 - Great North Run - usually 2nd Sunday in September	13-Sep-20	13-Sep-20	1.0d
K100880	2020 - November Fireworks - closest Sunday to 05th November	08-Nov-20*	08-Nov-20	1.0d
K100820	2021 - Proper Food and Drink Festival - end of May BH	02-Apr-21	05-Apr-21	4.0d
K100830	2021 - Festival Sunday Concerts - sometime between 05th June a	16-Apr-21	13-Jun-21	59.0d
K100840	2021 - Festival Parade Sat 27th June or 04th July	08-May-21	15-May-21	8.0d
K100850	2021 - Armed Forces Day - a Sunday towards the end of June	09-May-21	09-May-21	1.0d
K100860	2021 - Great North Feast - usually August BH	10-Jul-21	11-Jul-21	2.0d
K100870	2021 - Great North Run - usually 2nd Sunday in September	25-Jul-21	25-Jul-21	1.0d
K100890	2021 - November Fireworks - closest Sunday to 05th November	06-Nov-22*	06-Nov-22	1.0d
Planning commitments		07-Sep-20	05-Nov-20	44.0d
K100800	All TBC	07-Sep-20*	05-Nov-20	44.0d
Project Milestones		14-Sep-20	03-Jun-22	429.0d
A6940	DATE OF ENTRY	14-Sep-20		0.0d
A6970	Start of Construction works	14-Sep-20		0.0d
D-60370	Construction Period	14-Sep-20	28-Feb-22	364.0d
D-60360	Open for traffic		28-Feb-22	0.0d
T-74280	Handover / completion of PCF Stage 6 dcouments	01-Mar-22	03-Jun-22	65.0d
A6980	SGAR 6 (DL)		03-Jun-22	0.0d
General		12-Jun-20	11-Dec-20	130.0d
A6950	Mobilise Construction Team	12-Jun-20	14-Sep-20	65.0d
A6960	Environmental Mitigation Works	17-Jul-20	14-Sep-20	40.0d
A1710	Site Establishment	14-Sep-20	23-Oct-20	30.0d
A1290 Access Egress		14-Sep-20	09-Oct-20	20.0d
K73820	Earthworks	14-Sep-20	18-Sep-20	5.0d
K73830	Kerbs	21-Sep-20	25-Sep-20	5.0d
K73840	Surfacing	28-Sep-20	02-Oct-20	5.0d
K73850	Signing	05-Oct-20	09-Oct-20	5.0d
Site Office Carpark area		14-Sep-20	11-Dec-20	65.0d
A6990	Site clearance	14-Sep-20	02-Oct-20	15.0d
A7000	Earthworks	05-Oct-20	16-Oct-20	10.0d
A7010	Drainage	19-Oct-20	30-Oct-20	10.0d
A7020	Subbase	02-Nov-20	13-Nov-20	10.0d
A7030	Lighting and Signs	16-Nov-20	20-Nov-20	5.0d
A7040	Kerbs	16-Nov-20	20-Nov-20	5.0d
A7050	Surfacing	23-Nov-20	04-Dec-20	10.0d
A7060	Road Markings and Finishes	07-Dec-20	11-Dec-20	5.0d
Site Offices		16-Nov-20	04-Dec-20	15.0d
K73900	Delivery	16-Nov-20	20-Nov-20	5.0d
K73910	Fabrication	23-Nov-20	27-Nov-20	5.0d
K73920	Stats Connections	30-Nov-20	04-Dec-20	5.0d
Compound Construction		19-Oct-20	13-Nov-20	20.0d
K73860	Earthworks	19-Oct-20	23-Oct-20	5.0d
K73870	Kerbs	26-Oct-20	30-Oct-20	5.0d
K73880	Surfacing	02-Nov-20	06-Nov-20	5.0d
K73890	Signing	09-Nov-20	13-Nov-20	5.0d
Phase 1 - EAST SIDE		26-Oct-20	26-May-21	144.0d
A19 S/B Permanent On Slip Construction at A19 Tie-in end		26-Oct-20	10-Feb-21	72.0d
A1620	Install TM	26-Oct-20	27-Oct-20	2.0d
A6250	Site Clearance	28-Oct-20	17-Nov-20	15.0d
A6260	Earthworks	18-Nov-20	08-Dec-20	15.0d



Project Ref: 1100249/C31/18-09-19
Data Date: 12-Sep-18 Print Date: 15-Oct-18
Layout: TaDL - Month Report - Full Schedule
Filters: TASK filters: Downhill Lane D3, D4, D5, D6, D7, Uncompleted Activities.

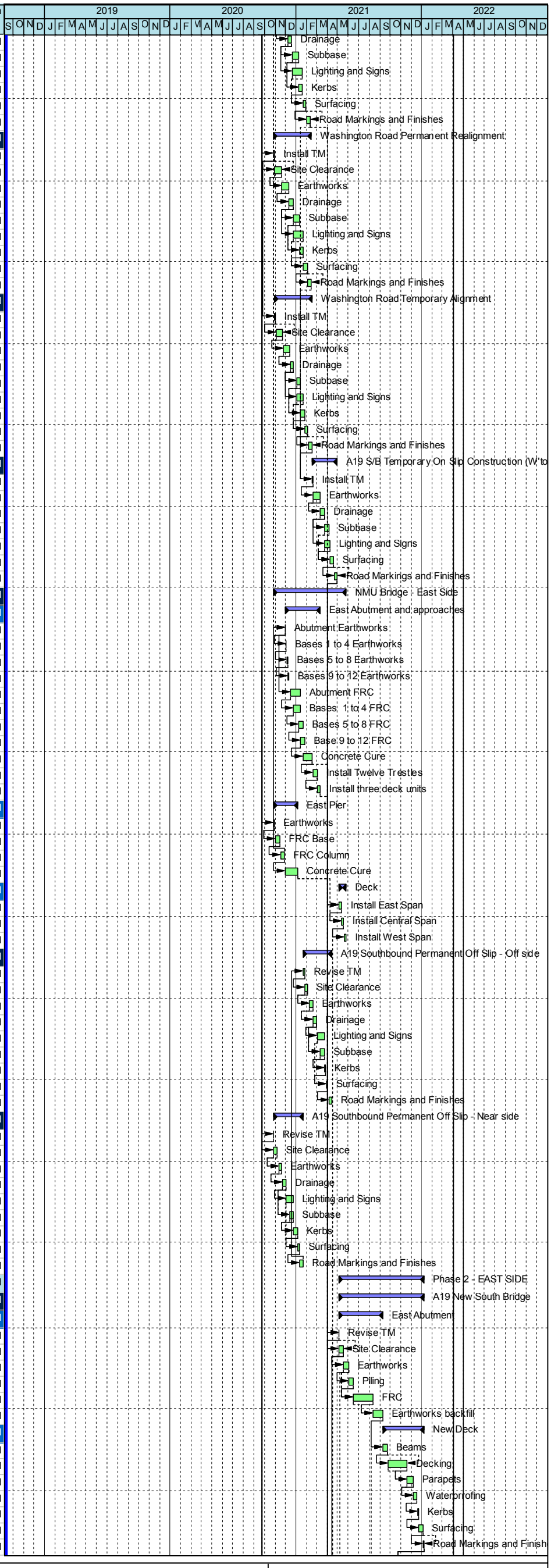
A19 Testos Jct Improvements

For: Highways England

A19 TaDL Junctions Improvement - PCF Stages 1-7 - MASTER (with Construction)

Remaining Work
Critical Remaining Work
Actual Work
Milestone
Start Constraint
Finish Constraint

Activity ID	Activity Name	Start	Finish	Original Duration
A6270	Drainage	09-Dec-20	18-Dec-20	8.0d
A6280	Subbase	21-Dec-20	07-Jan-21	8.0d
A6300	Lighting and Signs	21-Dec-20	18-Jan-21	15.0d
A6290	Kerbs	08-Jan-21	19-Jan-21	8.0d
A6310	Surfacing	20-Jan-21	29-Jan-21	8.0d
A6320	Road Markings and Finishes	01-Feb-21	10-Feb-21	8.0d
Washington Road Permanent Realignment		28-Oct-20	12-Feb-21	72.0d
A7110	Install TM	28-Oct-20	29-Oct-20	2.0d
A7120	Site Clearance	30-Oct-20	19-Nov-20	15.0d
A7130	Earthworks	20-Nov-20	10-Dec-20	15.0d
A7140	Drainage	11-Dec-20	22-Dec-20	8.0d
A7150	Subbase	23-Dec-20	11-Jan-21	8.0d
A7170	Lighting and Signs	23-Dec-20	20-Jan-21	15.0d
A7160	Kerbs	12-Jan-21	21-Jan-21	8.0d
A7180	Surfacing	22-Jan-21	02-Feb-21	8.0d
A7190	Road Markings and Finishes	03-Feb-21	12-Feb-21	8.0d
Washington Road Temporary Alignment		30-Oct-20	16-Feb-21	72.0d
A7200	Install TM	30-Oct-20	02-Nov-20	2.0d
A7210	Site Clearance	03-Nov-20	23-Nov-20	15.0d
A7220	Earthworks	24-Nov-20	14-Dec-20	15.0d
A7230	Drainage	15-Dec-20	24-Dec-20	8.0d
A7240	Subbase	04-Jan-21	13-Jan-21	8.0d
A7260	Lighting and Signs	04-Jan-21	22-Jan-21	15.0d
A7250	Kerbs	14-Jan-21	25-Jan-21	8.0d
A7270	Surfacing	26-Jan-21	04-Feb-21	8.0d
A7280	Road Markings and Finishes	05-Feb-21	16-Feb-21	8.0d
A19 S/B Temporary On Slip Construction (W'ton Road to S/b on		17-Feb-21	30-Apr-21	51.0d
A7290	Install TM	17-Feb-21	18-Feb-21	2.0d
A7310	Earthworks	19-Feb-21	11-Mar-21	15.0d
A7320	Drainage	12-Mar-21	23-Mar-21	8.0d
A7330	Subbase	24-Mar-21	06-Apr-21	8.0d
A7350	Lighting and Signs	24-Mar-21	08-Apr-21	10.0d
A7360	Surfacing	09-Apr-21	20-Apr-21	8.0d
A7370	Road Markings and Finishes	21-Apr-21	30-Apr-21	8.0d
NMU Bridge - East Side		26-Oct-20	26-May-21	144.0d
East Abutment and approaches		30-Nov-20	10-Mar-21	67.0d
K74140	Abutment Earthworks	30-Nov-20	01-Dec-20	2.0d
K74160	Bases 1 to 4 Earthworks	02-Dec-20	03-Dec-20	2.0d
K74180	Bases 5 to 8 Earthworks	04-Dec-20	07-Dec-20	2.0d
K74200	Bases 9 to 12 Earthworks	08-Dec-20	09-Dec-20	2.0d
K74150	Abutment FRC	16-Dec-20	13-Jan-21	15.0d
K74170	Bases 1 to 4 FRC	23-Dec-20	13-Jan-21	10.0d
K74190	Bases 5 to 8 FRC	07-Jan-21	20-Jan-21	10.0d
K74210	Base 9 to 12 FRC	14-Jan-21	27-Jan-21	10.0d
K74260	Concrete Cure	21-Jan-21	17-Feb-21	20.0d
K74270	Install Twelve Trestles	18-Feb-21	03-Mar-21	10.0d
K74280	Install three deck units	04-Mar-21	10-Mar-21	5.0d
East Pier		26-Oct-20	04-Jan-21	45.0d
K73930	Earthworks	26-Oct-20	30-Oct-20	5.0d
K73940	FRC Base	02-Nov-20	13-Nov-20	10.0d
K73950	FRC Column	16-Nov-20	27-Nov-20	10.0d
K74230	Concrete Cure	30-Nov-20	04-Jan-21	20.0d
Deck		06-May-21	26-May-21	15.0d
K74300	Install East Span	06-May-21	12-May-21	5.0d
K74310	Install Central Span	13-May-21	19-May-21	5.0d
K74290	Install West Span	20-May-21	26-May-21	5.0d
A19 Southbound Permanent Off Slip - Off side		22-Jan-21	15-Apr-21	58.0d
A7580	Revise TM	22-Jan-21	25-Jan-21	2.0d
A7590	Site Clearance	26-Jan-21	04-Feb-21	8.0d
A7600	Earthworks	09-Feb-21	18-Feb-21	8.0d
A7610	Drainage	19-Feb-21	02-Mar-21	8.0d
A7640	Lighting and Signs	03-Mar-21	23-Mar-21	15.0d
A7620	Subbase	12-Mar-21	23-Mar-21	8.0d
A7630	Kerbs	24-Mar-21	26-Mar-21	3.0d
A7650	Surfacing	29-Mar-21	01-Apr-21	4.0d
A7660	Road Markings and Finishes	06-Apr-21	15-Apr-21	8.0d
A19 Southbound Permanent Off Slip - Near side		26-Oct-20	21-Jan-21	58.0d
A3770	Revise TM	26-Oct-20	27-Oct-20	2.0d
A3780	Site Clearance	28-Oct-20	06-Nov-20	8.0d
A3790	Earthworks	11-Nov-20	20-Nov-20	8.0d
A6860	Drainage	23-Nov-20	02-Dec-20	8.0d
A6890	Lighting and Signs	03-Dec-20	23-Dec-20	15.0d
A6870	Subbase	14-Dec-20	23-Dec-20	8.0d
A6880	Kerbs	24-Dec-20	05-Jan-21	3.0d
A6900	Surfacing	06-Jan-21	11-Jan-21	4.0d
A6910	Road Markings and Finishes	12-Jan-21	21-Jan-21	8.0d
Phase 2 - EAST SIDE		04-May-21	07-Jan-22	171.0d
A19 New South Bridge		04-May-21	07-Jan-22	171.0d
East Abutment		04-May-21	09-Sep-21	91.0d
A6530	Revise TM	04-May-21	05-May-21	2.0d
A6540	Site Clearance	06-May-21	18-May-21	9.0d
A6550	Earthworks	19-May-21	02-Jun-21	10.0d
A6930	Piling	03-Jun-21	16-Jun-21	10.0d
A6560	FRC	17-Jun-21	11-Aug-21	40.0d
A6570	Earthworks backfill	12-Aug-21	09-Sep-21	20.0d
New Deck		10-Sep-21	07-Jan-22	80.0d
A4000	Beams	10-Sep-21	23-Sep-21	10.0d
A4010	Decking	24-Sep-21	18-Nov-21	40.0d
A4020	Parapets	19-Nov-21	07-Dec-21	13.0d
A4030	Waterprrofing	08-Dec-21	17-Dec-21	8.0d
A4050	Kerbs	20-Dec-21	22-Dec-21	3.0d
A4070	Surfacing	23-Dec-21	04-Jan-22	3.0d
A4080	Road Markings and Finishes	05-Jan-22	07-Jan-22	3.0d



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Layout: TaDL - Month Report - Full Schedule
Filters: TASK filters: Downhill Lane D3, D4, D5, D6, D7, Uncompleted Activities.

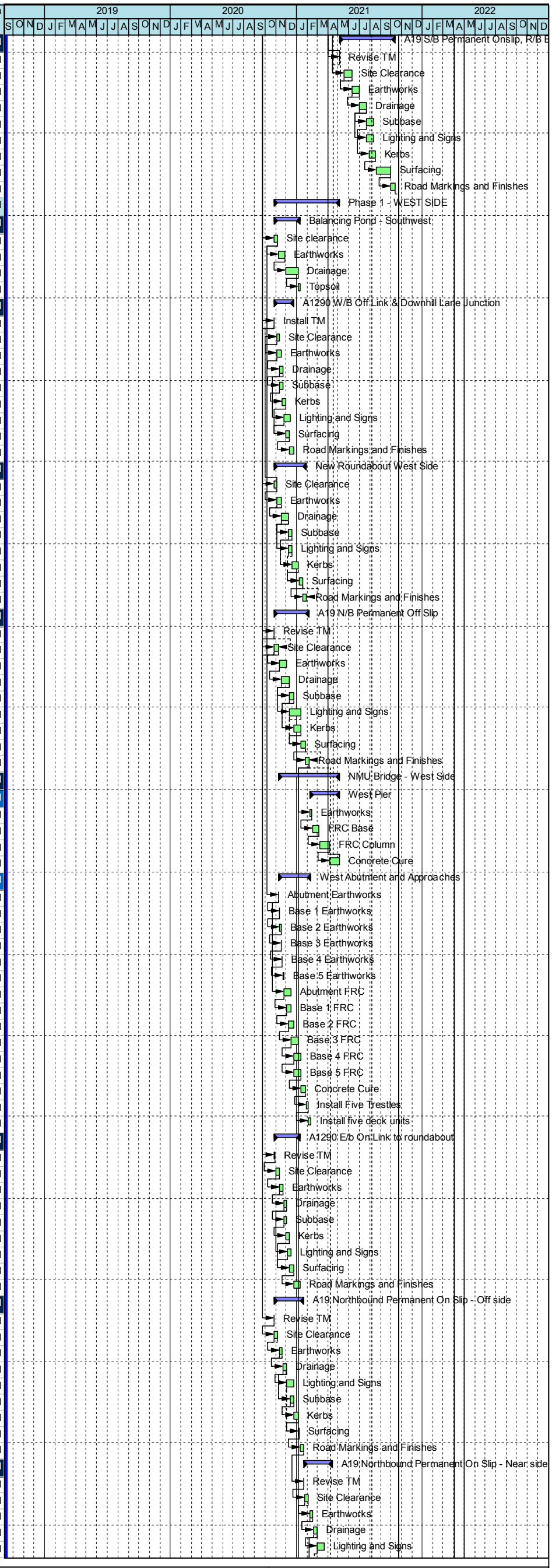
A19 Testos Jct Improvements

For: Highways England

A19 TaDL Junctions Improvement - PCF Stages 1-7 - MASTER (with Construction)

Remaining Work
Critical Remaining Work
Actual Work
Milestone
Start Constraint
Finish Constraint

Activity ID	Activity Name	Start	Finish	Original Duration
A19 S/B Permanent Onslip, R/B East Side & Washington Road .		04-May-21	12-Oct-21	114.0d
A2690	Revise TM	04-May-21	05-May-21	2.0d
A2700	Site Clearance	19-May-21	09-Jun-21	15.0d
A2710	Earthworks	10-Jun-21	30-Jun-21	15.0d
A2720	Drainage	01-Jul-21	21-Jul-21	15.0d
A6480	Subbase	22-Jul-21	11-Aug-21	15.0d
A6500	Lighting and Signs	22-Jul-21	11-Aug-21	15.0d
A6490	Kerbs	29-Jul-21	18-Aug-21	15.0d
A6510	Surfacing	19-Aug-21	30-Sep-21	30.0d
A6520	Road Markings and Finishes	01-Oct-21	12-Oct-21	8.0d
Phase 1 - WEST SIDE		26-Oct-20	05-May-21	129.0d
Balancing Pond - Southwest		26-Oct-20	11-Jan-21	50.0d
A7070	Site clearance	26-Oct-20	06-Nov-20	10.0d
A7080	Earthworks	09-Nov-20	27-Nov-20	15.0d
A7090	Drainage	30-Nov-20	04-Jan-21	20.0d
A7100	Topsoil	05-Jan-21	11-Jan-21	5.0d
A1290 W/B Off Link & Downhill Lane Junction		26-Oct-20	22-Dec-20	42.0d
A2510	Install TM	26-Oct-20	27-Oct-20	2.0d
A6340	Site Clearance	05-Nov-20	11-Nov-20	5.0d
A6350	Earthworks	05-Nov-20	16-Nov-20	8.0d
A6360	Drainage	12-Nov-20	23-Nov-20	8.0d
A6370	Subbase	12-Nov-20	23-Nov-20	8.0d
A6380	Kerbs	19-Nov-20	30-Nov-20	8.0d
A6390	Lighting and Signs	24-Nov-20	14-Dec-20	15.0d
A2490	Surfacing	01-Dec-20	10-Dec-20	8.0d
A2500	Road Markings and Finishes	11-Dec-20	22-Dec-20	8.0d
New Roundabout West Side		26-Oct-20	28-Jan-21	63.0d
A2520	Site Clearance	26-Oct-20	04-Nov-20	8.0d
A2530	Earthworks	05-Nov-20	16-Nov-20	8.0d
A2540	Drainage	17-Nov-20	07-Dec-20	15.0d
A2550	Subbase	08-Dec-20	17-Dec-20	8.0d
A6400	Lighting and Signs	08-Dec-20	17-Dec-20	8.0d
A2560	Kerbs	18-Dec-20	06-Jan-21	8.0d
A6410	Surfacing	07-Jan-21	18-Jan-21	8.0d
A6420	Road Markings and Finishes	19-Jan-21	28-Jan-21	8.0d
A19 N/B Permanent Off Slip		26-Oct-20	05-Feb-21	69.0d
A2330	Revise TM	26-Oct-20	27-Oct-20	2.0d
A2340	Site Clearance	28-Oct-20	10-Nov-20	10.0d
A2350	Earthworks	11-Nov-20	03-Dec-20	17.0d
A2360	Drainage	18-Nov-20	10-Dec-20	17.0d
A2370	Subbase	11-Dec-20	23-Dec-20	9.0d
A2390	Lighting and Signs	11-Dec-20	12-Jan-21	17.0d
A2380	Kerbs	24-Dec-20	13-Jan-21	9.0d
A2400	Surfacing	14-Jan-21	26-Jan-21	9.0d
A6330	Road Markings and Finishes	27-Jan-21	05-Feb-21	8.0d
NMU Bridge - West Side		09-Nov-20	05-May-21	119.0d
West Pier		08-Feb-21	05-May-21	60.0d
K81460	Earthworks	08-Feb-21	12-Feb-21	5.0d
K81470	FRC Base	15-Feb-21	05-Mar-21	15.0d
K81480	FRC Column	08-Mar-21	06-Apr-21	20.0d
K81750	Concrete Cure	07-Apr-21	05-May-21	20.0d
West Abutment and Approaches		09-Nov-20	10-Feb-21	62.0d
K81490	Abutment Earthworks	09-Nov-20	10-Nov-20	2.0d
K81510	Base 1 Earthworks	11-Nov-20	12-Nov-20	2.0d
K81530	Base 2 Earthworks	13-Nov-20	16-Nov-20	2.0d
K81550	Base 3 Earthworks	17-Nov-20	18-Nov-20	2.0d
K81570	Base 4 Earthworks	19-Nov-20	20-Nov-20	2.0d
K81590	Base 5 Earthworks	23-Nov-20	24-Nov-20	2.0d
K81500	Abutment FRC	25-Nov-20	15-Dec-20	15.0d
K81520	Base 1 FRC	02-Dec-20	15-Dec-20	10.0d
K81540	Base 2 FRC	09-Dec-20	22-Dec-20	10.0d
K81560	Base 3 FRC	16-Dec-20	06-Jan-21	10.0d
K81580	Base 4 FRC	23-Dec-20	13-Jan-21	10.0d
K81600	Base 5 FRC	23-Dec-20	13-Jan-21	10.0d
K81610	Concrete Cure	14-Jan-21	27-Jan-21	10.0d
K81620	Install Five Trestles	28-Jan-21	03-Feb-21	5.0d
K81630	Install five deck units	04-Feb-21	10-Feb-21	5.0d
A1290 E/b On Link to roundabout		28-Oct-20	11-Jan-21	48.0d
A6430	Revise TM	28-Oct-20	30-Oct-20	3.0d
A6440	Site Clearance	02-Nov-20	11-Nov-20	8.0d
A6450	Earthworks	12-Nov-20	23-Nov-20	8.0d
A6460	Drainage	24-Nov-20	03-Dec-20	8.0d
A6470	Subbase	24-Nov-20	03-Dec-20	8.0d
A2650	Kerbs	01-Dec-20	10-Dec-20	8.0d
A2660	Lighting and Signs	04-Dec-20	15-Dec-20	8.0d
A2670	Surfacing	11-Dec-20	22-Dec-20	8.0d
A2680	Road Markings and Finishes	23-Dec-20	11-Jan-21	8.0d
A19 Northbound Permanent On Slip - Off side		26-Oct-20	20-Jan-21	57.0d
A6840	Revise TM	26-Oct-20	27-Oct-20	2.0d
A6850	Site Clearance	28-Oct-20	06-Nov-20	8.0d
A3700	Earthworks	11-Nov-20	20-Nov-20	8.0d
A3710	Drainage	23-Nov-20	02-Dec-20	8.0d
A3740	Lighting and Signs	03-Dec-20	23-Dec-20	15.0d
A3720	Subbase	14-Dec-20	23-Dec-20	8.0d
A3730	Kerbs	24-Dec-20	05-Jan-21	3.0d
A3750	Surfacing	06-Jan-21	08-Jan-21	3.0d
A3760	Road Markings and Finishes	11-Jan-21	20-Jan-21	8.0d
A19 Northbound Permanent On Slip - Near side		21-Jan-21	13-Apr-21	57.0d
A7490	Revise TM	21-Jan-21	22-Jan-21	2.0d
A7500	Site Clearance	25-Jan-21	03-Feb-21	8.0d
A7510	Earthworks	08-Feb-21	17-Feb-21	8.0d
A7520	Drainage	18-Feb-21	01-Mar-21	8.0d
A7550	Lighting and Signs	02-Mar-21	22-Mar-21	15.0d



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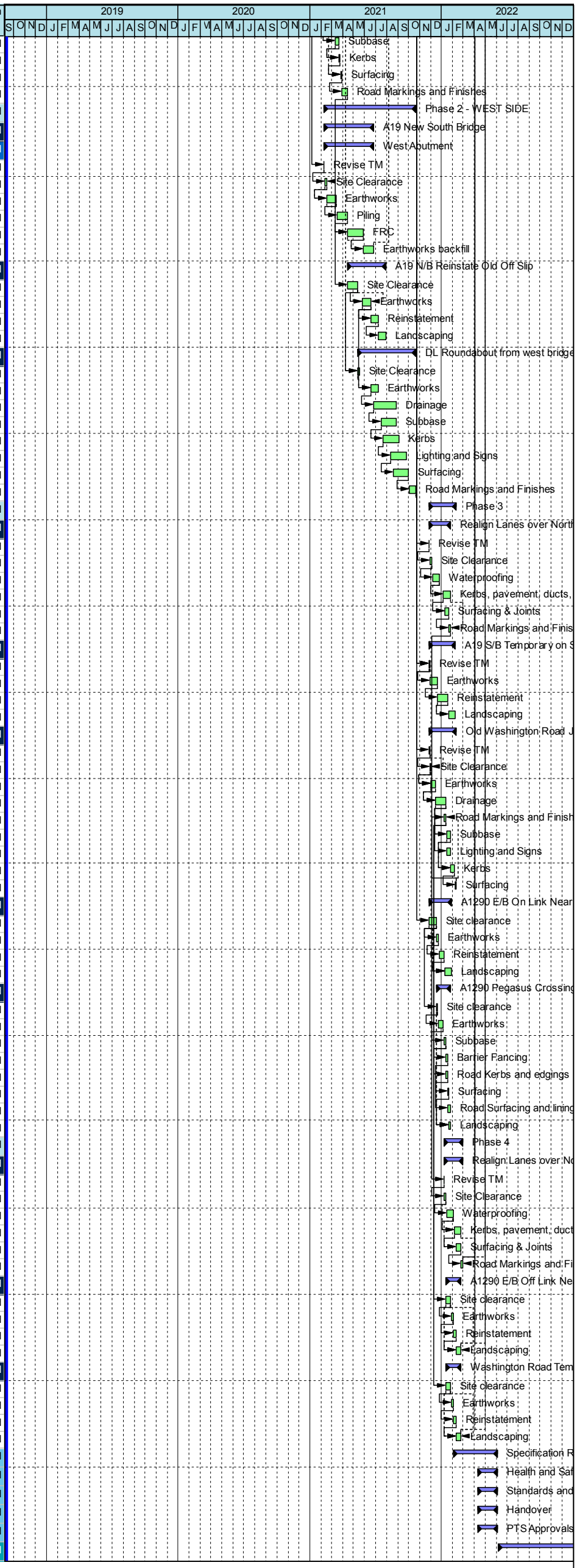
A19 Testos Jct Improvements

For: Highways England

A19 TaDL Junctions Improvement - PCF Stages 1-7 - MASTER (with Construction)

Remaining Work
Critical Remaining Work
Actual Work
Milestone
Start Constraint
Finish Constraint

Activity ID	Activity Name	Start	Finish	Original Duration
A7530	Subbase	11-Mar-21	22-Mar-21	8.0d
A7540	Kerbs	23-Mar-21	25-Mar-21	3.0d
A7560	Surfacing	26-Mar-21	30-Mar-21	3.0d
A7570	Road Markings and Finishes	31-Mar-21	13-Apr-21	8.0d
Phase 2 - WEST SIDE		08-Feb-21	22-Oct-21	180.0d
A19 New South Bridge		08-Feb-21	25-Jun-21	96.0d
West Abutment		08-Feb-21	25-Jun-21	96.0d
A7720	Revise TM	08-Feb-21	09-Feb-21	2.0d
A7730	Site Clearance	10-Feb-21	15-Feb-21	4.0d
A7740	Earthworks	16-Feb-21	15-Mar-21	20.0d
A7850	Piling	16-Mar-21	14-Apr-21	20.0d
A7750	FRC	15-Apr-21	27-May-21	30.0d
A7760	Earthworks backfill	28-May-21	25-Jun-21	20.0d
A19 N/B Reinstate Old Off Slip		14-Apr-21	29-Jul-21	75.0d
A7860	Site Clearance	14-Apr-21	12-May-21	20.0d
A7870	Earthworks	27-May-21	17-Jun-21	15.0d
A7880	Reinstatement	18-Jun-21	08-Jul-21	15.0d
A7890	Landscaping	09-Jul-21	29-Jul-21	15.0d
DL Roundabout from west bridge abutment over old A19 N/b Of		13-May-21	22-Oct-21	115.0d
A6760	Site Clearance	13-May-21	19-May-21	5.0d
A6770	Earthworks	18-Jun-21	08-Jul-21	15.0d
A6780	Drainage	25-Jun-21	26-Aug-21	45.0d
A6790	Subbase	16-Jul-21	26-Aug-21	30.0d
A6800	Kerbs	23-Jul-21	03-Sep-21	30.0d
A6810	Lighting and Signs	13-Aug-21	24-Sep-21	30.0d
A6820	Surfacing	20-Aug-21	01-Oct-21	30.0d
A6830	Road Markings and Finishes	04-Oct-21	22-Oct-21	15.0d
Phase 3		26-Nov-21	10-Feb-22	49.0d
Realign Lanes over North Bridge - Off side		26-Nov-21	26-Jan-22	38.0d
A8020	Revise TM	26-Nov-21	26-Nov-21	1.0d
A8030	Site Clearance	29-Nov-21	03-Dec-21	5.0d
A8040	Waterproofing	06-Dec-21	24-Dec-21	15.0d
A8050	Kerbs, pavement, ducts, lighting, signs etc	04-Jan-22	24-Jan-22	15.0d
A8060	Surfacing & Joints	11-Jan-22	20-Jan-22	8.0d
A8070	Road Markings and Finishes	21-Jan-22	26-Jan-22	4.0d
A19 S/B Temporary on Slip Removal		26-Nov-21	08-Feb-22	47.0d
A6720	Revise TM	26-Nov-21	29-Nov-21	2.0d
A6730	Earthworks	30-Nov-21	20-Dec-21	15.0d
A6740	Reinstatement	21-Dec-21	18-Jan-22	15.0d
A6750	Landscaping	19-Jan-22	08-Feb-22	15.0d
Old Washington Road Junction Removal and New Build		26-Nov-21	10-Feb-22	49.0d
A6630	Revise TM	26-Nov-21	29-Nov-21	2.0d
A6640	Site Clearance	30-Nov-21	02-Dec-21	3.0d
A6650	Earthworks	03-Dec-21	15-Dec-21	9.0d
A6660	Drainage	16-Dec-21	13-Jan-22	15.0d
A6710	Road Markings and Finishes	07-Jan-22	12-Jan-22	4.0d
A6670	Subbase	14-Jan-22	25-Jan-22	8.0d
A6690	Lighting and Signs	14-Jan-22	25-Jan-22	8.0d
A6680	Kerbs	26-Jan-22	04-Feb-22	8.0d
A6700	Surfacing	07-Feb-22	10-Feb-22	4.0d
A1290 E/B On Link Near Side Removal		26-Nov-21	28-Jan-22	40.0d
A4150	Site clearance	26-Nov-21	16-Dec-21	15.0d
A4170	Earthworks	17-Dec-21	23-Dec-21	5.0d
A4180	Reinstatement	24-Dec-21	07-Jan-22	5.0d
A4185	Landscaping	10-Jan-22	28-Jan-22	15.0d
A1290 Pegasus Crossing		17-Dec-21	24-Jan-22	21.0d
A18235	Site clearance	17-Dec-21	21-Dec-21	3.0d
A18245	Earthworks	22-Dec-21	05-Jan-22	5.0d
A18255	Subbase	06-Jan-22	12-Jan-22	5.0d
A4190	Barrier Fancing	13-Jan-22	17-Jan-22	3.0d
A18295	Road Kerbs and edgings	13-Jan-22	17-Jan-22	3.0d
A4200	Surfacing	18-Jan-22	19-Jan-22	2.0d
A18315	Road Surfacing and lining	18-Jan-22	24-Jan-22	5.0d
A18265	Landscaping	20-Jan-22	24-Jan-22	3.0d
Phase 4		06-Jan-22	28-Feb-22	38.0d
Realign Lanes over North Bridge - Near side		06-Jan-22	28-Feb-22	38.0d
A7960	Revise TM	06-Jan-22	06-Jan-22	1.0d
A7970	Site Clearance	07-Jan-22	13-Jan-22	5.0d
A7980	Waterproofing	14-Jan-22	03-Feb-22	15.0d
A7990	Kerbs, pavement, ducts, lighting, signs etc	04-Feb-22	24-Feb-22	15.0d
A8000	Surfacing & Joints	11-Feb-22	22-Feb-22	8.0d
A8010	Road Markings and Finishes	23-Feb-22	28-Feb-22	4.0d
A1290 E/B Off Link Nearside Removal		13-Jan-22	23-Feb-22	30.0d
A8220	Site clearance	13-Jan-22	26-Jan-22	10.0d
A8240	Earthworks	27-Jan-22	02-Feb-22	5.0d
A8250	Reinstatement	03-Feb-22	09-Feb-22	5.0d
A8255	Landscaping	10-Feb-22	23-Feb-22	10.0d
Washington Road Temporary link Southbound Removal		13-Jan-22	23-Feb-22	30.0d
A8180	Site clearance	13-Jan-22	26-Jan-22	10.0d
A8200	Earthworks	27-Jan-22	02-Feb-22	5.0d
A8210	Reinstatement	03-Feb-22	09-Feb-22	5.0d
A8215	Landscaping	10-Feb-22	23-Feb-22	10.0d
Specification Requirements & Design		01-Feb-22	03-Jun-22	85.0d
Health and Safety		12-Apr-22	03-Jun-22	35.0d
Standards and Specification		12-Apr-22	03-Jun-22	35.0d
Handover		12-Apr-22	03-Jun-22	35.0d
PTS Approvals		12-Apr-22	03-Jun-22	35.0d
PCF Stage 7 'CLOSEOUT' - Downhill Lane Only		06-Jun-22	06-Jun-25	752.0d



Project Ref: 1100249/C31/18-09-19
Data Date: 12-Sep-18 Print Date: 15-Oct-18
Layout: TaDL - Month Report - Full Schedule
Filters: TASK filters: Downhill Lane D3, D4, D5, D6, D7, Uncompleted Activities.

A19 Testos Jct Improvements

For: Highways England

A19 TaDL Junctions Improvement - PCF Stages 1-7 - MASTER (with Construction)

Remaining Work
Critical Remaining Work
Actual Work
Milestone
Start Constraint
Finish Constraint

APPENDIX C: ENVIRONMENTAL MASTERPLAN

N

River Don

River Don tributary

River Don

EFD
Species rich grassland and scrub and tree planting around pond.

EFA/EFE
Retain existing significant tree, shrub and scrub vegetation.

EFB
Linear belt of trees and shrubs to integrate scheme into surrounding landscape.

EFA
Tree planting for screening.

EFB
Woodland planting to replace vegetation lost at junction and on Washington Road.

EFB
Scrub planting to match species on existing DHL junction.

EFB
Gap up existing hedgerow.

EFA
Native shrubs and trees to provide screening of NMU ramps and bridge.

EFB
Linear belt of shrubs (no large tree species due to overhead power lines) to integrate new earthworks to surrounding fields and gap up existing boundary hedge.

EFB
Linear belt of trees and shrub planting to integrate new earthworks to surrounding fields.

EFB/EFE
Careful clearance and monitoring of working area required for construction of NMU ramps, footbridge and temporary NMU access diversion to Washington Road. (Assume no mature tree removal).

Note: -
No tree species under overhead power lines.

EFA/EFE
Retain existing tree belt vegetation.

EFA/EFE
Native shrub and trees and carefully sited tree planting to help screen/integrate NMU ramps & structure.

EFB
Woodland planting to replace lost vegetation on edge of Washington Road/A19 Southbound slip road

See insert A

See insert B

EFB
New NMU crossing to link existing NMU route along A1290 and through IAMP One. Verges to be reinstated with grass.

INSERT A

EFD/EFB
Species rich grass around pond.

INSERT B

Legend

- DCO Boundary (denotes Proposed Highway boundary where no specific line shown below)*
- Proposed Highway Boundary (where deviating within DCO Boundary)
- Land over which rights of way permanently extinguished or reinstated (see Note 2)
- Street lighting
- Highway signage (large / lit signage only)
- Existing significant vegetation (retained)
- Vegetation to be retained and protected
- Verge / open grass areas
- Species rich / wet grass seeding
- Woodland / woodland edge planting
- Linear belt of trees and shrubs (informal hedgerow planting)
- Native shrub planting
- Native scattered scrub planting
- Semi-ornamental shrub planting
- Individual selected standard native trees
- Maintenance access (gravel track with species rich grass)
- Return to agriculture

Planning Policy

- Local wildlife sites
- Public Rights of Way (Bridleway B46)
- Shared use cycleways
- Indicative IAMP One Site Boundary

Non Motorised Users (NMU)

- Existing NMU route along Downhill Lane (dotted section affected by Scheme design)
- Future baseline NMU route through IAMP One
- Proposed NMU redirection

ENVIRONMENTAL FUNCTIONS

- EFA Visual Screening
- EFB Landscape Integration
- EFD Biodiversity and Nature Conservation
- EFE Visual Amenity

Notes:

1. For illustrative purposes only. To be read in conjunction with other plans and documents in the Development Consent Order Application, in particular the Environmental Statement (document reference TR010024/APP/6.1).
2. No physical works proposed in this area. See section 1.5 in document **TR010024/APP/6.1 (Volume 6)** and document **TR010024/APP/7.5.**
3. *DCO boundary excludes Testo's compound area as per Section 1.5 in document TR010024/APP/6.1 (Volume 6).
4. The Ordnance Survey background displayed in this drawing has been modified to show the neighbouring Testo's and IAMP One consented schemes. This reflects the most likely baseline scenario for the completed Downhill Lane scheme.

0 50 100 150 200 m

SCALE 1 : 2000

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
P0	16/01/19	APPLICATION ISSUE	JP	ARL	HP	GW

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Contractor: COSTAIN

Client: highways england

Project
A19 DOWNHILL LANE
JUNCTIONS IMPROVEMENT

Drawing title
DOWNHILL LANE ENVIRONMENTAL MASTERPLAN SHEET 1 OF 1

Drawing status
DCO SUBMISSION

Scale	AS SHOWN@A1	DO NOT SCALE
Jacobs No.	B0140301	Rev P0
Client no.	HE514495	

Drawing number
HE514495-JAC-ELS-DLJCN-DR-L-0001

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APPENDIX D: REGISTER OF ENVIRONMENTAL ACTIONS & COMMITMENTS (REAC)

REAC PART 1: SCHEDULE OF ENVIRONMENTAL MITIGATION COMMITMENTS (Table A1.3-1)

Adverse Impact	Mitigation proposed	Residual effect	Proposed plan reference	DCO Reference
Air quality				
AQ1: Dust nuisance effects caused by the construction works of the Scheme.	Mitigation and control measures for potential emissions of fugitive dust during construction activities would be included in the Construction Environmental Management Plan (CEMP), and implemented during the construction phase. The CEMP would be developed in consultation with South Tyneside Council and Sunderland Council. Details can be found within the Environmental Action Plan.	Not significant.	N/A	Requirement 4
Cultural heritage				
CH1: Direct impact on two areas of levelled ridge and furrow field systems, plus a small part of the remains of the route for the Stanhope and Tyne Railway and the site of Downhill Lane level crossing.	None required, as agreed with relevant authorities.	Neutral.	N/A	Requirement 9
Landscape and visual effects				
LVIA1: Changes in local topography: • Temporary adverse due to deposition of soil and materials within agricultural land to the north, south and east of Downhill Lane junction. • Permanent adverse due to creation of new raised embankments for the new southern section of the junction, slip roads to the south as well as new ramps for the NMU bridge to the east of Washington Road.	Make good all temporary land used for haul roads, plant and material storage areas and the main site compound by restoring to their state immediately prior to commencing construction works (e.g. site clearance); acquire and refer to photographic records of land prior to commencing construction works.	Construction: Slight adverse. 2021: Slight adverse. 2036: Slight beneficial.	Environmental Masterplan (HE514495-JAC-ELS-MULTI-DR-L-0001)	Requirement 5
LVIA2: Changes to hydrological features: Permanent beneficial change to hydrological landscape features due to creation of habitat planting around the three new attenuation ponds and local ditches.	Make good all temporary land used for haul roads, plant and material storage areas and the main site compound by restoring to their state immediately prior to commencing construction works (e.g. site clearance); acquire and refer to photographic records of land prior to commencing construction works.	Construction: Neutral 2021: Neutral 2036: Slight beneficial.	Environmental Masterplan (HE514495-JAC-ELS-MULTI-DR-L-0001)	Requirement 5
LVIA3: Changes to field patterns adjacent to Downhill Lane junction from the: reduction in field size; loss of hedgerow boundaries to the west of the A19, along the A1290 and along the edges of the junction to the east; and loss of hedgerow field boundaries to the east of Washington Road and at Downhill Lane to the east of the junction as a result of the realignment of Washington Road.	Linear tree and shrub planting and woodland blocks would help restore the field pattern. The slight reduction in field size due to the Scheme footprint would be barely perceptible within the wider landscape.	Construction: Slight adverse. 2021: Slight adverse. 2036: Neutral	Environmental Masterplan (HE514495-JAC-ELS-MULTI-DR-L-0001)	Requirement 5

Adverse Impact	Mitigation proposed	Residual effect	Proposed plan reference	DCO Reference
LVIA4: Permanent and temporary loss of agricultural land use north, east and south of Downhill Lane junction	Returning temporarily affected land to agricultural use after completion to reduce adverse effects on agricultural land use. However, there will be permanent loss of some agricultural areas to the west and east of the junction due to the footprint of the Scheme and the realignment to Washington Road.	Construction: Slight adverse. 2021: Slight adverse. 2036: Slight adverse	N/A	Article 29
LVIA5: Permanent loss of vegetation cover, including loss of woodland / mature tree belts, between the southbound on slip road to the A19 and Washington Road. Further tree, scrub and shrub loss required for the new northbound off slip road, new junction area and realigned Washington Road to the east and A1290 / Downhill Lane to the west.	• Retain and protect existing tree, shrub and scrub vegetation to the north of Downhill Lane junction (northbound on and southbound off-slip roads) to provide screening for views from the north during the construction period. • Provide tree belt planting on embankment slopes between the Downhill Lane junction northbound off and southbound on slip road, as well as the realigned Washington Road, to screen and / or filter views towards the layout and lighting of the Washington Road and new road and NMU bridge and integrate the embankments into the landscape. Maintain planting by controlling weed growth, replacing dead trees and ensuring adequate space for healthy tree growth. • Provide tree, shrub and scrub planting along the Downhill Lane junction northbound off and southbound on slip roads and provide woodland planting within the new junction circulatory area of the junction to replace lost vegetation and integrate the Scheme into the surrounding landscape character. • Provide habitat creation to the extents of the attenuation pond area to the north-east of Downhill Lane junction.	Construction: Moderate adverse. 2021: Moderate adverse. 2036: Slight adverse.	Environmental Masterplan (HE514495-JAC-ELS-MULTI-DR-L-0001)	Requirements 4 and 5
LVIA6: Landscape Character: LCU 2 A19 vegetated corridor – adverse effects from the presence of new physical structures, loss of vegetation and redirection of traffic.	Landscape mitigation in line with the South Tyneside Landscape Character Study – Part 2 guidelines: "*Provision of new woodland and hedgerow planting to reinforce and reinstate landscape pattern / structure and create linear links between sites of habitat value. Avoid extensive woodland planting that would obscure key views to the south (Penshaw Monument) or east (St Nicholas Church)*". Establishment of tree, shrub and scrub planting and habitat creation around the new attenuation ponds would integrate the Scheme with the surrounding vegetation and shrub and scrub planting to gap up boundaries. Adverse effects would remain due to the presence of permanent additional bridge structures at Downhill Lane junction and the NMU bridge, as well as the presence of ramp structures along the NMU route.	Construction: Moderate adverse 2021: Moderate adverse 2036: Slight adverse	Environmental Masterplan (HE514495-JAC-ELS-MULTI-DR-L-0001)	Requirements 4 and 5
LVIA7: Landscape Character: LCU 5 River Don scrubby farmland and LCU9a Usworth Lowland - adverse effects from the presence of new physical structures, loss of vegetation and redirection of traffic.		Construction: Moderate adverse 2021: Slight adverse 2036: Neutral		Requirements 4 and 5
LVIA8: Landscape Character: LCU 1 Western lowland; LCU 8 Town End Farm - adverse effects from the presence of new physical structures, loss of vegetation and redirection of traffic.		Construction: Slight adverse 2021: Slight adverse 2036: Neutral		Requirements 4 and 5
LVIA9: Landscape Character LCU10 Nissan Plant and IAMP One - short-term effects due to construction activity at Downhill Lane junction and along the A1290 reducing tranquillity and increasing the perception of movement.	Minimise effects on landscape character by making good all temporary haul roads and plant / materials storage areas west of the A19 to their previous original state.	Construction: Slight adverse 2021: Not significant 2036: Not significant	N/A	Requirements 4 and 5

Adverse Impact	Mitigation proposed	Residual effect	Proposed plan reference	DCO Reference
LVIA10: Close-range views of construction works for walkers and cyclists using the shared cycleway / footway along Washington Road, which would be diverted during the construction period.	Considerate method of construction to enable soil storage to be phased so the easternmost temporary soil storage bund is retained during most of the works to enable screening of views towards the main site compound and working areas; especially from the north-western edge of Town End Farm. The close-range views to the temporary soil bunds would remain an effect in itself.	Construction: Very large adverse	N/A	Requirement 4
LVIA11: Close-range views of construction works from north-western edge of Town End Farm and users of: the shared cycleway/footway along A1290 and Washington Road approaching Downhill Lane junction; users of Downhill Lane and the GNFHT to the eastern and western approaches of the Scheme; a property within the Downhill Farm complex.		Construction: Large adverse	N/A	Requirement 4
LVIA12: Views of construction works for: residents at properties with views towards the construction works (including on Lawn Drive / Downhill Lane, Make-Me-Rich Farm, Usworth Cottages and The Chalet); users of Downhill Lane (east); northern and eastern outdoor areas of the NELSAMs; and northern edge of IAMP One and NMU route along the internal road.		Construction: Moderate adverse	N/A	Requirement 4
LVIA13: Views of construction works for: users of WBEEC outdoor teaching areas; residents at the western edge of Town End Farm; users of the football pitches north of the NELSAM; properties at the edge of Swan Court in Hylton Castle; walkers on footpaths B29 and B22, residents of West Pastures Travelling Community Site, users of the Travelling Man public house, and users of the shared cycleway / footway on the A1290 between Washington Road and Cherry Blossom Way; farm buildings and properties with oblique and/or upper floor views (incl. Mount Pleasant Farm); and NMUs in the IAMP One green corridor and along Follingsby Lane.		Construction: Slight adverse	N/A	Requirement 4

Adverse Impact	Mitigation proposed	Residual effect	Proposed plan reference	DCO Reference
LVIA14: Operational visual effects from the shared cycleway / footway on Washington Road.	The detailed landscape and ecological design to include: • Tree belt planting on embankment slopes between the Downhill Lane junction northbound off and southbound on slip road as well as the realigned Washington Road to screen and or filter views towards the layout and lighting of the Washington Road and new road and NMU bridge, and integrate the embankments into the landscape. Maintain planting by controlling weed growth, replacing dead trees and ensuring adequate space for healthy tree growth. • Tree, shrub and scrub planting along the Downhill Lane junction northbound off and southbound on slip roads and provide woodland planting within the circulatory area of the junction to replace lost vegetation and integrate the Scheme into the surrounding landscape character. • Linear tree and shrub planting to the outer edge of Washington Road, Downhill Lane and A1290 to integrate the realigned roads and provide filtered screening of lighting from adjacent housing areas. • Tree and shrub planting to the outer edges of the new NMU route east of the realigned Washington Road, and also to the foot of the approach ramps on both sides of the new NMU bridge to aid in screening and/or integrating the structures. • Habitat creation to the extents of the attenuation pond area to the north-east of the Downhill Lane junction area. • Linear tree and shrub planting and species rich grassland around the attenuation pond to the south of Downhill Lane junction to help integrate it into the landscape. • Linear tree and shrub planting, scrub and species rich grassland around the attenuation pond to the south-west of Downhill Lane junction adjacent to the A1290 to help integrate it into the landscape and provide some screening for views towards the NMU bridge area.	2021: Large adverse 2036: Moderate adverse	Environmental Masterplan (HE514495-JAC-ELS-MULTI-DR-L-0001)	Requirement 5
LVIA15: Operational visual effects on residents of the north-western edge of Town End Farm and users of Bridleway B46, Downhill Lane, the Great North Forest Heritage Trail.		2021: Large adverse 2036: Slight adverse		Requirement 5
LVIA16: Operational visual effects on views for: users of the eastern section of Footpath B27; Bridleway B28; shared cycleway / footway along the A1290 and across Downhill Lane junction towards Washington Road; residents of Usworth House, The Chalet, properties on Lawn Drive, Downhill Farm complex and Make-Me-Rich Farm; and visitors and workers at the NELSAMs.		2021: Moderate adverse 2036: Slight adverse		Requirement 5
LVIA17: Operational visual effects on views from the shared cycleway / footway along Washington Road and over Washington Road footbridge, south of the Scheme.		Permanent: Moderate adverse		Requirement 5
LVIA18: Operational visual effects on users of the football pitches north NELSAMs and users of the pedestrian and cycle route along IAMP One's internal road.		Permanent: Slight adverse		Requirement 5
LVIA19: Operational visual effects on: users of footpath B29; residents at the West Pastures Travelling Community Site; residents of properties along western edge of Swan Court in Hylton Castle; visitors to the Travelling Man public house; residents at Mount Pleasant Farm and Elliscope Farm; workers at IAMP One; and users of Follingsby Lane through IAMP One.		2021: Slight adverse 2036: Neutral		Requirement 5
Ecology and nature conservation				
ECOL1: Non-statutory designated sites (Make-Me-Rich Meadow LWS)	Mitigation would be through the CEMP's pollution risk, lighting and noise controls and provision of attenuation ponds built into drainage design.	Construction: Significant at local level Operation: Not significant	N/A	Requirement 4

Adverse Impact	Mitigation proposed	Residual effect	Proposed plan reference	DCO Reference
ECOL2: Habitat loss	A total of 8.76 ha of habitat creation/planting as follows: • Open grassland (incorporating improved and species poor semi-improved grasslands) = 3.58 ha. • Species rich neutral grassland (incorporating semi-improved neutral and marshy grasslands) = 2.16 ha. • Native Woodland (incorporating native broadleaved plantation and mixed plantation) = 1.88 ha. • Scrub/tree and shrub planting = 1.14 ha. In addition, 1.85 km of hedgerow/linear tree and shrubs would be planted, as shown on the Environmental Masterplan. A monitoring programme to review the success of the planting proposals (woodland and hedge planting especially) and wetland creation to be developed, in consultation with the local authorities, to cover: • what the indicators of success would be (including the successful establishment of certain species, or % cover of certain botanical species); • actions to resolve any failures in the mitigation; • regular monitoring by a suitably qualified Ecological Clerk of Works (EcCoW) according to a monitoring programme to be determined for the construction period; and • continue annually until end of aftercare period.	Construction: Significant at local level Operation: Not significant	Environmental Masterplan (HE514495-JAC-ELS-MULTI-DR-L-0001)	Requirement 5
ECOL3: Amphibians – harm or disturbance	Common Toads have been recorded in the survey area, especially in the West Boldon Environmental Education Centre, and are listed as a Species of Principal Importance (SoPI) and protected under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. This places a duty of care on public authorities to: protect important habitats and species, and to actively seek opportunities to enhance biodiversity through development proposals, where appropriate. The habitat proposals contained within the Masterplan, would contribute towards habitat creation for the Common Toad. For certain areas: • Site compound and storage areas to be located away from known Common Toad breeding pond and other aquatic habitats that may support breeding populations of amphibians. • Ecological clerk of works to be present during site clearance operations in sensitive habitats adjacent to known Common Toad breeding ponds. • Where possible, material from site clearance works would be used to create additional refugia and/or hibernacula within areas adjacent to attenuation ponds, proposed north and south of Downhill Lane junction, to improve the suitability of terrestrial habitat.	Construction: Significant at local level Operation: Not significant	Habitat creation: Environmental Masterplan (HE514495-JAC-ELS-MULTI-DR-L-0001) Surveyed ponds: document ref. B0140301/OD/196 – Testo's and Downhill Lane Great Crested Newt Environmental DNA and Habitat Suitability Index Survey Report	Requirements 4 and 7
ECOL4: Breeding / Wintering Birds – harm or disturbance	• Vegetation to be retained/lost (including trees and scrubs) clearly demarcated with a marking system agreed with the contractor to avoid encroachment into areas of high value bird habitat, such as dense scrub or woodland. • Vegetation removal as part of the site clearance must consider the potential for nesting birds to be present. Where possible, vegetation removal should be scheduled to occur outside the bird breeding season. Therefore, vegetation removal would occur from late August through to February inclusive.	Construction: Significant at local level Operation: Not significant	Environmental Masterplan (HE514495-JAC-ELS-MULTI-DR-L-0001)	Requirements 4, 5 and 7

Adverse Impact	Mitigation proposed	Residual effect	Proposed plan reference	DCO Reference
	• If vegetation removal during the bird nesting season cannot be avoided, precautionary nesting bird surveys would be required. If nesting birds are identified, then protective buffer zones around each nest would be required and vegetation removal within that buffer may have to be postponed until all the young have fledged or the nest is abandoned. • The proposed landscape restoration planting would include native species of local provenance that provide suitable nesting areas or a source of food at different times of year such as blackthorn, hawthorn, bramble and teasel. Where possible, night time working would be kept to a minimum during the construction period. In addition, lighting for the operational Scheme would avoid / minimise illuminating habitats adjacent to the Scheme by using directional lighting, reduced lighting column height 9where appropriate), baffles, cowls, landscaping and the use of screens.			
ECOL5: Barn Owl – harm or disturbance	• Where possible planting for the Scheme would take into account general habitat requirements for barn owl and seek to install low-flight obstructions (tall hedges or lines of closely spaced trees to act as commuting corridors and reduce the risk of barn owl vehicle strike). • 1.85 km of hedgerow would be planted as part of the proposals shown on the Environmental Masterplan and seek to connect severed ends of hedgerows to re-establish wildlife commuting corridors. • Night working would be avoided where possible. If it cannot be avoided, it would be restricted in the vicinity of known commuting routes and valuable areas of foraging habitat (i.e. commuting hedgerows should not be illuminated nor have generators placed next to them). In addition, lighting for the operational Scheme would aim to avoid illuminating habitats adjacent to the Scheme. A monitoring programme to identify any increased risk of road traffic accidents for barn owls to be developed, in consultation with Natural England and local authorities, to cover: • regular monitoring during construction by a suitably qualified EcCoW; • actions to resolve additional measures, if requires; and • post construction, during the aftercare period, bi-annual site visits and environmental record centre record checks to identify recorded barn owl road traffic accidents and general barn owl activity in the area and also to determine the current status of previous identified roosts/nesting sites (conditional on 3rd party agreement for access).	Construction: Significant at local level Operation: Not significant	Environmental Masterplan (HE514495-JAC-ELS-MULTI-DR-L-0001)	Requirements 4, 5 and 7
ECOL6: Bats – harm or disturbance	• Where possible planting for the Scheme should take into account general habitat requirements for bats and seek to create rough grassland habitat and replace severed linkages / commuting corridors, such as hedgerows, through translocations and/ or new planting and ditches through habitat creation. • As a general precaution, felling of trees with significant (moderate or high) bat roost potential, should be undertaken in autumn, between late August and October/early November following a check of the potential roost features and soft felling protocols (where required); this is a time when bats do not have dependent young and are not hibernating, so should be active enough to escape harm if proper precautions are taken. Additional lighting of the Scheme to be installed in accordance with the Lighting Engineers Guidance for the Reduction of Light Pollution (Bat Conservation Trust & The Institution of Lighting Engineers, 2009). In brief the effect on bats and disturbance to adjacent habitats can be minimised by: reducing the amount of lighting installed; using low pressure sodium lamps or high-pressure sodium instead of mercury or metal	Not significant (during construction and operation).	Document ref.: B0140301/OD/191 - A19 / A184 Testos Junction Improvement and Downhill Lane Junction Improvement 'Bat Roost Potential and Activity Report' (April 2017)	Requirements 3, 4, 5 and 7

Adverse Impact	Mitigation proposed	Residual effect	Proposed plan reference	DCO Reference
	halide lamps; reducing the brightness (potentially at certain times of night); and reducing the height of lighting columns. The brightness would be kept as low as possible and light spill reduced by directing the beam downwards using hoods cowls, screens and appropriate landscaping (Bat Conservation Trust & The Institution of Lighting Engineers, 2009).Night working to be avoided where possible. If it cannot be avoided, it should be restricted in the vicinity of known bat commuting routes and valuable areas of foraging habitat (i.e. avoid illuminating commuting routes or having generators placed next to them).			
ECOL7: Otter – harm or disturbance	No holts have been identified in the vicinity of the new outfall proposed for the Scheme and it is unlikely there would be an increased risk of mortality for this species, based on Scheme design and survey information. Therefore, no specific mitigation is proposed, but the following best practice mitigation is proposed to cover general protection for this species: • No steep-sided, deep and/or water-filled excavations would be left uncovered overnight as otters could fall in and become trapped. Any major excavations that need to be left uncovered overnight would have their slopes battered. If it is necessary to leave excavations open overnight they would be protected with suitable fencing to avoid trapping any animals. • Night-working should be avoided where possible. If it cannot be avoided, it should be restricted in the vicinity of known commuting routes and valuable areas of foraging habitat (i.e. River Don). Lighting for the operational Scheme would avoid or minimise illuminating habitats adjacent to the Scheme through the use of directional lighting, reduced lighting column height (where appropriate), baffles, cowls, landscaping and the use of screens.	Construction: Significant at local level Operation: Not significant	N/A	Requirements 3, 4 and 7
ECOL8: Invertebrates – habitat loss	Where possible planting for the Scheme would take into account general habitat requirements for invertebrates and seek to create rough grassland habitat and to replace severed linkages, such as hedgerows. For aquatic invertebrates, mitigation would be through the CEMP's pollution controls (see ES Chapter 14 'Water and the Environment') and provision of attenuation ponds built into drainage design to minimise contaminants and sediments reaching aquatic habitats.	Not significant (during construction and operation).	N/A	Requirements 4, 5 and 7
Geology and soils				
GEOL1: Release and spread of unknown contamination - possible disturbance of unknown localised contamination during construction such as in filled pits, spillages and that associated with existing and disused drainage systems.	Implementation of a Contaminated Land: Applications In Real Environments (CL:AIRE) Materials Management Plan (CL:AIRE, 2014) to mitigate the risks arising from the re-use of site won material or the importation of unsuitable material for use on site. Should contamination be encountered during further ground investigation or the construction phase, additional investigations and risk assessments would be undertaken to identify any remediation required. The re-use of any contaminated soils would be investigated and controlled via an Inspection and Discovery Strategy, which is required to form part of a Materials Management Plan. This Inspection and Discovery Strategy would clearly set out the procedures to be followed in the event that unexpected contamination is encountered, including the appropriate assessment and mitigation actions and requirements to consult with regulators.	Not significant (during construction and operation).	N/A	Requirements 4 and 6
GEOL2: Release and spread of potentially contaminated dust during construction.	Where appropriate, use of dust suppression during periods of dry weather to prevent dust blow.		N/A	Requirement 4

Adverse Impact	Mitigation proposed	Residual effect	Proposed plan reference	DCO Reference
GEOL3: Accidental spillages on the highway during the operational phase.	Appropriate pollution prevention measures would be implemented during any clean up activity. Site would be covered by hardstanding which would limit migration of contamination.		N/A	Requirement 4
GEOL4: Potentially contaminated run-off from the construction site during construction phase.	Mitigation would also be through the CEMP's pollution controls (see 'Water and the Environment').		N/A	Requirement 4
GEOL5: Potentially contaminated run-off from the highway during operation.	Design measures to collect any contaminated water in attenuation ponds, built into drainage design, to minimise contaminants and sediments reaching aquatic habitats.		N/A	Requirement 3
GEOL6: Compaction of near surface deposits and increase in vertical load experienced by the soil under the embankment.	Design the Scheme to reduce the amount of soil consolidated during construction and operation, such as including drainage measures at the toe of embankments to prevent ponding of water. Soil management operations to be in accordance with Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (Defra, 2009), which requires a Soil Resources survey to help devise a Soil Management Plan as part of the CEMP and / or Site Waste Management Plan (SWMP). The Soil Management Plan would include measures to achieve careful stewarding of the soil resources during construction, proper restoration of the land and subsequent agricultural aftercare, including any necessary land drainage. When developing the soil management strategy review the methods of soil handling outlined in Defra's Good Practice Guide for Handling Soils and develop more detailed strategies, with measures to include: • stripping of topsoil and subsoil when weather and soil conditions are suitable; • separate storage and management of topsoil and subsoil stockpiles; • return of these soils to the original plots, also in separate layers (where possible and where these plots are not occupied by permanent new infrastructure); • use of appropriate machinery to minimise soil compaction; • relief of any compaction of restored soils; • surface ripping and, if necessary, under-drainage of restored sites (subject to other environmental constraints, such as the presence of buried archaeological remains); and • period of aftercare for restored soils, including appropriate cropping, for example a temporary grass ley if required, and associated soil nutrient requirements.		N/A	Requirements 3, 4 and 8
GEOL7: Agricultural Land - permanent loss	Permanent loss of agricultural land cannot be mitigated. However, surplus topsoil from all areas would be sustainably managed and re-used; this would be in line with the requirements of a Soil Management Plan to be outlined in the Contractor's CEMP. Provide suitable outfalls for severed agricultural land drainage located to the land west of the new highway boundary	Permanent: Slight adverse	N/A	Requirement 4
GEOL8: Agricultural Land – temporary loss	Agricultural land would be returned to landowners on completion of the construction works. This would be in line with the requirements of a Soil Management Plan to be outlined in the Contractor's CEMP.	Construction: Not significant	N/A	Article 29
Materials				

Adverse Impact	Mitigation proposed	Residual effect	Proposed plan reference	DCO Reference
MAT1: Climate Change	Adopt material efficient design and Design Team to provide a brief statement estimating the overall quantity of material required through the application of an efficient design. Monitor through confirmation from the Construction Team that the Scheme 'As Constructed' is in accordance with the design. Structures, drainage, road restraint systems, street lighting, traffic signals and signage products would be procured with consideration of the environmental effects associated with their manufacture, as well as other considerations such as structural design, carbon footprint, energy consumption, long-life performance, visual impacts, durability and cost. Both reinforced concrete and steel structures include a measurable recycled content in their manufacture. Where possible, the availability of responsibly sourced local and recycled materials would be considered in order to reduce potential environmental effects, such as from transport emissions. Develop and implement a CEMP that considers methods to reduce the impact of energy use in construction, including consideration of using materials with lower embodied energy, such as re-used and recycled materials and locally sourced materials. The CEMP will include: • appropriate project targets for materials and waste; • a Site Waste Management Plan (SWMP); • a Materials Management Plan (MMP) in accordance with CL:AIRE; • a Soil Management Plan (MMP) detailing protocols for soil management in line with current industry best practice as set out by DEFRA's Construction Code of Practice for the Sustainable Use of Soils on Construction Sites[1] and requirements within the Specification for Highways Works series 600[2] and 3000[3]; • procedures for the management of material procurement, delivery, storage, handling, use and disposal; and • use of materials responsibly sourced in accordance with BES 6001:2009 and the UK Government Timber Procurement Policy[4]. Monitoring would be through an appropriate programme of Environmental Auditing and Reporting.	Carbon footprint (construction materials) – Negligible magnitude. Carbon footprint (construction transport) – Negligible magnitude	N/A	Requirements 3 and 4
MAT2: Depletion of Water Resources	Adopt material efficient design and Design Team to provide a brief statement estimating the overall quantity of material required through the application of an efficient design. Monitor through confirmation from the Construction Team that the scheme 'As Constructed' is in accordance with the design. Develop and implement a CEMP that considers methods to manage and reduce water use in construction. Monitor through an appropriate programme of Environmental Auditing and Reporting.	Residual effects and their significance for this topic are excluded from the assessment element of this chapter.	N/A	Requirements 3 and 4
MAT3: Depletion of Primary Materials	Use land temporarily reserved for material storage to significantly increase the amounts of materials that can be re-used on site. Develop and implement a Materials Management Plan that considers and manages the re-use of materials on-site, off-site secondary/recycled materials, locally sourced materials, and other responsibly sourced materials including those certified to BES 6001:2009.	Residual effects and their significance are included under the carbon footprint assessment (Materials – Negligible magnitude).	N/A	Requirement 4

1 Department for Environment, Food and Rural Affairs (DEFRA) (2009). Construction Code of Practice for the Sustainable Use of Soils on Construction Sites.
2 Available at: http://www.standardsforhighways.co.uk/ha/standards/mchw/vol1/pdfs/600.pdf
3 Available at: http://www.standardsforhighways.co.uk/ha/standards/mchw/vol1/pdfs/series_3000.pdf
4 Available at: https://www.gov.uk/guidance/timber-procurement-policy-tpp-prove-legality-and-sustainablity

Adverse Impact	Mitigation proposed	Residual effect	Proposed plan reference	DCO Reference
	Use procurement policies and KPIs to actively investigate options to maximise local sourcing of materials and include as much recycled content as practicable, in accordance with the required specifications of the construction material and relevant procurement legislation, plus where consistent with value for money. Maximise use of on-site material, wherever practicable; set aside areas for storage of materials for re-use. Consideration of synergies between local schemes, including Testo's, for materials re-use. Monitoring would be through an appropriate programme of Environmental Auditing and Reporting.			
MAT4: Depleting Landfill Capacity (and/or Severance of Access)	Design out waste where possible (e.g. through specification of standard lengths, use of off-site manufactured and modular elements etc.). Use land temporarily reserved for material storage to significantly increase the amounts of materials that can be re-used on site. Develop a Site Waste Management Plan as part of the CEMP, early on in the design stage, to explore methods to manage waste arising from the construction in accordance with the waste hierarchy. The SWMP would identify, prior to the start of construction, the types and likely quantities of wastes that may be generated, plus set out how these wastes would be reduced, re used, managed and disposed of. The SWMP would also set out how all construction phase materials would be managed, which may include a Soils Management Plan, in consideration of: • Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (DEFRA, 2009), which provides guidance for excavation, handling, storage and final placement of soils; and • Environment Agency Position Statement: Definition of Waste: Development Industry Code of Practice. Leave hazardous materials (e.g. tar bound planings) in situ where safe and feasible to do so to avoid unnecessary generation of hazardous waste arisings. Monitoring would be through an appropriate programme of Environmental Auditing and Reporting. Regular reviews of, and updates to, the SWMP would also enable the monitoring of mitigation measure's effectiveness at maximising the use of locally sourced and low environmental impact materials.	With no certainty of being able to re-use at other construction sites the residual effect significance would be Neutral to Slight Adverse.	N/A	Requirements 3 and 4
MAT5: Hazardous wastes disposal	If contaminated soils or wastes encountered during the construction works, further investigation, testing and risk assessment would be undertaken to determine whether the soils could either: stay on-site, require treatment to make them suitable to remain on-site, or would need to be disposed of off-site. No or low volumes expected.	If no contamination found, or found and remediated, significance of the effect would be Neutral.	N/A	Requirement 4
Noise and vibration				
N&V1: Construction noise and vibration	CEMP to apply mitigation measures in alignment with the guidance detailed in BS 5228: 2009+A1:2014 – Part 1: Noise 'Code of Practice for noise and vibration control on construction and open sites', Part 1: Noise and Part 2: Vibration. As a minimum, the following mitigation measures would be employed on site so noise and vibration levels would be attenuated as far as possible: • using 'best practicable means' during all construction activities;	Temporary, short duration significant adverse effects for properties and other sensitive receptors close the Scheme during construction (e.g. 33 and 45 Boston Crescent, in Town End	N/A	Requirement 4

Adverse Impact	Mitigation proposed	Residual effect	Proposed plan reference	DCO Reference
	• avoiding unnecessary revving of engines and making sure plant and equipment is switched off when it is not in use for long periods of time; • keeping haul roads well maintained and avoid steep gradients; • starting up plant and equipment sequentially rather than all together; • selecting low noise emitting plant where available and suitable; • using audible reversing warning systems on mobile plant and vehicles of a type which, whilst still giving proper warning, have a minimum noise impact on persons outside sites; • establishing in consultation with the local authorities the appropriate controls for undertaking significantly noisy works, vibration-causing operations close to receptors or working outside of normal construction hours (assumed to be 07:30 to 18:00 Monday to Friday and 08:00 to 13:00 on Saturday); • should it be necessary to work outside of the parameters set out in Schedule 2 of the DCO, consulting the Environmental Health Departments of South Tyneside Council and Sunderland City Council on such hours and where necessary noise and vibration limits, plus notifying nearby residents in advance of the works; • programming works so that the requirement for working outside normal working hours is minimised (taking into account the highway authority's statutory duties under the Traffic Management Act 2004); • setting vibration soil compaction plant to a low amplitude setting when operating in close proximity to sensitive receptors; • using low noise emission plant where possible; • making sure all piling would be rotary; • developing and maintaining good relations with people living and working in the vicinity of site operations; • implementing an efficient complaints procedure; • where viable, using temporary noise screens around particularly noisy activities (or stationary plant such as generators); and • regularly maintaining plant.	Farm, and 5 Usworth Cottages and The Chalet beside the Follingsby/A1290 junction).		
People and communities				
People and Communities – Agricultural land and businesses				
P&C1: Wheathill Farm – permanent and temporary loss of land and land drainage severance.	New access arrangement off A1290 including track for northern field, new land drainage arrangements and reinstatement of temporarily disturbed land.	Adverse, not significant (construction and operation)	N/A	Article 29 Requirements 3, 4 and 8
P&C2: West Fellgate Farm - temporary loss of land and land drainage severance.	Reinstatement of temporarily used land.	Construction: Adverse, not significant Operation: Neutral	N/A	Article 29

Adverse Impact	Mitigation proposed	Residual effect	Proposed plan reference	DCO Reference
P&C3: Mount Pleasant Farm, West Boldon - permanent and temporary loss of land and land drainage severance.	New access gateway off Downhill Lane (East); new land drainage arrangements; and reinstatement of temporarily disturbed land.	Adverse, not significant (construction and operation)	N/A	Article 29 Requirements 3, 4 and 8
P&C4: Land at Downhill Lane junction (1) - loss of access from Downhill Lane (East)	New access arrangement via site of attenuation pond north-east of Downhill Lane junction	Construction: Adverse, not significant Operation: Neutral	N/A	Article 29 Requirement 3
P&C5: Land at Downhill Lane junction (2) and land east of A1290 - temporary loss of land	Reinstatement of temporarily used land.	Construction: Adverse, not significant Operation: Neutral	N/A	Article 29
P&C6: Land at Downhill Lane junction (3) – permanent and temporary loss of land	Reinstatement of temporarily used land.	Adverse, not significant (construction and operation)	N/A	Article 29
P&C6: Land at Downhill Lane junction (4) – permanent and temporary loss of land	Reinstatement of temporarily used land.	Construction: Adverse, not significant Operation: Neutral	N/A	Article 29
People and Communities – Community land and facilities and physical assets				
P&C7: Make- Me-Rich Farm -changes in access to the farmstead.	New access road included as part of the design.	Construction: Minor adverse Operation: Neutral	N/A	Article 29 Requirement 3
P&C8: IAMP One and Nissan Plant - disruption during construction as a result of diversions and roads closures. Improved access during operation.	Implementation of a suitable Traffic Management Plan (TMP)	Construction: Adverse - Not Significant Operation: Beneficial – Not significant	N/A	Requirements 4 and 10
P&C9: Three Horseshoes pub - disruption during construction as a result of road closures and diversions.	Implementation of a suitable TMP	Construction: Adverse - Not Significant Operation: Neutral	N/A	Requirements 4 and 10
P&C10: Temporary disruption / severance of access to community facilities within Town End Farm and Hylton Castle by outside residential properties during construction (e.g. Make-Me-Rich Farm or The Chalet and Usworth Cottages).	Implementation of a suitable TMP	Construction: Slight adverse - Not significant Operation: Beneficial – Not significant	N/A	Requirements 4 and 10
P&C11: Large supermarket and cinema at Boldon Business Park, plus North East Land, Sea and Air Museums Gateshead Skills Academy Air Training Corps -	Implementation of a suitable TMP	Construction: Adverse - Not significant Operation: Beneficial – Not significant	N/A	Requirements 4 and 10

Adverse Impact	Mitigation proposed	Residual effect	Proposed plan reference	DCO Reference
disruption during construction as a result of diversions and roads closures.				
People and Communities – Non-motorised users, community severance and accessibility and connectivity				
P&C12: Temporary disruption to users of: Bridleway B46, Washington Road, Downhill Lane (East), Downhill Lane junction, the A1290 and Downhill Lane (West).	Maintain NMU access during construction. Contractor to confirm routes requiring temporary closures / diversion during construction (expected to include the B46 bridleway, cycleway across Downhill Lane / Washington Road and Washington road walkways). Contractor identify a programme of temporary closures and plan/prepare and signpost alternative temporary diversion routes where practicable. Closure programme to be managed through the CEMP.	Construction: Significant adverse	N/A	Requirements 4 and 10
P&C13: NMU access along and connectivity with B46 bridleway	At the south end of Bridleway B46, provide a new at grade Pegasus crossing across Downhill Lane (East), to prevent crossing the slip-road and link to the new NMU route along the realigned Washington Road.	Operation: Significant beneficial	Environmental Masterplan (HE514495-JAC-ELS-MULTI-DR-L-0001)	Requirement 3
P&C14: NMU access along and connectivity with Bridleway B46, Downhill Lane junction, Downhill Lane (East), Washington Road and the A1290	Provision of a new segregated multi-user NMU route (cycleway, footway and bridleway) running from Bridleway B46 across Downhill Lane (East) and south alongside Washington Road, then crossing the A19 to the A1290 via a new NMU bridge to the south of the junction to provide complete segregation of NMUs and vehicles and improved safety.	Operation: Significant beneficial		Requirement 3
P&C15: NMU access along and connectivity with A1290, Follingsby Lane and Downhill Lane (West)	Provision of an at grade Pegasus crossing facility on the A1290 to the new IAMP One NMU route along Follingsby Lane from the above new shared NMU route, providing greater segregation between vehicles and NMUs.	Operation: Significant beneficial		Requirement 3
P&C16: Community amenity effects for vehicle users and NMUs	Implementation of a suitable TMP, plus mitigation proposed for air quality, noise and visual receptors would mitigate the effects during construction. During operation there would be amenity benefits provided by the new NMU route offering greater safety and reduction in the fear of accidents for commuters.	Construction: Significant adverse Operation: Significant beneficial	N/A	Requirements 3, 4 and 10
People and Communities – Public transport users				
P&C17: Bus routes 50 and 56 - potential for temporary delays on A1290 / Downhill Lane (West) and across Downhill Lane junction, plus temporary relocation of bus-stop.	Implement the TMP developed in consultation with the local authorities.	Construction: Adverse – not significant	N/A	Requirement 10
P&C18: Bus routes 50 and 56 - permanent relocation of northbound bus-stop.	If required, permanently relocate the northbound bus stop to a more suitable position, away from the realigned junction, in discussion with the relevant stakeholders.	Operation: Not significant	N/A	Requirement 3
People and Communities – Economy and employment				
P&C19: N/A	N/A	N/A	N/A	N/A
People and Communities – Travellers				
P&C20: Increased driver stress during construction due to travelling through roadworks and addition of construction traffic, plus increased uncertainty and stress during occasional overnight diversions. The	During the construction phase, a TMP and site TMP would be implemented to reduce any increase in stress caused by the roadworks. This would include temporary signage which would be put in place to reduce uncertainty and frustration. Other measures proposed to be part of the TMP include: • designated construction access route to/from the Scheme for all construction traffic and deliveries;	Construction: Minor adverse	N/A	Requirements 4 and 10

Adverse Impact		Mitigation proposed	Residual effect	Proposed plan reference	DCO Reference
change in traffic composition may also increase drivers fear of accidents and frustration if unable to overtake slower moving vehicles.		• Heavy Goods Vehicle delivery window; and • use of internal haul roads to minimise the number of trips associated with transporting plant across the site.			
P&C21: The presence of traffic management and temporary traffic signals would increase journey times.			Construction: Minor adverse	N/A	Requirements 4 and 10
P&C22: Increased driver stress and journey times during the operational phase AM and PM peak hours; uncertainty may be increased due to a new road layout.		Road signs and traffic signals would be used to explain route changes and to direct to drivers, with the aim of reducing uncertainty, delays and driver stress for those drivers using the new road layout. The improved section of the A19 would also be designed to a higher highway standard than the existing road, which would help to reduce uncertainty, fear and driver stress.	2021: Moderate to minor adverse 2036: Minor adverse	N/A	Requirements 4 and 10
P&C23: Views of drivers from the road would change to from rural views to views of construction traffic and plant on the site of the Scheme.		See 'Landscape and visual effects' mitigation planting.	2021: Minor adverse 2036: Not significant	N/A	Requirement 5
Road drainage and the water environment					
Construction – change in water quality	**WTR1:** River Don (except for Make-Me-Rich Meadow): water quality and biodiversity	Develop Pollution Prevention Plan, including spillage response measures, prior to construction. Prepare appropriate method statements for working with and storing oils and chemicals in line with the requirements of the Control of Pollution (Oil Storage) Regulations 2001. Contractor to implement a Construction Environmental Management Plan. Design an Environmental Incident Control Plan (EICP) to ensure protective measures are implemented to deal with both normal and emergency situations. Contractors to undertake construction work to best practice standards. Permanent drainage system to be developed early in construction. Limit works in-channel to times of low flows and sign-up to the Environment Agency flood warning system. For any works in ordinary watercourses, such as obstructions to flow, Ordinary Watercourse Consent would be required from South Tyneside Council or Sunderland Council. Similar works to any main rivers, or any works within 8 m of a main river, would require an Environmental Permit from the Environment Agency. Provide construction phase Surface Water Management Plan.	Construction: Neutral	N/A	Requirements 4, 6, 7 and 8
	WTR2: Hylton Dene Burn: water quality and biodiversity		Construction: Neutral	N/A	
	WTR3: River Don (except for Make-Me-Rich Meadow): dilution and removal of waste products.		Construction: Neutral	N/A	
	WTR4: Land drain: water supply / quality		Construction: Neutral	N/A	
	WTR5: Groundwater: water supply / quality / vulnerability		Construction: Neutral	N/A	
	WTR6: Boldon Lake: water quality and biodiversity		Construction: Neutral	N/A	
	WTR7: Mount Pleasant Marsh: water quality, biodiversity and recreation		Construction: Neutral	N/A	
	WTR8: Make-Me-Rich Meadow (section of the River Don flowing through): water quality and biodiversity		Construction: Neutral	N/A	

Adverse Impact		Mitigation proposed	Residual effect	Proposed plan reference	DCO Reference
Construction – flooding from increased surface water run-off	**WTR9:** River Don (except for Make-Me-Rich Meadow)		Construction: Neutral	N/A	
	WTR10: Hylton Dene Burn		Construction: Neutral	N/A	
	WTR11: Boldon Lake		Construction: Neutral	N/A	
	WTR12: Mount Pleasant Marsh		Construction: Neutral	N/A	
	WTR13: Make-Me-Rich Meadow (section of River Don flowing through)		Construction: Neutral	N/A	
	WTR14: Floodplain		Construction: Neutral	N/A	
WTR15: River Don and tributaries, plus Hylton Dene Beck – increased sediment delivery to water column during construction (fluvial geomorphology)			Operation: Neutral	N/A	
WTR16: River Don and tributaries – construction disturbance to river banks and riparian vegetation (fluvial geomorphology)		Minimise work within 8 m of the watercourse. Where in-channel work is required (for construction of outfall headwall) minimise disturbance to bank and work in low-flow conditions where possible.	Operation: Slight adverse	N/A	Requirements 4, 7 and 8
WTR17: River Don (except for Make-Me-Rich Meadow): change in water quality		Runoff from Catchments 4 and 6 would pass through attenuation ponds before being discharged into the River Don.	Operation: Slight beneficial	ES (Vol.2) Figure 2.6 ‘Proposed Drainage Design’	Requirements 3, 7 and 8
WTR18: River Don (except for Make-Me-Rich Meadow): dilution and removal of waste products			Operation: Slight beneficial		
WTR19: River Don (except for Make-Me-Rich Meadow): change in biodiversity			Operation: Slight beneficial		
WTR20: Hylton Dene Beck: change in water quality		Runoff from Catchment 7 would pass through a new attenuation ditch with pond before discharging into an existing piped drainage system leading to the tidal River Wear via Hylton Dene Burn. Runoff from Catchment 8 would pass through a new attenuation pond before being discharged into an existing piped drainage system leading to the tidal River Wear via Hylton Dene Burn.	Operation: Slight beneficial	ES (Vol.2) Figure 2.6 ‘Proposed Drainage Design’	Requirements 3, 7 and 8
WTR21: Hylton Dene Beck: change in biodiversity			Operation: Slight beneficial		
WTR22: Hylton Dene Beck: flooding from increased water run-off			Operation: Slight beneficial		
WTR23: Hylton Dene Beck: increased sediment delivery to water column			Operation: Slight beneficial		
WTR24: Make-Me-Rich Meadow (section of the River Don that flows through Make-Me-Rich Meadow): change in water quality		Catchment 4 and 6 would pass through attenuation ponds before being discharged into the River Don, upstream of Make-Me-Rich Meadow.	Operation: Slight beneficial	N/A	Requirements 3, 7 and 8

Adverse Impact	Mitigation proposed	Residual effect	Proposed plan reference	DCO Reference
WTR25: Make-Me-Rich Meadow (section of the River Don that flows through Make-Me-Rich Meadow): change in biodiversity		Operation: Slight beneficial		
WTR26: River Don (except for Make-Me-Rich Meadow): flooding from increased water run-off	Run-off from Catchments 4 and 6 would pass through attenuation ponds before being discharged into the River Don.	Operation: Slight beneficial	N/A	Requirements 3, 7 and 8
WTR27: Make-Me-Rich Meadow (section of the River Don that flows through Make-Me-Rich Meadow): flooding from increased water run-off	Catchment 4 and 6 would pass through attenuation ponds before being discharged into the River Don, upstream of Make-Me-Rich Meadow.	Operation: Slight beneficial		
WTR28: Floodplain: flooding from increased water run-off		Operation: Neutral		
WTR29: Tributary of River Don - increased erosion of channel bed and/or banks (fluvial geomorphology)	Direct outfall downstream, keep outfall headwall flush with bank, minimise size of headwall.	Operation: Slight adverse	N/A	Requirements 3, 7 and 8
Cumulative Effects				
CEA1: Adverse additive cumulative noise and air pollution effects on workers in IAMP One and residential receptors at Town End Farm and Capetown Road.	Application of good construction dust and noise practices through the CEMP developed in consultation with the local authorities and taking into consideration local developments (including IAMP Two) to reduce the cumulative effects.	Construction: Minor adverse Operation: see 'Air Quality', above	N/A	Requirement 4
CEA2: Adverse additive cumulative effects on the landscape character of LCUs 1, 2, 5, 8 and 9 (a, b & c) during construction and operation.	During detailed design, continue liaising with the local authorities and taking into consideration third-party local developments (including IAMP Two) to accommodate and be able to integrate with these neighbouring third party schemes with regards to landscape and visual amenity mitigation in this area.	Construction: Major to moderate adverse Operation: Minor adverse	N/A	Requirement 5
CEA3: Adverse additive cumulative effects on views from residential receptors, NMUs on routes near the junction and users of commercial facilities.		Construction: Major to moderate adverse Major to Minor adverse in Opening Year, reducing to Moderate to Minor adverse or Neutral	N/A	Requirement 5
CEA4: Adverse additive cumulative habitat fragmentation and severance for species due to the temporary and permanent habitat loss.	Highways England has already proactively liaised with the local authorities and the developers of the Wearpoint 55 (ID1) and IAMP developments (One and Two) during the early design and planning phases of these schemes. In this way the Scheme design has accommodated and will be able to integrate with these neighbouring third party schemes. Continue liaising with the local authorities and taking into consideration the third party developments (esp. Testo's and IAMP) to develop the detailed design and monitor adverse effects on habitats and species in order to manage the Scheme's contribution to the integrated ecological conservation for this area.	Construction: Moderate adverse Operation: Minor adverse	N/A	Requirements 4, 5 and 7

Adverse Impact	Mitigation proposed	Residual effect	Proposed plan reference	DCO Reference
	Apply good practice to mitigate the risk of additive adverse cumulative effects from pollution and sedimentation of aquatic habitats using the CEMP developed in consultation with local authorities and taking into consideration third party developments (e.g. Testo's junction and IAMP Two).			
CEA5: Additive adverse cumulative permanent loss and temporary disturbance of Grade 3b agricultural soils.	IAMP Two would be the principal contributor to agricultural land loss and the affected agricultural land is of low quality (i.e. not best and most versatile land). However, proactive engagement with the local authorities and third party developers for ID1 and ID2, the current Scheme design has allowed overlap of development footprints to reduce the net cumulative effect. During operation the temporarily lost agricultural land by all the schemes would be restored.	Construction: Moderate adverse Operation: Minor adverse	N/A	Article 29 Requirement 4
CEA6: Additive cumulative effects on NMUs – adverse disruption during construction, but beneficial effects during operation.	Maintain NMU access and apply good construction practices through CEMPs developed in consultation with the local authorities and taking into consideration third party developments (e.g. Testo's junction and IAMP Two) to reduce the cumulative effects. Improved NMU networks across Testo's junction and the IAMP developments and the Scheme offer cumulative operational safety improvements.	Construction: Minor adverse Operation: Minor beneficial	N/A	Requirements 3 and 4
CEA7: Additive cumulative effects on driver stress during construction.	Development of TMPs in consultation with the local authorities and taking into consideration third party developments (e.g. Testo's junction and IAMP Two) to reduce the cumulative effects from construction traffic movements.	Construction: Minor adverse	N/A	Requirements 4 and 10
CEA8: Additive adverse cumulative effects on land drainage and flood risk.	Develop detailed drainage design, with suitable temporary and permanent drainage systems, in liaison with the Environment Agency and Local Authorities, plus taking into consideration third party developments (e.g. Testo's junction and IAMP).	Construction: Minor adverse Operation: Not significant	N/A	Requirements 3 and 8
CEA9: Additive adverse cumulative effects on surface water quality.	Apply good construction practices through the CEMP to control the risk of pollution to the surrounding water; consult local authorities and take into consideration third party developments (including Testo's and IAMP) to reduce the cumulative effects. Remove contaminated sediment periodically from any SUDs as part of an operational maintenance regime for the Scheme.	Construction: Minor adverse Operation: Minor adverse	N/A	Requirements 4, 6 and 8

REAC PART 2 – ENVIRONMENTAL ACTION PLAN (Tables A1.3-2, A1.3-3 and A1.3-4)

Table A1.3.2 Actions required before the start of construction (i.e. during the detailed design stage or before construction)

Ref.	Environmental Objective	Cross-ref. to ES	Action	Responsibility	Target (achievement criteria)	Third-party contact required?	Completed? (initial / date)	Notes / further action
P1	**Air quality**							
P1.1	Plan the construction work for the Scheme to prevent generation of nuisance dust impacts at sensitive receptors. Measures to prevent or minimise the generation and spread of dust based on those outlined by the Institute for Air Quality Management[5] (IAQM).	Chapter 6, Section 6.7	Identify the construction activities or conditions likely to occur during construction that may generate airborne dust.	Principal Contractor	No justified complaints of dust nuisance from receptors in the vicinity of the Scheme	Awarded contractor, South Tyneside Council and Sunderland Council to consult upon CEMP.		
P1.2			**Site Management** Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken. Make the complaints log available to a local authority when asked. Record exceptional incidents that cause dust and / or air emissions, on- or offsite, and the action taken to resolve the situation in the log book.					Measures are based on a Low risk site for on-site construction activities, and a High Risk site for track-out associated with construction vehicle traffic
P1.3			**Monitoring** Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to a local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of the site boundary, with cleaning to be provided if necessary. Carry out regular site inspections to monitor compliance with the dust management plan, record inspection results, and make an inspection log available to a local authority when asked. Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.					Measures are based on a Low risk site for on-site construction activities, and a High Risk site for track-out associated with construction vehicle traffic

[5] Institute for Air Quality Management (2014) *Guidance on the assessment of dust from demolition and construction.*

Ref.	Environmental Objective	Cross-ref. to ES	Action	Responsibility	Target (achievement criteria)	Third-party contact required?	Completed? (initial / date)	Notes / further action
P1.4			**Preparing and maintaining the site** Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible. Where practicable, erect solid screens or barriers, around dusty activities or the site boundary, that are at least as high as any stockpiles on site. Where practicable, fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period. Keep site fencing, barriers and scaffolding clean using wet methods. Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site.					Measures are based on a Low risk site for on-site construction activities, and a High Risk site for track-out associated with construction vehicle traffic
P1.5			**Operations** Provide an adequate water supply on the site for effective dust/particulate matter. Suppression/mitigation using non-potable water, where possible and appropriate. Use enclosed chutes and conveyors and covered skips. Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.					Measures are based on a Low risk site for on-site construction activities, and a High Risk site for track-out associated with construction vehicle traffic
P1.6			**Measures specific to Track-out** Where practicable, use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use. Avoid dry sweeping of large areas. Make sure vehicles entering and leaving sites are covered to prevent escape of materials during transport.					Measures are based on a Low risk site for on-site construction activities, and a High Risk site for track-out associated with construction vehicle traffic

Ref.	Environmental Objective	Cross-ref. to ES	Action	Responsibility	Target (achievement criteria)	Third-party contact required?	Completed? (initial / date)	Notes / further action
			Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable. Pre and during construction, record all inspections of haul routes and any subsequent action in a site log book. Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned. Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site) where reasonably practicable. Provide an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits. Access gates to be located at least 10 m from receptors where possible.					
P2	**Cultural heritage**							
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
P3	**Landscape and visual effects**							
P3.1	Avoid or minimise loss of existing vegetation screening	ES Chapter 8, Section 8.7, & Environmental Masterplan	Scheme design to maximise retention and protection of existing trees, shrub and scrub vegetation to the north of Downhill Lane junction (northbound on and southbound off-slip roads) to provide screening for views from the north during the construction period.	Design Team (Jacobs)	Approval of design documents by Highways England after consultation with third party contractors and statutory bodies as appropriate	Natural England, South Tyneside Council and Sunderland City Council		
P3.2	Mitigation planting to replace lost vegetation	ES Chapter 8, Section 8.7, & Environmental Masterplan	Acquire photographic records of the land to be temporary affected prior to commencing construction works, to inform future site restoration. Undertake the detailed landscape and ecological design, including planting schedules and specification documentation. Design to include: • Tree belt planting on embankment slopes between the Downhill Lane junction northbound off and southbound on slip road as well as the realigned Washington Road to screen and or	Design Team (Jacobs)	Approval of documents by Highways England after consultation with third party contractors and statutory bodies as appropriate	Natural England, South Tyneside Council and Sunderland City Council		
P3.3	Mitigation planting to integrate the scheme design				Approval of documents by Highways England after consultation with third party contractors and statutory bodies as appropriate	Natural England, South Tyneside Council and Sunderland City Council		

Ref.	Environmental Objective	Cross-ref. to ES	Action	Responsibility	Target (achievement criteria)	Third-party contact required?	Completed? (initial / date)	Notes / further action
P3.4	Mitigation planting to provide screening functions		filter views towards the layout and lighting of the Washington Road and new road and NMU bridge, and integrate the embankments into the landscape. Maintain planting by controlling weed growth, replacing dead trees and ensuring adequate space for healthy tree growth. • Tree, shrub and scrub planting along the Downhill Lane junction northbound off and southbound on slip roads and provide woodland planting within the circulatory area of the junction to replace lost vegetation and integrate the Scheme into the surrounding landscape character. • Linear tree and shrub planting to the outer edge of Washington Road, Downhill Lane and A1290 to integrate the realigned roads and provide filtered screening of lighting from adjacent housing areas. • Tree and shrub planting to the outer edges of the new NMU route east of the realigned Washington Road, and also to the foot of the approach ramps on both sides of the bridge to aid in screening and/or integrating the structures. • Habitat creation to the extents of the attenuation pond area to the north-east of the Downhill Lane junction. • Linear tree and shrub planting and species rich grassland around the attenuation pond to the south of Downhill Lane junction to help integrate it into the landscape. • Linear tree and shrub planting, scrub and species rich grassland around the attenuation pond to the south-west of Downhill Lane junction adjacent to the A1290 to help integrate it into the landscape and provide some screening for views towards the NMU bridge area.		Approval of documents by Highways England after consultation with third party contractors and statutory bodies as appropriate	Natural England, South Tyneside Council and Sunderland City Council		
P3.5	Mitigation planting to provide habitat replacement and/or enhancement				Approval of documents by Highways England after consultation with third party contractors and statutory bodies as appropriate	Natural England, South Tyneside Council and Sunderland City Council		
P3.6	Mitigation grass seeding to replace and integrate lost verge grass and incorporate new species rich grassland areas		Undertake the detailed landscape and ecological design including providing seed mixes and specification documentation. Grass seed mixes to include suitable species for function and		Approval of documents by Highways England after consultation with third party contractors and statutory bodies as appropriate	Natural England, South Tyneside Council and Sunderland City Council		

Ref.	Environmental Objective	Cross-ref. to ES	Action	Responsibility	Target (achievement criteria)	Third-party contact required?	Completed? (initial / date)	Notes / further action
			biodiversity (species rich grassland and amenity / verge seeding).					
P3.7	Mitigation planting to attenuation ponds to provide suitable species rich grassland		Undertake detailed landscape and ecological design including providing seed mixes and specification documentation. Grass seed mixes to include suitable species for function and biodiversity (species rich grassland).		Approval of documents by Highways England after consultation with third party contractors and statutory bodies as appropriate	Natural England, South Tyneside Council and Sunderland City Council		
P3.8	Make sure earthworks design suitable for planting and seeding and to determine requirement for soil retention		Landscape input into detailed design of all slope gradients / earthworks. Landscape to consider requirement for soil retention on any slopes steeper than 1:2.5.	Design Team (Jacobs)	Approval of documents by Highways England	N/A		
P3.9	Soil management		Testing existing topsoil and subsoil to be carried out to BS3882:2015 Specification for topsoil and BS8601:2013 Specification for subsoil and requirements for use. Landscape input into soil specification to verify adequate soil depths and quality are provided along with effective handling and preparation of soils.	Design Team (Jacobs)	Approval of documents by Highways England after consultation with third party contractors and statutory bodies as appropriate	Natural England, South Tyneside Council and Sunderland City Council		
P4	**Ecology and nature conservation**							
P4.1	Continue to monitor fauna within the Scheme boundary	ES Chapter 9, Section 9.10	Update water vole, otter and wintering bird surveys in 2018/2019 so the data is less than 12 months old when commencing construction. Use survey results to review mitigation recommendations to make sure they continue to be sufficient. Develop, in liaison with the local authorities, a programme of regular monitoring of habitat creation and barn owl activity by a suitably qualified EcCoW through the construction period and aftercare programme.	Principal Contractor appointed EcCoW.	Maintain up to date baseline data and mitigation methods for species of importance at risk from the Scheme	Natural England and South Tyneside Council and Sunderland City Council Ecologists. Relevant landowners.		Continue to observe the habitat for any change in species distribution during the construction phase.
P4.2	Mitigate pollution risk impacts	ES Chapter 9, Section 9.9	Produce method statements for refuelling vehicles and machinery. Produce an emergency spill procedure plan.	Principal Contractor	Prevention of fuel and oil being spilt. Minimise the quantity of pollution entering the ecosystem (esp. River Don) in the event of an accidental pollution spill.	N/A		Comply with the method statements during the construction phase

Ref.	Environmental Objective	Cross-ref. to ES	Action	Responsibility	Target (achievement criteria)	Third-party contact required?	Completed? (initial / date)	Notes / further action
P5	**Geology and soils**							
P5.1	To avoid release and spread of contamination.	ES Chapter 10, Section 10.7	Undertake a Supplementary Ground Investigation, including sampling and testing for both geotechnical and contaminated land purposes. Develop a Contaminated Land: Applications In Real Environments (CL:AIRE) Materials Management Plan (CL:AIRE, 2014) , including an Inspection and Discovery Strategy. Design measures to collect any contaminated water in attenuation ponds, built into drainage design, to minimise contaminants and sediments reaching aquatic habitats.	Costain	Provide more information on the geotechnical and chemical status of site soils. Design measures to minimise contaminants and sediments reaching aquatic habitats.	-	-	
P5.2	Effects on agricultural land	ES Chapter 10, Section 10.7	Preparation of detailed methodology of reinstatement back to agriculture those areas affected by temporary uses. Undertake a Soil Resources Survey to provide a baseline for future site restoration. Prepare a Soil Management Plan, using the results of the Soil Resources Survey, to achieve careful stewarding of the soil resources during the construction works period. Take into account guidance outlined in Row GEOL6 in REAC Part 1.	Costain	Completion of a Soil Resources Survey. Approval of Soil Management Plan by Highways England.	Farm businesses contacts.		Soil Resources Survey provides a benchmark for site restoration and is required to inform the Soil Management Plan.
P6	**Materials**							
P6.1	Keep material imports to a minimum	ES Chapter 11, Section 11.7	Adopt material efficient design. Provide a statement estimating the overall quantity of material required through the application of an efficient design. Establish appropriate project targets for materials and waste.	Design Team (Jacobs)	Confirmation that construction is as per design estimate.			
P6.2	Reduce use of natural resources		Develop within the CEMP procedures for the management of material procurement, delivery, storage, handling, use and disposal; use a Soil Resource/Materials Management Plan (MMP) detailing protocols for soil management in line with current industry best practice as set out by DEFRA's Construction Code of Practice for the Sustainable	Costain				

Ref.	Environmental Objective	Cross-ref. to ES	Action	Responsibility	Target (achievement criteria)	Third-party contact required?	Completed? (initial / date)	Notes / further action
			Use of Soils on Construction Sites[6] and requirements within the Specification for Highways Works series 600[7] and 3000[8]. Take into consideration guidance outlined in Rows MAT2 and MAT3 in REAC Part 1.					
P6.3	Keep waste exports to a minimum	ES Chapter 11, Section 11.7	Design out waste, where possible. Develop a Site Waste Management Plan (SWMP) early on in the design stage to explore methods to manage waste arising from the construction in accordance with the waste hierarchy. Take into consideration guidance outlined in Row MAT4 in REAC Part 1. Provide a statement estimating the overall quantity of waste reduced through the application of designing out waste measures.	Design Team (Jacobs)	Statement in SWMP from Design Team estimating the overall quantity of waste reduced through the application of designing out waste measures.			
			Implement good materials management and good practice construction methods, including use of temporary materials storage areas. Leave hazardous materials (e.g. tar bound planings) in situ where safe and feasible to do so to avoid unnecessary generation of hazardous waste arisings. Implement the CEMP, SWMP and MMP, with all construction works aware of measures identified in plans. Monitor through programme of Environmental Auditing and Reporting.	Costain	Confirmation that construction is as per design.			
P6.4	Reduce effects of importing materials and exporting waste	ES Chapter 11, Section 11.7	Give preference to nearby sources of materials and waste disposal companies. Implement good practice construction methods and reduce haulage distances and/or need to travel. Implement the CEMP, SWMP, MMP and a TMP, with all construction works aware of measures identified in plans.	Costain	Evidence of measures to reduce effects of importing materials and exporting waste			

6 Department for Environment, Food and Rural Affairs (DEFRA) (2009). Construction Code of Practice for the Sustainable Use of Soils on Construction Sites.
7 Available at: http://www.standardsforhighways.co.uk/ha/standards/mchw/vol1/pdfs/600.pdf
8 Available at: http://www.standardsforhighways.co.uk/ha/standards/mchw/vol1/pdfs/series_3000.pdf

Ref.	Environmental Objective	Cross-ref. to ES	Action	Responsibility	Target (achievement criteria)	Third-party contact required?	Completed? (initial / date)	Notes / further action
			Establish procedures for the management of material procurement, delivery, storage, handling, use and disposal. Use materials responsibly sourced in accordance with BES 6001:2009 and the UK Government Timber Procurement Policy[9]. Monitor impact of energy use in construction through programme of Environmental Auditing and Reporting.					
P7	**Noise and vibration**							
P7.1	Identify construction phase noise & vibration levels with the local authorities.	ES Chapter 12, Section 12.7	Consult with Environmental Health Departments of South Tyneside Council and Sunderland City Council regarding construction noise and vibration limit levels and a programme of monitoring during construction. Undertake baseline noise monitoring at residential locations to establish pre-scheme noise levels.	Costain	Noise and vibration limit levels and a programme of monitoring, during construction, established in consultation with local authorities	South Tyneside Council and Sunderland City Council	To be completed before any site work undertaken.	Local authorities normally require noise and vibration monitoring and impact prediction immediately before construction.
P7.2	Mitigate construction phase noise & vibration if required after P7.1 and D7.1.	ES Chapter 12, Section 12.7	Identify in the CEMP activities that could result in significant noise and vibration levels. Where necessary provide appropriate mitigation measures (e.g. temporary noise barriers, choice of plant, insulation of property, temporary re-housing, and management of plant or working time restrictions for noisy activities). As a minimum, the CEMP to include the following noise and vibration mitigation measures as far as possible: • using 'best practicable means' during all construction activities; • avoiding unnecessary revving of engines and making sure plant and equipment is switched off when it is not in use for long periods of time; • keeping haul roads well maintained and avoid steep gradients; • starting up plant and equipment sequentially rather than all together;	Costain	CEMP reflects measured discussed with the local authorities	South Tyneside Council, Sunderland City Council, Residents and Natural England	After Detailed Design – before start of construction	The requirement for mitigation measures is expected. This would be reconsidered after D7.2 and detailed construction programme and plant details.

[9] Available at: https://www.gov.uk/guidance/timber-procurement-policy-tpp-prove-legality-and-sustainablity

Ref.	Environmental Objective	Cross-ref. to ES	Action	Responsibility	Target (achievement criteria)	Third-party contact required?	Completed? (initial / date)	Notes / further action
			• selecting low noise emitting plant where available and suitable; • using audible reversing warning systems on mobile plant and vehicles of a type which, whilst still giving proper warning, have a minimum noise impact on persons outside sites; • establishing, through consultation with the local authorities, the appropriate controls for undertaking significantly noisy works, vibration-causing operations close to receptors or working outside of normal construction hours (assumed to be 07:30 to 18:00 Monday to Friday and 08:00 to 13:00 on Saturday); • providing advance notification to residents near noisy works outside normal hours; • programming works so that the requirement for working outside normal working hours is minimised (taking into account the highway authority's statutory duties under the Traffic Management Act 2004); • setting vibration soil compaction plant to a low amplitude setting when operating in close proximity to sensitive receptors; • using low noise emission plant where possible; • making sure all piling would be rotary; • developing and maintaining good relations with people living and working in the vicinity of site operations; • implementing an efficient complaints procedure; • where viable, using temporary noise screens around particularly noisy activities (or stationary plant such as generators); and • regularly maintaining plant.					
P7.3	Meet requirements of Land Compensation Act, Part 2 – Identify properties that meet	ES Chapter 12, Section 12.7	Publish list of properties within 300 m that qualify for noise insulation in local press, or statement that no properties qualify. Take account of changes in	Highways England	Highways England approval of the eligible properties.	South Tyneside Council, Sunderland City	After Detailed Design – before	Good practice to offer noise insulation to eligible properties

Ref.	Environmental Objective	Cross-ref. to ES	Action	Responsibility	Target (achievement criteria)	Third-party contact required?	Completed? (initial / date)	Notes / further action
	the eligibility criteria of The Noise Insulation Regulations.		design and traffic predictions (if any). Make offers of insulation to eligible properties before construction commences.		Residents accepting offers on insulation.	Council and Residents	start of construction	before construction starts. Although, under the Act, Highways England would have until 6 months after road opening to make an offer.
P7.4	Meet requirements of Land Compensation Act, Part 1	ES Chapter 12, Section 12.7	Identify all properties where noise levels may change and predict changes for each property. Identify the contribution of the Scheme to the overall noise level for the year of opening and the design year. Take account of changes in design and traffic predictions (if any). Provide results to the District Valuer.	Costain	Highways England approval of the detailed noise levels	District Valuer	After Detailed Design	To inform consideration of potential claims for Injurious Affection under the Land Compensation Act Part 1.
P8	**People and communities**							
P8.1	Minimise community severance, maximise accessibility and connectivity during construction	ES Chapter 13, Section 13.7	Development of a construction TMP, including: • temporary signage; • temporary bus stop relocation, if required; • designated construction access route to/from the Scheme for all construction traffic and deliveries; • Heavy Goods Vehicle delivery window; and • use of internal haul roads to minimise the number of trips associated with transporting plant across the site.	Principal Contractor	Accepted plan to reduce traffic impacts.	Highways England		
			Programme temporary closures, identification of alternative NMU access routes/ diversions during the construction period.	Principal Contractor	Programme and plan for temporary NMU access	Local authority		
P8.2	Mitigate impacts on agriculture and farm businesses	ES Chapter 13, Section 13.7	Identify replacement access points to severed fields and areas where existing access is lost.	Principal Contractor	Continuity of access / operation for farm businesses.	Landowners		
P8.3			Identify suitable outlets for existing field drainage systems and continuity of water and other utility supplies.		Continuity of drainage and water and utility supplies.			
P8.4			Develop detailed methodology to reinstate areas affected by temporary uses back to agriculture.		Reinstatement of areas affected by temporary use back to agriculture.			

Ref.	Environmental Objective	Cross-ref. to ES	Action	Responsibility	Target (achievement criteria)	Third-party contact required?	Completed? (initial / date)	Notes / further action
P9	**Road drainage and the water environment**							
P9.1	Prevent adverse impacts on water quality	N/A	Develop detailed drainage design in consultation with the Environment Agency with relation to the treatment of pollutants	Design Team	Approved detailed design			
P9.2		ES Chapter 14, Section 14.7 Table 14.10	Develop Pollution Prevention Plan, including spillage response measures, and incorporate into the CEMP.	Principal Contractor	Pollution Prevention Plan in place prior to construction			
P9.3		ES Chapter 14, Section 14.7 and Table 14.10	Prepare appropriate Method Statements for working with and storing oils and chemicals in line with the requirements of the Control of Pollution (Oil Storage) Regulations 2001.		Appropriate Method Statements in place prior to construction			
P9.4		ES Chapter 14, Section 14.7 and Table 14.10	Design an Environmental Incident Control Plan (EICP) for the construction period on site so protective measures are implemented to deal with both normal and emergency situations		EICP in place prior to construction			
P9.5		ES Chapter 14, Section 14.7 and Table 14.10	Obtain consent for works in the works in tributary to the River Don.		Consent for works granted prior to construction	South Tyneside Council and Sunderland City Council		
P9.6		ES Chapter 14, Section 14.7 and Table 14.10	Confirm support for Drainage Strategy with Environment Agency and local authorities		Approved Drainage Strategy	Environment Agency, South Tyneside Council and Sunderland City Council		
P9.7	Prevent adverse effects related to flood risk	ES Chapter 14, Section 14.7 and Table 14.10	Limit works in-channel to times of low flows and sign-up to the Environment Agency flood warning system.	Principal Contractor	Signed-up to the Environment Agency flood warning	Environment Agency		
P9.8		ES Chapter 14, Section 14.7 and Table 14.10	Obtain consent from South Tyneside Council or Sunderland Council for any works in an ordinary watercourse.		Consent for works granted prior to construction	South Tyneside Council and Sunderland City Council		
P9.9		ES Chapter 14, Section 14.7 and Table 14.10	Prepare construction phase Surface Water Management Plan		Surface Water Management Plan in place prior to construction			

Ref.	Environmental Objective	Cross-ref. to ES	Action	Responsibility	Target (achievement criteria)	Third-party contact required?	Completed? (initial / date)	Notes / further action
P9.10		ES Chapter 14, Section 14.7 and Table 14.10	Confirm support for Drainage Strategy with Environment Agency and local authorities		Approved Drainage Strategy	Environment Agency, South Tyneside Council and Sunderland City Council		
P9.11		N/A	Develop detailed drainage design that provides adequate capacity and for any additional highways run-off to be discharged at a greenfield run-off rate.	Design Team (Jacobs)	Detailed drainage design developed in consultation with the Environment Agency	Environment Agency, South Tyneside Council and Sunderland City Council		
P9.12	Comply with Water Framework Directive (WFD)	N/A	Develop detailed drainage design in accordance with good practice as in DMRB	Design Team (Jacobs)	Outfall design minimises disturbance to watercourse bank and work in low-flow conditions, where possible. Compliance with applicable legislation.	Environment Agency, South Tyneside Council and Sunderland City Council		
P9.13		N/A	Confirm Environment Agency support for the WFD assessment.					
P9.14		N/A	Obtain consent for works in the tributary to the River Don (see P9.5)					
P9.15		ES Chapter 14, Appendix 14.3	Detailed design of the drainage system to consider the following to minimise impacts on the River Don: • direct the new outfall downstream to minimise impacts to flow patterns; • direct the new outfall away from the banks of a river to minimise any potential risk of erosion (particularly on the opposite bank); and • minimise the size/extent of the outfall headwall where possible to reduce the potential impact on the banks.					
P10	**Cumulative Effects**							
P10.1	Develop detailed Scheme design that minimises adverse and maximises beneficial effects of any potential integration with other developments.	ES Chapter 15, Section 15.7	Continue consulting local planning authorities and taking into consideration other developments (including Testo's junction and IAMP Two) during detailed design development to minimise adverse and maximise beneficial cumulative effects (esp. for landtake, landscape, land drainage & ecology).	Design Team (Jacobs)	Approved detailed design that takes into account Testo's junction and IAMP Two developments	Local developers, South Tyneside Council and Sunderland City Council		
P10.2	Develop TMPs and CEMPs that reduce cumulative effects	ES Chapter 15, Section 15.7	Continue consulting with local planning authorities and taking into consideration other developments (including Testo's junction and IAMP Two) when developing a TMP and CEMP that reduces the	Principal Contractor	TMP and CEMP that takes into account Testo's junction and IAMP Two construction activities	Local developers, South Tyneside Council and Sunderland City Council		

Ref.	Environmental Objective	Cross-ref. to ES	Action	Responsibility	Target (achievement criteria)	Third-party contact required?	Completed? (initial / date)	Notes / further action
			cumulative effects, especially with dust, noise and water emissions and traffic movements.					

Table A1.3-3: Actions required during the construction period

Ref.	Environmental Objective	Cross-ref. to ES	Action	Responsibility	Target (achievement criteria)	Third-party contact required	Completed? (initial / date)	Notes / further action
D1	**Air quality**							
D1.1	Prevent the generation of nuisance dust effects for sensitive residents.	ES Chapter 6, Section 6.7	Implement the CEMP control measures *(based on measures outlined in IAQM and pre-construction action plan)* to prevent or minimise the generation and spread of dust as a result of construction activities or conditions. In the event of justified complaints (related to dust nuisance), review measures and control procedures and adjust as appropriate.	Principal Contractor	No justified complaints of dust nuisance from receptors in the vicinity of the Scheme	South Tyneside Council and Sunderland Council		
D2	**Cultural heritage**							
D2.1	Manage risks to unexpected archaeological finds	ES Chapter 7	If archaeological finds encountered during excavations, contact Archaeology Specialists for advice. Use Toolbox talks to train workforce to identify archaeology risks.	Principal Contractor	Managing risks of unexpected archaeological finds during excavations			
D3	**Landscape and visual effects**							
D3.1	Minimise effects of the site compound and soil storage piles.	ES Chapter 8, Section 8.7, & Environmental Masterplan	Keep any loss of vegetation to a minimum by careful siting of the main site compound, haulage routes and plant / materials storage areas. Contractor to provide a suitable method statement for earth movements and soil storage to help screen temporary views from Town End Farm (e.g. soil storage phased so the easternmost temporary soil storage bund is retained during most of the works to enable screening of views towards the main site compound and working areas).	Costain	Contractor's method statement approved by Highways England	Landowners		
D3.2	Minimise effects of site clearance to prevent damage to trees, significant vegetation and habitats.	ES Chapter 8, Section 8.7, & Environmental Masterplan	Employ a suitably competent and qualified Environmental Clerk of Works (ECoW) to oversee all site clearance and environmental implementation works. Erect suitable habitat protection fencing prior to site clearance and commencement of construction. Arboriculturalist input on requirement for tree works and tree protection of important/ mature trees to	Costain	Identification of all vegetation for protection and protection fencing in accordance with specification. Confirmed within contractor's method statement.	N/A		

Ref.	Environmental Objective	Cross-ref. to ES	Action	Responsibility	Target (achievement criteria)	Third-party contact required	Completed? (initial / date)	Notes / further action
			BS5837:2012 Trees in relation to design, demolition and construction – Recommendations					
D3.3	Mitigation planting to replace lost vegetation to integrate the Scheme and provide screening functions in accordance with detailed landscape and ecology design contract documents.	ES Chapter 8, Section 8.7, & Environmental Masterplan	ECoW to make sure subsoil and topsoil profiles are of appropriate depths and soils meet specification (soil analysis) prior to commencement of planting and seeding works. Make sure all gradients and final levels are correct and in line with the Scheme design. Make sure there are no areas susceptible to waterlogging through poor drainage. Make sure soil is prepared in line with the landscape and ecology specification (ground preparation and cultivation). Supply and sow seeds at the correct time of year for each specified seed mix (Mar-May) and in accordance with the specification. Supply and plant trees/ shrubs in accordance with the specification during the next available planting season after completion of earthworks (Oct-March)	Costain	Obtain adequate subsoil and topsoil analysis prior to spreading. ECoW confirms soil and planting methods, during planting works, are appropriate and carries out inspection on completion.	N/A		
D4	**Ecology and nature conservation**							
D4.1	Minimise disturbance to protected species (breeding and wintering birds, barn owls, badgers, bats, water voles and otters)	ES Chapter 9, Sections 9.5, 9.9 and 9.10	Where possible conduct vegetation clearance from late August through to February inclusive to avoid the breeding bird season. If this is not possible works to occur under the supervision of an EcCoW who will set up protective areas around any active nest found until the nest has been abandoned or the chicks have fledged. Where possible fell trees with bat potential between August and November. Night-working should be avoided where possible. If it cannot be avoided, it should be restricted in the vicinity of known protected species commuting routes and valuable areas of foraging habitat for bats and otters (e.g. River Don). Lighting for the operational Scheme should avoid / minimise illuminating habitats adjacent to the Scheme through the use of directional lighting, reduced lighting column height (where appropriate), baffles, cowls, landscaping and the use of screens. No steep-sided, deep and/or water-filled excavations to be left uncovered overnight. Any major excavations that need to be left uncovered	Principal Contractor with guidance from the suitably qualified EcCOW.	Reduce the impact of the Scheme on protected species by reducing number of fatalities and impact on normal behaviour patterns.	N/A		Additional action maybe required if the distribution of protected species was to change. An ecologist's advice should be sought if during construction a protected species is located.

Ref.	Environmental Objective	Cross-ref. to ES	Action	Responsibility	Target (achievement criteria)	Third-party contact required	Completed? (initial / date)	Notes / further action
			overnight should have their slopes battered. If it is necessary to leave excavations open overnight, provide suitable fencing to avoid trapping any animals.					
			Site compounds and storage areas to be located away from known Common Toad breeding ponds (at West Boldon Education Centre) and other aquatic habitats that may support breeding populations of amphibians. EcCoW to be present during site clearance operations in sensitive habitats adjacent to known Common Toad breeding ponds.					
			Regular monitoring of barn owl activity by a suitably qualified EcCoW according to the monitoring programme to be determined through the construction / aftercare programme.					
D4.2	Minimise loss of habitat	ES Chapter 9, Section 9.9	Clearly mark vegetation which is to be lost or retained (including trees and scrubs) with a pre-agreed marking system to avoid encroachment into areas of high value habitat.	Principal Contractor with guidance from the suitably qualified EcCOW.	Minimise and prevent unnecessary loss of vegetation to be retained.	N/A		
D4.3	Minimise pollution	ES Chapter 9, Section 9.9	Store oil, fuel and chemicals according to The Control of Pollution (Oil Storage) Regulations 2001.		Prevent any pollution entering the ecosystem.	N/A		
			Refuel vehicles and machinery in designated locations on an impermeable surface (away from drains and watercourses), following the predetermined method.					
			Make sure the main site compound and fuelling stations have drainage interceptors, temporary drainage system with attenuation ponds to allow the settlement of silt.					
D4.4	Increase biodiversity	ES Chapter 9, Sections 9.9 and 9.10	Proposed landscape planting to include native species of local provenance that provide suitable nesting areas or a source of food at different times of year, such as blackthorn, hawthorn, bramble and teasel.	Main contractor with guidance from the suitably qualified EcCoW.	Provide enhancements in existing retained habitats near the Scheme for bats, bird species and otters.	Relevant landowners, South Tyneside Council and Sunderland City Council		
			Where possible, material from site clearance works to be used to create additional refugia and/or hibernacula within areas adjacent to the three proposed attenuation ponds to improve the suitability of terrestrial habitat.		Provide additional refugia and/or hibernacula for amphibian (e.g. Common Toad) in existing retained habitats near the Scheme.			All subject to 3rd party agreement.
D4.5	Manage risks of unexpectedly finding protected species	ES Chapter 9	If a protected species found on the site during construction, pause works in that area and seek	Principal Contractor	No harm to protected species	Natural England		

Ref.	Environmental Objective	Cross-ref. to ES	Action	Responsibility	Target (achievement criteria)	Third-party contact required	Completed? (initial / date)	Notes / further action
			advice of a professional Ecologist. Use Toolbox talks to train workforce to identify protected species risks.					
D5	**Geology and soils**							
D5.1	Avoid deterioration of soil resources	ES Chapter 10, Section 10.7	Implementation of Soil Management Plan. Undertake soil management operations in accordance with Defra's Good Practice Guide for Handling Soils, with measures including: • stripping of topsoil and subsoil when weather and soil conditions are suitable; • separate storage and management of topsoil and subsoil stockpiles; • return of these soils to the original plots, also in separate layers (where possible and where these plots are not occupied by permanent new infrastructure); • use of appropriate machinery to minimise soil compaction; • relief of any compaction of restored soils; and • surface ripping and, if necessary, under-drainage of restored sites (subject to other environmental constraints, such as the presence of buried archaeological remains).	Costain	Retain soil resources potential to support plant growth			This action is carried forward and included in the Actions required after the end of construction.
D5.2	Minimise soil deterioration and consolidation	ES Chapter 10, Section 10.7	Include drainage at the toe of embankment slopes.	Costain	Prevent ponding of water at the toe of the embankment slope.			
D5.3	Avoid release and spread of contamination.	ES Chapter 10, Section 10.7	Implementation of CL:AIRE Materials Management Plan, including an Inspection and Discovery Strategy.	Costain	Mitigate risks arising from the re-use of site won material. Appropriate mitigation to be detailed in the CEMP.			
D5.4	Avoid release and spread of potentially contaminated dust during construction.	ES Chapter 10, Section 10.7, and ES Chapter 6, Air Quality Also, actions P1.1-1.8 and D1.1.	Use dust suppression systems especially in the area of any mobile screening and crushing plant. Consult local authorities and, if required, obtain any required consents.	Costain	Prevent the generation of nuisance dust. Relevant measures detailed in the Contractor's CEMP.	Local Authority Pollution Prevention Control (LAPPC)		

Ref.	Environmental Objective	Cross-ref. to ES	Action	Responsibility	Target (achievement criteria)	Third-party contact required	Completed? (initial / date)	Notes / further action
D5.5	Reduce environmental pollution from accidental spillages on the highway during the operational phase.	ES Chapter 10, Section 10.7	Implement appropriate pollution prevention measures during any clean up activity.	Costain	Relevant measures detailed in the Contractor's CEMP.			
D5.6	Avoid potentially contaminated run-off from the highway during construction and operational phases.	ES Chapter 10, Section 10.7	Appropriate drainage to collect, treat or contain run-off during operation to be provided.	Costain	Appropriate mitigation measures set out in CEMP and detailed design to collect any contaminated water.			
D5.7	Avoid waste generation and soil disposal off-site.	ES Chapter 10, Section 10.7	Where practicable, treatment of 'unacceptable' material (i.e. material not suitable for use in engineering works) on site to render it acceptable for use in the works (for example, by treatment with lime or cement).	Costain	Adequate earthworks balance achieved.			
D6	**Materials**							
D6.1	Keep material imports to a minimum	ES Chapter 11, Section 11.7	Implement good materials management and good practice construction methods, including use of temporary materials storage areas. Implement and regularly review / update the CEMP, MMP and SWMP, with all construction works aware of measures identified in plans. Monitor through programme of Environmental Auditing and Reporting against the project targets for materials and waste, plus Scheme 'As Constructed' design. If contaminated soils or wastes encountered during the construction works, undertake further investigation, testing and risk assessment to determine whether the soils could either: stay on-site, require treatment to make them suitable to remain on-site, or would need to be disposed of off-site. Where possible, leave hazardous materials (e.g. tar bound planings) in situ where safe and feasible to do so to avoid unnecessary generation of hazardous waste arisings.	Costain	Confirmation that construction is as per design.			
D6.2	Reduce use of natural resources							
D6.3	Keep waste exports to a minimum							
D6.4	Reduce effects of importing materials and exporting waste	ES Chapter 11, Section 11.7	Give preference to nearby sources of materials. Give preference to local waste disposal companies. Implement good practice construction methods and reduce haulage distances and/or need to travel.	Costain	Evidence of measures to reduce effects of importing materials and exporting waste. Use of materials responsibly sourced in accordance with			

Ref.	Environmental Objective	Cross-ref. to ES	Action	Responsibility	Target (achievement criteria)	Third-party contact required	Completed? (initial / date)	Notes / further action
			Monitor impact of energy use in construction through programme of Environmental Auditing and Reporting.		BES 6001:2009 and the UK Government Timber Procurement Policy.			
D7	**Noise and vibration**							
D7.1	Monitoring of construction noise and vibration levels during construction.	ES Chapter 12, Section 12.7	Monitoring of construction noise and vibration levels as required. If noise/vibration levels are elevated locally mitigate, change method of working, temporarily re-house, insulate property etc.	Costain	Provide monitored data to South Tyneside Council and Sunderland City Council. If necessary, mitigation strategy updated.	South Tyneside Council Sunderland City Council Residents	Throughout construction period.	Any assessment based on noise and vibration limits defined in consultation with the local authorities.
D8	**People and communities**							
D8.1	Minimise community severance, maximise accessibility and connectivity during construction	ES Chapter 13, Section 13.7	Implement TMP and site TMP, including temporary signage.	Principal Contractor		Local authority		
			Implement temporary closures and provide alternative NMU access routes / diversions during the construction period	Principal Contractor	NMU access / connectivity maintained	Local authority		
D8.2	Mitigate impacts on agriculture and farm businesses	ES Chapter 13, Section 13.7	Provide replacement access points to severed fields and areas where existing access is lost. Consult landowners so that accommodation works would suit their requirements, where reasonably practicable to do so.	Principal Contractor	Continuity of access / operation for farm businesses.	Landowners		
D8.3			Provision of suitable outlets for existing field drainage systems and continuity of water and other utility supplies.	Principal Contractor	Continuity of drainage and water and utility supplies.	Landowners		
D8.4			Adherence to detailed methodology to reinstate areas temporarily affected by back to agriculture.	Principal Contractor	Reinstatement of areas affected by temporary use back to agriculture.	Landowners		
D9	**Road drainage and the water environment**							
D9.1	Prevent adverse effects on water quality	ES Chapter 14, Section 14.7	Establish the permanent drainage system for the Scheme early in the construction process to reduce the temporary risks of pollution to the water environment during construction.	Principal Contractor	No detrimental effect on water quality during the construction phase			
D9.2		ES Chapter 14, Section 14.7 and Table 14.10	undertake construction work to best practice standards and implement actions in the following plans to control the risk of pollution: • Pollution Prevention Plan. • Method Statements for working with and storing oils and chemicals in line with the requirements of the Control of Pollution (Oil Storage) Regulations 2001.		No spillages or leaks resulting from construction activities during the construction phase.			

Ref.	Environmental Objective	Cross-ref. to ES	Action	Responsibility	Target (achievement criteria)	Third-party contact required	Completed? (initial / date)	Notes / further action
			• Surface Water Management Plan Environmental Incident Control Plan (EICP). • Consent for works in tributary to the River Don.					
D9.3			Operate in accordance with best practice standards.					
D9.4		ES Chapter 14, Section 14.7 and Table 14.10	Implement the measures described in appropriate Method Statements for working with and storing oils and chemicals in accordance with the requirements of the Control of Pollution (Oil Storage) Regulations 2001.					
D9.5			Construction plant must be refuelled in designated areas on an impermeable surface, away from drains and watercourses.		No environmental incidents arising from the construction works.			
D9.6			Make spill kits available at appropriate locations and train site personnel in their use.					
D9.7		Table 14.10	Comply with the Environmental Incident Control Plan (EICP) on site during the works.					
D9.8	Prevent adverse effects on flood risk	Table 14.10	Implement construction phase surface water management plan	Principal Contractor	No increase in flood risk during the construction phase			
D9.9	Comply with Water Framework Directive (WFD)	Appendix 14.3	Implement appropriate mitigation stated in the WFD assessment during construction. Follow sufficient construction method statements (see above).	Principal Contractor	No environmental incidents arising from the construction works.			
D10	**Cumulative Effects**							
D10.1	ES Chapter 14, Section 14.7 and Table 14.10	ES Chapter 15, Section 15.6	Continuing to liaise with the local planning authorities and, as appropriate, third party developers (e.g. IAMP Two) to share monitoring data to inform regular reviews of mitigation measures to manage the Scheme's adverse effects on or risks to habitats and species.	Costain	Reviews of ecology mitigation measures during construction informed by review of wider cumulative effects on or risks to habitats and species.			

Table A1.3-4: Actions required after the end of construction

Ref.	Environmental Objective	Cross-ref. to ES	Action	Responsibility	Target (achievement criteria)	Third-party contact required	Completed? (initial / date)	Notes / further action
A1	**Air quality**							
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
A2	**Cultural heritage**							
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
A3	**Landscape and visual effects**							
A3.1	Mitigate effects of construction works and prevent damage to trees and significant vegetation	ES Chapter 8, Section 8.7, & Environmental Masterplan	Remove rubbish, debris as it arises and leave the construction work and main site compound areas clean and restored to their original use and state prior to construction. Remove all temporary fencing / signs and other structures.	Costain	Inspections by ECoW to confirm suitable making good of areas after decommissioning of site compound and storage areas			Use pre-construction works photos of the temporary affected land to inform site restoration.
A3.2	Mitigation planting to replace lost vegetation, integrate the Scheme and provide screening functions	ES Chapter 8, Section 8.7, & Environmental Masterplan	Aftercare requirement for all landscape planting and seeding maintained, to achieve their full establishment, prior to handover to the future maintaining authority for on-going highway maintenance. Contractor committed to 3 years of aftercare provision, Highways England committed to a period of 5 years to replace any planted tree or shrub that dies or is seriously damaged or diseased.	Highways England	Regular inspections of planting by the ECoW to approve thriving specimens and achievement of plant/ grass sward growth in accordance with contract document specifications.			
A3.3	Maintain long-term maintenance of landscape works and planted areas	ES Chapter 8, Section 8.7, & Environmental Masterplan	Prepare Handover Environmental Management Plan and data for Envis/ soft estate management.	Costain	Provision of Handover Environmental Management Plan and Envis data			
A4	**Ecology and nature conservation**							
A4.1	Minimisation of adverse operational effects from habitat loss, disturbance and severance.	ES Chapter 9, Section 9.10	Confirm, in liaison with stakeholders, aftercare monitoring programme still appropriate and include indicators of success (e.g. establishment of certain species or % cover of certain botanical species)	Principal Contractor appointed EcCoW.	Make sure the mitigation achieved predicted overall effect of the Scheme on the ecosystem.	Natural England, South Tyneside Council and Sunderland City Council (relevant officers) Relevant landowners		Monitoring programme should include actions to resolve any failures in the mitigation measures.
			Monitor the success of the planting proposals (woodland and hedge planting especially) and wetland creation.					
			Bi-annual site visits, during the aftercare period, and environmental record centre record checks to identify recorded barn owl RTAs and general barn owl activity in the area and also to					

Ref.	Environmental Objective	Cross-ref. to ES	Action	Responsibility	Target (achievement criteria)	Third-party contact required	Completed? (initial / date)	Notes / further action
			determine the current status of previous identified roosts/nesting sites (conditional on 3rd party agreement for access).					
A5	**Geology and soils**							
A5.1	To avoid deterioration of soil resources	ES Chapter 10, Section 10.7	Aftercare of restored soils if required. Appropriate cropping of restored soils, for example a temporary grass ley if required, and associated soil nutrient requirements.	Costain	Retain soil resources potential to support plant growth and maintain quality of agricultural land / soils.			
A6	**Materials**							
N/A	None	N/A	N/A	N/A	N/A	N/A	N/A	N/A
A7	**Noise and vibration**							
A7.1	Based upon final Scheme design and as built drawings meet requirements of Land Compensation Act, Part 2 – Reassess the properties that meet the eligibility criteria of The Noise Insulation Regulations.	ES Chapter 12, Section 12.7	Publish list of properties within 300 m that qualify for Noise Insulation, or statement that no properties qualify. Make offers of insulation to eligible properties before construction commences.	Highways England	Identification of eligible properties. Residents accepting offers on insulation.	Residents	Within six months of road opening.	Legal requirement under the Land Compensation Act, Part 2.
A7.2	Based upon final Scheme design and as built drawings reassess the requirements of Land Compensation Act, Part 1.	ES Chapter 12, Section 12.7	Identify all properties where noise levels may change and predict changes for each property. Identify the contribution of the Scheme to the overall noise level for the year of opening and the design year. Take account of changes in design and traffic predictions (if any). Pass results to the District Valuer.	Highways England	Identification any properties eligible requirements of Land Compensation Act, Part 1.	District Valuer	.	To inform consideration of potential claims for Injurious Affection under the Land Compensation Act, Part 1.
A7.3	Assess changes in noise and vibration levels post works	ES Chapter 12, Section 12.7	Undertake noise monitoring at residential locations to establish post-scheme noise levels.	Highways England	Completion of monitoring and publication of survey data / report.	South Tyneside Council Sunderland City Council Residents		There is no requirement to undertake noise measurements, however Highways England generally request post opening noise monitoring.
A8	**People and communities**							
A8.1	Mitigate effects on physical assets	ES Chapter 13, Section 13.7	Return of temporarily used agricultural land to landowners for agricultural use. Relocation of bus stop, if required.	Principal Contractor	Reinstatement of lane and bus stop.	Landowners		
A9	**Road drainage and the water environment**							

Ref.	Environmental Objective	Cross-ref. to ES	Action	Responsibility	Target (achievement criteria)	Third-party contact required	Completed? (initial / date)	Notes / further action
A9.1	Maintenance of attenuation ponds	ES Chapter 14, Section 14.7	Remove contaminated sediment periodically from the attenuation ponds. Undertake regular inspections to ascertain when this action would need to be taken.	Highways England	Maintenance of attenuation ponds			

APPENDIX E: SUMMARY OF KEY LEGISLATION

General			
Legislation	**Scope / Purpose**	**Compliance Requirements**	**Comment(s)**
Highways Act 1980.	Relate to duties and liabilities in relation to road construction and management.	Carry out consultation with stakeholders and ensure information on footpath/road closures will be provided at an early stage.	If consent to close is required this will be applied for and timing constraints built into the programme.
Environmental Protection Act 1990.	To prevent pollution from emissions to air, land or water. *Part III* sets out statutory nuisance provisions that local authorities have in relation to smoke, dust, gas, fumes, steam, smell, accumulation, deposit, noise or vibration that is prejudicial to health or a nuisance.	Applies to windblown dust from stockpiles. Soil stockpiles are to be monitored for wind erosion and mitigation put in place where required (i.e. turfing of stockpiles and damping down of soil). Stored soil may need to be covered and / or wetted to ensure desiccation does not occur.	Comply to ensure that the work complies with the mitigation works detailed in the *Environmental Statement* and in the Schedule of Mitigation and to include necessary measures within the *Health & Safety* file. The Contractor is to prepare method statements relating to dust production, smoke and airborne pollutants.
Planning Act 2008	Sets out the framework for the DCO process for Nationally Significant Infrastructure Projects.	Obtain planning permission prior to carrying out any works outside the Scheme boundary and comply with the specific conditions of any planning consents applied for	The client must ensure that the process is conducted. The Contractor is to ensure that all operations are conducted within the extent of these permissions when granted.
Countryside Rights of Way Act 2000.	Relates to public access and the adoption of core paths.	Access to Rights of Way should be maintained and public notice should be given for any access diversions.	The Schedule of Mitigation lists the requirements in relation to access.
The Construction (Design & Management) Regulations 2015.	Places legal duties on virtually everyone involved in construction work. These are known as ‘duty holders' and include clients, principle designer, designers, principal contractors, contractors and workers.	All works during design and construction to comply with duties held under the *Regulations*. All personnel to competent within the role they are appointed to.	

Ecology & Nature Conservation			
Legislation	**Scope / Purpose**	**Compliance Requirements**	**Comment(s)**
Wildlife & Countryside Act 1981 (as amended).	Provides legal protection for species of flora and fauna and designated sites in UK Britain and allows for a three-stage approach to managing invasive non-native species.	No vegetation clearance shall be undertaken between the months of March to June, inclusive. Where protected habitats and/or species are to be either directly or indirectly affected all impacts shall be mitigated (e.g. bats, birds, fish, otters etc.). Under no circumstances shall there be intentional killing or taking of fauna. Provision shall be made for wildlife to continue to utilise corridors.	An ecological control plan to be developed for the protection of any affected species.
The Hedgerow Regulations 1997	Makes provision for the protection of important hedgerows in England and Wales.	Protection of/or consent for removal is required during works	No such hedgerows within the Scheme footprint.
The Weeds Act 1959	Identifies 5 injurious weeds that are illegal to spread. Natural England can serve an Enforcement Notice on the occupier of land to prevent the spread of: - Common Ragwort (Senecio jacobaea) - Spear Thistle (Cirsium vulgare) - Creeping or Field Thislte (Cirsium arvense) - Broad leaved Dock (Rumex obtusifolius) - Curled Dock (Rumex crispus)	The removal of these species if identified on site must be controlled and/or spread must be prevented.	Not identified but will be included in the ecological control plan for unexpected find during soil stripping.
Natural Environment & Rural Communities Act 2006	Summary of the Requirements (Within England) Part I establishes Natural England, and the Commission for Rural Communities, which replace English Nature and the Countryside Agency. Part III makes additional provision for protection of birds and spread of invasive species. Part IV addresses gaps in the Sites of Special Scientific Interest (SSSI's)	Directly applicable activities: Demolition and site clearance, Earthworks, Site set up, Landscaping, Site reinstatement. When works are likely to impact on areas of interest to Natural England this body must be consulted regarding working practices and plans. Part III makes additional provision for protection of birds, and spread of invasive species	Where licences and/or permits are required these must be obtained ahead of works.

Conservation of Habitats & Species Regulations 2017.	Allows for the designation of SACs, and SPAs and protection of certain species. All protected species listed on the schedules of the *Regulations* are also listed within the *Wildlife & Countryside Act 1981 (as amended).*	Any activities that may affect protected habitat / species, as listed under these *Regulations*, should be discussed with a suitably qualified ecologist.	The Schedule of Mitigation lists all the requirements for protected species and outline SPP's have been provided for those species that may be present on site.

Road Drainage & the Water Environment			
Legislation	**Scope / Purpose**	**Compliance Requirements**	**Comment(s)**
Environmental Protection Act 1990.	Aims to prevent pollution from emissions to air, land or water.	Comply with the mitigation works detailed in the *Environmental Statement* and in the Schedule of Mitigation.	Contractor to ensure that the work complies with the Schedule of Mitigation for the Scheme, and to include necessary measures within the *Health & Safety* file.
The Water Act 2003. *Pollution Prevention and Control Act 1999.*	These aim to prevent the pollution of waters (groundwater, rivers, streams, inland waters, territorial waters and some coastal waters) by making it an offence to cause or knowingly permit any poisonous, noxious, or polluting material, or any solid waste to enter them.	Storage of hazardous materials within construction sites must be secured to avoid ground/groundwater contamination. Offences include allowing spillages, leakages of chemicals / oils, or fire-fighting waters to enter surface water drains. Works in / around any contaminated land must ensure that the risk of migration of contamination into watercourses is avoided. Consent/approval required for any discharge of water to watercourse.	Contractor to prepare method statements to address groundwater and surface water and spillage of fuel and oil. The Contractor to apply for all necessary consents, permits and licences as required. Contractor to prepare drainage method statement, emergency pollution plan and emergency procedures. Contractor to prepare a health and safety file.
Water Industry Act 1991	An Act to consolidate enactments relating to the supply of water and the provision of sewerage services.	Site welfare facilities may be required to seek a trade effluent consent, which would be covered by this legislation.	Contractor to obtain necessary consent from water company
Water Resources Act 1991	To prevent pollution of controlled waters, i.e. virtually all natural waters including inland rivers, streams and groundwater.	All works (temporary or permanent) within 10 metres of a watercourse (or 8 metres depending on some by-laws) requires Consent. Either the EA (in the case of	Refer to the Costain Way: How to Work Near, In, Over or Affecting Watercourses to Prevent Pollution and Environmental Damage

Land Drainage Act 1991	To mitigate flood risk from development	main rivers), the Internal Drainage Board or Local Authority for ordinary watercourses issues the consent.	
The Water Resources (Abstraction and Impounding) Regulations 2006	These Regulations implement the provisions of the Water Act 2003, as they relate to abstraction and impounding licensing.	Requirement to obtain an extraction licence if extracting more than $20m^3$/day from any watercourse.	Contractor to obtain licence if required, guidance is provided in the Costain Way: "How to Dewater and Abstract Surface Water and Groundwater"
Control of Pesticides Regulations 1986	To control the use of pesticides to prevent harm to the environment.	If there is a need to spray a pesticide near a watercourse then a consent from the environment agency is to be obtained.	Contractor to monitor need for pesticide use and if it is required to obtain the consent from the regulator.
The Control of Pollution (Oil Storage) (England) Regulations 2001	Objective of Legislation and Enforcement Authority These Regulations aim to prevent the pollution of controlled waters by oils. Enforcement authority – EA.	These regulations set out the requirements for the safe storage of oil in containers with a capacity of 200 litres or more, that are not underground or within a building. With some exceptions, the container, and any other ancillary equipment must be situated within a secondary containment system, which must be able to hold 110% of the containers storage capacity.	Principles of storage included within Water Management and Pollution Prevention plans.

Waste			
Legislation	**Scope / Purpose**	**Compliance Requirements**	**Comment(s)**
Waste (England and Wales) Regulations 2011	Requires the application of the waste management hierarchy when transferring waste & includes a declaration on waste transfer notes or consignment notes, introduces a two-tier system for waste carrier and broker registration, and excludes some categories of waste from waste controls.	Prior to disposing of material ensure that options other than disposal have been considered. Ensure that all waste movements have the correct permits, licences and transfer information.	

Built Heritage			
Legislation	**Scope / Purpose**	**Compliance Requirements**	**Comment(s).**
Ancient Monuments and Archaeological Areas Act 1979	Provides for nationally important archaeological sites to be statutorily protected as Scheduled Ancient Monuments.	The specific consent of the Secretary of State has to be given for: a) "any works resulting in the demolition or destruction of or any damage to a Scheduled Monument; b) any works for the purpose of removing or repairing a Scheduled Monument or any part of it or of making any alteration or additions thereto; and c) any flooding or tipping operation on land in, on or under which there is a Scheduled Monument". It is illegal to carry out any of the above works to a Scheduled Ancient Monument without consent. If such works will also require planning permission it is advisable that English Heritage/DCMS are contacted to advise on Scheduled Monument Consent prior to application for planning permission. It should be noted that certain activities do not require Scheduled Monument Consent and the class consents are detailed in Ancient Monuments (Class Consents) Order 1994. Advice is offered by the Department of Culture, Media & Sport.	

Planning (Listed Buildings and Conservation Area) Act 1990	Part I requires authorisation for any works to a listed building. Part II requires authorisation for any works to buildings in a conservation area.	Developers of listed buildings must obtain a listed building consent to demolish or to alter a listed building's character. Planning authorities must preserve and enhance conservation areas and they must be taken into account in determining the planning application of developments within them Ensure that the clients/developers have agreed with the planning consents and those procedures are in place for dealing with English Heritage or otherwise. Time constraints for approval of method statements and strict control of the method of works are required. Otherwise the Heritage Act could be enforced.	

Nuisance			
Legislation	**Scope / Purpose**	**Compliance Requirements**	**Comment(s)**
Environmental Protection Act 1990.	*Part III* of the *Act* sets out statutory nuisance provisions that local authorities have in relation to any smoke, dust, gas, fumes, steam, smell, accumulation, deposit, noise or vibration that is prejudicial to health or a nuisance.	Applies to noise and vibration from construction activities, which will be designed to minimise potential affects wherever possible, closely monitored and accompanied by risk assessment.	Contractor to ensure that works comply with the Schedule of Mitigation and to include necessary measures within the *Health & Safety* file. Contractor is to prepare method statements to address noise and vibration, including restricting working hours to minimise disruption to residents caused by noise.
Control of Pollution Act 1974	To control transient noise and vibration nuisances from construction sites.	Consult with the Local Authority over the need to apply for Section 61 Consent	Contractor to, if LA require one after consultation, apply for a Section 61 consent.

Public Rights of Way			
Legislation	**Scope / Purpose**	**Compliance Requirements**	**Comment(s)**
Highway Act 1980	To ensure that new developments are appropriately planned for and include an objective to minimise impact on the environment.	Obtain consent/permission to close any road or highway.	Contractor to obtain necessary permissions
Town & Country Planning Act 1990		Obtain consent/permission to close any road or PROWS.	Contractor to obtain necessary permissions

Other			
Legislation	**Scope / Purpose**	**Compliance Requirements**	**Comment(s)**
Environmental Protection Act 1990, Part II. *Hazardous Waste (England and Wales) Regulations 2005* *Waste (England and Wales) Regulations 2011* *The Waste (England and Wales) (Amendment) Regulations 2012*.	These acts / regulations serve to regulate and license the disposal of controlled waste. All parties must ensure safe storage of waste. A legal duty of care is placed upon waste producers, carriers and disposers to ensure that waste is not illegally disposed, dealt with without a licence or in a way that causes pollution or harm. Waste must be prevented from escape, transferred only to authorised people, and accompanied by written descriptions.	Comply with the mitigation works detailed in the Environmental Statement and in the Schedule of Mitigation. A Waste Licence is to be applied for and obtained for any waste that is to be disposed of offsite. The transfer of waste is to be accompanied by a transfer note and a written description of the waste. This must be checked and signed by the transferor and transferee. Waste transfer notes must be kept for two years and may be inspected by an overseeing Statutory Environmental body. Waste disposal Contractors must be licensed.	Contractor to ensure that the work complies with the Schedule of Mitigation for the Scheme. Removal of waste and spoil from the site is to be kept to a minimum through on-site storage where possible. Duty of care transfer notes to be maintained and filed accordingly. Contractor to prepare a Health & Safety file and a waste management plan. Waste is to be streamed accordingly. Where necessary, separate skips must be on site for the disposal / recycling of wood, solvents, oil etc. It will be the responsibility of Costain to apply for a Waste Licence.

Other			
Legislation	**Scope / Purpose**	**Compliance Requirements**	**Comment(s)**
Environmental Permitting Regulations (2016)	(Consolidation regulations) – Replace the system of waste management licensing under Part II of the EPA 1990 and the Waste Management Licensing Regulations 1994 (as amended), and the system of permitting in the Pollution Prevention and Control (England & Wales) regulations 2000, with a new system of permitting in England and Wales. They also implement the Landfill Directive 1999/31 and Decision on acceptance of waste at landfill 2003/31 in England and Wales. It also revises the requirements for waste management exemptions. Summary of the Requirements • All those arranging the disposal or recovery of controlled waste on behalf of another to be registered as a broker. • Any regulated facility disposing of or treating waste must hold an Environmental Permit, unless it is an Excluded or Exempt waste operation. (Exempt waste operation is as listed in Schedule 3 -still needs to be registers with the appropriate registration authority and must be renewed every 12 months) Environmental Permitting Regulation 2016 revised and replaced all amendments of these regulations and brought water discharge/flood defence consent works under the permitting regime replacing land drainage and water pollution regs.	Any disposal license, PPC permit, waste management license or EA issued flood defence permit, in force at the time these regulations come in to force becomes an Environmental Permit all other new application shall be environmental permits.	Contractor to ensure that any such licences are obtained ahead of works taking place. This includes for any subcontractor operations.
Environment Act 1995	Established the Environment Agency.	Liaise with the regulator and work within the legislation.	Contractor to be aware of the legislation and compliance requirements

Other			
Legislation	**Scope / Purpose**	**Compliance Requirements**	**Comment(s)**
Regulatory Position statement 178 *Treatment and disposal of invasive non-native plants*	To bring some control of invasive species within the RPS system when dealing with volumes below specified criteria as outlined with the RPS.	Assess the Position statement for suitability on site specific detail and submit the required information to the EA.	

APPENDIX F: ENVIRONMENTAL CONSENTS CHECKLIST (DRAFT)

Activity	Consent Requirement	Approx. Time required (Time required by granting authority excludes consent preparation)	YES	NO	Who Obtaining
WATER					
Will more than 20m^3 per day (10m^3 in Scotland) of water be dewatered from an excavation or the ground?	An abstraction licence may be required prior to dewatering from the *Regulator**. In Scotland if over 10m^3 the abstraction must be registered or authorised by a simple or complex permit depending on quantities	Full Licence – 4 months Temp Licence/Registration – 1 month	✔		If abstraction licence is required this will be Costain to obtain.
Will any surface water be discharged into controlled waters or groundwater?	Consult with the *Regulator**. No permit is required for unprocessed clean surface water discharge to controlled water but consultation is required.	Consultation	✔		Liaison to be held with EA and LA(s) by Costain to establish requirement
Will any contaminated water/surface water/groundwater be discharged into controlled waters?	A discharge permit is required from the *Regulator** In Scotland the discharge must be registered or authorised by a simple or complex permit depending on quantities	30 days for a registration / 4 months for a licence		✔	
Will any contaminated water (incl. silt) /surface water/groundwater be discharged to the sewer?	A Trade Effluent consent or commercial agreement from the sewerage undertaker	2 Months		✔	
Will any water be abstracted from controlled waters?	An abstraction licence is required from the *Regulator**	3 Months	✔		If abstraction licence is required this will be Costain to obtain
Will any of the works be within 10 metres of any **main** watercourses or flood defences? Will any works, temporary or permanent, be completed in, on or under the watercourse (bridge, pipeline etc.)?	An Environmental Permit from the EA for main rivers for new applications post Apr 2016. Flood Risk Activity Permit (from NWR in Wales) In Scotland the works must be registered or authorised by a simple or complex permit depending on quantities. Note some works do not require registration- check with	2 Months SEPA: 30 days for a registration/ 4 months for a licence	✔		Costain from EA for headwall and culvert extension, likely to be covered by the Testo's scheme for headwall on River Don.

Activity	Consent Requirement	Approx. Time required (Time required by granting authority excludes consent preparation)	YES	NO	Who Obtaining
	SEPA				
Will any of the works be within 10 metres (may be 8 metres dependent on local bylaws) of any **ordinary** watercourses or flood defences which could affect the watercourse flow?	An environmental permit is no longer required from the EA (post Apr 2016) however land drainage consent from local council or internal drainage board may be required.	2 Months		✔	
Will the work include installing, maintaining or removing of structures close to a canal?	Licence likely to be required from Canal and Rivers Trust (England and Wales) or Scottish Canal.	3 months in advance of works, or 12 months if closure.		✔	
Will any pesticides be used in close proximity to a watercourse?	Any application of a pesticide (including herbicies, fungicides, insecticides, molluscicides, rodenticides, growth regulators and masonry and timber preservatives) within 10m of watercourse, including canal, ditch, river or estuary.	2 months	✔		May be used at Headwall location. Costain to obtain, likely to be covered under the Testo's scheme.
Groundwater Source Protection zone (SPZ)	When working within a Groundwater Source Protection Zone (SPZ), you should contact your local regulator to discuss the work being undertaken. The SPZ is an area designated around a groundwater source, the maximum extent of which is the catchments area for the source and within which the Regulator seeks to limit the processes and activities that can occur within that area	4 Months		✔	Site is outside of the SPZ for ground water. (Need to review map for any changes between now and site start)
WASTE					
Is waste (& recycled material) to be treated, deposited, disposed of or reused on site?	A Waste Exemption (or Waste related Environmental Permit) is required from the *Regulator**	5 Days or 3 Months depending on activities and quantities		✔	T15 for Aersol crusher others to be reviewed, to be installed within Testo's compound and is therefore covered under the Testo's CEMP

Activity	Consent Requirement	Approx. Time required (Time required by granting authority excludes consent preparation)	YES	NO	Who Obtaining
Will the site be producing Hazardous Waste? (Note: All construction sites in **Wales only** are required to register)	Registration is required in Wales with NRW who will then issue a registration code to be quoted on all hazardous waste transfer notes. In England unique numbering of consignment notes is required (6 digit Company name (COSTAI)/ 5 digit alphanumeric specific to that particular waste movement) for example: - COSTAI/1234A	Immediate	✔		Costain to check HWCNs.
Is the site intending to crush or screen material for reuse?	A Mobile Plant Permit (Part B Authorisation) is required from the Local Authority. A waste permit and deployment form may also be required.	Subcontractor to provide copy of the permit		✔	To be reviewed as works progress
CONTAMINATED MATERIAL					
Will any contaminated material be processed on site for reuse or prior to disposal?	A waste permit and deployment form from the *Regulator** may be required.	3 months/ Varies		✔	Not anticipated.
NOISE					
Does the Local Authority, Contract or Client require Section 61 consent or would it be beneficial due to night working etc.?	This can be obtained from the Local Authority under discussion	28 Days but up to 3 months to prepare			To be confirmed through liaison with LA.
ECOLOGY					
Will the works affect a Site of Special Scientific Interest (SSSI)?	Consent required from Natural England, Scottish Natural Heritage or Natural Resources Wales	1-4 Months		✔	
Will the works affect any protected species?	Obtain licence to disturb from Natural England, Scottish Natural Heritage or Natural Resources Wales	1-4 Months		✔	Otters are known to be nearby but no EPS licencable works anticipated.
Will any hedgerows have to be removed?	Consent required from Local Authority	42 Days	✔		Via DCO process
Will the works require the removal of trees protected by a Tree Preservation Order or within a conservation	Consent is required from Local Authority	TPO: 8 weeks. Conservation Area: 6 weeks	✔		Via DCO process

Activity	Consent Requirement	Approx. Time required (Time required by granting authority excludes consent preparation)	YES	NO	Who Obtaining
area?					
ARCHAEOLOGY & HERITAGE					
Will the works affect a Listed Building or Conservation Area?	Consent is required from Local Authority	8 Weeks		✔	To be confirmed after advanced surveys
Will the works affect a Scheduled Ancient Monument?	A scheduled ancient monument consent is required from the Local Authority or Secretary of State	No time Limit		✔	To be confirmed after advanced surveys
Will the works affect an area of Archaeological Importance?	Notify Local Authority of operations before start of works	Notify 6 weeks prior to works starting		✔	To be confirmed after advanced surveys
Will any human remains be removed or burial grounds affected?	A licence from the Ministry of Justice is required. Contact the Local Authority.	Several days for Human Remains; up to 3 months for burial grounds		✔	To be confirmed after advanced surveys
MARINE					
Are works of a marine nature or within the coastal zone?	Various consents/licences are required depending on area of works - refer to Marine Management Organisation or Natural Resources Wales	Various but could be up to 10 weeks or more.		✔	
Note: *Regulator refers to Environment Agency (England); Natural Resources Wales, Scottish Environment Protection Agency, Inland Drainage board or local authority as applicable					

APPENDIX G: DUST, NOISE & NUISANCE MANAGEMENT PLAN

ASPECT/ACTIVITIES

The purpose of this procedure is to describe the measures to be taken to minimise the risk of dust, noise and vibration and other nuisance-related pollution as a result of work on the construction site. Scheme nuisances can have effects on local residential properties, businesses and other facilities, road users, people using public rights of way or publicly accessible spaces and environmentally sensitive areas (e.g. Local Wildlife Sites). Section 8 of this outline CEMP contains an initial list of potentially sensitive areas specific to the Scheme.

The aim is to prevent negative impacts by reducing or controlling those aspects of construction that may result in high levels of noise, vibration issues or nuisances. Costain would also control other aspects of the works so as to minimise the nuisance factor that our activities and assets might impart upon sensitive receptors.

RESPONSIBILITIES

Site Management - Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken and to make the complaints log available to the local authority when asked. Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the log book

Contract Leader – to ensure effective management of the works in line with the Employer's and any other Requirements/agreements regarding nuisance. Also to ensure any requirements are communicated on to contractors.

Site Agents, and Traffic Safety and Control Officer - to provide information on programme and timing of works, and issue to the Environmental advisor and Public Liaison Officer. To review the resources, work and hours worked to reflect agreements reached with the Local Authority and then to provide additional information, should it be necessary for over-runs, variations and night time working.

Environmental Advisor - responsible for the preparation of management of noise-monitoring as required and for reporting the results to the site team, Environmental Health Officer (EHO) and Employer's Site Representative.

Community Liaison Manager - for receiving noise related comments or complaints from scheme neighbours and liaising with the site team to provide responses to the complainant, EHO and Employer's representative Additionally the PRO shall Communicate to neighbours in advance of commencing potentially disruptive works which may give rise to complaints.

CONSENT REQUIREMENTS

The Scheme shall:

- Comply with any EHO requirements
- Issue variation/over run and night work consents (if necessary)
- Provide data to EHO when requested
- Record and review data

To minimise the environmental impacts of the Scheme both during construction and once the Scheme is open, as defined within the Environmental Statement.

Advise Local Authorities where it is deemed that the work will require communication with members of the public.

GENERAL CONTROL MEASURES

Strategies for Noise Control

The Scheme Environmental Aspects Register, to be contained within the CEMP, includes significant environmental attributes which may give rise to noise, vibration and other nuisances. Controls from this procedure will be applied to mitigate the impact of the Scheme's activities as far as is reasonably practicable.

The Project Management Team recognises the importance of maintaining good relations with nearby residents. This also includes any other sensitive receptors with which Costain interacts in order to avoid conflict and present Costain in the best possible light. Therefore local residents shall be informed of works programmes, emergency or unscheduled works.

Frequent inspections of the site will be undertaken to ensure that it remains in a good state and all housekeeping issues are under control, with the intention of developing positive public perception in respect to the Scheme.

Adhere to the codes of practice for construction works and piling given in the British Standard BS 5228:2014 and the guidance therein for minimising noise emissions from the site.

We can reduce or avoid noise by:

- Control at source (e.g. silencers, vibration dampers, enclosure, construction method, selection of plant);
- Control along path of noise from source to receiver (e.g. barriers, screening, location of plant);
- Control at receiver (e.g. noise refuges, ear defenders);
- Adequate maintenance of plant and equipment;
- Switching off plant and equipment when appropriate; and
- Programming works so that the requirement for potential nuisance causing works normal working hours is minimised (taking into account the highway authority's statutory duties under the Traffic Management Act 2004).

Our site management teams shall employ best practice and consider the timing, duration and phasing of construction activities to cause minimum nuisance to sensitive receptors where practicable and reasonable.

All ancillary plant such as generators, compressors and pumps to be positioned so as to cause minimum noise disturbance. If necessary, acoustic barriers or enclosures to be provided where appropriate.

Consideration shall be given to the site establishment to ensure that low noise generators are used for the structures compounds. Use of hybrid generators to facilitate run on battery overnight shall be investigated.

Strategies for vibration control

Where there is potential for significant vibration the following shall be carried out:

- Evaluate the potential for vibration and thereby damage;
- Carry out vibration monitoring at the associated location;
- Inform neighbours of works and control measures; and

Minimise effects during works through:

- Selection of plant and method (e.g. piling, rollers);

- Removal of obstruction that cause/add resonance (e.g. concrete bases);
- Use of Cut-off trenches to disrupt direct vibration movement through the ground; and
- Use pre-bores for piles.

Background Noise Monitoring for Baseline

In order to establish baseline levels for construction it is recommended that measurements are taken using a Class 1 Noise meter prior to any works taking place. It is proposed that these measurements shall consist of an La90/20minutes taken during suitable weather conditions for daytime, 0700-18:00, evening 18:00-23:00 and overnight, 23:00-07:00, time periods. The results of these shall be held on site. The timings of any monitoring shall be targeted to reflect the time periods that it is expected that any noisy works may take place.

These are the only proposed measurements that are to be obtained during the construction phase. Other reactionary monitoring is to be conducted only if required, such as in the event of a complaint.

Strategies for vibration control

Where there is potential for significant vibration the following shall be carried out:

- Evaluate the potential for vibration and thereby damage;
- Carry out vibration monitoring at the associated location;
- Inform neighbours of works and control measures; and
- Minimise effects during works through:
- Selection of plant and method (e.g. piling, rollers);
- Removal of obstruction that cause/add resonance (e.g. concrete bases); and
- Use pre-bores for piles.

Piling Works Monitoring

Monitoring for vibration shall be undertaken during piling works within the existing roundabout with specific reference to ensuring there is no effect on Utility Services within this area. Specific trigger thresholds are to be agreed with the statutory undertaker and will be included in the operation specific RAMS.

Strategies for dust control

In order to minimise any potential emissions of fugitive dust during the construction phase (and hence minimise potential impacts), the CEMP would adopt best practice measures to control fugitive dust. These measures (based on those outlined by the Institute for Air Quality Management[1]) are detailed below. These are general site risk mitigation measures for on-site construction activities, and a High Risk site for track-out associated with construction vehicle traffic.

Monitoring:

- Undertake regular on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of site boundary, with cleaning to be provided if necessary.
- Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked.
- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

[1] Institute for Air Quality Management (2014) *Guidance on the assessment of dust from demolition and construction.*

Preparing and Maintaining the site:

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
- Fully enclose site or specific operations where there is a high potential for dust production and the site is actives for an extensive period.
- Avoid site runoff of water or mud.
- Keep site fencing, barriers and scaffolding clean using wet methods.
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site.

Construction operations:

- Ensure an adequate water supply on the site for effective dust/particulate matter.
- Suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.

Measures specific to track-out

- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.
- Avoid dry sweeping of large areas.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
- Record all inspections of haul routes and any subsequent action in a site log book.
- Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
- Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
- Access gates to be located at least 10m from receptors where possible.

Strategies for visual intrusion and traffic control

Lighting for the site compounds and for night works on the Scheme sites shall be designed to provide a safe and efficient working environment for the site but also to prevent or minimise light spillage into the neighbouring houses and other buildings. Consideration must be given to:

- The use of appropriate directional lighting;
- Direct light downwards wherever possible;
- If the above is not possible, try to use lighting designed to minimise light spread above the horizontal; and
- If up-lighting is unavoidable use baffles to keep light spill to a minimum.

Specific consideration and care will be given in positioning floodlights to avoid light spill outside the compound unless it is for lighting roads as part of the contract.

The site team shall where appropriate provide barriers to the site perimeter to reduce the any negative visual impact of the site for nearby residents and to provide a certain level of site security against theft and vandalism.

Site parking and delivery areas will be clearly marked up within the site compound and all traffic deliveries are co-ordinated to cause the minimum amount of disruption to the local community. A detailed traffic management plan would be developed and communicated to all subcontractors and suppliers so they may contribute to the mitigation of this aspect.

Sub-contractor control

Sub-contractors whose works are likely to give rise to noise and vibration issues shall be required to develop within their method statements control measures to mitigate identified impacts and that these control measures shall be communicated through to their staff through the use of site inductions and toolbox talks, with liaison with the SHE team.

In addition, the requirements of the EHO will continue to be communicated to sub-contractors during site inductions, Scheme briefings and start of shift briefs.

General nuisance control measures

Sensitive receptor locations, currently identified are listed below;

- Make-me-Rich Farm
- Residences on Downhill Lane
- Town End Farm estate (Capetown Rd, Baltimore Avenue, Boston Street and Boston Crescent)

At these locations the following mitigation measures will be implemented where applicable and practicable;

- Construction activities are restricted to a discrete working area in close proximity to residential premises where controls can be better maintained.
- The working method will be developed specific to the area and will consider use of equipment and methods of operations to minimise nuisance;
- Whenever possible carry out fabrication off site;
- All plant and machines in intermittent use to be shut down in intervening periods between work or throttled down to a minimum;
- Ensure proper use of plant with respect to minimising noise emissions with regular maintenance. All vehicles and mechanical plant used for the purpose of the works to be fitted with exhaust silencers and to be maintained in good working order;
- Minimise the drop height in to hoppers, lorries or other plant;

The majority of construction works will normally take place within the working hours of 07:30–18:00 Mondays to Fridays and 08:00–13:00 on Saturday except for—
(i) night-time closures for bridge demolition and installation;
(ii) any oversize deliveries or deliveries where daytime working would be excessively disruptive to normal traffic operation;
(iii) junction tie-in works;
(iv) removal of overhead power lines;
(v) overnight traffic management measures;
(vi) cases of emergency; and
(vii) as otherwise agreed by the local authority in advance;

There are also likely to be extended working hours in the summer months for the earthworks operations to take advantage of the weather / daylight. These arrangements are to be agreed with the Local Authority in advance.

Further guidance

Further guidance can be obtained from CIRIA C692 *Environmental good practice on site guide* and BS5228:2014 Noise on Construction Sites. Alternatively, contact the site Environmental Advisor, as under the Control of Pollution Act Costain have a duty to work to 'best practical means'.

Monitoring and measurement

Noise level measurements will be carried out as agreed with the Local Authorities (principally South Tyneside Council, but also possibly Sunderland Council for works at the far southern end of the Scheme). Suitably trained staff will be tasked with undertaking the noise measurements on site.

Where a member of the public has made a complaint, the complaint must be registered in accordance with the site complaints procedure; for further information on the Complaints Procedure please refer to the Public Relations Manager.

In the Event of an Emergency

The following people must be contacted in an emergency either/or:

Name	Position	Contact Number
	SHE Manager	
	Env. Manager/advisor	
	SHE Advisor	
	Works Manager	

APPENDIX H: SITE WASTE MANAGEMENT PLAN

Declaration of intent
The client and principal contractor will take all responsible steps to ensure that: a) all waste from the site is dealt with in accordance with the waste duty of care in Section 34 of the Environmental Protection Act 1990 and the Environmental Protection (Duty of Care) Regulations 1991, and b) materials are handled efficiently and waste managed appropriately in accordance with the SAVE IT principles and contribute to meeting Costain's commitment under Halving Waste To Landfill.

SWMP Prepared by	Signed on behalf of Client	Signed on behalf of Principal Contractor
Sign:_ Print: Date:	Sign:_ Print:: Date:	Sign: Print: Date:
Version:	Date Issued: Reviewed:	

Introduction

This Site Waste Management Plan (SWMP) has been developed to ensure materials on site are managed efficiently, waste is disposed of legally and material recycling, reuse and recovery is maximised. This SWMP complies with the requirements of the Site Waste Management Plans Regulation 2008 (now rescinded).

The plan identifies how Duty of Care requirements and other Waste Management Legislation is to be complied with and details how waste will be eliminated, reduced, reused and recycled in accordance with Costain 'SAVE IT' campaign principles and, if required, disposed of correctly.

For guidance on the completion of the plan see SHE-H-448 How to Plan for Materials and Waste on Site including Production of a Material and Waste Management Plan.

Scheme Details including Aspects / Activities

Client	Highways England					
Principal Contractor (PC)	Costain Limited					
PC Construction Contract Leader	Craig Snow					
Site Waste Coordinator	TBC					
Scheme Description	The Downhill Lane junction improvement aims to provide enhanced capacity on the junction between the A19 and the A1290 supporting plans for local manufacturing developments.					
Scheme location	South Tyneside					
Scheme cost (estimated)	£TBC					
Building Footprint (m3), if applicable	N/A					
Start date	**Day**		**Month**		**Year**	
Completion date	**Day**		**Month**		**Year**	

Responsibilities

The Costain Contract Leader is responsible for instructing workers, overseeing and documenting results of the SWMP.

SHE Inspections including the SHE Scored Inspection will monitor the effectiveness and accuracy of the documentation.

Copies of the plan, via distribution of the HASEMP, will be distributed to the CDM Coordinator, Client, Site management team and each Subcontractor.

Everyone on site has a responsibility for waste management issues. Toolbox talks and site inductions will be given to the entire workforce to ensure any measures /procedures/practices implemented through this plan are adhered to effectively.

1. Personnel

Responsibility	Person(s) Responsible
Name of Client Representative	
Name of Designer Representative	
Name of PC Site Representative	

2. Disposal of Waste

Party	Responsible for waste types
Costain	General construction wastes. Effluent. Consumables. Office waste – paper, cardboard etc. Food waste. Wood.
Earthworks sub-contractor (TBC)	Excavated material, including topsoil
Pavement sub-contractor (TBC)	Planings
Lighting and sign subcontractor (TBC)	Redundant Street furniture – Lighting columns and lamps, Road signs and posts etc. Redundant cable. Waste remains responsibility of Costain
Road restraint systems sub-contractor (TBC)	Redundant road restraint systems (metal) Waste remains responsibility of Costain

3. Waste Targets

Costain sets targets for waste management on a periodic basis the below are example targets and will be confirmed upon Scheme commencement to reflect the company targets at that time.

- 100% of inert waste diverted from landfill
- 90% of all waste diverted from Landfill

(Waste measures will be included on the Site Waste Register).

Highways England requirements:

Costain to return Carbon Calculator to HE on a quarterly basis to provide data on:

- Energy
- Materials
- Transport
- Waste
- Recycling

Scheme Specific KPIs:

[To be confirmed in the approved CEMP nearer to construction start]

Progress against Waste management targets and any associated issues will be discussed at relevant Scheme progress meetings.

Waste Management

Predicted Waste Streams

Table H1: Predicted Waste Streams and Identification of options to minimise waste

Waste material	EWC Code	Waste classification (inert, non-haz, haz)	Predicted quantity (m^3)	A Design Options to minimise waste identified Y/N (Options /opportunities identified within this column transfer to Table B)	Waste Management Options			
					B On site reuse or recycling Y/N (Options/ opportunities identified within column transfer to Table D)	C Onsite segregation with offsite recycling or reuse Y/N	D Offsite sorting: sent to transfer station or exempt site Y/N	E Disposal at Landfill (Y/N)
						If there are any options/opportunities identified within this column transfer to Table E		
Surplus Excavated material (Acceptable)	17-05-03	Non-haz						
Surplus Excavated material (Unacceptable)	17-05-03	Non-haz						
Topsoil	17-05-04	Non-haz						
Hardstanding/ road surfaces. (Bituminous)	17-03-01	Non-haz						
Concrete	17-01-01	Non-haz						
Vegetation	20-02-01	Non-haz						
Paper/cardboard	20-01-01	Non-haz						
Wood	17-02-01	Non-haz						
Metals (non-ferrous)	17-04-07	Non-haz						
Plastic	17-02-03	Non-haz						
Sewage (Temp Tanks)	20-03-04	Non-haz						
General waste	17-09-04	Non-haz						
COSHH	15-01-10	Hazardous						
Batteries (Ni Cd)	20-01-33 16-06-03	Hazardous						
Canteen / Food waste	20-01-08	Non-haz						

Design Options for Reducing Waste

Detailed below are the opportunities identified to eliminate or reduce waste through redesign as identified in Table H1 Column A.

[Methods and savings to be included in the table below during detailed design.]

Table H2: Waste Reduction Opportunities

Material	Estimated reduction in waste (i.e. what waste has been eliminated)		Specify method by which reduction was achieved	Will planning permissions be required for the change?	Cost savings from reuse of material on site (£)	Persons responsible for completing action
	Vol (m^3)	Mass (T)				
Surplus Excavated material (Acceptable)						
Surplus Excavated material (Unacceptable)						
Hard standing / Road Surfaces (Bituminous)						
Vegetation						

Importing Recycled or Recovered Material or Aggregates

Detailed below are the recycled materials including aggregates, which are to be imported on site.

Note: Imported materials are those which are brought to the Scheme for inclusion into the permanent works. Recovered materials are those which are recycled or reused potentially including top-soil materials from demolition works, material from a recycled aggregated supplier.

Table H3: Recycled or Recovered Materials and Aggregates

Material	Estimated quantity		Supplier	Process Facility License/Permit or exemption number*	Copy of grading certificate to ensure material meets specification (e.g.6F2) * (Y/N)	Copy of chemical analysis to ensure suitable for use* (Y/N)	Evidence of compliance with WRAP Quality Protocol*	Date of Visual Inspection of suppliers facility*	Estimated savings from importing recycled aggregate over virgin material (£)
	Vol (m3)	Mass (t)							

* Prior to importing recycled/recovered aggregates, it should be ensured that we have obtained a copy of either the Environmental Permit/waste management licence or waste exemption under which the material was processed. We should also obtain assurances that the material we are importing is a product and not a waste. This can be a quality control procedure or method statement with a declaration that the material has been recovered in line with the WRAP quality protocol. See Waste

and Materials Management section of the SHE Procedures & Guidance manual or contact your SHE/ E Advisor for further information.

Note: If these assurances cannot be obtained, the material will need to be imported under a waste exemption or an Environmental Permit which can take up to 3 months to obtain from the Environment Agency.

Planning the Re-use of Materials on Site

Detail here the methods adopted and the saving made for each type of waste identified within Table H1 Column B, which can be reused on site.

Table H4: Reuse of Material on site

Material	Estimated quantity		On site re-use / recycling (Specify method and use)	Will a Waste Exemption/Environmental Permit be required to reuse the material on site?*	Proportion of total waste materials (%)	Cost savings from reuse of material on site (£)
	Vol (m^3)	Mass (T)				

Statutory/Consent requirements

Detailed below are waste management exemptions or Environmental Permits, which are required on this contract.

[To be completed]

List of Carriers and Waste Disposal Facilities

SEE SITE WASTE REGISTER FOR UP TO DATE LIST (to be completed)

All waste contractor documentation is to be verified with the Environment Agency. Records of checks on licenses made with the EA should be retained on site either on a communication log or written on the copy of the license. Information retained should include the date, the name of the person checked with (from the EA), checks on what the carrier/waste management facility can carry/accept and the person completing the checks (i.e. Costain member of staff).

Where transfer stations are being used, a list of names, addresses and license numbers are to be obtained and retained on site for the waste disposal or recycling facilities used by the transfer station.

* Obtain confirmation from the transfer station or recycling facility of their official recycling rate (%) for the different waste streams sent to the facility. These figures should then be quoted in the site waste register and recycled materials register.

Control Measures and Training Requirements

On site control measures

Detailed below are the site-specific controls and general management issues

- Clearly identifiable segregated waste streams to maximise recycling percentages and prevent

cross contamination

- Designated hard standing area for skips in compounds
- Eliminate unnecessary wastage by providing flat accessible areas for storage of materials to avoid damage / loss.
- Retain materials in their packaging for as long as possible to protect them from damage prior to use.
- Cover skips to prevent air dust emissions and preventing ingress of rain.
- Assign a Save It Champion to drive through the message of Waste Minimisation.

Training Requirements

The requirements of this plan will be briefed to the relevant persons on the contract including subcontractors. Relevant information will be included at site induction.

Information on the management of waste will also be discussed at the daily start of shift briefing where applicable.

Hazardous Waste

Hazardous waste registration is no longer necessary.

All hazardous waste that is to be disposed of from site must be accompanied by a hazardous waste consignment note for which the note code includes 'COSTAI' as the first 6 digits for the alphanumeric code.

Monitoring and measurement

On site monitoring

Monitoring of the implementation of control measures is conducted by weekly SHE inspections carried out by the Site team and by the Contract Leader's monthly Environmental Inspection.

We will continually review the type and quantity of materials arising on site and change the site set up to maximise on reuse or recycling and the use of landfill will be the last option.

This SWMP and the Waste Recycled Transfer Register will be included as an agenda item at the monthly construction meetings and progress communicated.

Occasionally a skip lorry / muck-away wagon will be followed to ensure compliance

Waste records and reporting

The Site Waste Register and Material Import Register are to be completed on a monthly basis and details of waste volumes and disposal locations is to be submitted to Costain via Capture. This data is imported one month in arrears by the 3rd of the month (e.g. January waste data to be submitted by March 3rd). Information within the report includes waste removed from site and recycled materials/waste imported for use on site. This report and figures will be discussed at the relevant progress meetings.

These must be retained as a record of the waste produced on site and should be used during the six monthly and final reviews

Review

This Site Waste Management Plan will be reviewed and updated at least every six months during the construction phase by completing the six monthly review at the back of this appendices. The plan will be updated to reflect the progress of the Scheme.

A Final Review must take place within three months of Scheme completion by completing a Final Site Waste Management Plan Review at the back of this ECP. Once the Scheme has been completed and the Final Review carried out, it is necessary for this document and the review documents to be

kept for at least two years. Note – the requirement to review is included within the Project Review Agenda, part of IBP.

Table H5: SWMP Reviews

Review	Date	Signature
Initial completion date of SWMP		
First review		
Second six monthly review		
Third six monthly review		
Fourth Six monthly review		
Insert as appropriate		
Final review of SWMP		

In the Event of an Emergency/Environmental Incident

Any pollution incident or breach of operating conditions stipulated in a consent / agreement will be managed in accordance with the Site SHE Incident Response and Emergency Plan. If such a breach is identified these should be notified to one of the following:

Name	*Position*	*Contact Number*
	SHE Manager	
	Environment Manager/advisor	
	SHE Advisor	
	Works Manager	

Related Documents

Additional information/guidance can be obtained from the following sections of the Costain Way:

- SHE-H-444 How to Reuse Waste Materials and Apply for Waste Exemptions or Permits;
- SHE-T-447 How to Manage Waste on Site and Remove; and
- SHE-H-448 How to Plan for Materials and Waste on Site including the Production of a Materials and Waste Manage.

Six Monthly Site Waste Management Plan Review

Scheme Name	
Scheme Address / Location	
Contract Leader	
Environmental Advisor	
Date completed	

Check	**Response**	**Action**	**Date completed**

Review completed by	Position	Signature

Final Site Waste Management Plan Review

The final review of the SWMP is a legal requirement and must be completed **within three months** of the Scheme completion. The SWMP must be kept for **2 years** following Scheme completion.

Scheme Name	
Scheme Address / Location	
Contract Leader	
Environmental Advisor	
Date completed	
Estimated cost savings from the implementation of the Site Waste Management Plan	
Are the predicted quantities of waste being exceeded? Compare predicted quantities to actual figures from the waste Register.	
Explain any deviations from the plan.	
Record KPI's and whether KPI's and/or targets have been met	
What lessons can be learnt for future schemes?	
Detail the Environmental Permits which have been surrendered on completion of the Scheme.	
Any other relevant information or best practice	

Scheme Performance

Overview

Total waste produced (tonnes)	Total waste diverted from landfill (tonnes)	Total waste reused/recycled onsite (tonnes)	Total waste reused/recycled offsite (tonnes)	Total waste sent to recycling facility (tonnes)	Total waste sent to landfill (tonnes)

Performance Monitor

KPI	Units	Benchmark	Result	Comment
Total waste/£100k	tonnes			
Waste to landfill/£100k	tonnes			
Waste diverted from landfill	%			

Confirmation that the plan has been monitored at least six monthly to ensure that work has progressed according to the plan and that the plan was updated in accordance with the Regulations.

Final review completed by	Representing	Signature	Date
	Client		
	Principal Contractor		

APPENDIX I: ENVIRONMENTAL CONTROL PLAN: INVASIVE SPECIES

Aspect/Activities

All works in the vicinity of or affecting invasive species shall be managed to prevent the spread of such plants. The locations of these plants are shown on drawings to be completed.

The Scheme footprint does not include any invasive species (ES 9.5.103). However the following species are known to be present within the adjoining Testo's scheme and so could be present in the environment:

- Japanese knotweed
- Himalayan balsam

All of these species are contained in scheduled 9 of the Wildlife and Countryside Act and as such it is an offence to plant or cause to grow a non-native invasive species in the wild

Responsibilities

- *Contract Leader* – to ensure effective management of the works in line with the Employer's, legal and any other Requirements/agreements regarding Invasive species. Also, to ensure any requirements are communicated on to contractors.
- *Site Agents* – to provide information on programme and timing of works, and issue to the Environmental advisor.
- *Environmental Advisor* – responsible for liaising all parties and ensuring that they are aware of the requirements of this control plan. The environmental advisor shall report the results and progress to the site team, EHO and Employer's Site Representative.
- *Subcontractors* – To undertake works in accordance with the Control Plan.
- *Operatives* – to follow any instruction from the Project Management Team and conduct works in accordance with Method Statements.

Consent Requirements

All works affecting invasive species shall be completed in accordance with the Invasive Species Environment Agency EPS 178 and Waste Regulation (England and Wales 2011).

Client Requirements

To minimise the environmental impacts of the Scheme both during construction and once the Scheme is open, as defined within the Environmental Statement.

General Control Measures

- Details of invasive species shall be included within the Scheme induction and toolbox talks given to operatives working in areas where the species are or have known to grow. Any early regrowth shall be reported and dealt with as detailed above. If the cells have been completed when new growth is discovered this shall be excavated and taken for offsite disposal at licenced facilities.
- There shall be a vehicle cleaning area adjacent to both the source and burial zone and all vehicles used shall be cleaned prior to leaving this area. This area shall not be greater than 7m from the burial zone. Material left in the clean down zone shall be collected and deposited into the burial cell.
- The excavation shall and transfer of invasive species contaminated material and haulage to the holding area shall be supervised.
- Areas where invasive contaminated material is buried shall be accurately recorded and details of this included within the HEMP.
- Excavation is to begin from the furthest point of the works and move backwards to avoid traffic on excavated, potentially contaminated ground.

- Vehicles collecting and removing material should be positioned over part of the geotextile prior to loading. Any material that may be dropped by the hopper will be caught by the geotextile.
- Once the works have been completed, the Excavator is to be thoroughly cleaned and all arisings placed into the final load of contaminated material.
- In the event of material requiring storage prior to burial this shall be stored in a designated location on an impermeable membrane to prevent spread of the plants. This area will also have a clean down zone.
- If any material is to be removed for offsite disposal this will only be performed once a disposal location has been identified and this location has confirmed that will accept the waste. This will require ground investigation data and may need up to 10 days to obtain this information.

Specific Identification and Control Measures

Himalayan Balsam

Identification of Himalayan Balsam:

- Reddish coloured stems
- Common on river banks
- Dark green lance shaped leaves with jagged edges
- Large, brightly coloured flowers usually in variable shades of purple and pink
- Flowers June to October
- Grows up to 2m in height
- Dies back at end of growing season
- Produces 2500 seeds per plant each year
- Explosive seed pods

Himalayan Balsam plants can produce around 2500 seeds each year. The seedpods open in such a way that the seeds are thrown several metres away from the parent plant, helping the species to rapidly spread – often quoted as 20 metres in all directions per season.

Control:

- Removal to be carried out between Mar and June before seed pods form to prevent disturbance to these and subsequent spread.
- Demarcate extent of topsoil to be stripped. The area for excavations will take place up to 6m out

from the edge of the existing stand and will remove the top 200-500mm of soil, as this is where the viable seedbank will be contained.

- A haulage route from the excavation to the storage area will be agreed and if necessary demarcated.
- Excavated material shall be taken directly to the position of burial.
- All vehicles used to transport Himalayan balsam material are to contain a system to cover the hopper during transport to minimise the potential for spread
- Dumpers will not need to be lined but will need to be pressure washed after the works. When loading dumpers for transporting the HB material, DO NOT OVERFILL them to reduce the risk of spillage. Washing will be onto the temporary storage membrane which will be buried in the HB cell.
- Himalayan balsam shall be buried 1m below existing ground level and treated with a Glysophate herbicide prior to being covered by a Geotextile membrane.

Where Himalayan balsam is found growing outside of the DCO but within 7m of the boundary a solid screen shall be erected to prevent seed spread into the working area. This screen will be cleaned before removal at the end of the Scheme.

Japanese knotweed

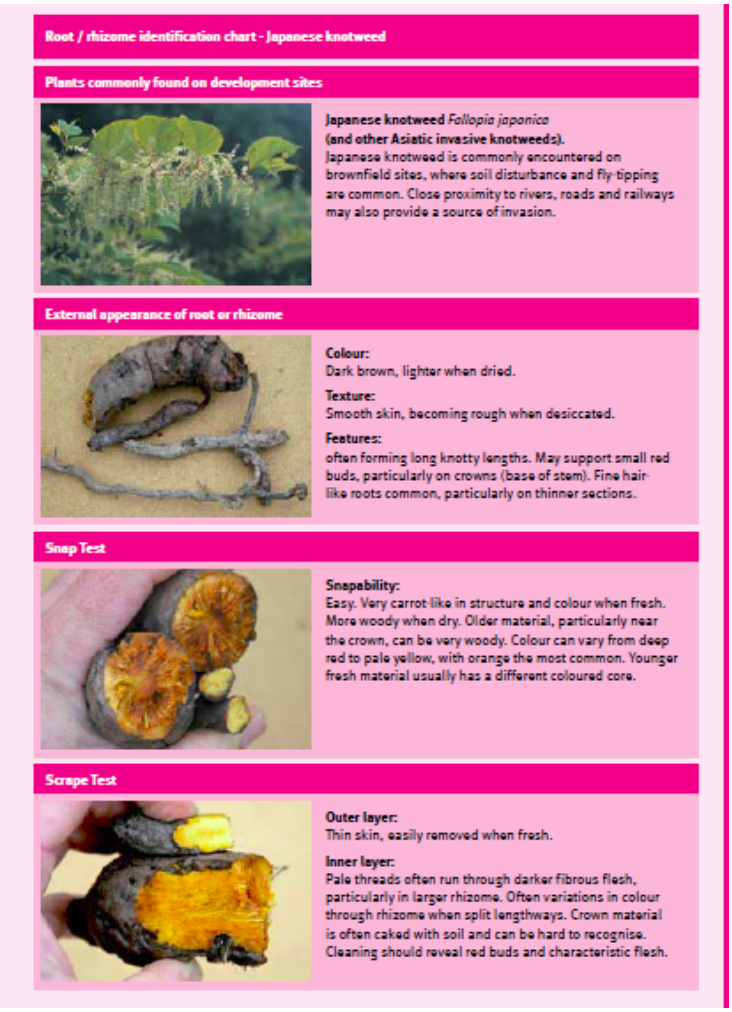
Identification:

- Fleshy red tinged roots when first breaking ground
- Large oval green heart shaped leaves
- Silver tinge to underside of leaves
- Hollow green stem with red blotches/spots – bamboo like with a zig-zag pattern
- Begins to grow in early Spring
- Grows at a rate of 3cm per day
- Reaches height of 1.5/2m by May
- 3m by June
- Leathery leaves

- Dense clumps
- Clusters of creamy white flowers
- Dies back between September and November leaving dead brown stems

Control:

- Demarcate the area of excavation, up to 7m from the edge of plant growth. It is assumed that excavations will not need to extend greater than 3m. Actual excavation depth shall be dependent on the depth of rhizome penetration. Accurate rhizome identification will help to minimise the amount of excavation. Japanese knotweed rhizomes detail is shown below;



- Rhizome is to be removed with care; usually the crowns are located within the top 500mm. Therefore 0-500mm should be removed in one scrape to minimise the potential for breaking crowns and lessen potential risk of spread. This material should be stored separately from the rest of the excavation material.
- Excavate down to 3m (or as appropriate when identifying rhizome) and use this excavation material as the base or top layer in the burial pit. The middle layer should be that containing the material excavated in the top 0-500mm.
- A haulage route from the excavation to the storage area will be agreed and if necessary demarcated.
- Excavated material shall be taken directly to the position of burial.

- All vehicles used to transport Japanese knotweed material are to contain a system to cover the hopper during transport to minimise the potential for spread
- Japanese knotweed is to be buried and covered with a membrane. The upper level of the cell must be at least 2m below ground level to minimise risk of damage. Material to be treated with a glysophate solution prior to covering.

Where Japanese knotweed is growing outside of the site boundary but within 7m, it will be good practice to engage with the landowner to establish treatment of the plant. Alternatively excavate a slip trench along the DCO boundary and install a geotextile membrane to prevent the plant spreading into the working corridor.

Note. Neither of these species has been identified within the Downhill Lane junction works footprint. However, they are known to be present within the River Don catchment and within parts of the adjacent Testo's scheme. The information within this control plan is therefore included for completeness as they could spread into the Downhill Lane works from offsite.

Monitoring and Measurement

Weekly SHE walks and Monthly SHE inspections shall be conducted where the general management techniques shall be reviewed.

Material movement shall be monitored through the Material Management Plan.

In the Event of an Emergency

If during site works previously unidentified stands of an invasive species is suspected, then works in that area must stop and the Scheme Environmental Advisor or Scheme Ecologist must be contacted reporting the location of discovery and works being undertaken.

Name	Position	Contact Number
	SHE Manager	
	Env Manager/Advisor	
	SHE Advisor	
	Works Manager	

Related Documents

To be completed upon completion of final detailed design.

APPENDIX J: ENVIRONMENTAL CONTROL PLAN: GENERAL ECOLOGY

Aspect/Activities

During the construction of the Scheme a number of ecological and environmental aspects will be encountered. Those directly affected by the Scheme are subject to their own Environmental Control Plan. This plan covers more general aspects and incorporates any consent conditions for environmental and ecological aspects that are part of works not associated with any species subject to licensable works on the Scheme.

Those species/aspects that are subject to their own control plan are:

- Invasive Species
- Landscape management
- Materials management
- Noise, nuisance and dust management
- Soil management
- Water management

Responsibilities

- Contract Leader – to ensure effective management of the works in line with the Employer's, legal and any other Requirements/agreements. Also, to ensure any requirements are communicated on to contractors.
- Site Agents – to provide information on programme and timing of works, and issue to the Environmental advisor.
- Environmental Advisor – responsible for liaising with the Licenced Ecologist and Ecology team to ensure that the works are resourced appropriately by licenced ecologist. The environmental advisor shall report the results and progress to the site team, EHO and Employer's Site Representative.
- Licenced Ecologist – responsible for undertaking all responsibilities under the licence and conducting fingertip searches, drop bucket inspections and other works. The licenced ecologist shall keep the contractor informed of the progress of licensable works.
- Operatives – to follow any instruction from the Licenced ecologist and conduct works in accordance with Site Specific Method Statements.

Consent Requirements

Consents are required for any works that affect protected species and watercourses. Works affecting protected species are subject to dedicated control plans. Within this document are outlined the consent conditions that are contained within the flood defence consents for structures within water courses.

Client Requirements

To minimise the environmental impacts of the Scheme both during construction and once the Scheme is open, as defined within the Environmental Statement.

General Control Measures

All works affecting ecological features to be completed under the guidance of a licenced ecologist where necessary.

On the Scheme the following control measure are applicable at all areas:

- Ecological Clerk of Works to be present during site clearance operations in sensitive habitats adjacent to known breeding ponds;

- Land owner to retain materials on site if wanted;
- Where possible material from site clearance works would be used to create additional refugia and/or hibernacula to improve the suitability of terrestrial habitat;
- Night-time working shall be kept to a minimum and/or to locations away from nests/roosts to lessen the impact on nesting birds, barn owls, bats;
- Excavations are to be closed overnight, if any excavation cannot be covered for any reason an escape ramp is to be placed in to allow any animal to escape.

Specific Control Measures

Works affecting watercourses

Immediately prior to any works taking place adjacent to or within any Local Authority watercourse affected by the Scheme there shall be a pre-construction survey conducted by a qualified ecologist to assess the area for activity of any protected species.

When travelling or working between watercourses there is a high risk of transferring problem species or diseases between watercourses. This can be avoided by following the advice of the 'check, clean, dry' campaign. Simple measures such as checking for and cleaning mud and bits of vegetation from boots, equipment and machines and allowing them to dry (ideally in sunlight) can prevent the spread of problem species.

Works affecting vegetation

Prior to any vegetation being cleared this shall be inspected by a qualified ecologist to ensure that there are no nesting birds present if the removal is being conducted within the nesting bird season (1st March to 31st August).

Any hedgerow that is to be removed within the nesting bird season shall be netted prior to March 1st to limit the potential for nesting birds. Even if netted all vegetation to be cleared during the nesting season shall be subject to a nesting bird survey prior to felling/removal.

Only those hedgerows marked on the site clearance plan shall be removed.

No bankside vegetation within 8m of the watercourse is to be removed unless strictly necessary. In such cases, trees/shrubs should be limbed or coppiced, and the root base to be left intact. Scrub vegetation as possible should be retained, as this provides valuable wildlife habitat.

Trees should be protected from the works in accordance with British Standard 5837, "Trees in relation to construction", and contractors' working areas shall be clearly marked out and boundaries adhered to.

Works in relation to trees shall be in accordance with BS3998. Including all trees to remain to be clearly demarcated.

Any bankside trees or vegetation damaged or removed during the works should be replaced with native species of local provenance appropriate to the local habitat.

Works affecting nesting birds

Vegetation to be retained / lost (including trees and scrubs) would be clearly demarcated with an agreed marking system with the contractor to avoid encroachment into areas of sensitive bird habitat, such as dense scrub or woodland.

Vegetation removal as part of the site clearance would consider the potential for nesting birds to be present. Where possible, vegetation removal would be scheduled to occur outside the bird breeding season. Therefore, vegetation removal would occur from late August through to February inclusive.

If vegetation removal during the bird nesting season cannot be avoided, precautionary nesting bird surveys would be required and ideally this vegetation shall be netted prior to the nesting season. If

nesting birds are identified, then protective buffer zones around each nest would be required and vegetation removal within that buffer may have to be postponed until all the young have fledged or the nest is abandoned. The extent of the buffer zone is dependent on the nest location, type of work being undertaken etc. and would be reviewed on a case by case basis by a suitably qualified ecologist.

The proposed landscape planting would include native species of local provenance that provide suitable nesting areas or a source of food at different times of year, such as blackthorn, hawthorn, bramble and teasel.

Where possible night-time working would be kept to a minimum during the construction period. In addition, lighting for the operational Scheme would avoid / minimise illuminating habitats adjacent to the Scheme through the use of directional lighting, reduced lighting column height (where appropriate), baffles, cowls, landscaping and the use of screens

Works which may impact on Bats

No bat roosts have been recorded in trees surveyed as part of the baseline data gathering for the Scheme. However, as a general precaution any felling of trees with significant (moderate or high) bat roost potential, should be undertaken in autumn, between late August and October / early November following a check of the potential roost features and soft felling protocols (where required). This is because bats do not have dependent young at this time and are not hibernating, so should be active enough to escape harm if proper precautions are taken.

Works which may impact on Otters

No steep-sided, deep and/or water-filled excavations would be left uncovered overnight as otters could fall in and become trapped. Any major excavations that need to be left uncovered overnight would have their slopes battered. If it is necessary to leave excavations open overnight they would be protected with suitable fencing to avoid trapping any animals.

Night-working should be avoided where possible. If it cannot be avoided, it should be restricted so far as reasonably practicable in the vicinity of known commuting routes and valuable areas of foraging habitat. (i.e. River Don).

Protection of Aquatic Invertebrates

All fuel, oil and chemicals would be stored in accordance with the requirements of the Control of Pollution (Oil Storage) Regulations 2001. The construction plant would be refuelled in designated areas on an impermeable surface, away from drains and watercourses. If any refuelling did need to take place in other areas of the site, a prescribed safe method would be used. An emergency spill plan would be generated and spill kits would be available at appropriate locations.

Temporary soil storage areas would require temporary drainage arrangements to be put in place to capture construction site run-off and to settle out silt that would be mobilised during construction.

In the Event of an Emergency

If during site works any protected species is thought to have been identified/seen on site works in that area must stop and the SHE department must be contacted reporting the location of discovery and works being undertaken.

Name	Position	Contact Number

APPENDIX K: SOIL MANAGEMENT PLAN

Introduction

This document sets out the general strategy for how we will manage soil on the Scheme. All materials that are to be re-used within the construction in part of the final design are included within the Materials Management Plan. This Soil Management Plan outlines the arrangements for areas where soil shall be temporarily stripped and stored for a period before being returned to its place of origin.

These areas are shall include:

- Temporary ponds;
- Accommodation/welfare establishment areas; and
- Any temporary access track that is to return to agricultural use.

This document shall also be made available for viewing by landowners where temporary land take shall be conducted.

Legislation and Best Practice

The Site Waste Management Plans Regulations 2008 (now rescinded) required all construction projects exceeding £300k in value to produce a Site Waste Management Plan (SWMP).

Under the voluntary code *Definition of Waste: Development Industry Code of Practice*, a Materials Management Plan (MMP) must be produced.

Both of these documents are required under the Costain Management System and form separate management plans to this Soil Management Plan.

Topsoil management shall adhere to DEFRA's *Construction Code of Practice for the Sustainable Use of Soils on Construction Sites*.

Construction Impacts on Soil

Some of the most significant impacts on soil properties occur as a result of activities associated with construction. Construction activity can have adverse impacts on soil in a number of ways by:

- covering soil with impermeable materials, effectively sealing it and resulting in significant detrimental impacts on soils' physical, chemical and biological properties, including drainage characteristics;
- contaminating soil as a result of accidental spillage or the use of chemicals;
- over-compacting soil through the use of heavy machinery or the storage of construction materials;
- reducing soil quality, for example by mixing topsoil with subsoil;
- wasting soil by mixing it with construction waste or contaminated materials which then have to be treated before reuse or even disposed of at landfill as a last resort; and
- destruction of topsoil structure by incorrect storage, e.g. over high stockpiles (not to be stored in excess of 2m high) compressing soil structure.

Outline Proposals for Soil Management

Pre-construction activities

Ahead of any soil stripping the soils shall be subject to an analytical test to assess the quality of the soil to BS3882 *Specification for topsoil and requirements for use* to provide a baseline measure of soil quality. This shall provide a baseline on the topsoil quality for comparison if required at the end of the construction. The depth of topsoil shall be recorded at each location to ensure the same is returned at the end of the works.

Preparation

All areas for stripping will be demarked and fenced prior to any major plant entering the works area.

Where required, temporary ditches will be excavated to act as cut-off drains to deal with surface water coming from adjacent fields. Details will be set out within the Water Management Plan.

If required prior to any works commencing, archaeological investigations will be completed so topsoil stripping can be undertaken without a watching brief or damaging underlying archaeology.

Visual Impacts from works

It is acknowledged that there is a likely visual impact from the construction works. To minimise the effect of this storage stockpiles shall be placed where practicable to screen the works from receptors sensitive to visual impact. Known potential receptors to visual intrusion during construction works are;

- Town End Farm estate
- Make-me-Rich-Farm
- Nissan plant

Storage areas to be used

Where possible soils shall be stored in the nearest storage location, allowances shall be given if being moved for screening as per above, to where it was excavated as detailed in the table below. A plan showing these locations is provided within the Materials Management Plan.

Phasing of Topsoil storage

Topsoil storage mounds shall be built to provide visual screening of the works and those bunds erected first for this purpose shall be the last bunds used during reinstatement.

Topsoil strip

Topsoil strip will commence in late 2019. The initial strip shall remove the vegetation in a shallow strip to create a separate stockpile from the main top soil. Once the vegetation is removed the main topsoil strip shall be undertaken in scrapes of approximately 300mm. The separation of vegetation from topsoil shall assist to reduce the potential for prevent chemical/biological degradation.

Dedicated haul routes will be stripped first to avoid over compaction or damage to existing topsoil and at all times haul distances will be minimised. Topsoil strip operations will commence towards the stockpile areas.

Topsoil will not be stripped during periods of high rainfall and will be allowed to dry to avoid damage and degradation to the soils.

Topsoil will be stripped by dozers pushing soils into windrows. Where possible the dozer will work from the area already stripped to avoid compaction of existing topsoil prior to stripping.

A 360 degree excavator will load soil into articulated dump trucks (ADTs) where it will be taken via the planned haul routes to the nearest stockpile. All excavators and dozers will be tracked machines to avoid undue pressure on the existing soil.

Topsoil will be placed to temporary stockpile bunds by end tipping the ADTs and then shaping by use of a dozer. At the end of each shift the dozer will seal stockpiles from weather ingress by backblading. To avoid erosion and assist with stability, side batters to stockpiles will not exceed a 1 in 2 slope.

Topsoil shall be stored in segregated bunds. These shall be constructed by stripping topsoil from the storage area and using this to form a windrow around the area. Topsoil from elsewhere shall then be stored in a bund no more than 2m in height within this area. The reason for stripping topsoil is to prevent any compression on the topsoil originally in the area. Following completion of works stored

topsoil shall be taken to final place of deposition and topsoil in windrows shall be respreads on its original place.

The topsoil bunds will be constructed where they cannot be mixed or contaminated with other soil types.

During the works Supervisors will monitor stripping operations so that topsoil contamination by underlying materials is avoided.

Subsoil stripping

Following the topsoil stripping the subsequent operation will be to strip existing subsoil as required. This operation will be undertaken using similar resources as the topsoil strip and will be done immediately after the topsoil strip operation to avoid any degradation of the subsoil.

All haul routes will be run on the underlying soils, not the subsoil being stripped.

As with the topsoil the height of all temporary bunds will be to an agreed height.

Any topsoil or subsoil bunds that are to be in place for more than 6 months will be controlled for weed growth.

Soil stripping controls and checks

Prior to any stripping operations the following checks shall be made;

- Check all necessary pre-construction surveys have been completed prior to stripping
- Follow all identified mitigation requirements for the location and method of stripping
- Check whether the Scheme archaeologist should be on site during the soil stripping

These are all incorporated within the Soil Stripping ITP.

Material Storage Bunds

Where possible bunds shall be constructed in locations to act as visual and noise screens, particularly to screen sensitive receptors as identified earlier.

Stockpile construction

The main aim when temporarily storing soil in stockpiles is to maintain soil quality and minimise damage to the soil's physical (structural) condition so that it can be easily reinstated once re-spread. In addition, stockpiling soil should not cause soil erosion, pollution to watercourses or increase flooding risk to the surrounding area.

When soil is stored for longer than a few weeks, the soil in the core of the stockpile becomes anaerobic and certain temporary chemical and biological changes take place. These changes are usually reversed when the soil is re-spread to normal depths. However, the time it takes for these changes to occur very much depends on the physical condition of the soil.

In order to minimise the effect of storage the stockpiles shall:

- Be segregated into subsoil and topsoil stockpiles;
- Be as low and as narrow as possible so that core material is within 1 metre of the surface;
- Be a maximum of 2 metres in height (it may be possible to stored topsoil in higher bunds, up to 4m, but this will require topsoil to have been stripped when dry and periodic rotation to maintain soil structure). May require seeding depending on storage times (if greater than 6 months) and client requirements;
- Be shaped in order to shed water;
- Be shaped to avoid ponding within the stockpile areas;
- Be sited to avoid interference with rainwater runoff from adjacent areas and prevent pollution of water bodies;

- Not be constructed within the root protection zone or beneath the canopy of any trees;
- Be in excess of 10m from any watercourse or drain.

If a stockpile is constructed when wet the core will not dry out during storage, therefore when restoration is being conducted cores shall be exposed and left for one day to dry before being used in the restoration or follow the 'wet plastic soil' method below. Wet soils are those deemed to be exhibiting high plasticity, i.e. can be moulded without rupture.

Soils' angle of repose is ~40°. They can be stored with an angle of up to 1 in 2 but this may require seeding to ensure stability.

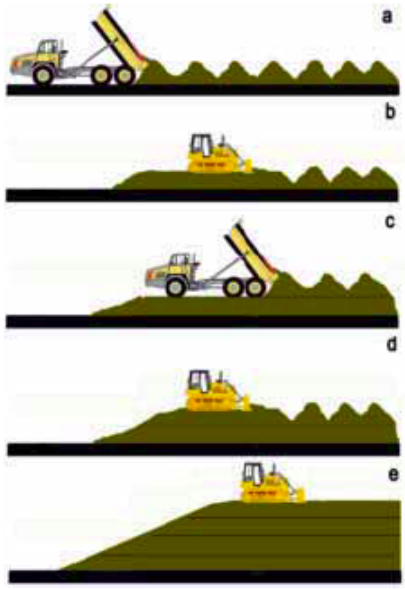
Where possible follow one of two methods below. Where space constraints prevent such an approach topsoil shall be stored as outlined in bullet 3 above.

Soil stockpiling

Soil should be stored in an area of the site where it can be left undisturbed and will not interfere with site operations. Ground to be used for storing the topsoil should be cleared of vegetation and any waste arising from the development (e.g. building rubble and fill materials). Topsoil should first be stripped from any land to be used for storing subsoil.

Method 1 – Dry non-plastic soils

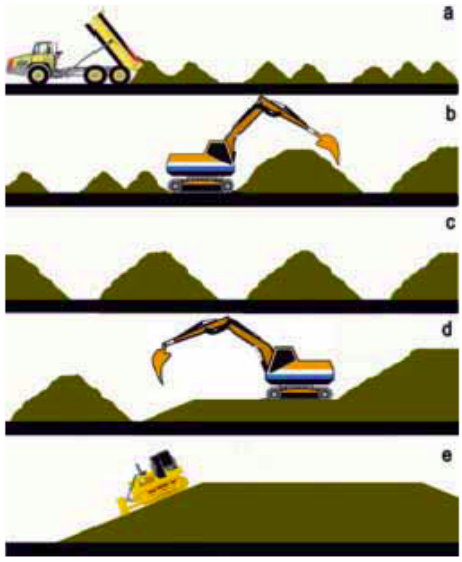
The soil is loose-tipped in heaps from a dump truck (a), starting at the furthest point in the storage area and working back toward the access point. When the entire storage area has been filled with heaps, a tracked machine (excavator or dozer) levels them (b) and firms the surface in order for a second layer of heaps to be tipped. This sequence is repeated (c & d) until the stockpile reaches its planned height. To help shed rainwater and prevent ponding and infiltration a tracked machine compacts and re-grades the sides and top of the stockpile (e) to form a smooth gradient.



Method 2 – Wet plastic soils

The soil is tipped in a line of heaps to form a 'windrow', starting at the furthest point in the storage area and working back toward the access point (a). Any additional windrows are spaced sufficiently apart to allow tracked plant to gain access between them so that the soil can be heaped up to a maximum height of 2m (b). To avoid compaction, no machinery, even tracked plant, traverses the windrow.

Once the soil has dried out and is non-plastic in consistency (this usually requires several weeks of dry and windy or warm weather), the windrows are combined to form larger stockpiles, using a tracked excavator (d). The surface of the stockpile is then regraded and compacted (e) by a tracked machine (dozer or excavator) to reduce rainwater infiltration.



Reference: *Construction Code of Practice for the Sustainable Use of Soils on Construction Sites.*

Stockpile management

Once the stockpile has been completed the area should be cordoned off with secure fencing to prevent any disturbance or contamination by other construction activities. If the soil is to be stockpiled for more than six months, the surface of the stockpiles should be seeded with a grass/clover mix to minimise soil erosion and to help reduce infestation by nuisance weeds that might spread seed onto adjacent land.

Management of weeds that do appear should be undertaken during the summer months, either by spraying to kill them or by mowing or strimming to prevent their seeds being shed.

Proposed Method of Restoration

Where soil is to be re-used in its original location

To allow full root exploration crops generally require a minimum of 1000mm of open, well-structured soil. The restoration scheme is intended to create a suitable soil for crop growth. This rooting zone will comprise of topsoil and upper subsoil.

Upper subsoil

Placement of upper subsoil will begin after grading of any backfill has been completed.

The method of working is anticipated to be placement of subsoil windrows by ADT on the backfill at approximately 30 metres from the edge of the site.

If ripping of material is deemed to be necessary, then:

- The backfilled material within the 30 metre strip will be thoroughly ripped to a depth of 500mm with a minimum of two passes.
- Where possible the ripper blades used will have wide, shallow wings fixed, if this is not the case the spacing at the surface will be reduced.
- Following ripping the subsoil windrow will be spread to an agreed depth across the area using a dozer.

This operation of placing of windrows, ripping and spreading will be replicated across the site being restored.

Throughout this operation ADTs will not travel on ripped fill or placed subsoil.

Topsoil

Topsoil relevant to each area will be excavated from temporary storage by 360 degree excavator and placed using ADTs.

Dedicated haul routes will be utilised on the subsoil to transport the soil to the first placement site. Thereafter haul routes will continue to be adhered to.

Topsoil will be placed in a windrow at appropriate centres from the edge of the site and spread evenly across the site. In spreading the material operations shall commence at the furthest location from the access point and work backwards to avoid tracking over newly replace topsoil.

The topsoil will be spread to an agreed depth, generally 300 to 350mm dependant on original soil depths, across the ripped subsoil by dozer.

If ripping of subsoil is deemed necessary:

- The intervening strip area of subsoil between the windrows of topsoil as outlined above will be thoroughly ripped to an agreed depth, generally 400mm, to key it into the underling fill and establish an open soil structure depth. This will require a minimum of two passes of the ripper.
- The topsoil windrow will be spread to an agreed depth, generally 300 to 350mm dependant on original soil depths, across the ripped subsoil by dozer.
- This method will then be replicated across the whole of the area.
- Finally upon completion an agricultural subsoiler with wings will be used to rip the topsoil to an agreed depth, generally 400mm dependant on soil depths, to remove any remaining compaction and to key into the underlying subsoil. This machine should have narrow legs where possible to avoid bringing subsoil up.

Landscaping bunds

This outlines a potential method of construction for any landscaping bunds on the Scheme.

Loose-tipping method

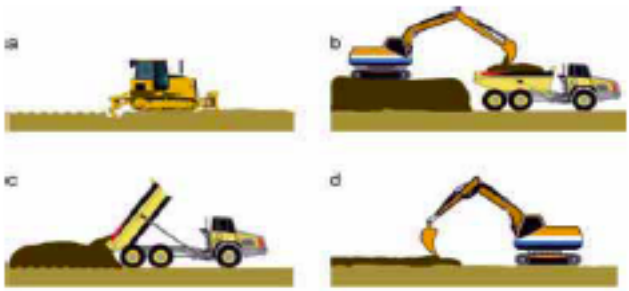
This method entails working to a strip system (the width of the strip determined by the reach of the excavator), and replacing soil sequentially across the soiling area. The receiving ground, whether a basal layer or compacted subsoil is first loosened with a wing-tine ripper.

A hydraulic excavator, fitted with a toothed-bucket to avoid excessive smearing, should be used to load the soil materials from the source area or stockpile into a dump truck which then discharges them onto the receiving surface. An excavator stands next to the newly dropped soil and spreads this to the required thickness. If there is to be more than one soil layer (i.e. if both topsoil and subsoil are being replaced) then the whole length of the strip is restored with subsoil before the process is repeated with topsoil. The topsoil is lifted onto the subsoil without the excavator travelling on the newly placed subsoil. Only when the strip has been completed is the next one started.

If soil is cloddy in structure, the excavator bucket can be used to break up the clods. Large stones can be removed during the operation.

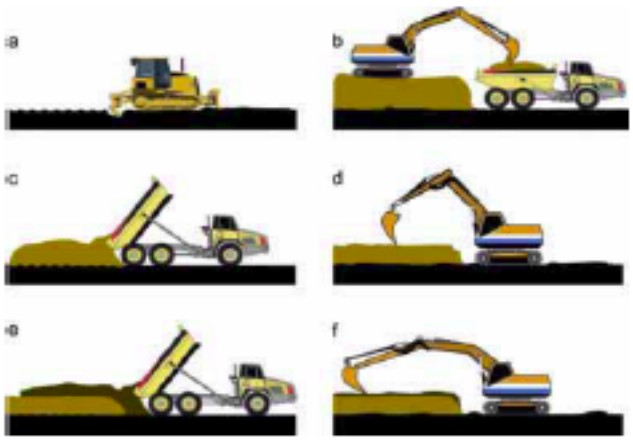
Modified versions of the loose-tipping method, for use when both subsoil and topsoil are to be placed, include spreading the subsoil as described above but then spreading the topsoil layer out using a low ground pressure dozer. Providing that soil conditions are suitably dry and dozer movements are minimised, this can gently consolidate the placed soil without causing over-compaction.

The loose-tipping method (topsoil spreading only)



a) loosening the subsoil of the receiving ground
b) loading of topsoil from stockpile
c) backtipping topsoil onto loosened subsoil
d) levelling topsoil

The loose-tipping method (topsoil and subsoil spreading)



a) loosening the substrate of the receiving ground
b) loading of subsoil from stockpile
c) backtipping subsoil onto loosened substrate
d) levelling subsoil
e) backtipping topsoil
f) spreading topsoil over subsoil using excavator working on substrate

Reference: *Construction Code of Practice for the Sustainable Use of Soils on Construction Sites*

APPENDIX L: SURFACE WATER MANAGEMENT PLAN

Introduction

The purpose of this document is to identify arrangements and methods for removal of surface water and ground water arising during the construction of the works. These waters, if not disposed of correctly, will have the potential to cause damage to the works in terms of delay, disruption and unnecessary measures to rectify. As importantly, if not disposed of correctly these waters will also have the potential to contaminate the watercourses and outfalls that will be used.

The permanent works drainage design will be detailed within the 500 series drawings. This design includes a network of ditches, culverts and pipes, both new and existing, to collect water within the site. In general it is intended to use the new ditches as the facilities to channel all site run-off water to the attenuation ponds during the construction phase of the works.

The material on site is sensitive to water; this is one of the greatest risks to scheme success. As such it is essential that water is effectively managed and not permitted to stand or pond within the earthworks construction. It is also a requirement that new earthworks areas or significant cuts are not opened if they cannot be sealed or protected from any forecast adverse weather.

There is 1 new permanent discharge point and 1 existing outlet to be used for all of the water in the drainage design. These will also be used as temporary construction discharge points and will be detailed in the appended drawings. Temporary discharge locations shall be reviewed and agreed with the Environment Agency and Local Authorities.

In recognition of the limited number of outfalls and the sensitivity of the material, the permanent drainage works will commence at the same time as the contract start date. This will include the installation of permanent and temporary culverts, ditches and attenuation ponds together with the temporary facilities outlined in the drawings in the Appendices. The drainage works will be installed at the earliest possible opportunity to protect the earthworks.

This plan will detail how it is proposed to manage the capture and treatment of water on site to ensure that it can be discharged into the existing networks without any pollution concerns or environmental impact.

Consent requirements

Any work within 10m of the River Wear shall require a Flood Defence Permit from the Environment Agency. All other works within 10m of a watercourse must be discussed with the Local Lead Flood Authority to assess whether a permit from them is required.

Existing Watercourses

Existing watercourses across the Scheme and within the Scheme footprint shall be detailed on a Watercourses Plan.

The Scheme is in the vicinity of the Rivers Tyne and Wear. A new connection shall be made to a tributary of the River Wear which is a watercourse under the direct control of the Environment Agency for maintenance issues. All other watercourses identified across the site are classified as ordinary watercourses and responsibility for permitting and control falls to the relevant Local Authority. Consents and permit for structures and discharge shall be obtained from the appropriate regulator.

Existing abstractions

There is one existing water abstraction licence within 1km of the Scheme. This must be considered for any application for an abstraction licence made to the Environment agency. Liaison with the regulator is required.

Prior to Construction

Prior to any construction works commencing the following must occur:

- Full schedule of temporary consents to be formulated and submitted to the EA/Local Authority for approval;
- Any baseline sampling of water quality to be undertaken in agreement with EA/Local Authority:
- Locations and parameters as agreed [to be listed here following agreement]
- Agree, with relevant consenting body, the acceptable treatment means in light of the results of the testing and sensitivity analysis outlined above.

Aquatic protection

All settlement and attenuation ponds will be carefully managed to ensure no algae, floating debris or suspended oils/solids enter water courses.

Water quality will be checked for any changes in pH levels outside the normal range of (pH6-9) and water sampling will be carried out regularly and recorded.

During Construction

The main sources of potential water pollution (silting and hydrocarbon contamination) would result from the following activities:

- Haul roads
- Structural excavations
- Drainage excavations
- Cutting excavations
- Unfinished embankments
- Concrete pours
- Material stockpiles

The following procedures will be enforced to ensure there are no pollution incidents.

Cut off ditches

Water from the surrounding low-lying farmland at the western side of the Scheme generally falls into ditches and drains alongside the existing local road network and A19 either as surface run-off or through land drains. Consequently as works progress into areas, the perimeter fencing and new

ditches will be installed with or before the topsoil strip such that new facilities will be in place before the existing ones are removed.

Cut-off ditches will be excavated in appropriate locations to prevent any surface water collecting in the compound, material storage or works areas.

Diversion drains [may not be needed]

Diversion drains are simple linear ditches for channelling water to a desired location.

It is only proposed that they be used on a limited basis where necessary.

If during the works the drains are found to be eroding, they will be lined with a suitable geotextile fabric. Where clean water is located running from above or across the site, consideration will be given to piping the water across the site or using diversion ditches. This will minimise the runoff that requires management on the site itself.

On-site drainage channels will be monitored daily to ensure channel condition, clearance and overall capacity is maintained.

Surface water and storm water drains

Storm water runoff is of particular concern from the existing carriageway areas.

Where we are dealing with existing drainage systems, run-off will be collected in the attenuation ponds via the system of new temporary pipes and ditches. Temporary pipes will be connected to existing manholes and gulleys where required to ensure that existing carriageways are adequately drained.

Settlement will be achieved by placing temporary measures at the outfall to remove sediments and oil.

Where we are working adjacent to surface water systems we will utilise the following methods to treat water:

- catch pits and sumps;
- geotextile screens; and
- geotextile filtration systems.

Land drains

During the earthwork construction we are very likely to encounter land (field) drains. During heavy rain land drains may transport silt pollution from the site into local watercourses. During construction newly installed drains will not drain working areas stripped of topsoil.

Where land drains are truncated by the construction they will be intercepted either by the permanent drainage design or temporarily the flows will be incorporated into the temporary drainage system which will take the water through a treatment point prior to discharge.

Stoned up ditches

In some areas existing ditches carrying carriageway surface run-off will be removed as part of the new embankment construction. In order to maintain these facilities until new drainage systems are operational the ditches will be filled with granular stone to allow water to be channelled to the ditch outfalls.

Settlement ponds

The settlement pond is one of the simplest and most effective treatment methods available and requires less maintenance than other sediment control techniques. It is proposed to make use of the permanent works attenuation ponds for settlement of construction discharge water.

Site run-off or water pumped from excavations will be channelled into the ponds constructed specifically to allow any suspended solids to settle out before discharge. The ponds are highly effective in attenuating storm flows and containing water for quality monitoring or any other required treatment.

All discharges from the temporary settlement ponds into the local watercourses will require discharge consents from EA – these shall be in place prior to any discharges. Permanent consents may also be required for the Scheme; this is to be confirmed.

Each pond will be constructed with a permanent internal bund system to filter all suspended solids. The bunds in its permanent state will be approximately 0.5m high and formed from as-dug material, however for the temporary works the bunds will be increased in height and incorporate a geotextile fence on top.

The ponds will take into account health and safety provisions such as perimeter fencing, access for emergency vehicles, signage and flotation equipment. There will also be emergency pollution equipment in the form of hay bales positioned by each pond to capture any accidental discharges. A dedicated team will be responsible for the maintenance of all ditches, settlement ponds and water management methods throughout the site.

Monitoring (consisting of a visual inspection) of the discharge into the local watercourses will typically be carried out daily to ensure no impact on the local system. Frequency may be varied subject to the level of activity and prevailing weather conditions to meet the perceived risk at the given time.

Discharge to be pumped to outfall will be controlled by a permit system. The permit must be signed by the Works Manager or competent person prior to any discharge and monitoring of the discharge undertaken to ensure compliance with requirements agreed with EA/Local Authority.

Settlement systems

Where there is insufficient space available or it is considered that additional measures need to be implemented, a number of options have been included within the water management schemes.

Weirs

It is proposed to utilise a system of weirs in ditches to provide additional filtration. These are annotated as “weirs’ on the water management drawings and will be generally formed from silt fencing geotextile. These will be installed such that they are a minimum 1m from ditch invert.

Silt fencing and landscaping

As the works progress the greatest risk will be associated with loose material washing off newly formed cuts or embankments and entering watercourses or the site drainage feeding them. To prevent this, silt fencing will be utilised at the bottom of slopes adjacent to watercourses to prevent materials washing into the watercourse. The landscaping works have also been programmed to follow at the earliest opportunity; once cut slopes or embankments are planted or treated there is less opportunity for materials to wash down the slopes.

Some hay bales have been allowed for within the plans to be used in addition to the methods outlined above, for the protection of sensitive watercourses

Haul road management

Haul roads will be maintained for the use of all delivery vehicles entering the site at the designated site entrances.

Haul roads will be maintained to an adequate condition at all times; grading/scraping off excess mud will ensure suitable vehicles can use the road at all times.

The haul road will generally have ditches constructed on the downslope side, or on either side if required, to channel water to a treatment area as described above.

Where plant and vehicles have to make repeated crossings of a watercourse, temporary culverted crossings will be constructed in accordance with the appended drawings. Hay bales, or sand bags will be placed along the sides of the temporary culverts to prevent run-off into the water below.

Imported materials

Where we are required to import roadworks or structures materials; dry stone, pipework, concrete etc., these materials will be delivered to either one of the main compounds for secure storage or direct to the area of site where the material will be immediately utilised.

All materials will be COSHH assessed and will be stored in accordance with the manufacturer's details.

Dry stone may be stockpiled for use over a short period of time and topsoil will be stored for longer durations. In both cases stockpile management will be strictly enforced as per the next section and in accordance with the Soil Strategy.

All regular delivery drivers (e.g. ready mixed concrete) will have a delivery driver induction and will be briefed on changes to any accesses.

Stockpile management

We will be stockpiling topsoil and aggregates on the Scheme. As stockpiles can be a significant source of erosion and sediment they will be carefully managed by implementing the following control measures:

- Comply with the Soil Management Strategy
- Located away from drains and watercourses. A vegetation strip will be left between the toe of a heap and any adjacent watercourse.
- Seeded or provided with other stabilisation measures appropriate to the length of time stored.
- Provided with silt fences at the toe of the stockpile to mitigate run-off during rain events.

For further details, see Appendix K: Soil Management Plan.

Typical trench-dewatering set-up (Costain SHE guidelines)

We will carefully control all discharge points as discharging water at high velocities into a watercourse can cause disturbance and erosion of the banks or bed. The exit velocity at the outfall will be reduced using baffles or similar systems. The same precautions will be taken when over pumping water along a watercourse. To ensure any scouring action does not cause long-term damage to watercourses we will avoid such damage occurring by using geotextile, stone or plastic sheets. Where settlement ponds are installed, the outfall will be placed as far away from the inlet as possible. Outfalls will be angled at 45° to the water flow.

At every outfall there will be a method to close or isolate the outfall in the event of a pollution incident. Safe access to allow sampling and monitoring of the discharge will also be provided at every discharge point.

Catchments

The construction zone shall be divided into catchment and the general principle for water management and drainage installation in each is as follows:

- Any attenuation Pond shall be constructed eary in the programme to provide attenuation during construction.
- Drainage installation shall commence at the furthest point on the system and work back so that construction drainage is discharged through the new system.
- Water from excavation shall be diverted through filtration/attenuation areas prior to discharge.
- Owing to the geology in the area, glacial till and clays, provision for a two stage settlement

system is to be made.

Ready mix concrete washout facilities

All washout from concrete delivery vehicles, concrete pumps and concrete placement equipment will be completed in a controlled manner through an agreed safe set-up. Each structure will detail the method to be used appropriate to the location and sensitivity of the site in the construction method plan.

The set-up can be in the form of sealed holding chambers with waste water removal tank to remove contaminated water so that it can be taken off site. It can, alternatively, be in the form of lined holding chambers where an approved chemical agent is added to the residual water held in the chamber that neutralises the pH level, thus allowing its discharge to the ground or agreed water course in accordance with the EA Regulatory Position Statement (RPS). Excess concrete which has been removed of residual water is then removed from the holding tank and recycled as a fill material to be re-used on site.

A responsible person will be appointed to monitor the tank operation and check the outflow is clear on a daily or more frequent basis depending upon the flows. Arrangements will be made to empty the tank of settled solid materials regularly and dispose of it correctly.

Prior to the start of works, such discharge is to be agreed with the EA.

Roadsweeper tipping

Roadsweeper arisings are to be tipped into a roadsweeper washwater treatment pit at the main compound. ONLY WATER IS TO BE TIPPED INTO THIS PIT. Solids are to be stockpiled elsewhere. The treatment pit shall have a series of baffles to settle out solids prior to the water entering the compound drainages system.

Monitoring and Maintenance

The site management team and operatives will be responsible for daily checks of all systems, the cleaning of ditches and maintenance of any pumps or settlement systems. Under the direction and control of the nominated person they will also ensure that monitoring and testing requirements are undertaken at appropriate intervals.

Schedules of equipment at each location, monitoring and management requirements and check sheets will be developed and records of these checks held.

When discharging, we will ensure that the dewatering system and discharge points are monitored on a daily/shift basis. Monitoring records will be maintained on site. We will ensure that both upstream of the discharge point and downstream are reviewed to ensure there is no impact on the watercourse. If pollution is noted, works will be suspended.

Visual checks will include:

- Change to water colour
- Change to water transparency
- Oily sheen on the surface of the water
- Scum or foam building up on the surface of the water
- Sign of dying plants or animals

The following may also be applicable or requirements of any discharge consent on the Scheme:

- Monitor the volume of water being discharged at regular intervals to ensure no more than that stipulated on the consent is discharged

Regular sampling of the water at the discharge point for:

- pH

- Suspended solids
- Hydrocarbons

Records of all testing and monitoring will be provided to the Environmental advisor for review, and then filed and retained with the other scheme records.

Temporary drainage management associated with compound set ups

The duration of the main line construction of the Scheme will be approximately 16months. The previous details consider the control measures we will put in place to manage all temporary drainage management. This section covers the issues specific to our temporary compounds and site establishments.

Foul water

Under no circumstances will untreated sewage be discharged to the ground or to a surface water drain. For the main compound the method of disposal will be to a septic tank. This has been located as far as possible away from the nearest watercourse. Tankers will be employed on a regular basis to prevent overtopping and discharge from this facility. Where temporary compounds are established the cabins at these locations will be self-contained units with disposal via a tanker as above.

Surface water

For methods of controlling surface water discharge see earlier sections. Water will not be discharged without prior permission and the discharge will be under agreement with NELDB as required. The methods of discharge, after suitable treatment, will be either; infiltration or discharge to local watercourses.

Monitoring

All discharge points shall be regularly inspected (at least daily) to ensure that the discharge is visibly clear. During concreting works periodic tests on the outfall for pH using a pH indicator shall be undertaken to ensure that the pH is between 6 and 9.

In the Event of an Emergency/Environmental Incident

Any pollution incident or breach of operating conditions stipulated in a consent / agreement will be managed in accordance with the Site SHE Incident Response and Emergency Plan.

Name	*Position*	*Contact Number*
	SHE Manager	
	Env Manager/Advisor	
	SHE Advisor	
	Works Manager	

APPENDIX M: COSHH MATERIAL, WASTE STORAGE & REFUELLING PLAN

The purpose of this document is to outline the minimum standards required for storage of materials, waste and refuelling operations.

Storage of fuels, oils and COSHH materials

The storage of hazardous liquids (including fuel stores) will be within bunded areas to 110% of the total capacity of the storage containers, in accordance with the Oil Storage Regulations and EA Guidance (PPG2 and 26).

All tanks containing fuel will be located in a designated area on hardstanding, where possible and away from surface drains and any watercourses. A drip tray will be used to 'catch' any drips.

The delivery of fuels etc. shall be attended and supervised at all times.

A clearly signed spill control kit should be located in the vicinity of fuel stores in the event of any spillages. Refer to Environmental Emergency Control method statement and/or mandatory instructions for appropriate specification.

Mobile Bowsers: Will be double skinned to 110% their capacity. All bowsers will be fitted with automatic shut-off refuelling pumps and any site glasses securely attached. Where movements occur of mobile fuel browsers, the refuelling valves and flaps should be shut down to prevent lapping liquids escaping.

Storage of Liquid in Drums: All drums or containers of liquid i.e. hydraulic oil, should be stored within a drip tray that can hold 25% of the contents. If the total capacity of the drums stored is greater than 200 litres, then the containers must be within a bund of 110% of the total capacity. All drums must be clearly labelled to identify contents.

Storage and Use of Fuel Cans: Ensure the appropriate vessel is used for each fuel and that caps are securely fitted when not in use and containers are restrained during transportation.

Paint and solvents will be stored in a lockable container or premises to prevent unauthorised access.

Use of drip trays: Is mandatory across the site, for items of plant and fuels / COSHH substances. Drip Trays are not expected to follow excavators, dumpers etc. around unless the item of plant shows signs of leakage, in which case this should be fixed.

The use of Plant Nappies is promoted across sites, in preference to the 'baking sheet' style of drip tray. These shall:

- Have the proprietary insert in them at all times during use
- Ensure they are adequately weighted down

The inserts are 'squeezed' out onto spill kit material after a spill and replaced into the nappy.

'Interceptor' style drip trays may be used for semi-static plant and stores. The following should be applied when using a 'Interceptor' style drip tray:

- Place on level ground
- Prime with water to the indicated level
- Regularly check tray to ensure that there are no blockages or that oil is not being discharged from outlet.

If maintenance is required then the contents should either be disposed of in a suitable manner and the correct waste documentation obtained or treated using a hydrocarbon bi-digester such as; Liquid Remediact or Fleetkleen from Spill Away.

Always use for static plant operating within 10m of a watercourse.

Chemicals that DON'T float on water should NOT be stored in an 'interceptor' drip tray.

The use of **'baking sheet'** style of drip tray will require careful monitoring for; damage, water ingress and spillages. The use of spill kit absorbents within the drip tray is promoted to enable easy clean up of spills collection of spills. The contents of these drip trays will require decanting into a suitable container for disposal. If oils or chemicals are present they should never be emptied to; ground, drains or water courses.

Oils and fuels should never be stored in either 'Inner' or 'Special Interest' Groundwater Protection Zones (GPZ) unless previously authorised by the EA. All mobile bowsers should be removed from an 'Inner' or 'Special Interest' GPZ at the end of the working day, there is no such zone affecting the Scheme see below.

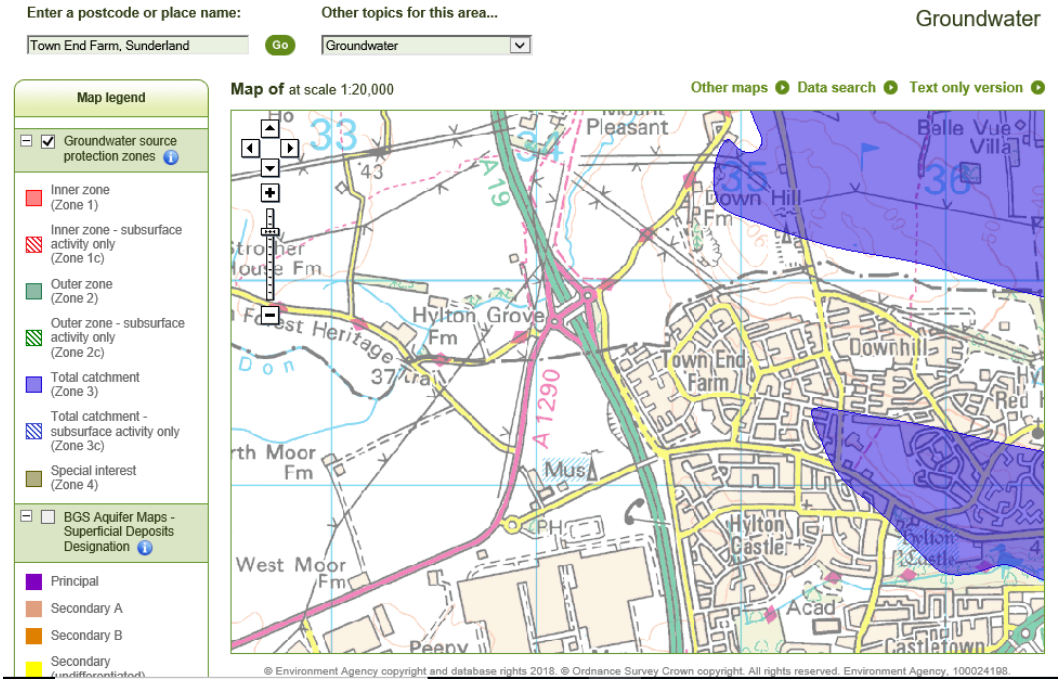


Figure 2. GWPZ map from Environment Agency

Refuelling

The fuelling of mobile and static plant on site provides a potential for contamination of the environment. This may prove to be either localised, or possibly more widespread owing to waterborne or airborne dispersal. The company recognises the potential risk involved in fuel- filling plant and equipment and has decided that certain precautions must be carried out whilst employees or sub-contractors are engaged in work of this nature.

This procedure must be complied with. Reference should also be made to the; environmental emergency control and waste management procedures to ensure statutory compliance in the event of a spill.

General Controls

All fuel deliveries and refuelling of plant must be supervised by a nominated fuel supervisor.

This member of the Costain site team will be responsible for:

- Supervising third party fuel deliveries to site;
- Bowser security;
- Site accommodation generator use; and
- Spill clean-up & replenishing used spill kits this can be supplemented by the dedicated site spill response team.

Personnel Involved

The roles required to carry out this procedure include:

- Site Management Team (Contract Lead, Agents etc)
- Storeman
- Foremen / Project Supervisor
- Site Security
- SHE Manager
- SHE Advisors

KEY RESPONSIBILITIES

Project Manager / Civil Agent / Foreman / Project Supervisor

- To implement this procedure
- To ensure that the procedure is briefed out to site teams and that an adequate number of people are trained and nominated on that site as a 'nominated fuel supervisor'. The staff outlined above may wish to hold this role themselves.
- Communicate to the entire site team who the 'fuel supervisors' are and what this role entails.
- Made suitable arrangements for holiday / weekends.

Environment Manager / SHE Advisors

- To provide technical advice on the implementation of this procedure including changes to legislative requirements and best practice

Fuel Supervisor

- Responsible to the action of this procedure with the exception of the Storeman's duties, listed below.
- Sign the responsibility agreement at the end of this guidance note.

Storeman

- Keep the fuel storage log.
- Sign the responsibility agreement at the end of this guidance note.

Site Security

- In the event of an incident occurring, mobilise the site emergency contacts.
- If it is safe to do so, and have received spill control training, contain the spill.
- Have a basic knowledge on how to shut-down / restart the generator.

This procedure must be complied with. Reference should also be made to the; environmental emergency control and waste management procedures to ensure statutory compliance in the event of a spill.

Supervising third party fuel deliveries to site the 'Fuel Supervisor' must ensure that all sources of ignition are extinguished, suitable PPE and safety precautions are taken.

At no point, must the third party representative be left unsupervised when filling each bowser.

Ensure that the fuel company issue a delivery ticket for each separate piece of plant that they refuel.

The volume of fuel put into each piece of plant must be recorded and details returned to the stores.

Waste Storage and Disposal

Waste is defined as “any substance or object which the holder discards, intends to discard or is required to discard”. In any construction scheme, there may be a variety of different wastes, from office and canteen waste to construction materials, waste oils, asbestos and clinical waste.

Principles of waste management

Waste management priorities and practical actions that can be undertaken on site should follow the principles of the waste hierarchy as illustrated below:

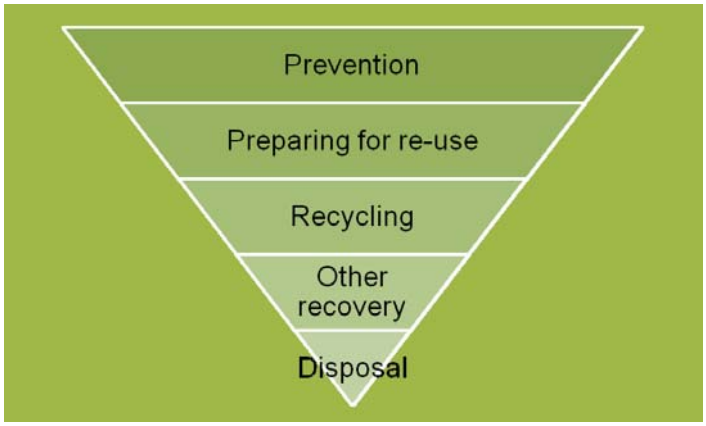


Figure 3. Waste Hierarchy

(Ciria Good Practice on Construction Sites)

A Site Waste Management Plan (SWMP) has been compiled by Costain and is contained in Appendix F.

Useful links on waste management are:

www.wrap.org.uk	www.bre.co.uk
www.smartwaste.co.uk	www.dti.gov.uk
www.ciria.org.uk	www.netregs.gov.uk

Waste minimisation

The Scheme shall:

- Allocate a waste champion who is responsible for the SWMP;
- Record types and quantities of waste that will be produced during the Scheme;
- Plan for efficient materials and waste handling and set reduction targets (Key Performance Indicators (KPIs));
- Measure quantities and types of waste produced and compare against targets;
- Monitor the implementation of the SWMP and update as necessary; and
- Compile a waste budget.

Duty of Care background

All those who produce or handle waste have legal responsibilities for its safe keeping, transport and subsequent recovery or disposal

Failure to comply is an offence as the “Duty of Care” is a legal requirement under Section 34 of the Environmental Protection Act 1990

“Duty of Care” requires the producer to:

- Ensure those transporting waste are registered with the relevant body;
- Ensure the waste is being treated, re-used or disposed of at a suitably licensed site in line with current legislation;
- Keep a waste transfer slip for all waste being transported off site;
- Ensure that all waste on site is properly stored and secured;
- Take all reasonable steps to prevent unauthorised handling or disposal by others;

Anyone dealing with hazardous/special wastes, such as asbestos, chemicals, oils or contaminated soils, has extra legal responsibilities and may be required to complete detailed special waste consignment notes; and

Should there be uncertainty over whether a waste is hazardous/special; advice should be sought from the Environmental Manager.

Waste movement

All movement of waste should be undertaken in line with the relevant waste regulations.

Any waste being transported off site should be done so by a registered waste carrier.

A waste transfer note/special waste consignment note should be completed and retained prior to waste leaving the site.

Before waste is allowed to leave site, the producer should ensure that the site it is being transported to is appropriately licensed.

All vehicles transporting waste should be suitably secured so as not to allow waste to escape.

Waste storage

All waste should be stored in designated storage areas.

The site should be kept tidy and free from litter at all times.

Waste storage areas should be appropriately secured to ensure to prevent pollution and should include:

- Controls to prevent wind dispersal of waste (e.g. covered skips);
- All wastes that could leach or be entrained in water run-off should be stored on an impervious

surface with barriers to lateral flow; and

- Storage of liquid wastes should be stored on impermeable surfaces within a secondary containment system, ideally a bund with 110% capacity of the container.
- Segregation of waste at the point of generation should be implemented by the use of designated storage areas/containers to ensure cross-contamination is avoided.
- All storage areas/containers should be clearly labelled to identify the waste type and properties contained within.
- Keep the duration of storage to the minimum required.

Reuse, Treatment, Disposal

All re-use, treatment and disposal of waste must be undertaken in line with an appropriate waste management licence (WML) or an exemption to require a waste management licence (WMX).

If it can be proven that the material is not waste, it will not fall within these requirements.

WML's and WMX's should be applied for or registered prior to undertaking any activities for which they are required.

No burning of waste is permitted on site at any time.

Further information available:

CIRIA (2010) C692 - Environmental Good Practice on Site, third edition

APPENDIX N: ENERGY AND RESOURCE USE MANAGEMENT PLAN

Through the effective management of our carbon and water footprints on site the impact on the environment can be significantly reduced. Please refer to Costain Way How to Set Up a Resource Efficient Site (SHE-H-308) and will be subject to the Costain Resource Efficiency Matrix.

A Resource Efficiency Champion will be appointed who, along with other key site personnel, will work towards ensuring the site runs efficiently and identify opportunities for improvement. This includes:

- Monthly reporting of utilities consumption;
- Lifecycle costing for plant, machinery and accommodation hire taking low energy/water options into consideration (Whole Life Costing Tool SHE-T- 354);
- Tracking of the carbon footprint and related emission streams including utilities use, key materials, waste and fuel during the course of the contract and targeting reductions; and
- Tracking of the Schemes water footprint encompassing mains water usage, abstraction and beneficial re-use on site.

The Scheme shall consider initiatives that will contribute to the aim to reduce the use of energy, fuel and water where possible. All beneficial re-use of materials as well as resources saving measures, and associated cost reductions, on site be will recorded and monitored.

Such measures may include:

- Greywater recycling; and
- Roadsweeper water for dust suppression.

APPENDIX O: MATERIALS MANAGEMENT PLAN

A Materials Management Plan will be completed for the Scheme and included here.

APPENDIX P: CONTAMINATED LAND MANAGEMENT PLAN

Contaminated Land

Based on the baseline environment potential impacts during construction may include:

- disturbance of potentially contaminated land;
- remobilisation of residual pollutants (i.e. pollutants that are already present, but stable and inactive in their present condition);
- creation of new pollution pathways (i.e. routes by which pollutants can reach environmental receptors that are vulnerable to their effects);
- contact with unrecorded mineshafts;
- alteration of the physical and chemical characteristics of the soil and in turn the potential to increase erosion and transfer of pollutants to surface water, restrict root growth and drainage, reduce recharge of aquifers and cause surface ponding of water; and
- disturbance of groundwater flow paths.

Potential mitigation for construction impacts

Potential mitigation measures for effects on geology and soils during construction include:

- protective measures put in place to deal with contaminated materials, should such material be encountered;
- good construction practice and proper disposal of contaminated arisings to minimise creation of pollution pathways;
- protective measures to prevent linkages between contaminants and ground and surface water;
- handling of topsoil in a manner to retain its potential for plant growth including careful stripping, handling and placement;
- defined access routes to prevent overrun of topsoil where possible;
- stripping, careful handling and storage of soils where necessary; and
- careful soil replacement.

Unexpected Contaminated Land

Contamination could be encountered in areas where it is not anticipated. Site staff need to be on the lookout for such areas to ensure that risks to the environment are controlled.

The draft DCO stipulates requirements for unexpected contaminated land. These requirements are detailed below:

- In the event that contaminated land, including groundwater, are found at any time when carrying out the authorised development which were not previously identified in the environmental statement, it must be reported immediately to the relevant planning authority or the Environment Agency (as appropriate) and the Secretary of State must complete a risk assessment of the contamination.
- Where the Secretary of State determines that remediation is necessary, a written scheme and programme for the remedial measures to be taken to render the land fit for its intended purpose, must be submitted to and approved by the Secretary of State, following consultation with the relevant planning authority and the Environment Agency.
- Remediation must be carried out in accordance with the approved scheme.

In order to comply with best practice and DCO requirements, works must be planned taking account all relevant waste regulations. Be on the lookout for signs of contamination during boring, excavating, soil stripping and similar operations. These could include discoloured soil, unexpected odours, a fibrous texture to the soils (e.g. asbestos). The presence of foreign objects (e.g. chemical/oil

containers/waste), evidence of previous soil workings, underground structures or waste pits, evidence of made ground, old drain runs and contamination within buildings.

Mitigation Plan

If contamination is suspected:

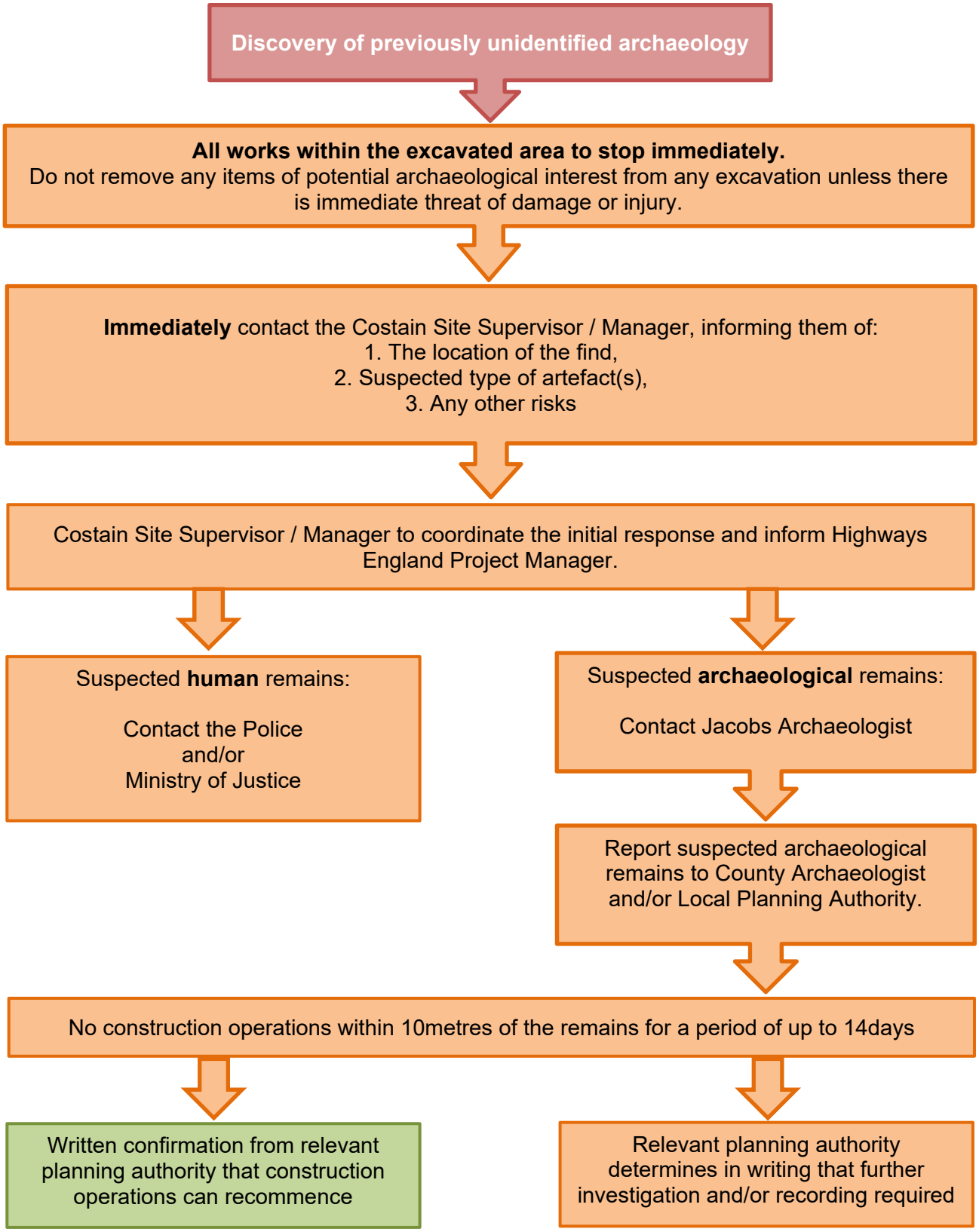
- Stop work immediately;
- Report the discovery to the site management team or SHE department who must inform and seek expert advice from the Environment Agency and inform the local authority;
- Seal off the area to contain spread of contaminants;
- Undertake risk assessment to minimise the risk to health and safety of site workers. This should identify acceptable working methods, PPE, contact, and other required procedures;
- Clear site to ensure there is nothing that could cause fire or explosion;
- Any unexpected contaminated land that has been disturbed by construction activities will need to be dealt with as hazardous waste and disposed of to a suitably licensed site in line with all relevant waste management regulations;
- Ensure that the suspected contamination is tested and characterised and agree changes to the existing site proposals and method statements;
- Inform landowner/occupier; and
- If remediation is deemed necessary, a written scheme and programme for the remedial measures will be produced and agreed with the Environment Agency, local authority and Highways England.

To avoid causing or spreading contamination:

- Do not stockpile contaminated soil unless it cannot be avoided. If it is unavoidable stockpile only on an area of hard standing to prevent contamination of the underlying substrate;
- Cover the stockpile with plastic sheeting to prevent infiltration of precipitation and the spread of soluble contaminants and to prevent potentially contaminated wind-blown dust;
- Control surface drainage from stockpiled area. Remember water draining from a stockpile may be contaminated and require controlled off-site disposal.

APPENDIX Q: ARCHAEOLOGICAL CONTROL PLAN

Actions to be taken in the event of the discovery of Unknown Archaeology.



APPENDIX R: POLLUTION PREVENTION PLAN

Introduction

The Scheme involves a large amount of plant and equipment and due to the very nature of the Scheme it is paramount that pollution prevention best practice is followed. This Pollution Prevention Plan (PPP) sets out the best practice guidance that Costain and all their sub-contractors will follow whilst working on this Scheme. This will be achieved through inductions, toolbox talks, briefings and inclusion of control measures in Risk Assessments and Method Statements. The PPP will be regularly audited and reviewed to ensure it remains effective.

In the event of a spill occurring this will be managed using procedures included within the Emergency Response Plan, under the Environmental Incident Control Plan section.

Other ECPs which will support the prevention of a pollution incident include:

- Dust, Noise & Nuisance Management Plan (Appendix G);
- Site Waste Management Plan (Appendix H);
- Soil Management Plan (Appendix K);
- Surface Water Management Plan (Appendix L);
- COSHH Material, Waste Storage & Refuelling Plan (Appendix M);
- Materials Management Plan (Appendix O); and
- Contaminated Land Management Plan (Appendix P).

Fuel Storage and Management

The guidelines below will be followed to aid compliance with the requirements of the Control of Pollution (Oil Storage) (England) Regulations 2001 (OSR England):

High risk locations will be avoided:

- within 50m of a spring, well or borehole;
- within 10m of a watercourse;
- in places where spilt oil could enter open drains, loose fitting manhole covers or soak into the ground where it could pollute groundwater; and
- in places where a spill could run over hard ground to enter a watercourse or soak into the ground where it could pollute groundwater.

Flooding could occur within the River Don floodplain or locally to Testos roundabout (based on historic reports) and as such any fuels/chemicals will be stored away from these areas and in any case above predicted flood water levels. If small quantities are needed then they must be moved to a place of safety in the event of a flood warning being received or predicted heavy rainfall.

All storage areas will be designed and constructed in accordance with PPG 2 (now rescinded).

All fuel will be stored upright on impermeable ground and within a drip tray/bund.

Integrally bunded tanks will have a primary container manufactured with integral secondary containment that can hold a minimum of 110% of the volume of oil the inner tank is designed for. Ancillary equipment will also be positioned within the secondary containment and will be locked when not in use.

Single skinned tanks will have bunds capable of storing 110% of the tank capacity and roofed to

minimise the collection of rainwater – this will ensure that there is no compromise on the potential bunded volume and decrease the volume of contaminated material requiring licensed removal from site.

If there is more than one oil storage tank or drum in the bund/drip tray system, the secondary containment must be capable of storing 110% of the biggest tank's capacity or 25% of the total capacity, whichever is the greater.

Tanks and bunds will be secured to avoid the risk of damage or vandalism.

Internationally recognized hazard warning signs will be displayed (danger flammable liquids, no smoking, no naked lights, fire extinguisher) and fire extinguishers (dry powder) will be installed near to the fuel storage area.

Fuel Tankers

The road construction will involve a significant earthworks activity. This may involve the use of four-wheel-drive, road-going, double-skinned fuel tanker to refuel the earth-moving plant (Figure 1). This will eliminate the need for several storage tanks and bowsers and will also contribute to security of fuel storage. This vehicle will be operated by trained and competent operatives and will be maintained to the highest standards. Where fuel tankers are used they will be used in accordance with the above guidelines.

Figure 1 Mobile fuel tanker (Walters)


Figure 2 Mobile towable fuel bowser

Mobile Bowser

For smaller operations a towable storage tank (Figure 2), fitted with fuel-dispensing equipment may be used to refuel plant remote from the site compounds; bowsers themselves will be refuelled at the main fuel stores. All bowsers will be integrally bunded (double skinned).

A primary contractor compound will be established to the north of Downhill Lane, north and east of the main works. All mobile bowsers will be returned to this compound which will have secure areas with an impermeable storage area, away from drains and open water when not in use.

Monitoring

A dedicated Storeman will inspect and maintain the fuel and oil stores, including tanks and drums. A regular maintenance regime will be established to remove rainwater and debris from the drip trays and water/oil waste will be disposed of via a specialist waste management contractor.

Handling and Refuelling

All re-fuelling activities will be supervised by a responsible person in a designated area. Spill kits will be fitted to all re-fuelling vehicles, ensuring spills do not penetrate into the ground.

Sand/granules will also be present on site to soak up any spills should they occur on impermeable surfaces.

No-refuelling zones will be set up at sensitive areas. Where possible refuelling will take place within the construction compound and will be carried out in areas at least 10m from any watercourse or drain.

Operatives and maintenance fitters will be inducted and trained in the potential risks associated with refuelling, oil changes, hydraulic oil and the use of other oil-based products and trained to follow the spillage procedure in the event of spillage.

COSHH Assessments

COSHH assessments will be undertaken for all substances hazardous to health. This assessment will identify requirements such as, safe storage, use, first aid, fire-fighting arrangements and disposal of excess material and packaging.

Any members of the workforce who are going to use or come into contact with the material will be briefed on the contents of the COSHH assessment; this briefing will be recorded using the Costain management system procedures.

All COSHH data sheets will be kept in a dedicated file within the stores office to ensure the material data is easily and quickly available in case of accidental discharge.

Weather

Weather will be monitored for the following aspects:

- Air temperature;
- Wind speed and direction; and
- Rainfall.

The Scheme will sign up to receive any available flood information related to the flood plain at the River Don (if available). In the event of worsening weather, any construction within or close to the flood plain will cease and all plant/equipment will be removed to a safe area.

A ‘Weather warning response plan’ shall be developed to instruct the actions to be taken in the event of a severe weather warning being issued by the met office and/or a flood warning as outlined above.

Welfare Facilities

Where it is not possible to connect compounds to main sewer supplies, effluent from the site welfare facilities will be discharged and stored in effluent tanks located under the welfare units. The effluent tanks will be monitored daily and emptied through the contract hire agreement.

Plant/Equipment Maintenance

All machinery will be checked on arrival and daily, with particular attention paid to hydraulic hoses to discover damage or significant wear. Results will be recorded on plant inspection sheets. Any damage to the equipment will be reported and will not be used until fixed. No plant will be left unattended during breaks. All plant will be stored in the construction compounds at the end of each working day.

Specific areas will be designated for routine plant maintenance. Drip trays will be used during maintenance such as replacement of fuel filters. Surface water run-off from plant maintenance may cause pollutants to enter controlled waters. Site-wide protection of surface waters and drainage

systems will be in place as outlined in the Surface Water Drainage System section of this PPP (with more detail provided in the Surface Water Management Plan.

All fitters' vans, excavators and dozers must carry their own individual spill kits.

Plant maintenance and repairs will only be undertaken by trained and competent operatives.

Waste arising from plant maintenance, e.g. old fuel filters, oil, etc. shall be disposed in the appropriate containers and sent to a suitably licensed facility.

Biodegradeable Oils

Environmentally considerate lubricants, such as synthetic non-toxic biodegradable hydraulic fluids, will be used on this site. Despite the use of biodegradable oil, plant systems will be checked daily, as per the PUWER inspection regime, and the hydraulic system checked for leakages, ingress of dust, dirt and water.

Biodegradable oils will be stored, handled and disposed of using the same procedures and facilities as standard oils and fuels.

Spill Provision

Spill provision will be provided in fuel storage areas capable of controlling the maximum container spill which could occur.

A fully stocked spill kit (Figure 3) will be located at the main site compound, contractor storage areas and high risk work areas, i.e. new attenuation ponds, near the River Don and at other watercourses close or at risk of watershed from the Scheme. Smaller emergency spill kits shall be carried by all items of large plant, i.e. mechanical excavators, wagons etc. The large spill kits shall, as a minimum, contain:

1 x Wheeled Bin

6 x Oil Only Socks (3m x 8cm)

140 x Oil Only Pads (Double Weight)

5 x Oil Only Cushions

1 x Drain Plug (65cm x 45cm)

1 x 5Kg A Granules

1 x Caution Tape

5 x Disposal Bag & Tie

1 Instruction Sheet

Figure 3: Spill Kit

SURFACE WATER DRAINAGE SYSTEM

The main sources of water pollution on the Scheme will emanate from the following activities:

- Haul roads;
- Structural excavations;
- Drainage excavations;
- Cutting excavations;

- Embankments while under construction;
- Soil stockpiles;
- Concrete delivery/skip washing; and
- Road sweeper tipping (if undertaken on site).

A combination of some or all of the following elements / procedures will be enforced to ensure there are no pollution incidents.

Diversion Drains

Diversion drains are simple linear ditches for channelling water to a desired location. Diversion drains will be used for the following activities:

- Diverting upslope runoff, particularly off-site runoff, along, across or around the site;
- For collecting and channelling silty runoff downslope of the site to prevent it flowing from the site;
- Around the toe of stockpiles or cut/fill embankments;
- At the toe of embankment slopes, channelling runoff to a suitable pond for settlement/ treatment prior to discharge; and
- Around any other disturbed area.

If during the works the drains are found to be eroding, they will be lined with a suitable geotextile fabric. Where clean water is located running from above or across the site, consideration will be given to piping the water across the site by early installation of the permanent works culverts or, where this is not possible, using diversion ditches. This will minimise the runoff that requires management on the site itself.

The outflow of the drains will be directed to settlement ponds to allow treatment before the water is discharged from the site.

On-site drainage channels will be monitored daily to ensure the channel condition; clearance and overall capacity are maintained.

Slope Drains

A slope drain is a temporary pipe or lined channel to drain the top of a slope to a stable discharge point at the bottom of a slope without causing erosion e.g. ‘French drain’. It prevents runoff from flowing directly down the slope by confining all the runoff into an enclosed pipe or channel.

Temporary slope drains will be used in conjunction with bunds along the top edges of slopes that will direct water to an inlet at the top of the drain. This may be necessary if the embankment construction is not complete to a sufficient level to permit installation of the permanent drainage over winter or during periods of prolonged poor weather.

Storm Drains

Storm-water runoff is of particular concern along routes passing through more built-up areas e.g. adjacent to Boldon Business Park.

When we are working on existing drainage systems, runoff from the construction activities will be prevented from entering the existing drains and gulleys (unless silt free and with agreement of the highway or water authority). This will be achieved by placing temporary measures at the outfall to remove sediments and oil, such as a catch pits, sumps or geotextile screens and the gullies can also be temporarily blocked or diverted.

Existing Ponds / Water Bodies

The area immediately north of Downhill Lane is characterized by the River Don which flows west to east under the A19 before flowing north. There are some minor elements of the Scheme construction works to be completed adjacent to small tributaries which flow into the River Don. Specific control plans may need to be created to manage these works.

Settlement Ponds

The settlement pond is one of the simplest and most effective treatment methods available and requires less maintenance than other sediment control techniques. Site runoff or water pumped from excavations will be channelled into the ponds constructed specifically to allow any suspended solids to settle out before discharge. The ponds are highly effective in attenuating storm flows and containing water for quality monitoring or any other required treatment. Where possible, we will utilise the proposed permanent works ponds as settlement ponds, although smaller temporary ponds (Figure 4) may also be required in certain areas or phases of the works.

All discharges from any temporary settlement ponds will be discharged into the pre-earthworks drainage system and eventually into the local river networks.

The ponds will take into account health and safety provisions such as perimeter fencing, access for emergency vehicles, signage and flotation equipment. There will also be emergency pollution equipment – floating bunds, hay bales positioned by each pond to capture any accidental discharges.

Figure 4: Temporary Settlement Pond

Figure 5: 'Dirt Box'

Settlement Tanks

In areas where the designed settlement ponds are too far away, we will pump water from excavations and run off in to local water courses/drainage systems after liaison with the local authority and the EA. Temporary discharge consents will be sought for these outfalls. The silt tank systems are purpose-made structures to contain water for the removal of suspended solids and include Silt Busters, Dirt Boxes (Figure 5), Dirt Bags etc.

Concrete Washout Facilities

All washout from concrete delivery vehicles, concrete pumps and concrete placement equipment i.e. skips will be completed in a controlled manner through an agreed safe setup.

It will be in the form of lined holding chambers where an approved chemical agent is added to the residual water held in the chamber that neutralises its pH level, thus allowing the water to be discharged into the ground or an agreed watercourse following consultation with the Environment

agency and in accordance with any discharge permit issued/required from these discussion.. Excess concrete which has been removed of residual water is then removed from the holding tank and recycled as a fill material which can be re-used on site. The system will be positioned such that in the event of an unplanned failure/overtopping of the storage unit contaminated water will not enter a watercourse.

There will be a number of concrete washout locations across the site; including at the storage compounds, the bridge structures and any retaining wall structures.

A responsible person will be appointed to monitor the tank operation and check the outflow is clear on a daily or more frequent basis depending upon the flows. Arrangements will be made to empty the tank of settled solid materials regularly and dispose of it correctly.

Aquatic Protection

It is noted that the River Don supports aquatic life of various kinds. As such, additional protection measures may be necessary.

Fish

- EA fishery department to be consulted in respect of the River Don.
- All temporary works in close proximity to the river will be carried out with any fish movements and spawning seasons clearly considered as directed by ecologists and the EA.

Other Aquatic Life

- All settlement ponds will be carefully managed to ensure no algae, floating debris or suspended oils/solids enter water courses.
- Water quality will be checked for any changes in pH to ensure no impact on the existing water quality and water sampling will be carried out regularly.
- Ecologists will survey the water courses regularly to ensure wildlife habitats and wildlife are not being affected by our construction activities.

Haul Roads

To minimise the impact of the construction on the local highway network, site haul roads will be constructed linking the main site compound and other compounds and storage areas on either side of the A19. At some locations the haul roads will intersect with existing live public roads ether as controlled crossing points or as a works access location.

The haul roads are proposed to be constructed using stone aggregate ‘capping’ material or similar. Where temporary haul roads are constructed on agricultural land, a geotextile separator layer will be used beneath the stone. This haul road will be maintained by a mechanical excavator, grader/scraper plant and roller, for the use of all delivery vehicles entering the site at the designated site entrances. Where necessary crossing or access points will be manned to assure safety. Elsewhere traffic signal controlled or give way junctions will be used at access points.

Road sweepers will regularly clean any debris dropped by construction traffic onto the public roads, a set route for the sweepers will be devised to ensure that construction routes are kept clear of construction debris. Access routes will be detailed on the Construction Access Routes plan within the Traffic Management Plan (PPP to link to this when produced and confirmed).

Haul roads will typically have ditches constructed on the downslope side (Figure 6), or on either side if required, to channel water to a treatment area as described above and shown on temporary

drainage plans (to be produced). On sloping ground, runoff will collect at the lowest point – earth bunds along the length, or a cut-off trench at the lowest point, will be used to direct runoff away to a suitable area for treatment as shown on the temporary drainage plans.

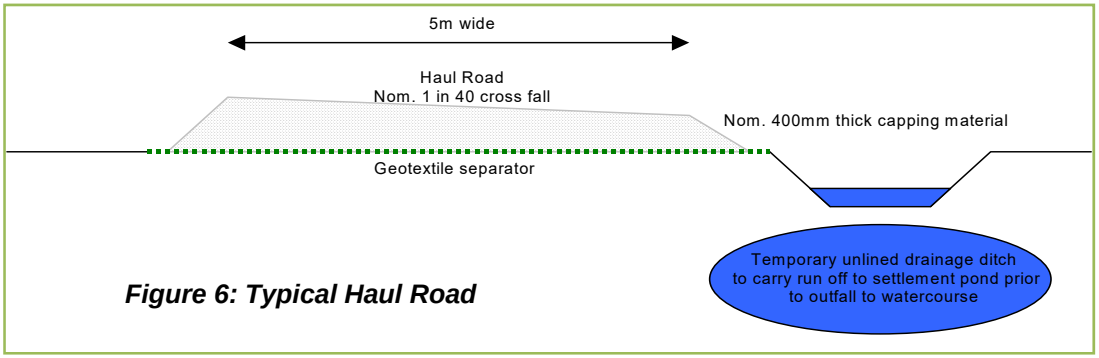


Figure 6: Typical Haul Road

Where plant and vehicles have to make repeated crossings of a watercourse, a temporary haul road bridge or flumed/culverted crossing will be constructed. Straw bales, concrete barriers or sand bags will be placed along the sides of temporary bridges to prevent runoff into the water below. These crossings will be discussed and approved by the EA and local authority.

Site entrances off a public highway will be constructed of reinforced concrete slabs or existing pavement with suitable tie in. This will allow existing highway drainage to work normally and will allow for thorough cleaning during their use before traffic gets to the highway. Any contaminated material created from through traffic, will be contained within the site drainage system.

The paved site entrance will extend for at least 15 m from the existing highway to allow adequate runoff of mud and gravel. Wheel washing facilities will be provided where necessary.

IMPORTED MATERIALS AND STOCKPILES

Imported Materials

The Scheme has a significant import requirement for general fill in addition to the pavement construction and other construction materials (dry stone, pipework, concrete etc.). We have selected a number of large laydown areas across the site to serve as both compounds and storage locations for materials close to their site of use. These locations will be detailed on a Construction Compound and Storage Area drawing in the approved CEMP. Some materials, e.g. concrete, will be delivered directly to the area of site where the material will be immediately utilised.

All materials will be COSHH assessed and will be stored in accordance with the manufacturer's details.

Dry stone may be stockpiled for use over a short period of time and topsoil will be stored for longer durations. In both cases stockpile management will be strictly enforced as summarised the next section and detailed in the Soil Management Plan and Materials Management Plan where appropriate.

All regular delivery drivers (e.g. ready mixed concrete) will have a delivery driver induction and will be briefed on changes to any accesses.

Stockpile Management

We will be stockpiling topsoil and aggregates across the site. As stockpiles can be a significant source of erosion and sediment they will be carefully managed by implementing the following control measures:

- They will be located away from drains and watercourses where possible;
- They will be seeded or provided with other stabilisation measures appropriate to the length of time stored;
- Stockpile slopes will be formed at a stable slope angle;
- They will be provided with earth bunds or another form of diversion to keep runoff away from stockpiles;
- They will be provided with silt fences or straw/rock barriers at the toe of the stockpile to mitigate runoff during rain events; and
- Temporary 'Heras' fencing and signage will be installed to prevent unauthorised site vehicles accessing the stockpile locations.

Further details on the management of soil stockpiles on site can be found within the Soil Management Plan (Appendix K).

WORKS IN WATERCOURSES

All works within 10m of or within a watercourse will be discussed with the regulator to assess the need for a flood defence permit. These works will be planned in detail and subject to a specific risk assessment and method statement that will clearly outline the particular risks associated with the watercourse and the mitigation or control measures to address the risks. This may include:

- Temporary diversion
- Fluming through the works
- Overpumping around the works

This will be planned taking due consideration of any ecology that may be affected. Suitable emergency response procedures will also be detailed within the method statement and all operatives involved in the activity briefed of the emergency procedures.

SITE SECURITY

The Scheme is approximately 2km long therefore site security is a major consideration. The security of the fuel and material storage areas is an important security and safety concern and Costain will enforce the following site security procedures:

- All static fuel storage areas will be fenced using Heras panels;
- Clear signage will be installed around the fuel storage areas;
- Security guards will be positioned at each site compound during out of hours working;
- All site entrances will be manned throughout the day and locked during out of hours working;
- All static fuel tanks will be locked when not in use;
- All mobile fuel tanks will be locked and de-mobilised when not in use and left in the secure site compounds out of working hours; and
- All security guards will be trained in fuel emergency procedures.

MONITORING AND MEASUREMENT

Baseline checks of the River Don and minor watercourses should be conducted prior to work starting.

Regular monitoring of any watercourse is to be completed by someone nominated by the site manager with the results recorded. Monitoring should include:

- Changes in water colour;
- Change in water transparency;
- Oily sheen on water surface;
- Floating debris;
- Scums and foams; and,
- Dead/ decaying plants, animals, and fish.

In the event that further monitoring is required it will consist of the following (where required);

- Monitor the volume of water being discharged at regular intervals to ensure no more than that stipulated on the consent is discharged;
- Regular sampling of the water at the discharge point for:
    - PH
    - Total Suspended Solids (TSS)
    - BOD
    - COD
    - Hydrocarbons
    - Flow rate

TRAINING

A Spill Response Team will be in place to deal with any spills.

All staff will be trained in the emergency procedures and what to do in the event of a spill by the following measures:

- Inductions and toolbox talks to ensure people are aware of the contents and location of site spill kits and how to deploy in a safe and efficient manner;
- Spill Response Training – oil and chemical. Ensuring operatives are aware of prioritisation 'protect people, environment and property';
- Live spill demonstrations;
- Spill awareness DVD;
- Waste disposal, restocking and documentation.
- This will be regularly reviewed.

FURTHER GUIDANCE

External Guidance:

- CIRIA Report 648 (2006) Control of Pollution from Linear Construction Projects – Technical Guidance
- CIRIA Report 650 (2010) Environmental Good Practice on Site (3rd Ed.)
- C584 (2003) Coastal and Marine Environment Site Guide.