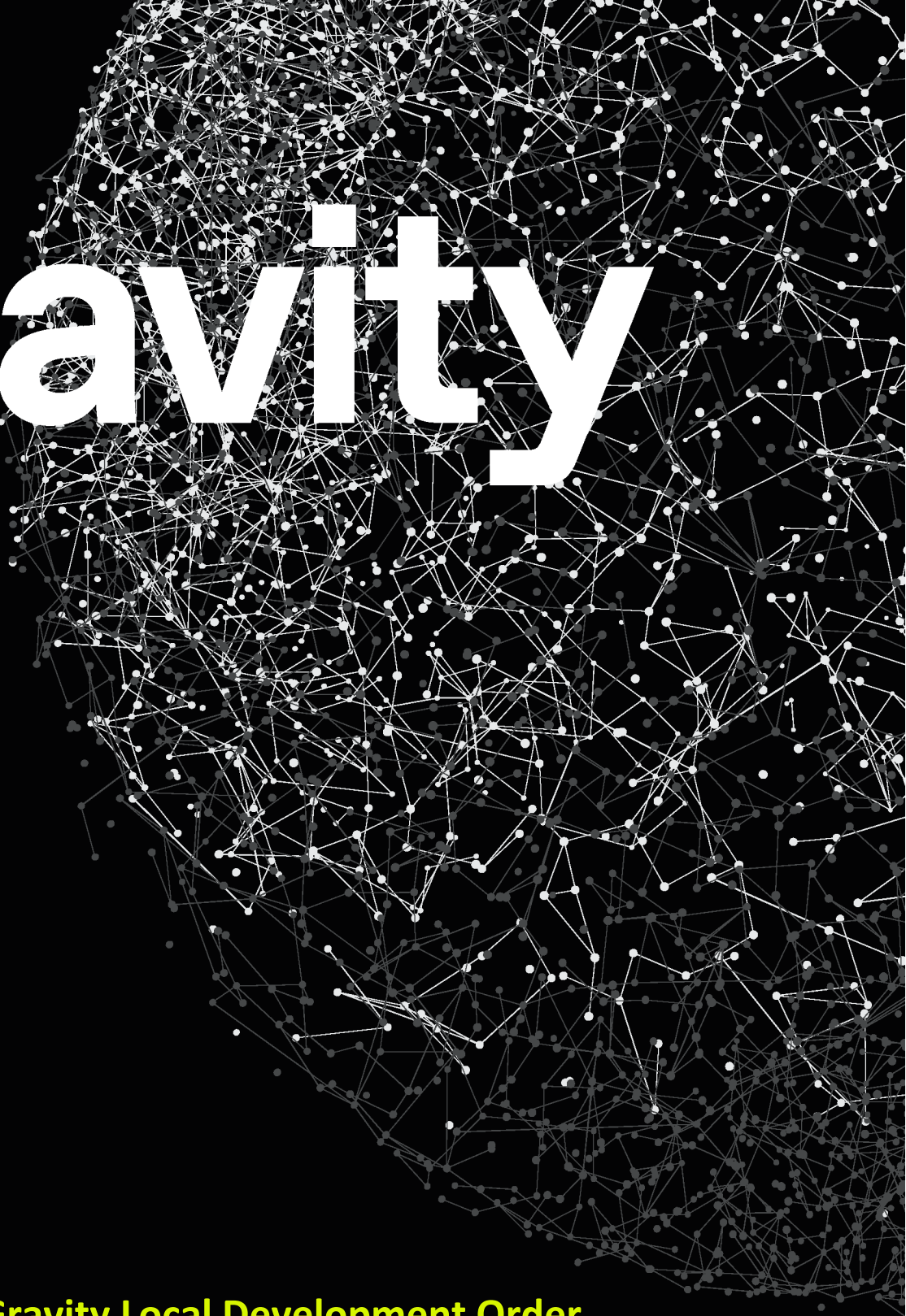
Gravity

Smart Campus



Gravity Local Development Order

Volume 2 – Appendices

Appendix 4.1 Framework DCEMP

Gravity Local Development Order

Framework Demolition and Construction Environmental Management Plan

FINAL ADOPTED VERSION

On behalf of **This is Gravity** and **Sedgemoor District Council**

Project Ref: 332310102 | Rev: FINAL ADOPTED VERSION | Date: February 2022

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Document Control Sheet

Project Name: **Gravity Local Development Order**

Project Ref: **332310102**

Report Title: **Framework Demolition and Construction Environmental Management Plan**

Doc Ref: **Final Adopted Version**

Date: **February 2022**

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For and on behalf of Stantec UK Limited				

Revision	Date	Description	Prepared	Reviewed	Approved
V1	05.10.2021	Draft for comment	JE	SN	SB
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1 Introduction

1.1 Background

1.1.1 Sedgemoor District Council (SDC) proposes to make a Local Development Order (LDO) for a Site known as Gravity, to the east of Junction 23 of the M5, in Sedgemoor, Somerset (referred to hereafter as 'the Site') to grant a simplified, flexible planning permission capable of meeting market requirements for the Gravity Smart Campus and Community ("Proposed Development").

1.1.2 Stantec UK Limited (Stantec) has been appointed by This is Gravity Ltd (herein 'the Client') to prepare a Framework Demolition and Construction Environmental Management Plan (FDCEMP) in respect of the LDO.

1.1.3 The Site Location Plan is provided in **Appendix A**.

1.1.4 The 261.54 hectare Site is within ownership of This is Gravity Ltd and is within the administrative boundary of SDC. The Site is a Government approved Enterprise Zone, designated to attract international inward investment.

1.1.5 The Site is largely a brownfield regeneration site, being previously used as a single industrial use as an ordnance manufacturing facility. A previous consent (the 'Remediation Planning Consent') has approved site remediation, and this is complete, and a second consent (the '2017 Planning Consent) has enabled the construction of the Gravity Link Road as part of that consent, also complete (October 2021).

1.1.6 The LDO represents the next phase of the consenting process to re-imagine the Site within a new era of clean inclusive growth and this will facilitate the delivery of the Gravity Smart Campus and Community, establishing a planning regime for fast-track responses and implementation to be highly responsive to international business needs.

1.1.7 The Site is located between the villages of Puriton and Woolavington, approximately 6km north east of Bridgwater. The Site lies approximately 2km to the east of Junction 23 of the M5 motorway.

1.1.8 This document provides a framework which governs the demolition and construction works associated with the Site for all contractors. It sets out, in broad terms, methods to avoid, reduce and mitigate demolition and construction effects on the environment.

1.1.9 This Framework DCEMP will be passed onto the Principal Contractor(s), once appointed, to implement and formulate a detailed DCEMP.

1.1.10 The DCEMP is an active document and will require updating at key milestones. During the demolition and construction works, there may be changes in working practices, plant and equipment that should be used, in addition to new regulatory requirements. Ongoing reviews will allow the DCEMP to be renewed and updated, as necessary.

1.2 Planning Context

1.2.1 The majority of the Site, formerly known as Huntspill Energy Park (HEP), received planning permission for an Energy Park in November 2017 (the '2017 Planning Consent').

1.2.2 Approximately 250 hectares (616 acres) of the HEP site was part of the former Royal Ordnance Factory (ROF) owned by BAE Systems. The ROF site was closed by BAE Systems in 2008. The Site was acquired by Gravity in 2017. Since 2017, Gravity has focused on remediation of the former ROF site, construction of the Gravity Link Road and the re-

imagination the Site to facilitate a new era of clean and inclusive commercial growth which will deliver on climate action and create decent work. This has been achieved through a review of the UN Sustainable Development Goals to re-position the regeneration of the Site.

1.2.3 Prior to determination of the Huntspill Energy Park application (The 2013 HEP Application) the Site secured Enterprise Zone (EZ) status in April 2017. The EZ became live on the 1 April 2017 and runs for 25 years until 2042.

1.2.4 An ES was prepared for the 2013 HEP Application as follows:

- An Environmental Statement was submitted with the 2013 HEP Application in April 2013 (the '2013 ES');
- An Environmental Statement Update was submitted in October 2013 (the '2013 ES Update'); and
- An Environmental Statement Addendum was submitted in June 2017 (the '2017 ES Addendum').

1.2.5 Demolition of existing structures and remediation works for the Former ROF site were subject to a separate planning application which was approved by SDC on 3 April 2012 (42/11/00017). These works were also considered in the ES prepared for the 2013 HEP Application as they were considered integral to the overall project.

1.2.6 A few buildings, including some buildings currently being used as site offices by Gravity, are still located on the Site. These will be demolished under the LDO as shown on the Existing Buildings to be Demolished Parameter Plan in **Appendix B**. The majority of demolition and remediation works were completed in November 2020.

1.2.7 Several elements of the 2017 Planning Consent have also been implemented as follows:

- The new road access onto the A39, referred to as the Gravity Link Road, including the Green Bridge. Construction of the road is ongoing and is scheduled to open in October 2021.
- An employment and skills plan which is part of the local labour agreement implementation has been agreed through the Gravity Link Road contractor.
- The Village Enhancement Scheme, an obligation within the Section 106 agreement, has achieved planning consent and is passing through the technical approval process with Somerset County Council in order to be delivered in accordance with the obligation. This will be in place by Autumn 2022, one year from the opening of the Gravity Link Road.
- Another obligation requiring the agreement of a Framework Local Labour Agreement (FLLA) has also been discharged with the FLLA being agreed and signed by This is Gravity Ltd and SDC in December 2020.
- Ecological works required as part of the demolition and remediation works have been undertaken, including the newt ponds constructed in the north-west corner of the Site; clearance of the majority of trees and vegetation from the development area; Great Crested Newt fencing and badger mitigation. These elements are therefore included in the ecology baseline for the EIA for the LDO. The ecology baseline is set out in detail in **Chapter 12 Biodiversity.**
- A number of pre-commencement planning conditions have also been discharged. These include those which relate to the delivery of the Gravity Link Road but also site wide

conditions. At the time of writing this ES, the following site-wide conditions have been discharged:

- Condition 12 - Remediation Works
- Condition 13 - (Parcel Specific Contamination Assessment) (partially discharged at time of writing)
- Condition 22 – Security Masterplan
- Condition 23 – Operation & Maintenance Manual for Surface Water Drainage Infrastructure
- Condition 24 – Ecological Management Plan Framework
- Condition 29 – Strategic Design Code
- Condition 30 – Assessment of Existing Surface Water and Effluent Disposal Infrastructure
- Condition 31 – Strategic Surface Water Management Plan
- Condition 33 – Ecological Reed Bed Assessment
- Condition 34 - Ecological Mitigation and Enhancement Strategy
- Condition 35 – Foul Drainage
- Condition 36 – Strategic Landscape Masterplan

1.2.8 In addition, works to Junction 23 of the M5 have been completed by other parties and contributions have been made by This is Gravity Ltd to advanced transport modelling and assessment.

1.3 Purpose of this Document

1.3.1 This Framework DCEMP is appended to the Gravity Environmental Statement (ES) as **Appendix 4.1.**

1.3.2 A DCEMP is the lead environmental management document that helps define and bring together the procedures for achieving the environmental objectives of the project defined by legislation, policy and best practice.

1.3.3 This Framework DCEMP has been prepared to set out the environmental issues and management procedures to be adopted during the demolition and construction works on Site to help control potential adverse impacts to the environment and the local community.

1.3.4 The ES has identified the construction mitigation measures that should be implemented to enable the environmental effects of the Proposed Development to be acceptable. Such construction mitigation measures, along with national and local requirements and policy with regards to construction, have been included in this Framework DCEMP to enable measures to be implemented into the construction of the Proposed Development.

1.3.5 This document provides a series of proposed measures and standards of work, which shall be applied by the appointed Principal Contractor(s) and its sub-contractors throughout the demolition and construction period to:

- Provide effective planning, management and control during demolition and construction to control potential impacts upon people, businesses and the natural and historic environment; and
- Provide the mechanisms to engage with the local community and their representatives throughout the demolition and construction period.

1.3.6 Once the Principal Contractor(s) has been appointed, they will be responsible for taking this framework document and developing a detailed DCEMP. A detailed DCEMP will be prepared for each phase of the Proposed Development. This Framework DCEMP will also be used as the basis for future DCEMPs for the different phases of development as they come forward.

1.3.7 The Principal Contractor(s) will comply, as a minimum, with applicable environmental legislation at the time of demolition and construction. Further guidance on specific areas, such as soil handling and dust management, will be considered from industry best practice guidance documents as set out in each discipline section. The references to guidance documents within this document are not intended to be exhaustive.

1.3.8 In summary the objectives of this document are to:

- Minimise, (eliminating where practicable), the environmental effects of the demolition and construction of the Proposed Development;
- Document the environmental controls to be adopted during demolition and construction;
- Enable agreement with the relevant approval authorities on mitigation measures to be adopted during demolition and construction; and
- Provide a framework for contractors to manage demolition and construction impacts.

1.3.9 A full list of demolition and construction activities can be read in **Chapter 4** of the ES.

1.4 Structure of the DCEMP

1.4.1 The DCEMP covers a range of topics relating to identification and management of potential environmental effects of demolition and construction. These have been selected based on the chapters of the Environmental Statement (2021).

1.4.2 The DCEMP is structured as follows:

- Section 2: The Site and Proposed Development;
- Section 3: Roles, Responsibilities and Communications;
- Section 4: Construction Management Methodology;
- Section 5: Construction Traffic;
- Section 6: Air Quality and Dust;
- Section 7: Noise and Vibration;
- Section 8: Contamination and Ground Conditions;
- Section 9: Water Resources and Flood Risk;
- Section 10: Landscape, Townscape and Visual Considerations;

- Section 11: Ecology and Natural Habitats;
- Section 12: Archaeology and Cultural Heritage;
- Section 13: Materials Management; and
- Section 14: Consideration for Others and the Environment.

1.4.3 **Sections 4** to **14** consider the general issues for demolition and construction, potential impacts, mitigation of these impacts and topic-specific legal compliance.

1.5 Terminology

1.5.1 For ease of reference, the following terms have been used in this report:

- **The Site** – the area within the LDO boundary at **Appendix A;**
- **Proposed Development** – the development to be consented by the LDO;
- **LDO** – Local Development Order;
- **SDC** – Sedgemoor District Council, which will make the LDO;
- **This is Gravity Ltd (Gravity)** – landowner of the Site;
- **Remediation Planning Consent** - demolition of existing structures and remediation works for the Former Royal Ordnance Factory (ROF) site were subject to a separate planning application which was approved by SDC on 3 April 2012 (reference number 42/11/00017);
- **Huntspill Energy Park** – the name of the development approved by the 2017 Planning Consent;
- **Royal Ordnance Factory** – ROF – the former use of the land on which the 2017 Planning Consent was granted;
- **Gravity Link Road** – new road which connects the Site to the A39 and then to Junction 23 of the M5 to the west due to be completed in October 2021;
- **Enabling works** – demolition, land clearance, site preparation and construction processes; as described in part (a) of the Description of Development at **Section 4.2**; and
- **The approved village enhancement scheme** – this was identified as mitigation for the 2017 Planning Consent and will be implemented one year from the opening of the Gravity Link Road; the scheme will improve linkages between Puriton to Woolavington and delivering traffic calming in both villages.

2 The Site and Proposed Development

2.1 Introduction

2.1.1 This chapter provides a description of the Site location, existing land uses, surrounding land uses and the Proposed Development.

2.2 Site Location

2.2.1 The Site is located between the villages of Puriton and Woolavington, approximately 6km north east of Bridgwater. The Site lies approximately 2km to the east of Junction 23 of the M5 motorway.

2.2.2 A Site Location Plan is included in **Appendix A**.

2.2.3 The village of Puriton lies immediately to the south west of the Site and the village of Woolavington lies immediately to the south east. Beyond Puriton, approximately 2km west of the Site, lies junction 23 of the M5 motorway and the motorway runs in north-south orientation. Puriton and Woolavington contain the closest dwellings to the Site.

2.2.4 As well as the M5 motorway, the closest roads are Woolavington Road which runs in an east-west direction between the villages of Woolavington and Puriton to the south of the Site, the B3141 Causeway which runs in a north south direction between the villages of East Huntspill and Woolavington to the east of the Site.

2.2.5 Further information about the Site Location is provided in the Environmental Statement (ES), **Chapter 2**.

2.3 Site Description

2.3.1 Gravity comprises 261.54 hectares (646.29 acres) of land, of which approximately 250 hectares (616 acres) was part of the former ROF which closed in 2008. The majority of the Site, associated with the ROF, is brownfield land hosting a primary industrial manufacturing use over the past 70 years. Land on the edges of the Site, in particular to the south and east, is currently greenfield agricultural land.

2.4 Proposed Development

2.4.1 The description of development, is as follows:

(a) any operations or engineering works necessary to enable the development of the Site, including demolition, excavation and earthworks, the formation of compounds for the stockpiling, sorting and treatment of excavated materials, import of material to create development platforms, piling, and any other operations or engineering necessary for site mobilisation, office and worker accommodation, communications, drainage, utilities and associated environmental, construction and traffic management.

(b) the development of a smart campus including:

i. commercial building or buildings with a total Gross External Area of up to 1,000,000m^2 which would sit within current Use Classes E (a)- (g), B2, B8 and sui generis floorspace uses and

ii. a range of buildings up to 100,000m^2 within Use Classes C1, C2, E (a) – (g), F, B8, including restaurants / cafes, shops, leisure, education and sui generis uses; and

iii. up to 750 homes in Use Class C3.

together with associated infrastructure including restoration of the railway line for passenger and freight services, rail infrastructure including terminals, sidings and operational infrastructure and change of use of land to operational rail land, multi-modal transport interchange, energy generation, energy distribution and management infrastructure, utilities and associated buildings and infrastructure, digital infrastructure, car parking, a site wide sustainable water management system and associated green infrastructure, access roads and landscaping.

2.4.2 The Proposed Development is defined by a series of Parameter Plans to show the flexibility in the development consented by the LDO

2.4.3 Further information about the Proposed Development is provided in the Environmental Statement (ES), **Chapter 2.**

2.5 Construction and Demolition Phasing

2.5.1 The majority of demolition of the former ROF Site has been undertaken through the Site demolition and remediation works that were completed in November 2020 under the Remediation Planning Consent. However, there are a limited number of buildings remaining that will require to be demolished to accommodate the LDO. These are shown on the Existing Buildings to be Demolished Parameter Plan in **Appendix B**.

2.5.2 Construction of the Proposed Development will be market-led and will therefore respond to occupier requirements (within the parameters of the LDO and/or extant planning permissions). There is the potential that the commercial element of the Site is taken forward by one occupier developing an advanced manufacturing facility. Alternatively, the commercial element could be brought forward by several occupiers.

2.5.3 It is anticipated that the construction of the Proposed Development will be completed on a phased basis, with elements being occupied whilst other phases are being constructed.

2.5.1 The phased nature of the construction of the Proposed Development means that environmental effects during demolition and construction will vary temporally and geographically through the construction period.

2.5.2 The completion of the Gravity Link Road will greatly assist the provision of a dedicated access to service construction.

2.5.3 The construction programme is not available at this time. It is anticipated that construction will commence in 2022 and be complete by 2032. Therefore, while construction is anticipated to last for up to around 10 years, it is not anticipated that any area of the Site or surrounding area will experience construction effects during all, or even the majority, of that time. Construction effects also typically vary in magnitude depending on the processes occurring at any one time (e.g., earth movements are more likely to lead to significant environmental effects than internal fit out of a building).

2.5.4 During this time there may be changes in working practices, plant and equipment that should be used, and new regulatory requirements. Therefore, each Detailed DCEMP should be reviewed periodically throughout the construction phase. Reviews will enable the DCEMP to be renewed and updated as necessary, adapting to changes.

2.6 Demolition and Construction Activities

2.6.1 All of the demolition and construction operations carry with them a range of issues to be dealt with in their design, preparation and execution.

2.6.2 Best practice in construction management is already being implemented and will continue to be so to minimise the potential environmental effects and disruption that could be caused by the construction works. This has and will continue to minimise potential disruption to affected communities, services and habitats.

2.6.3 Key demolition and construction activities are likely to include:

- Establishment of construction compound(s) and welfare facilities;
- Temporary workforce accommodation for contractors for up to 200 workers;
- Demolition of the remaining buildings;
- Vegetation clearance, earthworks, materials management and import, and soil/ ground preparation to prepare the Site for construction activities;
- Construction of infrastructure including internal access routes, highway improvements, railhead reinstatement, access works and drainage;
- Formation of open space, with associated landscaping;
- Construction of building foundation, structure, cladding and glazing and internal walls and partitions;
- Installation of fixtures, fitting and building service;
- Utility diversions, upgrades and connections; and
- Soft landscaping.

2.6.4 The construction works will be confined to the Site, apart from those that will be undertaken within the boundaries of the highway where the new accesses will be provided.

2.6.5 Construction compounds within the Site will be sited giving consideration to the environmental and visual effects of development as well as a practical solution to allow the development to proceed.

3 Roles, Responsibilities and Communications

3.1 Introduction

3.1.1 This chapter covers key roles that will need to be designated in order for the DCEMP to be adequately complied with, and what responsibilities will be covered by these roles. The communication protocols are also set out below.

3.2 Roles and Responsibilities

The Client

3.2.1 Overall responsibility for the DCEMP and ensuring legislative compliance lies with the Client. The Client should make sure that all contractors engaged in a particular phase have an obligation to comply with good environmental practice for demolition and construction including preparation and implementation of the detailed DCEMP.

3.2.2 The Client may need to coordinate multiple Principal Contractor(s) at one time.

3.2.3 For the purposes of this DCEMP, the Client is This is Gravity.

The Principal Contractor(s)

3.2.4 The Principal Contractor(s) will be charged with responsibility for management, co-ordination and implementation of the DCEMP.

3.2.5 Each detailed LDO phase may be brought forward with a new Principal Contractor(s). Each Principal Contractor(s) will need to make sure that a detailed DCEMP(s) is prepared for each phase of the development and is cognisant of arrangements for other phases.

3.2.6 It will be the responsibility of the Principal Contractor(s) to ensure that all of their staff, sub-contractors, and site workers are aware of and adhere to the DCEMP. This is so that everyone understands the aims of the DCEMP and recognises their personal responsibility in its implementation, protection of the environment and legislative compliance.

3.2.7 The Principal Contractor(s) will have responsibility for ensuring that the DCEMP and associated documentation are kept up to date along with details of specific permits etc. Documentation, recording and monitoring of the DCEMP will be essential and updated on a regular basis and verified at the end of the LDO.

3.2.8 It is the Principal Contractor(s)'s responsibility to ensure that demolition and construction works are undertaken in compliance with all relevant and current legislation applicable at the time of the works.

3.2.9 The Principal Contractor(s) should employ any relevant Construction Skills Certification Scheme (CSCS) standards during demolition and construction on the Site.

3.2.10 The Principal Contractor(s) should register the project with a national compliance scheme such as the Considerate Constructors Scheme (CCS). The CCS recognises and rewards better than standard industry practice in the following sections:

- Care about appearance;
- Respect the community;
- Protect the environment;

- Secure everyone's safety; and
- Value their workforce.

3.2.11 The Principal Contractor(s) will also co-ordinate environmental activities during demolition and construction. This will include:

- Ensuring appropriate environmental training and advice is provided to contractors;
- Monitoring demolition and construction activities and compliance; and
- Acting as point of contact between contractors and other stakeholders.

The Project Manager

3.2.12 The Project Manager will act as a central point of contact between SDC and the Principal Contractor(s), the local community and other third parties.

Community Liaison Officer or Communications Officer

3.2.13 As part of the general communications protocol, the Principal Contractor should provide details of a Community Liaison Officer or Communications Officer for nearby residents and businesses. The Community Liaison Officer will provide general information on the demolition and construction of the development and respond to any queries or complaints that may come forward. This should give a point of contact for complaints and queries. As such they will need to be updated on a regular basis by the Project Manager, and informed of any planned work, issues, or incidents. A 24-hour number should be provided for urgent contact.

Sub-contractors

3.2.14 Sub-contractors and suppliers will be obliged contractually to adhere to the requirements of the DCEMP (based on this framework) and will ensure all their site personnel are inducted on the requirements of the DCEMP and are aware of it prior to commencing any work on Site.

3.2.15 Materials suppliers should provide details to the Principal Contractor(s) of the provenance of all materials they supply to the development e.g., timber.

3.3 Overview of communications

3.3.1 The Principal Contractor(s), working with the Community Liaison Officer, will be required to establish a series of client approved communication protocols to ensure that relevant stakeholders are kept informed of demolition and construction progress and any issues arising. This will also help to establish lines of communication should any stakeholders wish to raise issues regarding the demolition and construction works.

3.3.2 The communication protocols will also establish appropriate relations between contractors, the client, any adjacent construction works; and with occupants of properties near demolition and construction sites, including the current or future occupiers and the local community, particularly relating to the development access arrangements.

3.3.3 Where there is change of demolition and construction personnel between infrastructure delivery and demolition and construction stages, appropriate liaison and handover must take place.

Training

3.3.4 Environmental training is essential to implement the DCEMP, protect the environment and minimise impacts during demolition and construction activities. It is also necessary to ensure compliance with environmental legislation. A short briefing note on the DCEMP will be provided to visitors to the Site, prepared by the Principal Contractor(s).

3.3.5 A copy of the DCEMP will be available in the main Site office reception.

3.3.6 No demolition and construction personnel including office staff will be permitted to work on the Site until they have attended a Site induction course which includes a briefing on the DCEMP and ways of minimising environmental effects, waste management and responding to emergencies.

3.3.7 Toolbox talks, as certain activities take place or areas of high risk, are an effective means of focused communication to the Site staff.

Project Communications, Local Community and Third-Party Liaison

3.3.8 To minimise disruption to local residents and communities, all potentially affected residents will be made aware of the activities on Site.

3.3.9 The Community Liaison Officer will act as a central point of contact between SDC, the project manager, the Client, the local community and other third parties. They will be advised of the nature of the proposed works, proposed hours of work and their expected duration, including a summary of proposed phasing. This will be done through relevant communication channels such as letter drops, notices on Site hoardings, website communications, electronic and community (hard copy) newsletters, adverts in the local press etc. These communications should also give contact details for the Project Manager and a 24-hour contact telephone number. The local planning authority SDC will also be made aware of the work being carried out on Site.

3.3.10 The Community Liaison Officer will have the responsibility of keeping the local community informed of demolition and construction progress and be the main point of contact with them should any issues arise. The Community Liaison Officer will also have the responsibility of responding to complaints or emergencies.

3.3.11 The Community Liaison Officer should also consider the requirement for meetings to be set up with the local residents and employer representatives. This could include a 'Construction Practice Liaison Group' being established, comprising the developers, local planning authority and local representatives. This could also be supported by demolition and demolition and construction updates online and the existing Public Relations channels used by the development.

3.3.12 Prior to commencement of demolition and construction works, the Community Liaison Officer will instigate a system for recording, investigating, remedying (where appropriate) and responding to comments. The records will keep a note of the date, the name and contact details for the person making the comment, the action taken and the date of the action.

3.3.13 A logbook system will be set in place to provide a place for the general public, visitors and neighbours to make comments regarding the Site and Proposed Development.

4 Construction Management and Methodology

4.1 Introduction

4.1.1 This section provides an overview of the proposed site management procedures.

4.1.2 Key legal and guidance references are provided for information purposes only. The lists are not exhaustive and should be reviewed periodically throughout the demolition and construction phase.

4.2 Risk Assessments

4.2.1 The approach to risk and compliance will follow up to date best practice methodology and such will be provided within the detailed DCEMP.

4.2.2 Prior to commencement of works, appropriate notices will be served, where required, to inform occupiers of properties that may be affected by the works of any noise, dust, vibration and smoke that may occur as a result of the demolition and construction works.

4.2.3 Contact details of the appropriate persons will be provided alongside notices to ensure any complaints or emergencies are dealt with promptly and professionally.

4.2.4 Demolition and construction activities undertaken on-site will be subject to more detailed environmental risk assessment by the Principal Contractor(s), as appropriate, and will:

- Identify potential environmental impacts that can be anticipated;
- Assess the risks from these impacts;
- Identify the control measures to be taken and re-calculate the risk based on those set out in this DCEMP; and
- Report, to relevant stakeholders (such as the EA and SDC), where an unacceptable level of residual risk is identified so that action can be taken through design changes, re-scheduling of work or alternative methods of working in order to reduce the risk to an acceptable level.

4.2.5 The results of risk assessments, and their residual risks, are only considered acceptable if:

- The severity of outcome is reduced to the lowest practical level;
- The number of risk exposures are reduced; and
- All reasonably practical mitigating measures have been taken and the residual risk rating is reduced to a minimum.

4.2.6 The findings of the risk assessment and, in particular, the necessary controls would be explained to all contractors before the commencement of the relevant works using an agreed instruction format (e.g., toolbox talks).

4.3 Site Environmental Standards

4.3.1 Site Environmental Standards will be agreed with the Principal Contractor(s) and would detail the minimum measures that should be achieved for general operations falling outside the risk assessment in line with the measures set out in this DCEMP.

4.3.2 These will cover issues such as storage of materials, management of waste, noise and vibration, and water pollution control. The standards should be used as a briefing tool on Site. These standards will also form the basis of 'toolbox talks' which will inform all contractors working on Site of the potential environmental risks arising from demolition and construction activities.

4.3.3 Best practice demolition and construction site management techniques will be implemented to avoid/reduce the generation of excessive waste, dust, noise, lighting, noise and vibration the measures set out in this DCEMP.

4.4 Consents and Licenses

4.4.1 The Principal Contractor(s) will be responsible for any consents, permissions or licences necessary for the demolition and construction works that are not already in place.

4.4.2 A register of consents etc. must be kept, to include all applied for and secured, details of expiry dates, conditions and commitments that must be adhered to and all related correspondence. The Principal Contractor(s) should make sure that this is kept up to date.

4.4.3 The Control of Pollution Act 1974 (COPA) Section 61 sets out procedures for contractors to obtain 'Prior Consent' for demolition and construction works within agreed noise limits. The provisions set out in COPA include that prior to the start of demolition and construction, an assessment is undertaken of the likely demolition and construction noise impacts which takes into account the proposed methods of working. Applications for prior consent would be made to the local authority. The application would contain a method statement detailing the proposed works and the steps that would be taken to minimise and mitigate noise during the demolition and construction period.

4.4.4 Sections 60 and 61 describe the process that developers and local authorities will be required to perform to gain permission for potentially noisy demolition and construction works. Using COPA local authorities may impose limitations on working hours, plant and machinery used, and noise levels emitted from construction sites.

Legislation and Guidance

4.4.5 It is the Principal Contractor(s)'s responsibility to check that demolition and construction works are undertaken in compliance with all relevant legislation applicable at the time of the works.

4.4.6 It is expected that through Site induction and toolbox meetings, staff will gain an awareness of the information contained within these documents.

4.4.7 The list of legislation and guidance is not exhaustive and will be added to when necessary.

4.4.8 Provision, communication and update of the list of environmental legislation during demolition and construction will be the responsibility of the Principal Contractor(s).

4.5 Emergency Planning & Incident Control Procedures

General

4.5.1 The Principal Contractor(s) will develop and implement an incident control procedure for the project. The aim of this incident control procedure is to prevent the release of pollutants (for example oil and fuels) into the environment and to protect health and safety of those on-site.

4.5.2 Emergency procedures are also to be prepared by the Principal Contractor(s).

Environmental Pollution Incident Recognition

4.5.3 The Principal Contractor(s) will undertake health, safety and environmental induction training courses to highlight the key potential environmental pollution issues to all relevant project personnel. Briefing topics will include:

- Uncontrolled discharge/spillage of polluting substances such as chemicals, oil, concrete etc. into controlled waters or sewers;
- Uncontrolled discharge of contaminated surface water run-off such as oil, chemical, suspended solids contamination into controlled waters;
- Release of smoke (e.g., from fire) into the atmosphere;
- General ecological, archaeological and environmental awareness; and
- Spillage of solid waste into sensitive areas and risks of windblown litter and debris.

Emergency Planning

4.5.4 The Principal Contractor(s) will set up and manage systems, procedures and equipment for emergency planning which will include the following:

- Provision of adequate spillage containment materials to stop and contain pollution, for example the use of available earth where stockpiles are strategically placed in environmentally vulnerable areas;
- Provision of a Site drainage plan identifying, and colour coding surface water drainage separate to foul sewer drainage. This will assist in the siting of storage containment areas and associated protection measures;
- Emergency bunding /control packs to be available at key locations in the event of a pollution incident;
- Liaison with the appropriate representatives from the Environment Agency (EA), and essential local emergency services to discuss, in particular, emergency pollution control plans and emergency communications strategy; and
- Appointment of a Site ‘emergency pollution control response team’ to respond to pollution incidents.

Incident Control and Reporting

4.5.5 Incident control procedures will be developed by the Principal Contractor(s) in liaison with the EA, SDC and essential emergency services. The control procedure in outline will include:

- Containment of pollution at source;
- Reporting incident immediately to Site management team;
- Raising the alarm to the emergency pollution control response team;
- Summoning emergency services where appropriate;
- Safe disposal of pollution waste; and
- Notifying the local EA regional office.

4.5.6 All environmental incidents shall be recorded by the Principal Contractor(s) and reported to the Client as soon as practicable and if appropriate reported to the EA or other relevant stakeholders. The Principal Contractor(s) will complete an environmental incident report as part of the procedure.

4.6 Site Logistics Control and Site Planning

Demolition and Construction Site Logistics

4.6.1 Schedules and plans to be prepared by the Principal Contractor(s) will show an overview of the logistics plan for demolition and construction and will be included in the Detailed DCEMPs.

4.6.2 It will most likely follow the general principles outlined below unless otherwise agreed with stakeholders. Topics covered should include:

- Site working hours;
- Site layout (e.g., principal access/egress points, routing plans, site security);
- Site offices and welfare facilities;
- Site access routes (construction traffic management);
- Site demarcation and access control;
- Lighting arrangements;
- Delivery areas; and
- Storage and lay-down.

Welfare Facilities

4.6.3 In accordance with the *Construction (Design and Management) Regulations 2015*, and HSE guidance, welfare facilities will need to be provided on Site. These should include canteens, toilets and washrooms with hot water; drying/changing rooms; and a first aid post, as appropriate.

Site Security

4.6.4 The Principal Contractor(s) will provide boundary fencing/delineation, including suitable signage and any associated security in general accordance with *Construction (Design and Management) Regulations 2015*.

Operating Hours

4.6.5 SDC recommend that no demolition work shall take place outside the hours of 07:00 to 18:00 Mondays to Fridays, 08:00 to 13:00 on Saturdays[1].

4.6.6 No demolition and construction works, or collections or deliveries will take place on Sundays or Bank/Public Holidays.

4.6.7 Given the nature of the enterprise zone status and the proposal to establish a 24/7 smart campus to attract investment to transform the economy, it is possible that there will be a sense

[1] Commercial and Development Noise (online at: https://www.sedgemoor.gov.uk/article/1029/Commercial-and-Development-Noise)

of urgency to provide an accelerated response to programme and construction to meet business needs.

4.6.8 Construction activities are expected to be 24/7 in a similar pattern to that experienced by the Hinkley Point C project, with no construction activities on Saturday afternoons or Sundays. During Monday to Friday, nosier construction activity is to be managed down between the hours of 10pm and 6am with work between those hours restricted to internal works or quieter activities to ensure residential amenity.

4.6.9 When programme is known, a proposal will be submitted to SDC to clarify working hours. Notification will normally be made in writing 10 working days in advance, with justification for deviation from permitted hours and details of alternative noise limits or similar that will be adhered to (either within a Construction Method Statement or in supplemental correspondence). Prior approval by SDC will be sought for any deviation from agreed limits and for the application of alternatives before works commence.

4.6.10 During winter months, work may continue during hours of darkness within normal working hours subject to adequate artificial lighting to illuminate the works in question. However, where artificial lighting is proposed this will be subject to environmental restrictions as noted in this DCEMP.

General Types of Plant and Equipment

4.6.11 All key static plant and equipment (e.g., hoists, power distribution units, diesel storage tanks etc.) will be clearly identified on Site logistics drawings.

4.6.12 The Principal Contractor(s) will be required to complete a '*Register of Plant & Equipment and Statutory Certification'* within their Health & Safety Plan prior to works commencing on Site.

4.6.13 The Register allows an inventory of on-site plant and equipment to be kept to, check they are maintained in accordance with statutory test/examination/inspection requirements, and that specific operator training requirements are addressed. This list also assists by providing a useful cross-reference for noise level predictions and assessments of plant and machinery in respect to ensuring that excessive noise levels are identified, and suitable control measures implemented to reduce those noise levels.

4.7 Monitoring, Review and Complaints

4.7.1 The requirements for a programme of monitoring, review and complaints will be reviewed by the Principal Contractor(s).

4.8 Auditing and Reviewing

4.8.1 Checks will be undertaken on the effectiveness of the DCEMP. Should deficiencies be identified, the Framework DCEMP will be updated to enable the document to continue to fulfil its objectives. This will include a review of current legislation, standards, plant, processes, etc. Revised copies of the DCEMP will be provided in the Site office.

4.8.2 In addition, consideration will be given to regular environmental audits of the demolition and construction works to enable compliance with the DCEMP. The scope of the audits could include:

- Waste management & duty of care;
- Noise & vibration;
- Dust;

- Demolition and construction traffic;
- Fuel storage;
- Pollution;
- Community liaison; and
- Biodiversity and ecology.

4.8.3 All audits undertaken should be documented in an Audit Report. Where non-conformances with the DCEMP are identified, these will be recorded on a Non-Conformance Report, this should include:

- Details of who and what is being audited;
- Details of the non-conformance;
- Corrective action required; and
- Review of corrective action dated and signed.

4.8.4 The report allows subsequent audits to monitor the performance of the corrective action and then sign off the corrective action request once it has been successfully implemented. All completed Non-Conformance Reports will be held on Site in a designated file.

5 Construction Traffic

5.1 Introduction

5.1.1 Traffic will be generated during the demolition and construction of the Proposed Development, as a result of bringing plant and materials to the Site, removing waste, and demolition and construction personnel movements. This section identifies the mitigation measures required to limit potential impacts of highway works, transport and traffic movements arising from the demolition and construction of the Proposed Development.

5.1.2 A summary of potential impacts is provided below – a full description of impacts resulting from the demolition and construction of the Proposed Development in relation to construction traffic is provided in Chapter 9 of the ES[2] (Transport and Access), prepared by Stantec.

5.2 Summary of Potential Impacts

5.2.1 The implementation of the LDO will be market-led and therefore a construction programme is not available at this time. It is however anticipated that construction will be complete by 2032 and therefore there is the potential for construction effects to be long-term but not permanent.

5.2.2 An appraisal of the likely trip generation has been undertaken based upon the scale of development proposed and assumed delivery programme, and it is estimated that peak construction activity would be in 2024. The appraisal has been based on a 5-day working week.

5.2.3 The construction of the Proposed Development would generate traffic that would affect the local road network primarily through HGV movements bringing materials in/out of the Site and construction workforce journeys to/from work on site.

5.2.4 The construction effects will be limited in time to the construction period and the majority of HGV movements limited to the Gravity Link Road, the A39 Puriton Hill, M5 Junction 23 and mainline; all links with no sensitive receptors present.

5.2.5 The Proposed Development could include a range of potential land uses / buildings; however, they are all anticipated to be built using traditional construction techniques or off-site manufacturing that would not necessitate the transit of any unusual or especially hazardous materials.

5.2.6 Impacts related to air quality and noise from demolition and construction traffic and plant movements are covered in **Chapter 6** and **Chapter 7** of this Framework DCEMP.

5.3 Mitigation Measures

5.3.1 A Construction Traffic Management Plan (CTMP) will be submitted to assess the likely effects of the Proposed Development on the transport network during the demolition and construction phase.

5.3.2 The CTMP will include the anticipated number, frequency and size of construction vehicles, construction operation hours, construction vehicular routes to and from site, construction delivery hours, expected number of construction vehicles per day, specific measures to be adopted to mitigate construction impacts in pursuance of the Environmental Code of Construction Practice and a scheme to encourage the use of public transport amongst contractors.

[2] Gravity Environmental Statement, Stantec (2021)

5.3.3 The CTMP will be applied to all demolition and construction activities across the Proposed Development and will define the appropriate hours of operation and routes to be used by HDVs and other large demolition and construction vehicles.

5.3.4 All freight movements, construction vehicles and construction worker travel movements from different phases of construction will need to be managed and coordinated to ensure movements only occur during operational hours.

5.3.5 Managing the travel of construction vehicles will be essential in reducing the impact of construction phases on the local road network, including through Bridgwater and adjacent local villages. Deliveries and removals should travel along the new Link Road from either the M5 or A39 from the east.

5.3.6 There may be limited opportunities to use the secondary access on the eastern boundary for example for aggregate movement, to facilitate re-use from the Hinkley Connection project. This may reduce movements overall and limit impacts and movements through Woolavington village.

6 Air Quality and Dust

6.1 Introduction

6.1.1 This section identifies the measures to mitigate the potential impacts on air quality arising from demolition and construction of the Proposed Development.

6.1.2 A summary of potential impacts is provided below – a full description of impacts resulting from the demolition and construction of the Proposed Development in relation to air quality and dust is provided in Chapter 11 of the ES[1] (Air Quality), prepared by Stantec.

6.2 Summary of Potential Impacts

6.2.1 There are a number of existing sensitive human receptors (residential properties) located within 350 m of the Site boundary and within 50 m of the routes that will be used by demolition and construction vehicles.

6.2.2 During demolition and construction, dust from on-site activities and off-site track out by construction vehicles has the potential to impact on sensitive human receptors within the study area; the main potential impacts are loss of amenity (as a result of dust soiling) and deterioration of human health (as a result of concentrations of PM_{10}).

6.2.3 The suspension of particles in the air is dependent on surface characteristics, weather conditions and on-site activities. Impacts have the potential to occur when dust generating activities coincide with dry, windy conditions, and where sensitive receptors are located downwind of the dust source(s).

6.2.4 Separation distance is also an important factor:

- Large dust particles (greater than 30µm), can be potentially responsible for most dust annoyance, will largely deposit within 100 m of sources.
- Intermediate particles (10-30 µm) can travel 200-500 m. Consequently, significant dust annoyance is usually limited to within a few hundred metres of its source.
- Smaller particles (less than 10 µm), which are the predominant fraction that can be potentially responsible for human health impacts largely remain airborne.
- However, the impact on the short-term concentrations of PM_{10} occurs over a shorter distance due to the rapid decrease in concentrations with distance from the source due to dispersion.

6.2.5 The principal potential impact, during demolition and construction, in relation to air quality is in relation to the production and management of dust. The following activities have the potential to cause emissions of dust during demolition and construction of the Proposed Development:

- The demolition of existing buildings;
- Ground remediation and earthworks including excavating, digging foundations, levelling areas of the Site and landscaping;
- Materials handling such as storage of material in stockpiles and spillage;
- Site preparation including delivery of construction material, erection of fences and barriers;

- Movement of demolition and construction traffic including haulage, vehicles and plant movements;
- Construction and fabrication of buildings, access roads and associated infrastructure;
- Disposal of waste materials off-Site; and
- The crushing of concrete on Site.

6.3 Mitigation Measures

6.3.1 In relation to dust associated with enabling demolition and construction activities, the Institute of Air Quality Management methodology identifies the level of risk without mitigation, therefore the following mitigation measures (from the IAQM guidance) will be implemented:

Management

- Develop and implement a dust management plan.
- Record all dust and air quality complaints, identify causes and take measures to reduce emissions.
- Record exceptional incidents and action taken to resolve the situation.
- Carry out regular site inspections to monitor compliance with the dust management plan and record results.
- Increase site inspection frequency during prolonged dry or windy conditions and when activities with high dust potential are being undertaken.
- Agree dust monitoring locations with the local authority and instigate monitoring 3 months in advance of works commencing in the area.
- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as possible.
- Erect solid screens or barriers around dusty activities or the Site boundary at least as high as any stockpile on site.
- Fully enclose Site or specific operations where there is a high potential for dust production and the Site is active for an extensive period.
- Avoid site run off of water or mud.
- Keep site fencing, barriers and scaffolding clean using wet methods.
- Remove potentially dusty materials from Site as soon as possible.
- Cover, seed or fence stockpiles to prevent wind whipping.
- Ensure all vehicles switch off engines when stationary.
- Avoid the use of diesel or petrol powered generators where possible.
- Produce a Construction Logistics Plan to manage the delivery of goods and materials.
- Only use cutting, grinding and sawing equipment with dust suppression equipment.

- Ensure an adequate supply of water on-site for dust suppressant.
- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use water sprays on such equipment where appropriate.
- Ensure equipment is readily available on-site to clean up spillages of dry materials.
- No on-site bonfires and burning of waste materials on-site.

Demolition

- Incorporate soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).
- Ensure water suppression is used during demolition operation.
- Bag and remove any biological debris or damp down such material before demolition.

Earthworks

- Re-vegetate earthworks and exposed areas /soil stockpiles to stabilise surfaces as soon as practicable.
- Only remove the cover in small areas during work and not all at once.

Construction

- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless required for a particular process.
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored silos with suitable emissions control systems.
- Crushers shall be contained or fitted with a water suppression system.

Trackout

- Use water assisted dust sweepers on the Site access and local roads.
- Avoid dry sweeping of large areas.
- Ensure vehicles entering and leaving the Site are covered to prevent escape of materials.
- Record inspection of on-site haul routes and any subsequent action, repairing as soon as reasonably practicable.
- Install hard surfaced haul routes which are regularly damped down.
- Install a wheel wash with a hard-surfaced road to the Site exit where site layout permits.
- The Site access gate to be located at least 10m from receptors where possible.

7 Noise and Vibration

7.1 Introduction

7.1.1 This section identifies the measures required to mitigate the potential noise impacts arising from the demolition and construction of the Proposed Development.

7.1.2 A summary of potential impacts is provided below – a full description of impacts resulting from the demolition and construction of the Proposed Development in relation to noise and vibration is provided in Chapter 10 of the ES[1] (Noise and Vibration), prepared by Stantec.

7.2 Summary of Potential Impacts

7.2.1 Construction noise could potentially increase the ambient noise levels at existing noise-sensitive receptors and proposed noise-sensitive receptors if inhabited during the construction works.

7.2.2 Internal building construction, and the servicing and fitting out of new buildings is normally not a significant source of noise or vibration.

7.2.3 Construction works will take place for a period of 10 or more days in any 15 consecutive days.

7.2.4 Precise details of the types of construction methods and plant are still to be determined; however, the assessment considers construction activities during the following principal stages.

- Site preparation works
- Demolition, foundations and substructure works
- Building erection and superstructure works
- Road works
- Landscaping works, internal building construction and fit-out.

7.2.5 At this stage in the design, it is not confirmed if piling activity or other significant vibration generating activities will be required during the construction of the Proposed Development. It has been assumed that piling will be required for the construction of the proposed commercial and industrial uses. It has also been assumed that if piling is required in the vicinity of residential dwellings, auger piling will be used.

7.3 Mitigation Measures

7.3.1 The following advice is based on the guidance provided in BS5228-1:2009+A1:2014 and will be applied as appropriate to minimise the noise breakout from the construction activities affecting noise sensitive receptors:

- Ensuring the use of quiet working methods, the most suitable plant and reasonable hours of working for noisy operations, where reasonably practicable;
- Locating noisy plant and equipment as far away from dwellings as reasonably possible, and where practical, carry out loading and unloading in these areas;

- Screening plant to reduce noise which cannot be reduced by increasing the distance between the source and the receiver (i.e., by installing noisy plant and equipment behind large site buildings);
- Shutting down any machines that work intermittently or throttling them back to a minimum;
- Orientating plant that is known to emit noise strongly in one direction so that the noise is directed away from houses, where possible;
- Closing acoustic covers to engines when they are in use or idling;
- Lowering materials slowly, whenever practicable, and not dropping them;
- Control of Pollution Act Section 61 agreements where appropriate would also be agreed; and
- Use of temporary acoustic barriers, where appropriate, and other noise containment measures, such as screens, sheeting and acoustic hoardings at the construction site boundary to minimise noise breakout and reduce noise levels at the potentially affected receptors.

7.3.2 In addition to the above, all reasonable steps will be taken to keep the local community informed of proposed construction operations. Measures for community liaison will be dealt with by a Community Liaison Officer to co-ordinate the dissemination of information (for example, by means of a regular newsletter).

7.3.3 The above range of environmental management controls represent measures that are regularly and successfully applied to large-scale construction projects in order to minimise noise and vibration effects on local communities. The application of similar control measures during the construction phases would likewise support that the works proceed with the minimum disturbance to local residents.

8 Contamination and Ground Conditions

8.1 Introduction

8.1.1 This section identifies the mitigation measures required to alleviate the potential impacts related to contamination and ground conditions during demolition and construction of the Proposed Development.

8.1.2 It should be noted that demolition of existing structures and remediation works for the Former ROF site were subject to a separate planning application which was approved by SDC on 3 April 2012 (42/11/00017). A few buildings, including some buildings currently being used as site offices by Gravity, are still located on the Site. These will be demolished under the LDO as shown on the Existing Buildings to be Demolished Parameter Plan in **Appendix B**. The majority of demolition and remediation works were completed in November 2020.

8.1.3 A summary of potential impacts is provided below – a full description of impacts resulting from the demolition and construction of the Proposed Development in relation to contamination and ground conditions is provided in the Phase 1 Contaminated Land Assessment (CLA), submitted as part of the ES[1], prepared by Ashfield Solutions (note that the Phase 1 CLA was prepared for land outside of the ROF fence).

8.2 Summary of Potential Impacts

8.2.1 There is a low potential for shallow soil contamination associated with made ground deposits in areas adjacent to the ROF approach roads. The level of risk posed by any contamination in this area will be commensurate with the sensitivity of end use proposed e.g., residential properties with gardens will have a higher sensitivity than commercial premises.

8.2.2 On account of a very low site wide potential for contamination, the risks to ecological and controlled waters receptors are also considered to be low.

8.2.3 Risks from natural ground gas and radon to future properties have been identified. However, these will be addressed through the adoption of routine mitigation measures in agreement with Building Control.

8.2.4 Overall, the contamination potential of the majority of the Site based upon its agricultural use is considered to be very low. Based on localised historical development and usage associated with the ROF, land in the vicinity of the ROF approach roads, particularly in the field to the north is considered to have a low contamination potential.

8.2.5 It is possible that localised historical quarrying of limestone bedrock has taken place across other areas of the Site that have not been documented. On this basis, to facilitate development, specifically at implementation stage to inform construction, potential bedrock at shallow depth should be considered in relation to the choice of foundation solutions, for any properties constructed in the southern lands as it may differ from the wider area.

8.3 Mitigation Measures

8.3.1 To facilitate the future development plans, developers need to consider that ground conditions are appropriate for required foundations for any properties constructed at the Site and for drainage assessment purposes. Normally this would require localised geotechnical confirmatory assessment.

8.3.2 Further, the developer may choose to undertake local confirmatory environmental testing as part of their own works, however, the Land Condition Report has not highlighted any specific land contamination sources requiring further investigation.

8.3.3 The requirement for any specific measures necessary to protect future buildings from ground gas requires further assessment.

8.3.4 All properties will be required to incorporate radon protection measures and such measures may be used by developers to address any potential ground gas risk on a development-specific basis (i.e., taking into consideration the specifics of the building/property design).

8.3.5 It is recommended that a land contamination "watching brief" is implemented during future earthworks, particularly during the clearance of the former ROF buildings and associated foundations in the vicinity of the ROF approach roads.

8.3.6 It is recommended that the re-use of any site-won materials is undertaken using the control of a materials management plan (MMP) in accordance with the requirements of the CL:AIRE DoWCoP framework, and in accordance with the appropriate planning consents and associated traffic management plans

8.3.7 Foundations, damp proofing and ventilation measures shall be designed in accordance with relevant Building Regulations and constructed to the satisfaction of Building Control.

8.3.8 The requirement for any building radon protection measures will need to be agreed separately with Building Control.

8.3.9 In accordance with current health and safety legislation, relevant mitigation measures that will be applied during demolition and construction stages include:

- Demolition and construction activities will be carried out in full compliance with appropriate health and safety legislation, at current amendments, and with reference to appropriate guidance documents and approved codes of practice published by the Health and Safety Executive (HSE).
- Suitable gas protection measures will be implemented.
- Procedures for mitigating the potential risk of accidental discharges of potentially contaminative materials during the demolition phase include the appropriate use of temporary bunding and settlement ponds to allow for isolation and on-site treatment of any sediment laden or contaminated water prior to discharge to the receiving system. Designated wheel washing areas, screening stockpiles of materials and dampening exposed soils will also be implemented as appropriate.
- The Principal Contractor(s) will need to ensure any demolition or construction works on Site refer to appropriate Guidance for Pollution Prevention (GPP) (and the older Pollution Prevention Guidelines) such as GPP 5: Works and maintenance in or near water and PPG 6 Working at construction and demolition sites.
- Each detailed CEMP prepared for each phase of works will include specific reference to pollution prevention measures concerning the use of plant and machinery; wheel washing and vehicle wash-down and disposal of resultant dirty water; oils/chemicals and materials; the use and routing of heavy plant and vehicles; the location and form of work and storage areas and compound and the control and removal of spoil and wastes.
- Soil resources will be used and disposed of sustainably, in accordance with DEFRA's Construction Code of Practice for the Sustainable Use of Soil on Development Sites.
- Measures to minimise and control runoff/leaching to controlled waters, specific measures to protect soils, and prevention measures including bunded storage; designated wheel washing areas; settling basins; screening stockpiles of materials; dampening exposed soils as appropriate will need to be identified by the Principal Contractor(s) and implemented within the detailed DCEMP for each phase.

- In relation to the potential for exposure of current users/construction workers to ground gas, the Detailed DCEMP for each detailed LDO stage will include protocols for working in confined spaces, in accordance with HSE Approved Code of Practice 'Safe work in confined spaces'.

- Measures to minimise exposure to asbestos containing materials are contained in **Chapter 13 - Materials Management.**

8.3.10 In accordance with current health and safety legislation, the Principal Contractor will be required to adopt measures to mitigate the risk to Site workers. Such measures should include:

- Informing Site workers of the contamination on the Site and the potential health effects from exposure through site induction and 'tool box talks';

- The provision of appropriate protective clothing and equipment to be worn by Site workers;

- The adoption of good standards of hygiene to prevent prolonged skin contact, inhalation and ingestion of soils during construction; and

- Selection of appropriate methods of working to limit disturbance to the contaminated materials.

8.3.11 Measures will also be adopted to mitigate the risk to off-site users associated with airborne or settled dust arising from areas of potentially contaminated land. Such measures will include the selection of appropriate methods to reduce disturbance to the existing near-surface soils present on the Site, such as the spraying of stockpiles and other large, unsealed surfaces to limit the risk of generating airborne dust.

9 Water Resources and Flood Risk

9.1 Introduction

9.1.1 This section identifies the mitigation measures required to alleviate the potential impacts of flood risk and surface water runoff during demolition and construction of the Proposed Development.

9.1.2 A summary of potential impacts is provided below – a full description of impacts resulting from the demolition and construction of the Proposed Development in relation to water resources and flood risk is provided in Chapter 13 of the ES[1] (Water Environment), prepared by Stantec.

9.2 Summary of Potential Impacts

Surface Water Bodies

9.2.1 Risks to water quality during construction originate from two sources; potentially polluting materials brought to Site for use during construction, or materials already within the Site such as the mobilisation of sediment or exposure of contaminated material, though this risk is low given the Site is already fully remediated.

9.2.2 During the demolition and construction phase, potential contamination of surface water could arise from the spillage of chemicals, fuels and cement from construction activities and the movement of materials and machinery within the Site. If not managed effectively, these contaminants could be washed away in surface water runoff into the on-site rhyne/ditch network and ultimately the Huntspill.

9.2.3 The effect experienced during the construction phase has the potential to have a temporary moderate adverse effect on the Huntspill (considered to be a low sensitivity receptor) and/or the Acid Ditch (low sensitivity receptor), due to the proximity of the works to these watercourses and volume of construction activity being carried out. The introduction of contaminants into the local water system via surface water will however be managed effectively through a DCEMP to limit this potential effect to negligible.

9.2.4 With a comprehensive DCEMP and its effective implementation in place the effect of construction works on water quality is expected to be negligible.

Groundwater Bodies

9.2.5 Construction may involve the delivery, use and storage of hydrocarbons and other chemicals. Accidental spillages of hydrocarbons or other chemicals in any areas of the Site could lead to pollution via contaminated groundwater and therefore there is considered to be a temporary minor adverse effect. This is anticipated to have a negligible effect on groundwater, if managed using appropriate techniques and measures included in the FDCEMP.

9.2.6 The Site will require de-watering during the construction phase to remove groundwater ingress into any deep excavations. Standard best-practice measures will be implemented during construction to control this risk, before discharging any water to the local storm water system or back into the water environment. This is anticipated to have a negligible effect on groundwater, such as increased flows through de-watering, if managed using appropriate techniques and measures included in the FDCEMP.

Flood Risk

9.2.7 Any temporary construction works could reduce the available storage volume in the locality, increasing the risk of flooding upstream or downstream of the Site and as such there is a likely

temporary moderate adverse effect to existing properties upstream/downstream of the Site during construction.

9.2.8 During construction of the Proposed Development, the impermeable area of the Site will increase without mitigation. This has the potential to increase the likelihood of surface water flooding within the Site or outside the Site until the permanent drainage system is operational. This is considered to be a temporary minor adverse effect.

9.2.9 All construction sites have the potential to increase surface water runoff rates and volumes, alter drainage patterns and affect local and catchment wide flood risk. Key potential increases in surface water flood risk from construction activities include:

- Alteration to the rate and route of surface water runoff in temporary drains while the operational surface water drainage system is being constructed;
- Stripping of soil or the import of fill affecting surface water runoff potential and drainage patterns through the compaction and smearing of soils; and /or
- Alteration to the surface water runoff regime through reprofiling of the ground surface and by the introduction of temporary drainage channels.

9.2.10 Therefore, there is a temporary minor adverse impact on the surface water runoff from the Site during the construction phase.

9.2.11 The risk of groundwater flooding to the Site and surrounding area during the construction phase is negligible as de-watering will be carried out when required by over-pumping, as described above.

9.2.12 Modelling indicates the Site lies outside the 1 in 200-year event. By definition an event greater than 1 in 200 year during the construction phase is low. There will be a Flood Emergency Plan and there are also EA flood warning and alerts available for the Site, secured in the FDCEMP. Given the low probability of flood event, the effect of tidal flood risk on the construction site including personnel will be negligible during the construction phase.

9.3 Mitigation Measures

Flood Risk

9.3.1 In accordance with the NPPF, all flood vulnerable development will be located outside of the modelled flood extents. This is effective inherent mitigation against tidal flooding.

Surface Water Drainage

9.3.2 The proposals include a surface water management strategy to control outflows to receiving systems and manage surface water sustainably within the Site. The proposed surface water management strategy is detailed in the SWDS, the strategy replicates the approach adopted by the 2017 Planning Consent. The key aspects of the strategy can be summarised as follows:

- The underlying geology has been identified as having low permeability potential. In addition, groundwater monitoring undertaken between 2006 and 2010 has indicated that groundwater levels on site are on average 1.5m below ground levels, although in some areas of the Site it was less than 1m. Therefore, infiltration as a means of surface water discharge on site is not feasible.
- Maintaining the strategy set out in the Works Completed to Date, surface water runoff from the Site will be discharged directly into the Huntspill River via the existing reed beds. This requires an amendment to the existing outfall arrangements whereby surface water is

discharged via ditch parallel to but separate from the reed beds. The reed beds will no longer be required for effluent treatment so this will be a completely surface water system.

- A free discharge from the Site into the Huntspill River will be maintained, therefore there are no discharge restrictions required on site. The reed beds have been assessed regarding their capacity to temporarily store surface water runoff in the event of "tide locking" from the Huntspill River and adequate provision exists.

- On site, surface water runoff will be conveyed utilising the existing rhyne and ditch network where possible. Where this is not possible, or the existing network clashes with the Proposed Development, these rhynes and ditches will be realigned or diverted to accommodate the proposals. These amended rhynes and ditches will also continue to manage runoff generated upstream of the Site's boundary that is currently managed by the existing system.

- The rhynes/ditches and reed beds will be sufficient to treat surface water runoff prior to discharge from the Site, although it is recommended that this system is augmented with additional on-plot SuDS i.e., upstream of the rhynes. These will better mimic natural processes and the existing drainage regime on site.

- The surface water drainage system on site will be designed to manage runoff up to the 1 in 100-year storm event, plus a 40% increase in peak rainfall intensity to account for the likely effects of climate change.

9.3.3 During construction, the use of best practice construction techniques (such as CIRIA publication C753 the SuDS Manual design code) will be adopted to manage the construction process, minimise the risk of a pollution incident, silt-laden runoff, or blockage of channels during the construction works, and thus mitigating the potential for adverse effects upon the surface water bodies.

9.3.4 The construction of the SuDS should occur before the Proposed Development to mitigate fluvial flooding impacts for the construction of the Site. Alternatively, temporary works (surface water storage) could be installed as mitigation if this is not possible.

9.3.5 As good practice, a suitable construction stage drainage scheme to control surface water runoff will be implemented. This is to manage surface water runoff generated during demolition and construction to not increase flood risk downstream.

9.3.6 Key principles of the construction drainage strategy are likely to include:

- The scheme will be designed to manage surface water effectively on site and comply with BS604:2009 'The British Standard Code of Practice for Earthworks', which details methods for the general control of drainage on demolition and construction sites.

- The scheme will include measures for managing silt that may be generated during the demolition and construction activities.

- Further groundwater monitoring and sampling is recommended to be undertaken to investigate and assess the longer-term water chemistry of the Huntspill River, both upstream and downstream of the Site, at pre and post construction stage.

- Provision of a Foundation Works Risk Assessment (FWRA) which would be undertaken by the Principal Contractor(s) once the proposed foundation solutions are known, and in accordance with EA guidance 'Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination' (EA, 2001).

9.3.7 In areas where it is possible to forecast flooding from rivers, the EA aims to give advanced warning of flooding to the public using a system of flood warning codes. Demolition and

construction workers will be encouraged to sign up to these Flood Warnings via the EA website, or by calling the Floodline on 0345 988 1188, in order to monitor the risk of flooding from the local watercourses during the demolition and construction phase.

9.3.8 Preparation of a flood evacuation plan will also be implemented should a flood warning be received. This should contain information on evacuation procedures for demolition and construction workers, prevention measures to avoid pollution including stopping materials from floating away, locating any materials/machinery outside the floodplain extent and ensuring that any temporary works in the floodplain can be safely and swiftly removed.

9.3.9 Any temporary works proposed in the immediate vicinity of the Huntspill River i.e., earthworks or outfalls associated with demolition and construction will require a Flood Risk Activity Permit (FRAP) from the EA. These will be applied for and approved before any demolition and construction works begin.

9.3.10 Measures that will reduce groundwater flooding to construction zones and ensure effects to surface water bodies (volumes and rates of discharge) are appropriately managed onsite include:

- Run off areas will be identified and water drainage in those areas would be actively managed;
- A toolbox briefing about the importance of the water supply, water bodies and use of pollution control packs will be disseminated to all Site staff;
- Should the potential for a flood event be identified, all potential pollutants will be moved to a safe area, and it will be ensured that the river channels are free from obstruction.

9.3.11 Measures will be adopted to mitigate against risk to local watercourses and groundwater from contaminated surface water runoff arising from general demolition and construction activities and the operation of demolition and construction vehicles. Detailed measures will be developed at further Detailed DCEMP stages by the Principal Contractor(s), but measures are likely to include:

- The appropriate use of temporary bunding and settlement ponds to allow for isolation and on-site treatment of any sediment laden or contaminated water prior to discharge to the receiving system.
- Oils and fuels will be stored within designated areas in impervious storage bunds to contain any leakages or spillages.
- Any construction water runoff from the Site will require the filtering out of suspended solids before reintroduction to the water system;
- Pollution control packs will be positioned within vulnerable areas to allow immediate reaction to any pollution incident;
- Stockpiles will be designed and positioned to minimise the amount of pollutants entering the watercourse.
- Route surface water runoff from worked areas to a silt trap before discharge into the River Wey, thereby ensuring that silt loading does not increase.
- Designated wheel washing areas, screening stockpiles of materials; dampening exposed soils as appropriate.

- Mitigation strategy to adhere to appropriate Guidance for Pollution Prevention (GPP) (and the older Pollution Prevention Guidelines) such as GPP 5: Works and maintenance in or near water and PPG 6 Working at construction and demolition sites.

10 Landscape and Visual Considerations

10.1 Introduction

10.1.1 This section identifies the mitigation measures relating to the potential landscape and visual impacts arising from demolition and construction activities of the Proposed Development.

10.1.2 A summary of potential impacts is provided below – a full description of impacts resulting from the demolition and construction of the Proposed Development in relation to landscape and visual considerations is provided in Chapter 14 of the ES[1] (Landscape and Visual Assessment) prepared by The Richards Partnership, and Appendix 14.5 of the ES[1] (Lighting Impact Assessment), prepared by Stantec.

10.2 Summary of Potential Impacts

10.2.1 The implementation of the LDO will be market-led and therefore a construction programme is not available at this time. Construction is assumed to take place as one continuous phase, and it is not possible to establish how areas might become occupied whilst the remainder of the Proposed Development is being built out. However, it is reasonable to assume that visual receptors on the Site (people living on the Site or using it for work or recreation) could experience some notable adverse visual effects due to the construction works.

10.2.2 It is likely that the construction stage would be long term, however, effects would be temporary and changing throughout the construction period. During this timeframe, the potential landscape and visual impacts arising from the construction process would vary in significance, however, the construction period effects will be assessed based on the 'worst case scenario', that is the point at which it is considered the effects on individual receptors would be at their greatest. As time progresses, the landscape and visual effects from the construction activities would begin to be concentrated in smaller areas, while the designed appearance of the completed development, plus associated mitigation planting, would become more prominent. In addition, construction activities associated with the later stages of development could, from certain receptors, be screened by those earlier phases already completed.

10.2.3 The demolition and construction of the Site will lead to temporary changes in the landscape and townscape and to people's visual amenity which will be phased over a period of time.

10.2.4 Given the nature of the Proposed Development, it is understood that there would be large plant, such as cranes, on Site during the demolition/construction phase.

10.2.5 During the construction period, effects are likely to be temporary and are generally adverse in nature for the limited period of the works. Given the nature of the Proposed Development, it is anticipated that construction effects could be long term albeit temporary, the following effects may be experienced;

- Demolition of buildings within the 37 Club;
- Removal of existing landscape features (including vegetation, fields, rhynes, etc.);
- Views of machinery and equipment including tall cranes and workforce accommodation;
- Noise (influencing landscape character) and views of construction equipment moving on Site;
- Views of materials storage areas/earthworks;
- Views of construction traffic entering and leaving the Site;

- Views of construction lighting (mobile units and flashing lights from construction vehicles);
- Temporary albeit potentially long-term disruption to permissive pathways (but not PRoW); and
- Changes to the immediate local landscape character.

10.2.6 There would be no disruption to PRoW to facilitate the construction works, however, there may be some temporary disruption to two permissive paths linking to Puriton and Woolavington during the construction stage, and the permissive pathways associated with the approved village enhancement scheme.

10.2.7 In terms of landscape and visual impact, the construction stage of the Proposed Development would potentially impact on the landscape elements, including vegetation and landform/topsoil.

Lighting

10.2.8 Potential effects of temporary demolition and construction lighting may affect both existing sensitive receptors outside the Site and future sensitive receptors within the Proposed Development.

10.2.9 There may be night-time working subject to the programme needs of occupiers. Work during darkness lighting is required for safety and security.

10.2.10 The general lighting requirement is predictable and temporary for fixed elements of the construction works such as Site offices, compounds, welfare facilities, parking areas, fuel storage areas and plant storage areas.

10.2.11 Task specific lighting to maintain safety around excavation areas, concrete pour Sites and other specific activities will vary according to weather conditions, programme and the particular tasks being undertaken.

10.2.12 Construction lighting tends to lead to more significant adverse effects than operational lighting because of its temporary nature, and the type of lighting equipment used. For ease of deployment and use, construction lighting tends to be mobile, and focus on providing the widest coverage of light from the fewest possible units in order to minimise time spent maintaining and installing the equipment. This, along with the fact that it is often poorly directed or installed, can result in problems with glare, light intrusion, and sky glow if good practice measures are not employed.

10.2.13 Lighting may also be present from construction vehicles and plant on Site, which often deploy flashing lights and strobes when operating which can cause additional adverse effects to occupied residential areas. Existing residents close to the Site boundary that may be affected include those of Woolavington in the south east and Puriton in the south west direction.

10.3 Mitigation Measures

10.3.1 Several other chapters within this FDCEMP include embedded mitigation measures such as ecological protections, lighting, working hours, noise and traffic movements during demolition and construction.

10.3.2 Significant landscape and visual effects have been identified within the LVIA, and in line with EIA best practice and recent IEMA guidance, further mitigation has been considered.

10.3.3 However, due to the nature of the landscape and visual effects in this case, no further mitigation would be considered likely to change the assessment outcomes further, and therefore, no further mitigation is proposed.

10.3.4 Some high-level measures to aid and mitigate the effects to landscape, townscape and visual receptors associated with demolition and construction of the Proposed Development include:

- Land / vegetation clearance will be limited to the minimum necessary for the works;
- Demolition and construction areas will be laid out to minimise adverse impacts arising from temporary structures, demolition and construction activities and lighting;
- Demolition and construction roads will use the same route as permanent access roads where reasonably practicable;
- Maintenance of tidy and contained Site Compounds;
- Hoardings erected around the area of demolition and construction works, for reasons of creating a visual barrier to demolition and construction activities and also as a safety measure, to prevent access to the general public (exact designs will be decided by the Principal Contractor once instated); and
- Temporal measures including the removal of all temporary structures and stockpiles when no longer required, and prompt reinstatement of construction areas.
- Existing rhynes and vegetation will be retained where possible and new uses integrated into the existing landscape pattern.
- Monitoring of the effectiveness of the mitigation (primarily the landscape strategy) will occur. Mitigation can be monitored and remedied if required (replacement planting) within the 5 years following completion of the works.

10.3.5 An Arboricultural Impact Assessment (AIA) has been completed, in order to evaluate the effects which are likely to arise from a final design layout implementation and identifies mitigation for the direct and indirect impacts on retained trees.

10.3.6 The above ground constraints predominantly refer to the impact of the canopy of any retained tree on the Site either by size and form, shadowing, and nuisance factors. As a result, it is sometimes required that a canopy protection zone is established to ensure it is not harmed during construction.

10.3.7 An Arboricultural Method Statement should be provided to detail how the necessary tree protection will be implemented. It is recommended that a suitable competent arboriculturist, undertakes any site observation and monitoring works. It is recommended that the Design Guide be adhered to any approval for a suitable tree planting scheme and for the production of an Arboricultural Method Statement implementation of tree protection, precommencement meetings and on-going site supervision.

Lighting

10.3.8 The potential effects resulting from artificial lighting during construction can be mitigated through a range of design and control measures, including the use of shields and hoods on luminaires, appropriate working hours and operation of security lighting, as well as consideration of the orientation of luminaires, and the avoidance of ‘over-lighting’.

10.3.9 General principles to mitigate the adverse effects of lighting associated with construction of the Proposed Development are listed below:

- Construction lighting should be directed so it does not create light intrusion outside of the immediate working area;

- Sufficient lighting units used to avoid the need for tall, wide beam lighting units to illuminate large areas;
- Vehicle lights should be properly directed, and lenses must be intact to prevent un-necessary glare and breakout of obtrusive light (this is also an MOT requirement);
- Lighting should be reduced when not required for safety purposes. Security lighting should be kept at the minimum level needed for visual and security protection;
- If appropriate, to reduce the need for fixed visible lighting outside working hours, the use of infrared flood lighting and CCTV systems should be considered for security;
- All lighting related to the works will be designed and fitted to minimise light intrusion onto any sensitive habitat such as hedgerows, mature trees and woodland;
- The use of visual screening, such as hoardings between more sensitive visual receptors and construction light sources in proximity to the Site;
- Dark corridors should be maintained during the evening, overnight or early morning (i.e., outside approximately one hour before dusk and one hour after dawn) along hedgerows, watercourses and any other linear features by avoiding light intrusion on these areas. This will avoid the fragmentation of habitat used by species such as bats, as well as avoiding disturbance of roosting features used by bats; and
- Consideration will also need to be given to the effect construction lighting will have on new residents on the Site, preventing obtrusive light affecting the adjoining hedgerows and trees beyond the Site boundary.

11 Ecology and Natural Habitats

11.1 Introduction

11.1.1 This section identifies the mitigation measures which will be implemented to limit potential impacts on ecologically sensitive habitats and species arising from demolition and construction activities of the Proposed Development.

11.1.2 A summary of potential impacts is provided below – a full description of impacts resulting from the demolition and construction of the Proposed Development in relation to ecology and natural habitats is provided in Chapter 12 of the ES[1] (Biodiversity), prepared by Ecology Solutions.

11.2 Summary of Potential Impacts

11.2.1 With regard to the characteristics of the Site, the surrounding area and the Proposed Development, impacts which may lead to potential adverse effects on ecological features during site clearance, remediation, demolition and construction within the Site include:

- Complete loss of some areas of land (Puriton Cowslip Field LWS and Woolavington Road and Fields North LWS), as well as partial land take on other areas of the Site (Puriton Rhyne and Ponds LWS, Stoning Pound Field and Rhyne LWS and Puriton Meadows and Rail Spur LWS).
- Potential for indirect effects to arise, such as dust deposition, noise, lighting, or pollution events.
- Loss of improved grassland field, semi-improved grassland, amenity grassland planting, marshy grassland, plantation woodland, orchard, tree and scrub, hedgerows,
- There is a risk of accidental damage to the plantation woodland and orchard habitats during the construction phase, due to accidental encroachment by construction traffic;
- The ephemeral / short perennial habitat present within the Puriton Ash Grounds LWS will be retained within the Proposed Development. There is potential for damage to this habitat to occur from encroachment by construction traffic and storage of materials, although some level of habitat disturbance is beneficial to the maintenance of the habitat.
- The ponds situated to the northwest and southeast of the Site will be lost as part of the Proposed Development as will other artificial water bodies (e.g., ditches).
- There is the potential for contaminated runoff entering the water system that will flow through the reed beds
- Existing badger setts in the west of the Site associated with the railway spur will require closure in order to facilitate development. There is potential for Badgers to be harmed during the construction phase through physical harm if a Badger should become trapped within a trench or works associated with the development.
- There will be some loss of foraging habitat as a result of the Proposed Development through the loss of woodland, semi-improved grassland and amenity grassland.
- There is the potential for lighting to disturb foraging Badgers from the development plots and the associated roads.

- Direct impacts on nesting birds during site clearance can occur through loss of foraging and nesting habitats and the potential to destroy nests
- Water Vole habitat within the Site will be lost to the Proposed Development. This includes all known aquatic habitats that will cannot be retained or require realignment.
- Crest Newt habitat within the Site will be lost to the Proposed Development.
- There is potential for pollution or contaminated run off to enter the water system and potentially damage the habitats that invertebrate species inhabit.

11.3 Mitigation Measures

11.3.1 Retained woodland will be protected by fencing to prevent accidental damage to the trees and encroachment of vehicles into the root protection zones. These will be kept in place during the construction phase to ensure that no accidental damage is caused.

11.3.2 New water attenuation features will be created in the northeast of the Site as part of the surface water management strategy. Any such waterbody will also be utilised to deliver ecological benefits. The newly created ponds will be fenced off during the construction phase to ensure that there is no accidental damage within these areas.

11.3.3 Existing badger setts in the west of the Site associated with the railway spur will require closure in order to facilitate development. Furthermore, given the mobile nature of the species, throughout the construction period, new setts may be created as badgers explore new habitats and will require subsequent closure. Monitoring will be required, or areas made unsuitable to avoid this. As part of any sett closures new artificial setts maybe required.

11.3.4 As a general rule any active setts will have an appropriate exclusion / sensitivity area demarked on the ground where no storage or construction activity (excavation) can take place. Such areas will be determined using professional judgement based on the location, type and orientation of the sett. It is envisaged that in some instances the exclusion zones will extend to around 30m, while in other circumstances a reduced exclusion zone could be appropriate.

11.3.5 Any pits or trenches that are dug on Site during the construction phase should be securely covered during night periods or a ramp provided to ensure that Badgers cannot get trapped within them.

11.3.1 The landscaping strategy has included large areas of retained grassland, along with nutrient poor grasslands, amenity grassland, structure and screen planting, wet grasslands and swales that will all offer good foraging habitats for Badgers in the future.

11.3.2 Wherever possible, no vegetation clearance will be undertaken during the bird nesting season, from March to August inclusive. If vegetation removal is required, then a check must be undertaken by a suitably qualified ecologist to check for evidence of nesting birds. If a nest is discovered, then a 5m cordon around that nest should be established and no clearance should take place within this cordon before the chicks have fledged the nest.

11.3.3 Bat roosts are present within the bat lofts created as part of the remediation consent, with evidence of use by Brown Long-eared bats having been recorded. Additional roosts are known to be present within the 37 club (Common Pipistrelle maternity roost) and the derelict dwelling on Woolavington Road (non-maternity Brown Long-eared bat roost) and within pill boxes to the south of the Site. These will be lost to the Proposed Development. This represents direct adverse impacts to bats using the Site. In order to remove the roosts a Natural England licence will be required that will necessitate alternative roost sites to be provided within the Site. It is proposed that these will take the form of 10 hibernation boxes located within suitable habitat. In addition, further provisions of 30 roosting boxes will be

installed across the Site within retained habitat to provide additional roosting features for the wider populations of bats utilising the Site.

11.3.1 The loss of other habitats of value including hedgerows and woodland edge habitat will reduce the commuting and foraging habitat within the Site. However, the increased vegetation planting, creation of wetland features, greater connectivity of ecological features (both within the Site and wider landscape) and habitat management around the Site will provide further foraging opportunities for bats. Structure planting around the mitigation roosts and adjacent to the development plots will also limit the light spill into these areas.

11.3.1 A Great Crested Newt District Level Licence (GCNDLL) will be sought. District level licensing schemes operate in certain parts of England (including Somerset) to better protect GCN populations. This process involves the allocation of funds, calculated on the basis of the level of impact (i.e., number of ponds to be lost and area of terrestrial habitat loss), towards a strategic project designed for the purpose of creating, enhancing and managing habitat for GCN in areas of particular significance for the species (core population areas). This approach will provide greater benefits to the species overall, as the compensation strategies are designed on the landscape level, rather than seeking to protect (often) isolated populations, typical of a bespoke onsite solution. Not only will the GCNDLL approach deliver benefits for GCN, the provision of good quality and well managed aquatic and terrestrial habitat will have significant benefits to other faunal species.

11.3.1 The mitigation strategy for Water Voles involves the onsite population to be captured and released to an offsite location. The detailed strategy is to be agreed with Natural England's licencing department and as part of that strategy benefits will be realised for the population. The receptor habitat will be chosen based on its suitability for the long-term maintenance of the population (habitat condition) and through a Mink monitoring and control programme which would be a requirement of any licence. This is a similar strategy to that previously licenced by Natural England in respect of the remediation works of the ROF.

11.3.2 The following measures will also be implemented during construction activities to mitigate and minimise potential impacts on ecological receptors:

- All works will be adhering to standard construction procedure and codes of good engineering practice any potential indirect impacts such as dust deposition and pollution risk will be mitigated;
- Storage of potential hazardous materials will be kept away from watercourses and spill procedures will be set up to ensure if an accidental spillage occurs it is dealt with swiftly;
- Carry out all works in or near trees that have been identified for protection on Site in accordance with the relevant British Standards including BS3998: 2010 and BS5837: 2012 and accordance with any specific plans prepared;

11.3.3 The lighting strategy has been developed to mitigate potential effects to foraging and commuting bats. 'Low energy corridors' are to be delivered where detailed lighting scheme design will be sensitive to the need to minimise lighting levels and the illumination of habitat features, such that they hold value for bat foraging and movement. This includes providing, where possible, gaps in lighting columns a variable lighting regime that reduces lighting intensity at certain times, use of LED lighting, use of shields to restrict spillage and providing a central control system.

11.3.4 Site boundary lighting will be low level and directional, minimising light spill onto retained trees and hedgerows. Lowering the fitting height of the columns and spacing the lighting columns are both measures to reduce light intensity in ecologically sensitive areas. Lighting should be designed with due regard to the BCT 2018 guidance on bats and artificial lighting.

11.3.5 Effects of noise disturbance will need to be considered in respect of activities onsite to prevent disturbance in close proximity to known badger setts. However, any newly created artificial setts will be located at a significant distance from active development areas (such is in the far west) to avoid such effects.

12 Archaeology and Cultural Heritage

12.1 Introduction

12.1.1 This section identifies the mitigation measures required to alleviate the potential impacts of the Proposed Development on archaeological features and cultural heritage assets.

12.1.2 A summary of potential impacts is provided below – a full description of impacts resulting from the demolition and construction of the Proposed Development in relation to archaeology and cultural heritage is provided in Chapter 16 of the ES[1] (Historic Environment), prepared by Wessex Archaeology.

12.2 Summary of Potential Impacts

Direct Impact - Archaeology

12.2.1 Any adverse effects to buried archaeological features would be permanent and irreversible in nature. Even in areas where the scale of intrusive groundworks may be relatively small, the magnitude of impact on an archaeological asset may be high.

12.2.2 The construction phase of the Proposed Development has the potential to result in direct permanent, adverse effects on archaeological remains within the Site. Activities associated with the Proposed Development which could have below ground effects comprise:

- Demolition of buildings and foundation removal (noting the majority has been completed within the main fenced Site);
- Creation of a development platform (noting the current consents for this);
- Excavation of trenches/piling for foundations;
- Installation of services and utilities; and
- Hard and/or soft landscaping.

12.2.3 The potential for archaeological remains to be present outside ROF fence is high, based on the balance of evidence provided from previous archaeological investigations.

12.2.4 Expert analysis determines it is likely that any remains encountered would relate to the occupation of the landscape during the prehistoric period and the Romano-British period as demonstrated through the evidence gathered from the geophysical survey. Any such remains would derive their heritage significance from their archaeological interest and the information their excavation would reveal about the occupation of the landscape and the people within it.

12.2.5 There is also a high likelihood for encountering remains from the medieval and/or post-medieval agricultural practices given their recorded presence within the Site and the Study Area and from the results of the geophysical survey. Any such remains encountered would be of low significance as while they indicate previous landscape use, there is unlikely to be any substantial additional information from their archaeological remains which could add to the current knowledge base.

12.2.6 Given the previous use of the landscape for primarily agricultural purposes, any remains are unlikely to have been disturbed and are likely to be well preserved as demonstrated through previous archaeological investigations.

12.2.7 Based on the available information, the heritage significance of these archaeological remains is likely to range from Negligible to Medium. The high assumed impact of the Proposed Development would therefore result in effects as ranging from **Negligible to Major Adverse Effect**, which (at the top of the range) is significant, prior to mitigation.

12.3 Mitigation Measures

12.3.1 The nature of the Proposed Development and the construction methodologies required means that there are no design solutions which can mitigate the potential impact on buried archaeological remains.

12.3.2 For the basis of this assessment, a conservative scenario has been therefore assumed whereby any below ground archaeological remains will be entirely lost.

12.3.3 With regard to the potential for effects arising from a change in the setting of a designated heritage asset through the construction of the Proposed Development, the potential large scale of the units required are critical to its successful implementation. In order to minimise the visual intrusion into the landscape and to the background setting of especially the listed church [NHLE 1344664] and farmhouse [NHLE 1060137] which currently mainly comprises agricultural hinterland, the spatial strategy for the Site ensures the tallest buildings are located further to the north with building heights stepping down towards the areas of existing settlement at Puriton and Woolavington. The design code will also consider materials and design measures to reduce effects. While this embedded mitigation cannot preserve the loss of the agricultural hinterland within the Site, the stepped approach can lessen the visual intrusion caused by it which could lead to a change in the wider setting of the church and farmhouse.

12.3.4 The proposed landscaping strategy would likely, in the long term, help to reduce and filter views of the Site which will serve to alleviate somewhat any effects to designated heritage assets. However, this depends on the final design of the landscaping strategy.

Direct Impacts – Archaeology

12.3.5 It is considered that the Proposed Development has the potential to affect subsurface archaeological remains, specifically on the southern lands which lie outside of the existing main Site fence line. It is proposed to mitigate any potential effects through the implementation of an appropriate programme of archaeological works which will permit any remains to be investigated and recorded (leading to preservation by record).

12.3.6 In order to achieve this, the following approach is recommended which should be undertaken in phases as occupiers come forward and specific details on impacts are known:

- a programme of trial trenching to be undertaken post adoption of the LDO, but pre-commencement, to further establish the presence and significance of any as yet unknown archaeological remains.

- a programme of archaeological mitigation, to include Strip, Map and Record and/or watching brief depending on the scale and significance of any archaeological remains. The requirement for this element, and its scope, will only be fully understood once the trial trenching has been undertaken and the results carefully analysed in conjunction with the data gathered for the DBA and during the geophysical survey.

12.3.7 The above provides an indicative programme only and would be subject to consultations with the South West Heritage Trust.

13 Materials Management

13.1 Introduction

13.1.1 The Proposed Development will generate waste material from demolition and construction which will require appropriate handling, storage, treatment, transportation and disposal. Therefore, this section identifies the mitigation measures required to alleviate the potential impacts of waste generated during demolition and construction of the Proposed Development.

13.1.1 A summary of potential impacts is provided below – a full description of impacts resulting from the demolition and construction of the Proposed Development in relation to materials management is provided in the Framework Site Waste Management Plan (2021) prepared by Stantec and submitted with the LDO.

13.2 Summary of Potential Impacts

13.2.1 Potential impacts associated with waste arising from the demolition and construction period of the Proposed Development have been assessed:

- Transport (i.e., vehicle movements associated with collection / transfer of waste);
- Dust (and odour) (arising from excavation activities, storage of stockpiles and waste); and
- Noise (arising from demolition and construction activities, handling of waste).

13.2.2 Specific mitigation measures associated with these are included within the individual topic chapters within this Framework DCEMP.

13.3 Mitigation Measures

13.3.1 Overall, the hierarchy of waste management will be adopted, in accordance with national policy requirements. The waste management methods in order of preference are as follows:

- Waste Prevention – Through good design and procurement mechanisms;
- Preparation for Reuse – To provide design features to the Proposed Development to use materials in their current state and form, this can occur either on or off site;
- Material Recovery – By using waste materials found on site and recycling / recovering them into an alternative form that can be used for construction purposes;
- Other Recovery – Energy recovery from biodegradable or combustible materials; and
- Disposal – The least preferred option where the waste stream would be subject to a final disposal route, such as landfill.

13.3.2 During demolition and construction, materials recovered from any on site works may be suitable for reuse on site, reducing the costs of transportation and procurement of virgin materials. This, combined with considerate design practice, will help to minimise demolition and construction waste in line with the Waste Hierarchy.

13.3.3 A Site Waste Management Plan (SWMP) will be produced for each phase of the Proposed Development. This plan will help to ensure that the waste management principles set are followed appropriately. The production of a SWMP is no longer a legal obligation but is regarded as best practice. The Principal Contractor(s) will be responsible for developing and implementing the plan.

Procurement

13.3.4 For each stage of demolition and construction, the procurement and delivery of materials will be managed by a Principal Contractor(s), as necessary, to support material usage optimisation and minimisation of waste quantities.

13.3.5 Once the Principal Contractor(s) is appointed, a Sustainable Procurement Plan could be developed and secured by a suitable planning condition. A Sustainable Procurement Plan sets out a framework for responsible sourcing of materials to guide procurement throughout a project. It is generally prepared and adopted at an organisational level by a Principal Contractor(s) prior to the demolition and construction phase.

13.3.6 The Principal Contractor(s) will evaluate the use of materials required throughout the demolition and construction process and identify where there is the potential for returning unused materials to the supplier under a buy-back scheme, as necessary. An example of a method to reduce over-ordering is to focus on accurate ordering (accurate material requirements, realistic wastage rates).

Demolition, Excavation and Construction

13.3.7 Following completion of a demolition audit, the detailed DCEMPs for each phase of the Proposed Development will outline the estimated tonnage and composition of waste expected during this phase. In line with the principles of the Waste Hierarchy any demolition material should be managed on the basis of ‘reuse, recycle, recover’.

13.3.8 The client is committed to onsite reprocessing of suitable material where possible to minimise non-suitable material being removed from site.

13.3.9 By quantifying the waste predicted to be generated, it is possible to assess quantities of waste that can be reused and recycled, and benchmarks set to reduce or eliminate volumes of waste entering landfill. A description of the estimates of the expected volumes of construction waste arising through the construction process can be found in the Site Waste Management Plan, submitted with the LDO.

Hazardous Waste

13.3.1 It is anticipated that hazardous waste material will be encountered during construction the construction works. It would likely to arise from 'generic' building materials (adhesives etc) that may be classed as hazardous waste.

13.3.2 A specific Hazardous Waste Management Plan (HMWP) will be developed by the Principal Contractor(s) to ensure this is minimised wherever possible and to ensure it is dealt with in accordance with relevant policy and guidance.

13.3.3 An Asbestos Risk Register and Control of Substances Hazardous to Health (COSHH) report will also be prepared if asbestos is considered a risk.

Materials Management Plan

13.3.4 Earthworks will be required for each development phase to allow for the provision of foundations, sub-base for roads and amenities. To mitigate these measures, a Materials Management Plan (MMP) should be used to manage the balance of cut and fill on-site in accordance with the CLAIRE definition of waste. Excess arisings from the earthwork phase may include soil (top and sub soils), clays, limited volumes of sands and gravels, and foundation debris. CIRIA guides offer best practice guidance for the storage and reuse of materials arising from earthworks.

13.3.5 The Principal Contractor(s) should obtain agreement from the EA that materials are only normally regarded as waste when they leave the Site of production or if they require on-site treatment. Obtaining such an agreement will mean excess materials on site may not become subject to regulatory controls and therefore vastly broadening options for managing the materials.

Monitoring and Reviewing

13.3.1 Waste arisings will be monitored and reviewed by the Client through the mechanisms of a SWMP. The volume/tonnage of waste generated (or sent off site) as well as the percentage or volume/tonnage reused, recycled or disposed will be recorded throughout the construction phase.

13.3.2 The Principal Contractor(s) are responsible for ensuring that each SWMP produced is reviewed and updated accordingly at regular intervals, and as necessary throughout the construction phase.

14 Consideration for Others and the Environment

14.1. Membership of the Considerate Constructors Scheme (CCS) will be promoted. The objectives of such schemes are to foster communication and good relations with the neighbourhood and to seek and check that any demolition and construction work is undertaken without making life unpleasant for those who live and work nearby. The appointed contractor will be promoted to follow a voluntary code of professional conduct, demonstrating minimum standards for practices that affect the environment around demolition and construction sites, including:

- Considerate - Consideration for residents, workers, pedestrians, visitors, neighbouring occupiers, businesses and highway users at times and in a manner that will reduce disturbance. Special attention is to be shown to the needs of those who have difficulties with sight, hearing or mobility, those in wheelchairs, or pushing prams and pushchairs;
- Quiet - Noise from works, machinery, workers, radios, music, vehicles and all other sources is to be kept to a minimum. There are to be no works that are audible at the nearest residential boundary outside permitted hours of work, unless prior agreement has been reached with the Council;
- Clean - Footways, carriageways, public areas adjacent to the Site, as well as all visible aspects of Site activities such as hoardings, scaffolding and warning lights, are to be kept clean and in good order. Dust and smoke are to be kept to a minimum. Mud and spillage are to be cleaned off pavements, roads and public areas immediately;
- Responsible - The contractor is to check that all employees, agents, sub-contractors, suppliers, drivers and others working on or near the project or activity maintain all aspects of the Code of Good Practice;
- Tidy - Pride in the condition and appearance of the project or activity, adjacent highways and public areas is to be shown in every way, including the tidiness of temporary structures, materials, machinery and the constant removal of litter and rubbish;
- Safe - Projects, activities and vehicle movements are to be carried out with utmost care for safety of passers-by, adjacent neighbours and for workers. All plant and machinery items are to be maintained in safe working order and the safety of structures is to be checked frequently; and
- Accountable - A contact board is to be clearly displayed by the project or activity giving names and telephone numbers of staff who can be contacted promptly and take immediate action in response to issues raised by residents, businesses and others.

15 Summary

15.1. This Framework DCEMP has been prepared as the strategic environmental management plan for the Proposed Development.

15.2. The objectives of this Framework DCEMP are to:

- Minimise, (eliminating where practicable), the environmental effects of the demolition and construction of the Proposed Development;
- Document the environmental controls to be adopted during demolition and construction;
- Enable agreement with the relevant approval authorities on mitigation measures to be adopted during demolition and construction; and
- Provide a framework for contractors to manage demolition and construction impacts.

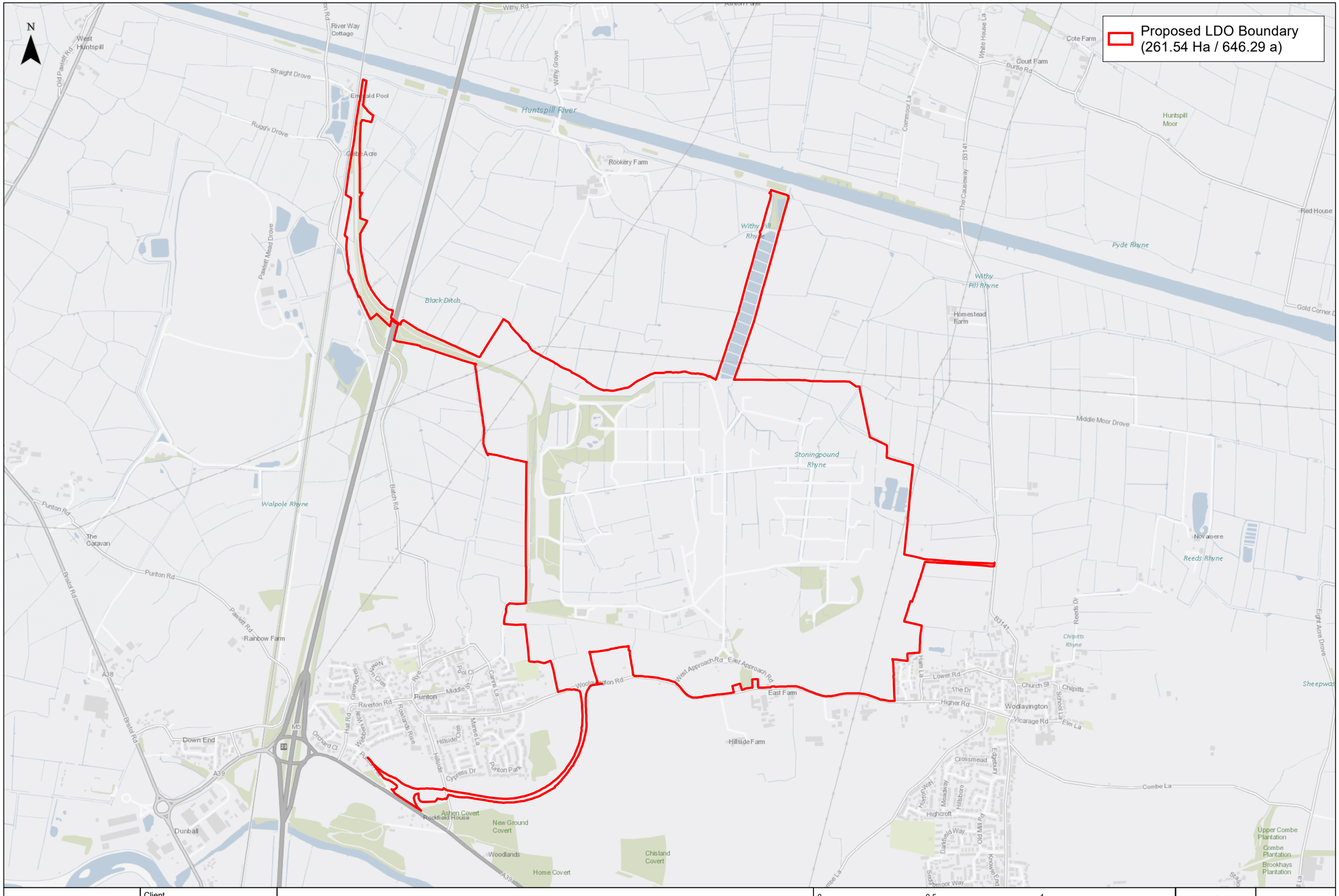
15.3. This DCEMP will be taken forward and developed by the Principal Contractor(s) into a detailed DCEMP for each phase of the Proposed Development.

15.4. The DCEMP is a live document and needs to be reviewed periodically through the life of the project. Regular reviews will help see that the DCEMP is up-to-date and suitably adapted to changes as the project progresses.

15.5. Mitigation measures have been outlined to limit potential impacts of demolition and construction traffic, air quality and dust, noise and vibration, contamination and ground conditions, water resources and flood risk, landscape and visual considerations, ecology and natural habitats, archaeology and cultural heritage.

15.6. It has also outlined a series of general best practice principles which should be adhered to, including; a register of environmental impacts, the production of risk assessments, the adherence to Site Environmental Standards, the monitoring and measurement of demolition and construction activities and the roles and responsibilities of key Site staff.

Appendix A Site Location Plan



Stantec	Client: This is Gravity Ltd.	**Gravity** LDO Boundary Plan	0 0.5 1 km	1:15,000 @ A3	Date: 23/02/2021
				Drawn: GS	Checked: TL
				Figure 01	Rev A

Document Path: Z:\Projects\49102\02_mxd\49102_Gravity_Site_Location_Plan_LDO_Boundary.mxd

Appendix B Existing Buildings to be Demolished Parameter Plan

KEY:

LDO BOUNDARY

EXISTING BUILDINGS TO BE DEMOLISHED FOR THE LDO

Mark	Revision	Date	Drawn	Chkd	Appd

SCALING NOTE: Do not scale this drawing - any errors or omissions shall be reported to Stantec without delay.
UTILITIES NOTE: The position of any existing public or private sewers, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty to this is expressed or implied. Other such plant or apparatus may also be present but not shown. The Contractor is therefore advised to undertake their own investigation where the presence of any existing sewers, services, plant or apparatus may affect their operations.

Drawing Issue Status
FOR INFORMATION

GRAVITY

EXISTING BUILDINGS
TO BE DEMOLISHED

Client
Gravity

Date of 1st Issue	Designed	Drawn
03.06.2021	-	IB
A0 Scale	Checked	Approved
1:5000	RAS	SH

Drawing Number: 49102/5505/SK04
Revision: -

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File Location: \\pba.int\bri\projects\49102 gravity ldo\cad\brief 5505\sketches\49102-5505-sk04 - existing buildings to be demolished.dwg