



CAPITA

West Sussex County Council

A29 Realignment Scheme - Phase 1

Construction Environmental Management Plan





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Document No: A29-JCE-GEN-00-PW-Z-009

Date November 2021

Revisions

Revision	Date	Description	Prepared By	Approved By
P01	13/01/2021	Draft for Internal Comment	DV	
P02	19/02/2021	First Draft	DV	
P03	11/03/2021	Second Draft	IOS	
P04	21/05/2021	First Issue	DV	IOS
P05	27/10/2021	Second Issue – Draft	DV	
P06	25/11/2021	Second Issue – To Discharge Planning Condition	DV	DK



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Acronyms and Definitions

Acronym	Definition
ADC	Arun District Council
AMS	Arboricultural Method Statement
BPM	Best Practicable Measures
BS	British Standard
CEMP	Construction Environmental Management Plan
CIRIA	Construction Industry Research and Information Association
CL:AIRE	Contaminated Land: Applications in Real Environments
CLMP	Contaminated Land Management Plan
CLOCS	Construction Logistics and Community Safety National Standard
CTMP	Construction Traffic Management Plan
CWTP	Construction Worker Travel Plan
DMRB	Design Manual for Roads and Bridges
EA	Environment Agency
EDMP	Environmental Design Mitigation Plan
EMP	Ecological Management Plan
FORS	Fleet Operator Recognition Scheme
IAN	Interim Advice Note
INNS	Invasive Non-native Species
IEEM	Institute of Ecology and Environmental Management
JCE	Jackson Civil Engineering
KPI	Key Performance Indicator
LMMP	Landscape Management and Maintenance Plan
MMP	Material Management Plan
NEC	New Engineering Contract
PLO	Public Liaison Officer
PRF	Potential Roosting Feature
PRoW	Public Right of Way
QMS	Quality Management System
RAMS	Risk Assessments and Method Statements
REAC	Register of Environmental Actions and Commitments
RPA	Root Protection Area
SuDS	Sustainable Drainage Systems
SWMP	Site Waste Management Plan

TBT	Toolbox Talk
TPO	Tree Preservation Order
UK	United Kingdom
WSCC	West Sussex County Council

1 Introduction

Jackson Civil Engineering (JCE) has been appointed by West Sussex County Council (WSCC) to prepare a Construction Environment Management Plan (CEMP) for the realignment of the A29 (referred to as the “Scheme”), to the north of Eastergate and the north-west of Barnham, villages north of Bognor Regis (Phase 1).

The Scheme requires the construction of a new carriageway via a new roundabout along the existing Fontwell Avenue, Eastergate, approximately 1.5km in length to form a single lane carriageway travelling south to a new roundabout at the existing Barnham Road. Other key characteristics of the Scheme include a new 7.3m wide carriageway with a new footway/cycleway, landscaping and planting, and environmental mitigation works.

This CEMP has been developed from a draft/outline CEMP that JCE received from WSP in October 2020.

In October 2021 WSCC requested that this CEMP is updated and submitted to discharge Planning Condition no 3 of the Schemes Planning Application (application ref – WSCC/052/20). This condition states:

Construction Environmental Management Plan (CEMP)

No development shall be carried out until an updated Construction Environmental Management Plan – CEMP (in general accordance with the submitted Outline Construction Environmental Management Plan – Ref. 70079718 V04 dated April 2021) has been submitted to and approved in writing by the County Planning Authority. Thereafter the approved CEMP shall be implemented and adhered to throughout the entire construction period.

The CEMP shall address the environmental management of the construction works and describe how construction activities will be managed in accordance with relevant standards and best practice to safeguard the environment and mitigate the effects of construction works. It shall incorporate all Environmental Action/Mitigation and Construction Monitoring measures as set out in Table 5-2 of the Outline Construction Environmental Management Plan (Ref. 70079718 V04 dated April 2021), all identified Secondary Mitigation measures for the CEMP as set out in Table 15-1 of Chapter 15 of the Environmental Statement, and all Species Specific Mitigation as set out in the Outline Ecological Management Plan (Ref. 7006779 dated April 2021).

Further, it shall include, but not be limited to, the following:

- *An indicative programme for carrying out the works;*
- *Details of the arrangements for public engagement / consultation both prior to and continued liaison during the construction works;*
- *Measures to minimise the noise (including vibration) generated by the construction process to include hours of work, proposed method of piling for any foundations, the careful selection of plant and machinery and use of noise mitigation barrier(s);*
- *Details of any floodlighting, including location, height, type and direction of light sources and intensity of illumination;*
- *The provision of temporary contractors' compounds, including details of their location, use, layout, and any temporary buildings required;*

- *Hours of working, including permitted times for deliveries;*
- *Storage of plant and materials used in constructing the development;*
- *The erection and maintenance of security hoarding;*
- *Measures to control the emission of dust and dirt during construction;*
- *A Scheme for managing waste resulting from demolition and construction works i.e. no burning permitted;*
- *Provision for all works to be carried out under the supervision of an Environmental Clerk of works, Ecological Clerk of Works, Project Arboriculturalist and provide for the appointment of a Public Liaison Officer and specify their respective roles and responsibilities;*
- *PROW management to include full details of any temporary crossing arrangements and provision reinstatement in consultation with the WSCC PROW team;*
- *Construction Phase Drainage Strategy;*
- *Geotechnical Investigations and remediation strategy; and*
- *Precautionary Method of works (PMoW for Bats/birds/reptiles/invertebrates – protected and notable species).*

Reason: To ensure any impact of construction works are, as far as possible, minimised and mitigated in accordance with the submitted Environmental Impact Assessment, in the interests of the amenities and environment of the locality and to avoid the potential for pollution of land/water.

1.1 Purpose of the CEMP

The environmental management of the construction works associated with the Scheme shall be delivered through this Construction Environmental Management Plan (CEMP). This CEMP therefore describes how construction activities should be undertaken and managed in accordance with:

- Design Manual for Roads and Bridges (DMRB), Volume 11, Section 2, Part 5, titled 'Assessment and Management of Environmental Effects';
- DMRB, Volume 11, Section 2, Part 6, titled 'Reporting of Environmental Impact Assessments'; and
- LA 120 Environmental Management Plans (formally IAN 183/16 (W) Environmental Management Plan) Revision 1.

JCE and their framework partner Capita are responsible for reviewing the environmental requirements in this CEMP, and developing the construction methodology in light of those requirements. JCE will be responsible for safeguarding the environment and for mitigating the effects of the construction works (the 'works') by implementing general environmental requirements of this CEMP. JCE will continually review and update the CEMP, and incorporate

it into the companies Quality Management System (QMS) and/or Environmental Management System (EMS).

1.2 Scheme Location & Description

The area to be directly impacted by the Scheme (the total construction footprint of the works) is referred to herein as 'the Site'. The Site is located within a rural/suburban area to the north of Eastergate and the north-west of Barnham, both villages north of Bognor Regis. The Site comprises arable fields, woodland, orchard and areas of managed grassland. The Site is bound by agricultural fields to the north, the B2233 (Barnham Road) to the south, the A29 to the west and the rear of residential properties on Murrell Gardens to the east. The Site is also located in close proximity to Environment Agency (EA) recognised inland rivers-

1. Barnham Rife Ditch, located at the immediate east boundary of the site, and forms the discharge point of new drainage pond 3. Site compound C is also proposed to be positioned close to this watercourse;
2. Lidsey Rife, located to the west and south west of the site;
3. School watercourse, located at the immediate southern boundary of the site, and forms the discharge point of new drainage pond 4. Site compound A is proposed to be positioned close to the School Watercourse also.

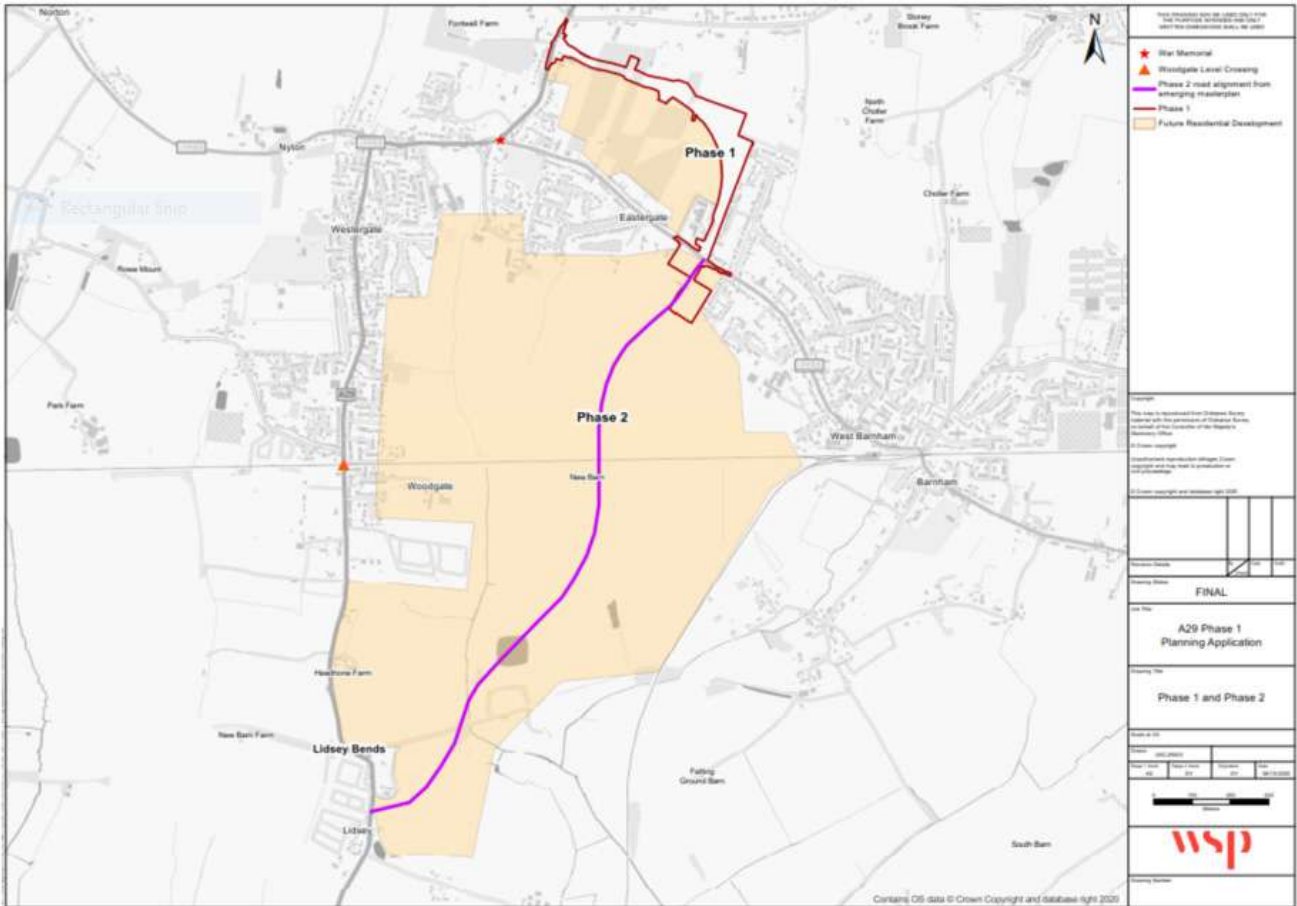
The Site is not currently used for agricultural purposes.

The Site location is shown in Figure 1 below, showing proposed locations of site compounds "A", "B", and "C".

Further detail of the Site Boundary and Proposed Scheme can be seen in the General Arrangement Drawings (see Appendix A).

The A29 Realignment Scheme will be delivered in two phases as shown in Figure 2 below. Phase 1 is 1.3km long from the A29 south of Eastergate Lane to a new junction with Barnham Road, Phase 2 from Barnham Road to a new junction on the A29 south of Lidsey bends. The Scheme relates to Phase 1 (North) and is the primary focus of this CEMP.

Figure 2 – Phase 1 and Phase 2 Alignment



The Scheme includes the proposal to create a new approximately 1.3km, single carriageway road in an arc shape from north-west to south east, connecting with the eastern side of the A29 and the northern side of the B2233.

The Site is approximately 11.8 hectares (ha) in size, comprising 9.2ha of permanent land take and 2.6ha to be returned to the landowner following construction.

The realignment of the A29 (phases 1 and 2 together) will create capacity for expected traffic growth and will tackle planned and potential development to support the delivery of around 11,400 new dwellings and 104,000sqm of commercial development on permitted or planned development sites in this part of Arun District.

1.3 Purpose and Content

This plan provides an overarching framework for the environmental management during the works. It provides the following-

- A summary of the construction effects at sensitive receptors identified in WSP's Environmental Statement and the associated appendices;
- Mitigation measures to reduce construction effects at sensitive receptors, as identified in WSP's Environmental Statement and the associated appendices;
- Ecological Management Plan (Appendix C); and
- Recommendations of further works, such as monitoring, to be undertaken prior to/during the works.

This is a "live document" and shall be subject to regular reviews and updating by JCE prior to and during construction activities (refer to Table F-1, Appendix F). The JCE Project Manager, with support from JCE's Environmental Manager, will be responsible for leading on reviews and updates. Each section will be reviewed and updated as necessary and an electronic version of the updated CEMP circulated to the project wide team, including Client team. Other requirements to be completed by JCE during the works are as follows-

- A register of legal requirements, training undertaken, and completion of site monitoring sheets (Appendix F);
- An Environmental Aspects and Impacts Register (Appendix G);
- A Register of Consents, Undertakings and Assurances (Appendix H);
- Emergency Contact details for the works (Appendix I);
- Register the construction site under the Considerate Constructors Scheme; and
- Comply with the Considerate Constructors Schemes' Code of Considerate Practice in providing the works.

The Environmental Aspects and Impacts Register is a record of all sensitive environmental features that have the potential to be affected by the works. The Register also includes information on how these features will be affected and the control measures required to mitigate any potential impacts.

A register of consents, undertaking and assurances, including a list of specific environmental licences, consents and applicable permits is included in Appendix H.

The emergency contact details for the works shall be clearly displayed at the site where the public can see them (see Appendix I).

All documentation in relation to the environmental management of the works shall be maintained by JCE and made available to the NEC Project Manager.

The performance of the CEMP in meeting environmental objectives and targets, mitigating environmental effects and in achieving effective environmental management shall be subject to

review by the NEC Project Manager every two months, with Appendix F being used as a register of reviews.

2 Proposed Scheme Construction

2.1 Anticipated Construction Programme

Project timescales are still to be determined by the Client team, however the currently anticipated construction programme is as follows-

Stage	Programme
Construction compound construction (Barnham Road & Fontwell Avenue)	Early April 2023
Site clearance (including demolition)	Late 2022 to Early 2023
Utilities Diversion	Mid July to Late October 2023
Excavation and Earthworks	Late July 2023 to Mid 2025
Construction of Road	Mid 2024 to Early 2025
Installation of Acoustic Barrier	Early to Mid 2024
Installation of Street Lighting	Late 2024
Landscaping	Late 2024 – Early 2025
Road Opening	Early 2025

The normal site working (construction) hours are proposed to be:

- Monday to Friday 7.00 to 18.00 (Noise Generating Activities (as defined by BS 5228) will be limited to an 8:00 start); and
- Saturdays 8.00 to 13.00.

Normal site operations are expected to be limited to the hours above. However, there are expected to be works outside the hours specified above (including night-time working). For these elements prior consent and agreement on working methods will be sought from WSCC under Section 61 of the Control of Pollution Act 1974.

2.2 Construction Methodology

The construction of the Scheme will include the following elements. Please note however that dates stated are still to be confirmed so are subject to change.

Set Up Construction Compound and Access – April 2023

These works will take place in the area of the existing Flurries Nursey site and on the formal site of Roy Smith's property, as shown in section 2.3 below.

Flurries Nursey site – the existing topsoil shall be stripped and stockpiled, and hardstanding (compacted 6F2 material) shall be placed by mechanical excavator in places. A separation membrane shall be laid between the compacted 6F2 and the existing subsoil.

This area of the nursery site includes strips of concrete footways in places so it's currently envisaged that these could be utilised with areas in-between infilled with concrete so to provide car parking and footway areas. Existing topography would be assessed (we haven't been given full access to these areas as yet to survey), such that a suitable drainage solution be provided to deal with any surface run-off caused by any hardstanding we install. This would likely comprise of a perimeter filter drain to soakaway.

Temporary heras fence panels shall be erected to secure the site compound boundary with suitable secured gated entrance. It should be noted that existing hedgerows exist on part of the proposed main site compound perimeter – these will be left in place to provide additional screening.

Note – fencing shall not only be installed around the site perimeter so to secure it (currently anticipated to comprise of heras fence panels), but also around all construction works to protect the surrounding retained habitats, so this will be for all general areas as well as those specified in these sections. All site perimeter security fencing will be installed as soon as the land becomes available (WSCC to advise on this) but it's currently anticipated that this will be prior to the main construction works commencing. All fencing will be regularly inspected and maintained throughout the construction period.

Former Site of Roy Smith's Property – following demolition of the property and clearance of existing hardstanding areas, any remaining existing top soil (from rear garden etc.) shall be stripped and stockpiled/removed from site by mechanical excavator. Temporary heras fence panels shall be erected to secure the boundary.

- **Vegetation Clearance – February 2023 – April 2023**

All vegetation clearance works shall be undertaken in accordance with the mitigations and Best Practice Measures (BPM)'s set out in section 5.4 - Environmental Actions & Commitments.

These works will take place in the site compound locations only to begin with as preparation for the site compound areas, as shown in section 2.3 below. However additional vegetation clearance shall also take place throughout the Scheme (excluding existing badger sett areas) to remove existing trees and hedgerows (excluding trees with Tree Preservation Order's (TPO's)), working from the locations of the two site compound areas and working into the site.

Retained trees and hedgerow (as identified on the Site Clearance Drawings) will be protected, which will include the erection of protective fencing encompassing all associated root protection areas. The Arboricultural Report in Appendix D describes the requirements for tree protection fencing. British Standard BS5837:2012 Trees in Relation to Construction includes protective fencing requirements, it is however recognised that BS5837 is read quite prescriptively and can be considered quite excessive in this context. The fencing specifically described in the BS is what is often expected, but the BS does allow for less substantial fencing where appropriate. It is therefore suggested that a meeting is held on site early in the construction programme with the WSCC Project Arboriculturalist so that a tree and hedge protection plan can be agreed and implemented. However it's currently envisaged that this protection fencing will be formed used Heras fencing panels.

The majority of the site areas east of the existing PRoW are suitable for reptile habitat. Within all of these areas, mitigation is to entail the clearance of vegetation outside of the sensitive hibernation season (indicatively November to February inclusive, but weather dependent). Where tall herbaceous vegetation is cleared during the active season for reptiles, then WSP have advised that these areas will be undertaken in two stages over at least two consecutive days. It will include an initial cut down to 150mm, with the second cut reducing vegetation as close as possible down to ground level in order to progressively render habitat unsuitable for reptiles. Any refugia will be dismantled by hand with all works undertaken under the supervision of the project ecologist (provided by the Employer) to minimise the risk of killing or injury to reptiles. The project ecologist shall monitor these works and advise if any further measures are required (such as the installation of reptile fencing, carpet tiles etc.).

Prior to any tree removal, all trees within and immediately adjacent to the site boundary will be re-inspected by the Project Ecologist to assess their suitability to support roosting bats, at which point the ecological constraints mapping provided by WSP (within the Environmental Design Mitigation Plan (EDMP) – see Appendix B) will be updated by the Employer.

Trees assessed as having low suitability to support bat roosts will be soft-felled by suitably qualified arborists, following an at-height inspection of any potential roost features to confirm the absence of roosting bats (and evidence of roosting bats). Trees assessed as having moderate or high suitability to support bat roosts will be subject to a climbing inspection. This is to enable a thorough assessment of suitability and to search for evidence indicating the presence of roosting bats. If at this stage the suitability is downgraded to low, the trees will be soft felled by suitably qualified arborists as above. However, in the event that the presence of a bat roost is highlighted as still having moderate or high suitability, the requirement for works affecting the roost would be reconsidered by the Employer to identify whether adverse effects can be avoided. If they cannot, a licence from Natural England will be progressed by WSP.

Where possible, site clearance works will be undertaken outside of the breeding bird season (September to February inclusive), however this will be predominately dictated by the Employer's acquisition of land and hence confirmed construction start dates. It's therefore currently anticipated that some clearance works may need to proceed within March to August inclusive, therefore will be undertaken under the supervision of an ecologist provided by the Employer, in accordance with a specific set of RAMS. If/where an active bird nest is identified, it shall be left in situ and an appropriate buffer using heras panel fencing with appropriate signage (indicatively 5m) will be placed around it. No vegetation clearance works will take place until the young have fledged and the nest is no longer actively in use. Examples of suitable nesting habitat comprises woodland, scrub, hedgerow, trees and tall grassland / ruderal vegetation.

Only once an Instruction is received from the Employer to remove badger sett exclusion zones, will vegetation clearance in these areas commence. This is currently anticipated to be in September 2022. Prior to this work taking place, the Employer shall have updated their badger surveys, applied for and obtained a licence from Natural England, and net and fix gates on the setts. Only after a satisfactory period of monitoring will the instruction to close the setts be given, at which point new permanent badger fencing will be erected alongside the red line boundary. The sett closures will be overseen by the ECoW.

As outlined in Table 3, all of the above works shall be supervised by an Environmental Clerk of the Works (ECoW).

Further general mitigation measures are contained within the Scheme Wide PMoW (see Appendix O).

- **Demolition of Roy Smith Property & Associated Outbuilding – Late 2022**

These demolition works shall take place only once Instruction is received from the Employer giving access to the land, currently anticipated to be in September 2022. A detailed demolition plan shall be prepared providing specific details concerning the methodology and different processes involved with these works, but it should be noted that no record or as-built drawings have been made available for these structures and therefore their material make-up and possible hazardous components are unknown. Additional surveys, including "Asbestos Refurbishment / Demolition Surveys" as necessary will therefore be carried out by the Contractor prior to any works being carried out on these buildings to help determine any further environmental, site safety controls and Safe System of Work.

An existing building with a confirmed bat roost (building "B5" as shown in Appendix B (see Appendix A of the EDMP)) is positioned >30m from the properties requiring demolition. The Scheme has been designed to retain building B5, and thereby avoid direct loss of this roost. Mitigation measures as set out within the PMoW (see Appendix N) will be utilised to reduce the impacts of disturbance from construction activities to the roost.

The majority of the planned construction works fall outside of a standard 20m "buffer zone for bats", but a limited amount of works will need to be undertaken adjacent to the building (within 5m). These works (not just these demolition works) that are anticipated to fall within the proximity of building B5 (indicatively 20m), will be discussed well in advance with the project ecologist and in line with the Building B5 PMoW (prepared by the Employer – see Appendix N) to ensure that disturbance is avoided / minimised.

As Building B5 supports a transitional/summer roost and therefore is used opportunistically by a small number of bats, B5 is considered unsuitable to support hibernating bats. As such, it is considered that a low numbers of bats will be actively using building B5 between the summer active season (May to September inclusive), and that bats are considered unlikely to be present within building B5 during the typical hibernation period (October/November to April inclusive, depending on prevailing weather conditions).

Where construction activities within 20m of building B5 are unavoidable within the summer roosting season (May to September inclusive), these will be conducted during daytime hours. Such works will be completed no later than one hour before sunset each working day so as to avoid discouraging bats to emerge from the roost through construction activities. It is understood that this is likely to apply to a small section of works including earthworks and part of the road construction programme. More general mitigation measures are provided within the PMoW, along with an "Unexpected Discovery Procedure".

- **Excavation and Earthworks – July 2023 – Mid 2025**

These works shall commence at the southern end of the site, working north from B2233 Barnham Road. It will commence with both off-line and on-line works from the existing B2233 Barnham Road carriageway under traffic management. Large excavators and 8-wheel tipper lorries will make up the majority of the plant. The works are a traditional cut and fill, but there will be a large quantity of fill material requiring import to site. A proportion of existing material is expected to be re-used within the works, but much of this is expected to need conditioning (either wetting or drying) before being accepted as part of new embankment works. Material conditioning and storage (including topsoil storage) areas shall all be as indicated in Figure 1.

A key risk to surface water on this site is run off of silt or mud. There are several high risk operations that the site team shall need to plan in order to reduce the impacts associated with

surface water control. Ground and surface water risks also arise from high pH levels in concrete wash-water. Concrete washout will only occur in designated areas into suitably lined skips. Further information concerning mitigation measures is contained within table 3 below.

The cut earthworks at Fontwell Avenue roundabout have the added advantage that they remove a portion of contaminated materials present within the upper parts of backfill to a historic infilled gravel quarry. This is a small, reasonably well defined tear shaped feature, lying under the central-eastern part of the roundabout. A watching brief will be in place to confirm that excessively organic contaminated materials (likely tarmac pieces and rubber articles) are not present (in relation to pre-set environmental soil acceptance levels) in the made ground making up the formation. The soil acceptance levels have been developed as part of Controlled Waters Detailed Quantitative Risk Assessment (DQRA) and these levels have been issued to the EA for agreement prior to excavation commencing on site. These levels have been formally accepted by EA and included in the project Specification Appendix 6. A MMP (materials management plan) will be compiled by the site team as part of the Stage 2 contract prior to any works starting on site. In addition to formation inspection, a number of validity trial pits are planned to be excavated and soil samples tested to assist validation measures.

These works will generate potentially large lorry movements around site and to the local road network – this includes a portion of material generated by the works requiring immediate removal from the site. It's currently anticipated that soil shall be taken to Biffa waste recycling facility in Redhill, some 50 miles from site. JCE have not been made aware of any restrictions regarding use of local roads for lorries, however there is a 3.6m height restriction in place on the existing B2233 Barnham Road south east of the site at the railway overbridge. Lorries shall use main "A" roads where possible. Further information concerning construction traffic routes and traffic management is contained in the Schemes Construction Traffic Management Plan.

- **Drainage Works (including works at new ponds) – June 2023 – December 2024**

Drainage works are required throughout the Scheme, with the majority of the works within new verges of the carriageway. These comprise new swales, ditches, pipe work and combined kerb and drainage units. Works will be carried out using excavators and will be made safe using traditional trench boxes. Larger, deeper excavations are required to construct the required new ponds, interceptors and infiltration facilities. For the larger ponds, it's currently anticipated that open cut excavations will be undertaken, for the smaller interceptor works steel sheets will be pushed and supported with frames. New infiltration facilities are being installed close to the new Fontwell Avenue Roundabout – these are only approximately 2.5m deep and so it's currently anticipated that these shall be excavated with battered side slopes.

Concrete and/or mud has the potential to be deposited onto the carriageway when vehicle tyres leave the soft verges along the site. This shall be continually monitored, and suitable wheel washing facilities and road sweeping shall be provided during the works to ensure both working areas and carriageways are kept clean.

The construction of the Scheme in general has the potential to adversely impact on the water quality of water resources as a result of construction activities that cause accidental leaks and spillages or harmful substances. This also includes the risk of potential increase in physical contamination (i.e. sedimentation) of surface water bodies due to ground disturbance. Sensitive water receptors that could be impacted by pollution are surface water bodies (Barnham Lane Ditch, Lidsey Rife and School Ditch) and groundwater bodies (Superficial Deposits). The pollution of both surface and groundwater bodies may be exacerbated by accidental spillages.

The use of BPM, as described in section 5.4 below shall be adopted during these works to mitigate against these environmental risks, which include measures such as –

- Excavation elements shall be constructed during the summer months where possible;
- Wherever possible, plant and machinery shall be kept away from the drainage system and watercourses. Plant nappies and appropriate spill kits will be provided at all work points where plant is being utilised. All hydraulic excavators will use biodegradable oils;
- Care shall be taken to ensure that wet concrete does not come into contact with surface water or near the streams and drainage ditches. Concrete shall be poured in dry weather and consideration will be given to the use of fast curing concrete where deemed necessary;
- If ground contamination is encountered during construction works, work shall stop immediately and measures will be taken to prevent disturbance and mobilisation of contaminants, until the contamination has been treated in-situ or removed for off-site treatment – the Contractor’s design consultant will be called to site in such instances to review. Planning condition 10 requires that if during the works contamination not previously identified is found, no further works (unless otherwise agreed in writing with the County Planning Authority) are to be carried out until a remediation strategy detailing how contamination will be dealt with is submitted to and approved by the County Planning Authority, in conjunction with the Environment Agency;
- The implementation of a temporary drainage strategy to prevent uncontrolled runoff;
- Surface water run-off from within the Site shall be managed to prevent uncontrolled migration of pollutants to waterbodies. This could include temporary bunding and settlement ponds;
- Locating stockpiles and materials storage a minimum of 10m from any watercourses or drainage lines; and
- If dewatering is required, water shall be passed through an appropriate sediment control system prior to discharge.

Subsequent to initial ground investigations for the Scheme, additional investigation in the area of the future Fontwell Avenue roundabout and drainage facilities has encountered contaminated soils. This area was previously inaccessible to the initial site investigation and this initial work did not originally find any land quality issues, though desk studies had highlighted the presence of an infilled gravel pit in the area.

A Hydrogeological Detailed Quantitative Risk Assessment for the scheme has been prepared in order to quantify the risk posed to controlled waters receptors from the soil concentrations identified at the Fontwell Avenue roundabout site post remediation, and to derive site specific target levels to inform any further assessment. This is provided in Appendix M. The report has been reviewed and approved by the Environment Agency, and a validation report will be required at the end of the scheme.

- **Road Construction and Resurfacing – Mid 2024 – Early 2025**

Under traffic management, at tie-in points the existing road surface shall be removed using a milling machine, allowing the new road surface to be directly overlaid onto the sub layers of the existing carriageway. Planings shall be disposed directly into an 8-wheel tipper for removal off site for recycling. As part of the ground investigation works cores were taken at existing carriageway tie-in points. These determined the possible presence of tar in the deeper layers of existing road layers at both Fontwell Avenue and Barnham Road, so all excavated material shall be stock piled and segregated prior to disposal.

This obviously has potential to be a very noisy and dusty site operation. JCE will not cause excessive dust from the milling operations, sweeping of pavements or any other operations. Free floating dust shall be kept to a minimum and if required will be dampened with water

sprays. Plant will be sited and screened where necessary to minimise dust emission to adjoining areas.

The majority of the removal of the existing road surface works are envisaged to be carried out during the day, however if night works are required then agreement will be sought by the Contractor with both WSCC and Arun District Council (ADC), in accordance with our communication plan.

The Environmental Health Officer at ADC is Joanne Lewis, contact details as follows –

Joanne Lewis | Senior Environmental Health Officer, Arun District Council | Location: Arun Civic Centre, Maltravers Road, Littlehampton, BN17 5LF Internal: 37666 | External: +44 (0) 1903 737666 | E-mail: joanne.lewis@arun.gov.uk

A Section 61 application will be compiled by Jackson and sent to WSCC for approval 4 weeks before these related works on site begin. If required a more informal agreement with ADC shall be implemented, and the relevant authority shall be informed by the Project Manager.

Traditional construction methods shall be used for surfacing works. It is expected that some surfacing works shall be required to be completed at night, so both noise and light nuisance could be generated whilst undertaking these works.

All temporary site lighting shall be kept at the minimum brightness necessary for adequate safety and security. Lighting will be located and directed in a manner to ensure that it does not intrude on nearby properties or retained habitat that bats will use for foraging and commuting purposes (these areas shall be communicated to the JCE Project Manager by the ECoW prior to construction works commencing). Where lights are used, effective luminaires or other directional light accessories (shields, hoods or cowls) will be employed to ensure the above.

Compaction rollers and asphalt delivery vehicles shall all work with trained banksman so to keep working areas free of pedestrians, to guide drivers, and so to avoid the need for reversing alarms to be used at night. Portable radios or similar communication systems shall also be considered for use.

It is anticipated that some resurfacing works will be completed during full weekend closures. This is so as to minimise night time working whilst also mitigating traffic management related delays to the public. During these works existing access shall be maintained for all frontages within the closure areas.

2.3 Construction Site Compound

There will be two site compounds used during the works, with a further separate area dedicated for material storage, refer to Figure 1 above and Appendix K, where further details are provided concerning currently envisaged layout and temporary accommodation. The compounds are known as:

Compound A (the main compound) will be located just south of Barnham Road on the existing Fleurie Nursery site. The key benefit of this site is that it already has a dedicated access and egress point from Barnham Road.

- The purpose of this main site compound would be to house the main site offices, welfare, a small stores and car parking facilities only. There would be no large deliveries of materials or plant made to this site compound area.

- This compound would be secured with perimeter heras fencing panels and a secure gated entrance, with security being present during non-working times.
- Vehicular access into this site compound would be directly off Barnham Road using the existing nursery access to begin with. This would be a short term measure only during the time the site compound is being set up. Once the new roundabout is under construction it is anticipated an access will be provided through the works then ultimately along the southern leg of the new Barnham Road roundabout.
- Suitable temporary signage will be displayed explaining traffic routing into the compound from Barnham Road, and once off Barnham Road where parking and office reception is located. This signage will be continually reviewed and updated throughout the works to match the evolving works and differing traffic management solutions/phases deployed on Barnham Road whilst constructing the new roundabout.
- For construction vehicles intending to travel to the site compound and leaving the site compound, they will be directed away from Barnham village. This means that when leaving the site compound these vehicle types will be directed to turn left only onto Barnham Road.
- For large plant and material deliveries a dedicated well-signed works access shall be provided into the site on the northern side of Barnham Road where the proposed new road intersects it. Here a suitably sized on-site reception/stacking area shall be provided where deliveries pull into and are greeted by banksman/gatekeeper who will deal with and direct them along the site. Egress of vehicles will be via the same access.

Compound B, located just off Fontwell Avenue.

- The purpose of this satellite compound would be to house a small welfare unit, a small stores and office which would be secured using heras fence panels. These will be mobile units, fully contained with their own generators and located just off Fontwell Avenue at the site of the Roy Smith property.
- This will provide localised parking for site staff, welfare and storage for some small plant and materials.
- For deliveries to this area of works it's envisaged that another well-signed works access (managed similar to the southern access) off Fontwell Avenue would be established at the proposed roundabout location and position the office compound to the side of that.

Area C, located half-way along the Scheme adjacent to Pond 3, offline from the new carriageway alignment. It is envisaged that this compound will be used for materials storage, predominately earthworks material for treating prior to being reused or taken off site.

Each compound will be in-situ for the whole duration of the construction works (as indicated within the programme). Compound reinstatement information is provided in section 2.4 below.

Delivery Management Strategy

Jackson is a member of CLOCS, and as such we naturally aim to reduce the amount of transport usage supplying materials and removing waste from our sites. Where possible, JCE will use affiliated members of the CLOCS Scheme, so that contractors and vehicle operators are working together to minimise risk to vulnerable road users. Arrangements for deliveries to site in order to minimise disruption to the local community shall comprise of the following –

1. The delivery route for all HGV vehicles shall be provided via clear delivery instructions by the site team, indicating which dedicated works access (north or south) the delivery is to report to. This will be in accordance with an agreed traffic management plan;

2. Deliveries to and from the site shall only take place between the hours 07:30 to 17:30 Monday to Thursday, and 07:30 to 15:00 on Fridays. There shall be no demolition, clearance or construction work or deliveries to and from the site on Sundays or Bank Holidays;
3. Deliveries will be booked where possible so not to be within the first or last hour of the day based on the above timings, with the aim of reducing the number of deliveries during peak AM and PM periods;
4. Multiple deliveries, such as aggregate, shall be co-ordinated and staggered to avoid congestion at site entrances and on site;
5. Delivery arrangements, including access routes and controls, shall be clearly communicated to plant and material providers so they can be briefed to delivery drivers well in advance of all deliveries;
6. Positioning of advanced signage as required along access routes, guiding delivery vehicles to site, shall be agreed with the relevant approving authority and installed as such;
7. A gate man shall be posted at site entrance and crossing points, as required;
8. A HGV booking management system shall be implemented, with HGV's told not to arrive early and park up in an agreed location so not to cause obstruction to the local road network. This management system will also ensure vehicles are given allotted arrival times, so to stop lorries arriving at the same time and causing traffic issues to vehicular users; and
9. Jackson are a Silver member of FORS. Where possible Jackson will ensure that we are using safe and sustainable commercial vehicles. From car derived vans to heavy goods, Jackson is committed to maintain the best possible level of productivity and efficiency with the least impact on society and the environment.

2.4 Construction Site Compound Land Reinstatement

For each of the two site compounds and material storage areas used during the works, the plans for land reinstatement at the end of the project are as follows –

- **Compound A (the main compound)** – as shown on our site plans issued with the Schemes planning application, this area of land is marked as “temporary land use – to be left in a tidy state. No need to reinstate”. The reason for this is that it is anticipated that very soon after the phase 1 works have been completed, the phase 2 works will commence and as such there was no need to reinstate this area with landscaping features similar to what is already there if the phase 2 developer was to soon after arrive on site and convert the land back to a site compound. Therefore at the end of the phase 1 works we anticipate leaving the area as a hard standing, securely fenced off, such that the Southern Consortium (phase 2 developers) can arrive soon after (currently anticipated to be end 2024) and immediately start using the area. In between the short time that the phase 1 works are completed and the phase 2 works commence the area will be kept in a tidy state i.e. there will be periodic litter picking and weeding activities taking place. Planning condition 18 requests further information on interim reinstatement and maintenance proposals for this area of the site prior

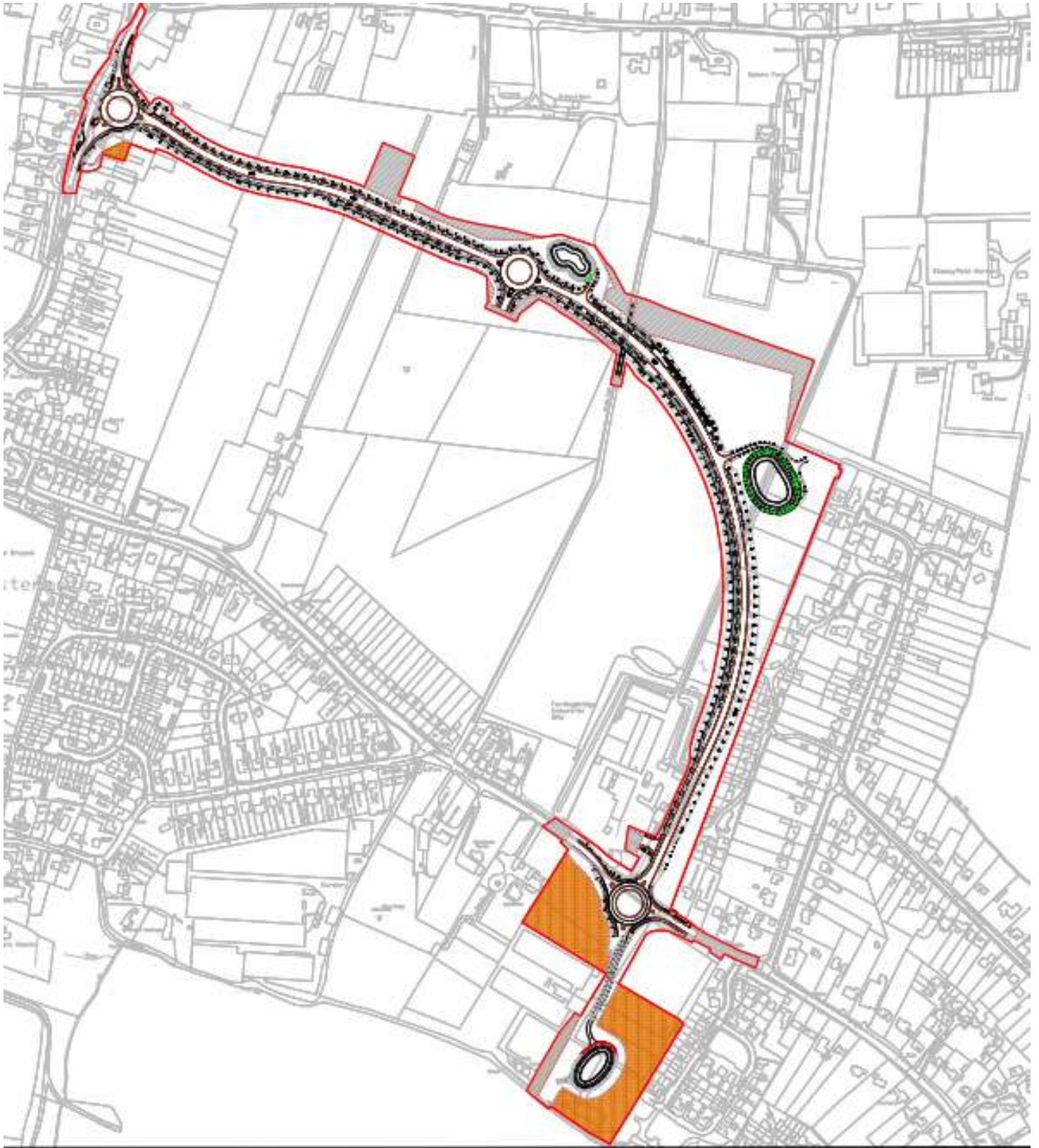
to first public use of the phase 1 Scheme – further more detailed information will be provided via separate formal submission 3 months before the phase 1 completion date, once dates for the phase 1 and phase 2 works can be provided with more certainty.

- **Compound B (located just off Fontwell Avenue)** - similar to the arrangements for Compound A – this area of land is marked as “temporary land use – to be left in a tidy state. No need to reinstate”. It’s currently anticipated that once the Phase 1 works have been completed, Barratts Homes will soon take over this land as part of their development. Therefore at the end of the phase 1 works we anticipate leaving the area as a hard standing such that Barratts can arrive soon after and immediately start using the area. In between the short time that the phase 1 works are completed and the phase 2 works commence the area will be kept in a tidy state i.e. there will be periodic litter picking and weeding activities taking place.
- **Area C**, located half-way along the Scheme adjacent to Pond 3. This area is planned for materials storage, predominately earthworks material for treating prior to being reused or taken off site, and will form part of the Schemes permanent works. Site Plan drawing A29-CAP-HPN-00-DR-C-0134 issued with the Schemes planning application shows the landscaping design proposals for the area, which will predominately be made up of Wildflower Meadow Grass and Specimen Trees.

2.5 Temporary Construction Land

Temporary construction land falls within the red line boundary as shown in Figure 3 below.

Figure 3 – Temporary and Permanent Land Take



2.6 Construction Traffic Management Plan

Most of the Scheme will be constructed offline which will ensure minimal impacts to the existing road network. Details of our Scheme specific construction traffic management plans are presented in our Construction Traffic Management Plan (CTMP), which has been prepared and issued separately so to discharge the Schemes planning condition no 4. The CTMP provides details of the construction routes, control, management and monitoring measures, and arrangements for managing traffic movements and pedestrian access on site. In summary is sets out arrangements for the following –

1. Establish a HGV booking system and discuss/agree with suppliers so to control traffic flows - this will help manage vehicle movements to site so that these can be spaced / averaged out so to reduce peak numbers as much as possible. This may require stockpiling of materials;
2. Establish controlled crossing points at interfaces with existing Barnham Road & Fontwell Avenue access points;
3. Establish designated parking for site vehicles and visitors. Dedicated hard standings to include material off-loading areas;
4. Establish controlled haul road into main work area inclusive of designated crossing bays;
5. All excavators on site and HGV's entering working areas will have a banksman supervising movements so to keep aware of any pedestrian and workforce movements in proximity, and take necessary action if required;
6. A 10mph speed limit shall be implemented throughout site;
7. Pedestrian routes for operatives around site shall be segregated from plant where possible;
8. Details of routes, dedicated works areas and Compound locations including areas to sign in are clearly documented;
9. Suitable temporary traffic signage will be procured and erected at the A27 / A29 junction directing deliveries to site;
10. All delivery drivers will be instructed to call the site security / VBMS operative 20 mins prior to arrival to confirm their ETA;
11. Site team will provide clear delivery instructions indicating which dedicated works access (Compound A or B) the delivery is to report to;
12. Suitable temporary traffic signage will be procured and erected at the A27 / A29 junction directing deliveries to site. All delivery drivers will be instructed to call the site security / VBMS operative 20 mins prior to arrival to confirm their ETA; and
13. Full traffic management drawings will be prepared and approved by WSCC prior to the start on site date.

It is recognised that a key access route to the site shall be via the A27 which passes through the South Downs National Park.

A Construction Worker Travel Plan has also been prepared as part of the CTMP with the aim of reducing the amount of single occupancy private cars arriving at the work site.

2.7 Construction Traffic Access

Access to Compound A (Main Site Compound)

Compound A shall be located within the existing Fleurie Nursery site. A key benefit of this site is that it already has a dedicated access and egress point from Barnham Road.

The purpose of this main site compound would be to house site offices, welfare, a small stores and car parking facilities only. There would be no large deliveries of materials or plant made to this site compound area.

Vehicular access into this site compound would be directly off Barnham Road using the existing nursery access to begin with. This would be a short term measure only during the time the site compound is being set up. Once the new roundabout is under construction an access will be provided through the works then ultimately along the southern leg of the new roundabout.

Suitable temporary signage will be displayed explaining traffic routing into the compound from Barnham Road, and once off Barnham Road where parking and office reception is located. This signage will be continually reviewed and updated throughout the works to match the evolving works and differing traffic management solutions/phases deployed on Barnham Road whilst constructing the new roundabout.

For construction vehicles intending to travel to the site compound and leaving the site compound, they will be directed away from Barnham village. This means that when leaving the site compound these vehicle types will be directed to turn left only onto Barnham Road.

For large plant and material deliveries a dedicated well-signed works access will be provided into the main site on the northern side of Barnham Road where the proposed new road intersects it. Here a suitably sized on-site reception/stacking area will be provided where deliveries pull into and are greeted by banksman/gatekeeper who will deal with the delivery and direct them along the site. Egress of vehicles will be via the same access.

All large or bulky materials will be delivered direct to the work face, and plant will be parked close to but not obstructing this access during non-working times so they are readily visible to the out of hours security.

All vehicles will access the main site entrance from the West on Barnham Road turning left into site. When exiting, all vehicles will be signed (and at times forced by traffic management provisions) to turn right, thus keeping construction traffic out of the Barnham Road village. The existing height restriction on the railway overbridge on Barnham Road east of the site will prevent large vehicles from travelling through Barnham village in any case.

All large vehicle deliveries will be pre-booked using a site specific vehicle booking management system and allocated a delivery time. This will eliminate multiple vehicles arriving on site at the same time, thus reduce traffic congestion and reduce the total numbers of vehicles on site at one time.

No site vehicles will be directed towards Barnham village. All delivery drivers will be emailed a map prior to attending site showing what site compound/access they are to attend and a specific time to arrive. This information will also be included within their subcontract orders prior to attending site for the first time. They will also be given a short briefing from site security explaining the one way systems in use and instructed where to offload. Vehicle marshals will be in attendance for all lorry movements on site.

Access to Main Works Site

All large deliveries of materials or plant will be directed to the main works site rather than enter into site compound A. This will reduce the number of traffic movements needed to be made across the existing Barnham Road significantly whilst also eliminating the double handling of materials.

For large plant and material deliveries a dedicated well-signed works access will be provided into the site on the northern side of Barnham Road where the proposed new road intersects it. Here a suitably sized on-site reception/stacking area would be provided where deliveries pull into and are greeted by banksman/gatekeeper who will deal with the delivery and direct them along the site. Egress of vehicles will be via the same access.

All large or bulky materials will be delivered direct to the work face, and plant will be parked close to but not obstructing this access during non-working times so they are readily visible to the out of hours security.

All vehicles will access the main site entrance from the West on Barnham Road turning left into site. When exiting all vehicles will be signed (and at times forced by T/M provisions) to turn right, thus keeping construction traffic out of the Barnham Road village. The existing height restriction on the railway overbridge on Barnham Road east of the site will prevent large vehicles from travelling through Barnham village in any case. The construction team will monitor vehicle movements and if it is found that vehicles do use the village route then they will be excluded from returning to the site.

All large vehicle deliveries will be pre-booked using a site specific vehicle booking management system and allocated a delivery time. This will eliminate multiple vehicles arriving on site at the same time, thus reduce traffic congestion and reduce the total numbers of vehicles on site at one time.

No site vehicles will be directed towards Barnham village. All delivery drivers will be emailed a map prior to attending site showing what site compound/access they are to attend and a specific time to arrive. This information will also be included within their subcontract orders prior to attending site for the first time. They will also be given a short briefing from site security explaining the one way systems in use and instructed where to offload. Vehicle marshals will be in attendance for all lorry movements on site.

Access to Site Compound B

Compound B is a smaller “satellite” compound which would include a small welfare unit, a small stores and office which would be secured using heras fence panels.

There is an existing shared access driveway into this land (shared with next door neighbour Folly Farm), which is located directly off Fontwell Avenue. This existing vehicular access into compound B would be used to begin with. This would be a short term measure only during the time the site compound is being set up and it is anticipated vehicle movements utilising this existing access would be minimal. Once the new Fontwell Avenue roundabout is under construction it is anticipated that an access will be provided through the works (managed such as the well-signed works access to the southern access) off Fontwell Road at the proposed roundabout location and position the office compound to the side of that.

All large vehicle deliveries will be pre-booked using a site specific vehicle booking management system and allocated a delivery time, with pre-booked delivery times ensuring that traffic congestion is minimised.

Access to site compound B will be only allowed from the North using the A29 - no vehicles will be authorised to access site from the South (Barnham) due to the potential traffic congestion that may be caused by waiting on Fontwell Avenue to turn right into the access as noted above.

2.8 Construction Worker Travel Plan

A Construction Worker Travel Plan (CWTP) has been prepared and is included within the CTMP, with the aim of reducing the amount of single occupancy private cars arriving at the site.

Barnham Station is located approximately 0.6km to the southeast of the site. Furthermore, there are six bus services within the vicinity of the Scheme. This provides a good opportunity to promote use of public transport for the workforce to reach the site, and this is what the CWTP aims to encourage.

The CWTP sets out the projects aspirations for all staff, operatives and subcontractors to use public transport where possible to attend site.

During site inductions the CWTP will be introduced to all personal visiting the site. Local train and bus timetables will also be shared so to further encourage their use.

The CWTP also contains initiatives such as, the use of a mini bus to replace a number of private car movements with a single mini-bus pickup from the station and/or walking/cycling from the bus stops/station. Workers would also be encouraged to use alternative forms of transport such as walking or cycling as a way of promoting overall well-being and fitness. Initiatives like 'get off a stop early' – challenging personnel to get off the train or bus earlier than they normally would do to increase their levels of physical activity and wellbeing generally, will be encouraged. This would be included as part of the project's toolbox talk training programme.

A bike shed will also be provided within the main site compound to provide a safe and secure area for all bicycles.

2.9 Construction Phase Drainage Strategy

The Schemes design drainage strategy plan is included in Appendix L. This provides a high level summary of the drainage design. The principles of Sustainable Drainage Systems (SuDS) has been applied to all components of the design and similarly shall be applied during construction with regard to surface water management. The general principles for all site works that may impact on the site drainage or water quality shall be as follows:

- Soakaway where soils allows;
- Consider and manage erosion;
- Retain any silts on site and prevent silts from discharging into watercourses or drains;
- Remove pollutants in surface water;
- Keep runoff rates at existing greenfield runoff; and
- Prevent accidental spillages reaching watercourses.

Silt removal - Silt laden runoff is expected from any areas of exposed soil, clay, aggregate, or rock. Prior to entering the water environment, all silt laden runoff will require treatment to remove suspended solids / silt. All temporary drainage from the site shall initially be designed to have as a minimum three stages of treatment, as defined in the SuDS Manual. A single stage of treatment would be considered as any of the following:

- Filtration of water through filter media (sand / stone check dam, silt fence);
- Detention / settlement in settlement ponds or behind check dam in swales;
- Conveyance of shallow depths of water in vegetated swale.

Settlement Ponds - Temporary settlement ponds may be required during the construction period in order to provide adequate silt removal. Settlement ponds shall comply with the following considerations-

- Sediment control structures may comprise a single or sequence of settlement ponds with additional incorporated filtration measures where required;
- The location and dimensions of settlement ponds, plus requirements for flow attenuation measures will depend on:
 - volume of water requiring treatment;
 - rate of inflow, particularly if inflow is pumped from excavations;
 - silt load characteristics;
 - topography and access constraints.

Excavation Dewatering - Drainage management is to ensure that adequate provision is in place at all times to treat polluted water arising from all excavations. This is expected to be in the form of pumping through “silt socks” or similar before discharging to ground (with appropriate permitting and approvals in place). For larger areas of dewatering / desilting a “Frog Environmental” system or similar is envisaged to be used.

Spoil Management – Due consideration shall be provided for potential for silt laden runoff from areas of temporary stockpiled and deposited spoil. Measures to be adopted in such areas shall include –

- Avoidance of placing temporary spoil stockpiles in close proximity to watercourses / drains;
- Requirement to cover clays with topsoil to prevent wash off of fine sediments;
- Provision of sediment settlement features down slope of stockpiled material until such times as potential for silt loading had reduced and / or vegetation has established.

Planning and Phasing of Drainage Works

Unless proven technically unfeasible, both temporary and permanent drainage and silt management features shall be constructed prior to earthworks activities (including preliminary or enabling works) proceeding, including:

- For each drainage catchment, the downstream / outfalls / infiltration / attenuation facilities are generally to be constructed first, with drainage provisions then following on being installed "uphill";
- Road side drainage swales shall be installed in parallel with road construction activities. Note that this may require that drainage swales are reformed on an ongoing basis as temporary track and final road alignments are modified to their eventual finished design level;
- As a temporary situation until the site is developed with Barratt's proposed SuDS (which will manage all drainage within their site), a French drain is to be installed to allow any excess flows that cannot infiltrate, to discharge to the south west side of the A29 re-alignment embankment as land drainage. An overflow pipe crossing is proposed within the permanent works drainage design beneath the embankment, which connects into the proposed new drainage ditch to the existing Barnham Rife Ditch;

In addition, when working in areas of existing pavement, overall depths of pavement bound material and sub-base are to match the existing depths in order to maintain continuity of drainage at each pavement tie-in point. These areas shall be reviewed on site with the WSCC site supervisor so to ensure continuity of drainage is provided/maintained.

Temporary / permanent spoil management is to be planned in advance of earthworks and on an ongoing basis, in order to allow planning of drainage required in advance of spoil being deposited. Suitable prevention measures shall be provided at all times to prevent the conveyance of silts to the infiltration facilities at Fontwell Avenue. All open excavations will incorporate sumps to allow rainwater runoff to be pumped through siltsocks to ground. In the event that suspended silts are below 2 microns a pipe reactor and floc blankets will be procured and placed in a bespoke trench to allow containment of the silt before the polished water is allowed to go to ground. Flocculants can be added to the pipe reactor and the floc blankets to ensure the silt is contained.

The use of BPM, as described in section 5.4 below shall be adopted during these works to mitigate against these drainage and water environmental risks, which include measures such as –

- Avoiding construction near watercourses / drains in wet weather whenever possible;
- Keeping cement and raw concrete out of watercourses;
- Runoff from excavations will NOT be pumped directly to watercourses. Where dewatering of excavations is required, water shall be pumped to the head of a treatment train (swale, basin, or detention pond) in order to receive full treatment prior to re-entry to the natural drainage system. Alternatively, bespoke dewatering facilities shall be produced where there are specific requirements for dewatering.

2.10 Control of Dust and Debris

Further to the measures provided in section 5.4 below, to ensure that dust and debris emission is controlled on site at all times, so to prevent dust and debris from being blown or otherwise deposited onto the local road network, the site team shall put following mitigation measures in place at all times during the construction phase of the project –

- The site layout shall be effectively planned as much as reasonably practicable so that machinery and dust causing activities are located away from potential receptors;
- A dedicated wheel washing system with rumble grids to dislodge accumulated dust and mud prior to leaving site shall be installed at both site compounds. All vehicles required to enter into construction areas will be subjected to wheel washing before leaving the site and entering onto the public highway. Wheel washing facilities will be operational throughout the period of construction;
- In addition to the wheel washing systems being provided, a water-assisted dust sweeper shall be utilised on the local roads to ensure roads remain clear of debris and safe to road users;
- Material delivery vehicles entering and leaving sites shall be inspected to ensure that they are securely covered to prevent escape of materials during transport;
- Dedicated haul routes shall be regularly damped down with mobile dust suppression plant and regularly cleaned. An adequate water supply on site for effective dust / particulate matter mitigation and suppression (using recycled water where possible) will be made available at all times;
- Haul routes shall be regularly inspected for integrity, and any necessary surface repairs shall be instigated as soon as reasonably practicable;
- Concrete wash-out facilities shall be implemented within each site compound, so to allow concrete equipment to be washed off safely on site and prevent concrete waste debris from entering the public highway;
- Solid screens or barriers around dust activities or the site boundary shall be erected that are, at least, as high as any stockpiles on the site;
- Materials delivered to site (e.g. Type 1 aggregate) may need to be temporarily stockpiled on site before placement. This will especially be true if vehicle movements are spaced/averaged out so to avoid materials all being delivered to site in one go. Any material stockpiles on site shall be covered, seeded or fenced appropriately to prevent wind whipping;
- Suitable dust/air monitoring locations shall be agreed with the Local Authority, and real-time dust and air quality pollutant monitors shall be put in place, checked regularly, and further mitigation measures implemented if deemed necessary.
- Only cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques, such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems, shall be used on site;
- Enclosed chutes and covered skips shall be used at all times;
- Any dust and/or air quality pollutant emission complaints shall be recorded and responded to as soon as is reasonably practicable;
- Regular site inspections shall be carried out so to monitor compliance with air quality and dust control procedures, recording inspection results. The inspection log shall be made available to the local authority when asked. The frequency of these inspections shall increase when activities with a high potential to produce dust and emissions are being carried out, and during prolonged dry or windy conditions.

3 Project Team Roles & Responsibilities

3.1 Construction Team

To fulfil the aims of this CEMP, and to ensure that all the environmental commitments for the construction of the works are met, it is important to ensure that the roles of all staff are clearly set out, and that prior to, and throughout the works, they are made aware of the environmental sensitivities and commitments that are required to be adhered to.

Following Contract Award, it will be the JCE Project Manager's responsibility to maintain and update this CEMP as and when required, setting out the latest information concerning roles and responsibilities, together with appropriate control measures, training and briefing procedures, risk assessments, stakeholder engagement and monitoring systems to be employed during planning and constructing the works for all relevant topic areas. As such, the CEMP will be treated as a live document, being updated as the works progress so to ensure that all construction activities are included and considered, and ensure that measures to reduce environmental effects are integrated into the construction methods.

3.2 Environmental Team Requirements

This section provides further details on the roles and responsibilities of all key members of the Schemes' project environmental team (not just the JCE project team).

JCE Project Manager, supported by the JCE Environment Manager

The JCE Project Manager, with support from JCE's Regional QHSE Manager, supported by the company Environmental Manager, will be responsible for ensuring the works take place within the parameters as set out in the CEMP. The JCE Project Manager will take the lead in discharging the responsibilities listed below. The JCE Regional QHSE Manager, supported by the company Environment Manager shall provide a supporting role, visiting site as and when required.

They shall be responsible for:

- Developing the CEMP, on-going review and update of the CEMP and relevant procedures;
- Ensuring that all environmental standards and commitments are adhered to;
- Assist the JCE Site Agent with carrying out environmental inductions and training;
- Monitoring compliance of construction activities within the CEMP;
- Ensuring that appropriate SMART environmental targets are set and that progress towards achieving the targets is monitored;
- Conducting inspections and reporting non-compliances to the NEC Project Manager;
- Liaising with JCE's management and operatives on all matters of the environment;
- Monthly site inspections and issue of a monthly report of the on-going environmental activities until completion;

- Working to ensure commitments made during the design phase are carried through to construction;
- Working closely with the ECoW to ensure compliance with the CEMP, particularly with respect to root protection zones and no-go areas;
- Ensuring that all necessary works included within the CEMP are suitably catered for in the construction programme;
- Undertaking quarterly environmental audits throughout the works;
- Arranging for the undertaking of additional surveys as required associated with demolition works, including "Asbestos Refurbishment / Demolition Surveys" as necessary to help determine any further stringent site safety controls and Safe System of Work;
- Supporting WSCC on liaising with adjacent landowners;
- Sharing information with the WSCC Environment Team;
- Attending formal contract progress meetings and third-party interest groups as required; and
- Immediate reporting of non-compliances and alerting the EA in the event of an incident.

Environmental Clerk of Works (role provided by the Employer)

The Scheme Environmental Clerk of Works will be experienced in ecological and environmental assessment for highway/road projects, with recent experience on UK projects in environmentally sensitive areas.

They shall be responsible for:

- Working with the JCE Project Manager to assist with reviewing and updating the EMP (Appendix C) within the CEMP before construction;
- Overseeing implementation of the Vegetation Clearance Ecology Method Statement (Method Statement contained within the Arb Report - Appendix D);
- Providing briefings at appropriate intervals throughout the construction works of environmental risks and procedures to contractors undertaking the works;
- Monitoring clearance works and supervise higher risk activities;
- Working with the JCE Project Manager to review, update and maintain the Environmental Mitigation Plan throughout the works;
- Consult with machine operators prior to operating vegetation clearance machinery;
- Recording and reporting all environmental works;
- Maintenance of related records;
- Regular site inspections (minimum weekly);

- Attendance at any environmental incidents on site; and
- Reporting to the JCE Project Manager.
- Provide a watching brief for contamination and briefing of remediation method statement and procedures to contractors including the contaminated land monitoring activities.

Project Ecologist (role provided by the Employer)

The Project Ecologist will be experienced in ecological assessment for highway/road projects, with recent experience on UK projects in environmentally sensitive areas. The role can be undertaken by the Environmental Clerk of Works if deemed appropriate by the Employer.

They shall be responsible for:

- Working with the JCE Project Manager to assist with reviewing and updating the EMP (Appendix C) within the CEMP before construction;
- Overseeing implementation of the Vegetation Clearance Ecology Method Statement (contained within the Arb report – see Appendix D);
- Provide a briefing of ecological risks and procedures to contractors undertaking the works;
- Monitoring clearance works and supervise higher risk activities;
- Working with the JCE Project Manager to review, update and maintain the Environmental Mitigation Plan throughout the works;
- Consult with machine operators prior to operating vegetation clearance machinery;
- Check for potential hibernacula/refugia (such as discarded materials, logs and burrows) to be removed or destructively searched carefully outside hibernation season;
- Oversee clearance of habitat to confirm areas are unsuitable for hibernating animals;
- Check for potential hibernacula/refugia (such as discarded materials, logs and burrows) to be removed or destructively searched carefully outside hibernation season;
- Oversee clearance of habitat to confirm areas are unsuitable for hibernating animals;
- Carrying out pre-construction surveys and watching briefs on site as required in the EMP;
- Maintenance of related records;
- Reporting to the JCE Project Manager.

Project Arboriculturalist (role provided by the Employer)

The Project Arboriculturalist shall be responsible for:

- Interpreting tree protection requirements, advising on their implementation and providing technical review of any amendments to agreed details;
- Supervision of sensitive works in the vicinity of retained trees and root protection areas;
- Advising team with respect to specimens subject to Tree Preservation Orders (TPO), protection measures and monitoring requirements;
- Observing works in the vicinity of trees to be retained and maintaining records;
- Alerting the Environmental Manager with regard to stopping work where there is the potential for retained trees to be damaged, or where works represent a previously unidentified risk to retained trees; and
- Providing input into the Ecological Management Plan (Appendix C), work method statements and pruning schedule.

This role can be undertaken by the ECoW if they have the right qualifications and experience to cover the Project Arboriculturalist’s role. It is expected that the ECoW will undertake the “day to day” management of environmental matters on site, with the Project Arboriculturalist undertaking more focused site visits when working adjacent to trees with TPO status.

Public Liaison Officer

JCE’s Public Liaison Officer (PLO) shall carry out a supporting role to WSCC, aiding them in their liaison duties with the public and others. The PLO will develop and maintain the Communication Plan for the Scheme, in agreement with WSCC, which shall include an up to date register of community consultation including a list of complaints and actions. They shall also be responsible for providing information to WSCC for them to inform stakeholders of the works and programme and advising in the event of upcoming works with the potential for noise disturbance.

A weekly email progress update will be prepared by the PLO and reviewed by WSCC before being issued to stakeholders and residents who have “signed up” to regular updates. This approach has been undertaken on other recent WSCC Schemes and has proven very successful in managing expectation and updating the wider community. WSCC Officers then use the email to update the Schemes webpage on a weekly basis.

3.3 Roles and Responsibilities

Table 1 below outlines the key environmental roles and responsibilities:

Table 1 – Environmental Roles and Responsibilities

Activity	Responsible Person
Ensure resources are made available to carry out environmental responsibilities	NEC Project Manager

Ensure measures detailed in the CEMP are carried out	JCE Project Manager
Produce the CEMP	JCE Project Manager with Support from Capita
Review and update the CEMP	JCE Project Manager with Support from the JCE Environmental Manager
Carry out Environmental Induction Training on site (as part of the overall site induction)	JCE Project Manager
Ensuring that all environmental standards and commitments are adhered to	JCE Project Manager
Carrying out site specific environmental training	JCE Environmental Manager/Environmental Clerk of Works
Carrying out monthly site environmental inspections	Regional QHSE Manager
Carrying out weekly site environmental inspections	Environmental Clerk of Works
Carrying out quarterly environmental audits	Regional QHSE Manager, supported by the company JCE Environmental Manager
Carrying out Waste Management Duties on site	JCE Project Manager
Carrying out regular site environmental checks	JCE Project Manager
Provide a watching brief for contamination and briefing of remediation method statement and procedures to contractors including the contaminated land monitoring activities.	Environmental Clerk of Works
Ensuring Risk Assessments/Method Statements (RAMS) take into account environmental aspects and risks on site	JCE Project Manager
Review/Provide environmental input RAMS	JCE Project Manager
Identify requirements for/inputting into/co-ordinating specific environmental RAMS for the works	JCE Project Manager
Producing specific environmental RAMS	JCE Project Manager
Ensure client instructions are implemented	JCE Project Manager

Carrying out Emergency Procedures	JCE Project Manager
Investigate Environmental Incidents	JCE Project Manager with support from JCE Environment Manager
Liaison with the Environment Agency	JCE Project Manager
Liaison with other interested parties/statutory bodies	JCE Project Manager
Arboricultural Monitoring	JCE Project Manager/ Project Arboriculturalist (or Environmental Clerk of Works if they are undertaking the role)
Vegetation clearance ecological monitoring	Project Ecologist

3.4 Environmental Instruction, Awareness Information and Training

All of JCE’s environmental team shall be suitably trained for their roles, regarding competency requirements, environmental awareness, maintenance of training records, incident response procedures and use of spill kits in order to meet the environmental commitments set out in the CEMP. A record of training shall be maintained by JCE, with all site personnel undergoing pre-start aspect-specific tool box talks on the environmental issues related to the works and the CEMP.

JCE will be responsible for completing and maintaining this record of training (see Table F-2, Appendix F).

3.5 Ecological Management Plan (Appendix C)

An outline Ecological Management Plan (EMP) is available in Appendix C. The intent of the EMP is to –

- Provide an overview of the baseline ecological information for the Scheme and surrounding area; and
- Provide a mitigation plan to be implemented during construction and operation, based on the recommendations of baseline ecological assessments and the Chapter 9 Ecology and Nature Conservation of the associated Environmental Statement (ES) (WSP 2020b).

This EMP will be maintained/updated throughout the works by the JCE Project Manager.

4 General Procedures

4.1 Specific Proposals

Specific proposals for the operation, phasing, timing and sequencing of the works are detailed within JCE's Contract Programme and Construction Phase Plan (CPP). These documents shall be treated as live documents, such that proposals, methodologies and procedures remain flexible and be adapted throughout the works as necessary to accommodate changing needs and circumstances.

4.2 Environmental Accidents and Emergencies

In the event of an accidental release of hazardous materials, information regarding those materials, spill contaminated materials and spill response equipment shall be clearly stated on site. A procedure for a general response shall be included in JCE's CPP, stating the chain of command and standby operatives, and clearly advised to all staff.

A list of all nearby residential properties, downstream abstractors and other sensitive receptors that could be affected by an environmental incident shall be compiled and maintained by JCE.

The local community shall be informed about the environmental incident at the time if felt necessary by JCE.

If a serious accident occurs, the media and local community shall be issued with a fact sheet about the environmental incident, and the action taken by JCE to remedy the situation. This will be undertaken in accordance with the accepted Project's Communication Plan.

Details of the requirements for spill kits are as follows:

- Spill kits are to be held on site at all times;
- Spill kits with instructions will be sited in areas of high risk and in close proximity to material storage areas;
- All staff will be trained in the use of spill kits and the correct disposal of used spill control material
- All operatives and site employees shall know what to do in the event of a spill. Spill response shall be in the site emergency procedures, the JCE spill action poster shall be displayed and training, including a dry run shall be done within two weeks of site start-up and whenever the site personnel changes significantly;
- Used spill kit equipment will be disposed of as hazardous waste; and
- Spill kits will be maintained and periodically inspected

Environmental incidents shall be recorded by JCE including:

- Nature of spill/leak/incident;
- Time/date;
- Exact location;
- Type of material released;
- Approximate volume released;
- Actions taken to prevent contamination;
- Individuals reported to; and
- Lessons learnt.

Lessons learnt shall be fed back to site staff through safety and environment briefings, and JCE's Project Manager / Environmental Manager shall if required amend procedures and update the CEMP accordingly.

Emergency procedures shall be tested monthly by the JCE Project Manager. Examples of procedures should include:

- The names and 24-hour contact details of all emergency response personnel and emergency services – Appendix I contains contact details and this shall be maintained/updated regularly throughout the works;
- The procedures for reporting and documents an emergency incident;
- Personnel responsibilities during an emergency incident; and
- The location of on-site information on hazardous materials and spill containment materials.

4.3 External Communication

External communication on site would typically include:

- Communication with interested third parties;
- Addressing complaints with members of the public; and
- Communication with the media.

Regular engagement, as required, will take place with interested third parties including statutory and non-statutory bodies. Where required, RAMS shall be submitted to third parties for their review. WSCC shall lead on all external communication matters, with JCE providing a supporting role only, as and when is required by WSCC direction.

JCE's PLO shall carry out liaison duties with the public and others, and will develop the Communication Plan for the Scheme in consultation and agreement with WSCC.

In agreement with WSCC, contact details of the PLO will be made publicly available and advertised clearly. The PLO will maintain a register of queries and complaints from the public which will inform the day to day construction activities if necessary. The PLO will inform the JCE's Project Manager as and when complaints are received, at which point appropriate responses/mitigation shall be delivered to address the query/complaint, channelled through WSCC. These arrangements will be detailed in the Communication Plan. JCE shall register the site with the Considerate Constructors Scheme and this will be detailed in the Communication Plan, along with any Code of Construction Practice.

JCE shall provide weekly updates to the general public on the progress of the works and changes to traffic management layouts via WSCC. Methods of communication include WSCC's internet pages, the distribution of leaflets to local businesses and other means as agreed with the WSCC's Client Manager and the NCE Project Manager. JCE will obtain approval from WSCC's Client Manager for all information to be published. See Section 3.2 above for more information concerning the PLO's project responsibilities.

Contact details are provided in this CEMP and shall be updated on a regular basis. These contact details will be displayed on the site notice board. A template for the Contact List is provided in Appendix I.

4.4 Risk Assessments

All activities undertaken on site shall be subject to a risk assessment which considers environmental impacts. Risk Assessments will be undertaken by JCE's trained staff. Depending on the start date for site works careful consideration will be given to the current COVID 19 situation, RA's will be compiled and populated.

Risk Assessments shall:

- Identify the significant environmental and Health & Safety impacts that can be anticipated;
- Assess the risk from the impacts;
- Identify the control measures to be taken and re-calculate the risk;
- Report where an inappropriate level of residual risk is identified so that action can be taken through either re-scheduling of work, alternative methods of working in order to reduce the risk to an acceptable level, or a design change;
- 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 minimised; all reasonably practical measures have been taken and the residual risk rating is reduced to a minimum; and
- The findings of the risk assessment and in particular the necessary controls will be explained to all operatives before the commencement of the relevant tasks.

4.5 Method Statements

Method Statements shall be completed by JCE and/or subcontractors, by trained staff or other appropriate experienced personnel, in consultation with specialists. Their production shall include a review of the environmental/Health & Safety risk and commitments, so that appropriate controls measures are developed and included within the construction process.

Method Statements will be reviewed by the JCE's Project Manager, and where necessary, by an appropriate environmental specialist. Where appropriate, method statements will be submitted to the relevant authorities (for example Environment Agency, Natural England, an Environmental Health Officer and Emergency Planning Officer etc.) as required by the Employer.

Method Statements shall contain as a minimum:

- Location of the activity and access/egress arrangements;
- Work to be undertaken and methods of construction;
- Plant and materials to be used and how these will be stored;
- Use of construction compounds;
- Labour and supervision requirements;
- Health, safety and environmental considerations;
- Consent requirements; and
- Permit system requirements (ensuring the role of permit controller has been nominated from the JCE approved list of competent individuals).

4.6 Environmental and Social Targets

To help achieve and maintain high levels of environmental and social performance for the construction of the Scheme, Jackson work to be SMART;

- Specific
- Measurable
- Agreed
- Realistic
- Timed

Other specific targets have been set and are listed below in order of priority:

- Ensure no pollution incidents occur;
- Ensure no enforcement actions occur;
- Ensure waste is managed as high-up the waste hierarchy as is practicable; and
- Ensure all environmental mitigation is implemented and monitored where appropriate.

Scheme specific social value and KPI targets have been agreed with WSCC – these are included in Appendix J.

The achievement of these targets shall be reported in the Environmental Site Monitoring process.

4.7 Training, Awareness and Competence

The raising of environmental awareness is viewed as a crucial element of the CEMP. All of JCE's site staff shall undergo environmental awareness training by way of the pre-start induction process. This will identify the key environmental sensitivities and mitigation, including individual responsibilities for checking and reporting.

JCE shall ensure that all personnel engaged in activities that may have an impact on the environment are competent to carry out their duties or, where necessary, arrange for suitable training to be undertaken.

4.8 Public Engagement

As outlined earlier, JCE's PLO shall support WSCC with all aspects of community engagement during the construction period. The following tasks are likely to be required:

- Agreeing with WSCC a framework for managing communications with local residents;
- Providing weekly progress updates for WSCC review before being issued to stakeholders;
- Letter drops to inform local residents of particular construction activities;
- Review all traffic routes to ensure they are kept clean and clear;
- Establishing a point of contact, such as an email/webpage, for community engagement;
- Record any complaints on the site monitoring sheets (see Table F-3, Appendix F) and how they were dealt with; and
- Provide advance notice of work on site and proposed access arrangements.

4.9 Consents, Commitments and Permissions

JCE shall maintain a schedule of consents or permits, and any associated conditions (see Appendix H), within the CEMP and ensure that they are appropriately briefed out to on-site personnel. This schedule will provide a record of consents and permissions from Statutory Bodies, other stakeholders and any commitments made to them.

5 Record of Environmental Impacts, Mitigation and Monitoring

The Register of Environmental Actions and Commitments (REAC) summarises the committed mitigation measures within the chapters of the Environmental Statement (ES) and associated appendices prepared by WSP as part of the Scheme's planning application. Where relevant, cross-references are provided to the 'Requirements' that will secure the commitments in the DCO/planning conditions.

It should be noted that, at the time of preparing this CEMP, the project's planning application is still being reviewed by WSCC, and as such in the absence of a finalised ES and list of planning conditions, this CEMP remains a draft and cannot be finalised or approved.

The REAC is a live document, normally reviewed and updated every 6 months or before any significant changes, and as such will be updated as the project progresses in collaboration with the continual development and reviews of the CEMP. A REAC has been developed for this Scheme and is shown in table 3.

The REAC also aims to ensure that JCE complies with all relevant legislation for the construction phase of the Scheme. The relevant legislation is inclusive of but not limited to the following:

- Clean Air Act 1993 (as amended);
- Clean Neighbourhoods and Environment Act 2005 (as amended);
- Control of Pollution Act 2001;
- Environment Act 1995 (as amended);
- Environmental Protection Act 1990 (as amended);
- Land Drainage Act 1994;
- Planning and Compulsory Purchase Act 2004 (as amended);
- Protection of Badgers Act 1992 (as amended);
- The Conservation of Habitats and Species Regulations 2010 (as amended);
- The Environmental Permitting (England and Wales) Regulations 2010;
- The Hazardous Waste Regulations 2005 (as amended);
- The Waste (England and Wales) Regulations 2011.

In addition to the above, JCE shall refer to Highways England's DMRB, CIRIA Environmental Good Practice on Site C741, and Environmental Agency Pollution Prevention Guidance Notes (though no longer current, these continue to provide useful guidance for construction work).

5.1 Site Inspections

Monthly/Weekly inspections of the site shall be conducted, by the JCE Project Manager, JCE Regional QHSE Manager and ECoW respectively, to ensure compliance with the CEMP and to minimise the risk of damage to the environment. All environmental incidents shall be reported to JCE Environment Manager. In addition, a watching brief will be maintained during earthworks activity to ensure that unexpected contaminated materials, if encountered, are managed in an appropriate manner and in accordance with statutory requirements.

The JCE Regional QHSE Manager shall carry out monthly inspections and complete an assessment of the work's environmental performance measured against environmental standards, relevant legislation and the CEMP objectives. The JCE Project Manager, supported

by the JCE Regional QHSE Manager shall produce a monthly report detailing environmental performance and non-compliances.

The ECoW will undertake a programme of monitoring. This may include phone and email contact with the JCE Project Manager, regular site visits and direct monitoring of sensitive works.

The Project Arboriculturalist (or ECoW if carrying out the role) shall also undertake a programme of monitoring when works are in close proximity to trees. The frequency will be determined by the intensity and proximity of works to trees and will be flexible enough to accommodate changes in the scheduling of tasks as they occur on the site. Further details can be found in the Vegetation Clearance Method Statement contained within the Arb Report (see Appendix D). An Arboricultural Method Statement (AMS) has also been prepared to identify pruning of trees/methods around trees, and protection methods to be used.

The number of arboricultural inspections required during the works is identified in the AMS and includes the following:

- Checks of tree protection fences by an appointed person; and
- Checks of ground protection measures by an appointed person.

The ECoW will monitor during vegetation clearance in line with the procedures detailed in the Vegetation Clearance Method Statement (contained within the Arb Report within Appendix D).

Document control shall be in accordance with the QMS and copies of all environmental audit reports, consents and licenses shall be maintained by JCE's Project Manager. They will be held on site for review at any time.

JCE shall be responsible for assigning responsibility, investigating and addressing any non-conformances raised by the inspection within an agreed time frame and ensuring that corrective and preventative actions have been fully closed out.

JCE shall be responsible for updating and reviewing the CEMP on a regular basis. This must be recorded in the CEMP review table (see Table F-1 in Appendix F).

This CEMP includes details of how communication will be managed during the construction phase. This includes communication between JCE and WSCC's Client Manager, any subcontractors and suppliers, the public, the proposed chain of command and protocols for submitting Environmental Records to WSCC's Client Manager.

In order to ensure that environmental issues are communicated on site, table 2 below identifies the environmental training and on-going communication methods that shall be undertaken.

Table 2 – Environmental Training and Communication

Meeting/Briefing/Training	Frequency	Attendees
Safety Health Environmental Topics within Progress Meetings	Weekly/Monthly	Those identified with safety, health and environmental responsibilities

Induction Training (which will include environmental aspects)	On first visit to site	All persons attending site (site personnel, sub-contractors, clients, visitors)
Risk Assessment and Method Statement briefings	Every job task	All involved in task
Environmental Toolbox Talks (TBT): Environmental TBTs will be carried out appropriate to the construction works being carried out on site at that time	Every job task	All involved in task
Environmental briefings (bulletins, alerts, lessons learnt, results of inspections/audits)	As required	As identified for personnel with environmental responsibilities
Job specific training: Institute of Occupational Safety and Health Working with Environmental Responsibilities; Site Waste Management.	As required	As identified for personnel with environmental responsibilities
Project specific information, including the CEMP	As required	Briefed out to all staff and displayed on notice boards

JCE shall manage the environmental impacts of all suppliers that provide services in relation to the works. The environmental stewardship of suppliers working with/for JCE shall be managed, monitored and reported through the application of Method Statements.

JCE shall co-operate fully with arrangements for auditing suppliers' safety and environmental procedures. JCE's Project Manager/Environment Manager shall advise the NEC Project Manager on external communication with regulatory bodies, the public, and any other external stakeholders on environmental matters.

5.2 Site Waste Management

The construction team shall prepare a Materials Management Plan (MMP) and Site Waste Management Plan (SWMP) for the Scheme. The SWMP will set out how different types of waste will be prevented, reduced or reused and recycled in accordance with the waste hierarchy, and will include the following:

- Roles and responsibilities;
- Types and volumes of waste reused, recycled and landfilled;
- Where the materials and waste have been reused, recycled and landfilled, both on and off site;
- Waste recovery and disposal facilities that will be used and their details of their permits/licences/exemptions, both on and off site;
- Waste recovery and disposal contractors that will be used and details of waste carriers licence;

- Any waste exemptions that are in place in order to enable waste to be reused;
- Waste transfer notes (WTNs) and waste consignment notes to ensure that all waste movements are accompanied by a WTN and that all the requisite information is provided;
- Scheme performance objectives and targets to ensure they are met;
- Forecasting, recording, monitoring and reviewing waste management on site;
- Facilities for segregation of waste;
- Monitoring requirements including:
 - Visual inspection of waste storage areas to ensure they are contained and managed properly;
 - Visual inspection of material recycling areas to ensure they are contained and managed properly;
 - Check workforce recycling bins and replace when required; and
 - Check all waste containers for leaks.

The MMP will be used to monitor the maximum reuse of natural soils and made ground. The format of the MMP will be appropriate to the scale of the works and in a format agreed with the JCE Environment Manager.

The MMP also forms part of the CL:AIRE DoW CoP This will be applied as appropriate to the site once the MMP has established what requirements may be required. This information will determine that the materials on site will not harm human health or pollute the environment and are no longer considered a waste.

5.3 Environmental Site Monitoring

JCE shall undertake on-site environmental monitoring to ensure high standards of environmental performance are maintained on-site. This shall be undertaken weekly. This will be confirmed with the site environmental monitoring sheets, which shall be completed and the results reviewed by JCE's Project Manager/Environment Manager and any actions must be completed as a matter of urgency. The monitoring shall involve the following:

- Visual Dust monitoring;
- Visual inspection of existing drains and road gullies to ensure no blockages from construction waste and pollution, as well as inspection of new drains if operational during construction;
- Inspection of waste management facilities;
- Inspection of plant spill kits and re-fuelling areas;
- Inspection of all tree and vegetation protection zones;
- Inspection of ecology fencing and any sensitive receptors; and
- Inspection of access roads and public highways to ensure cleanliness.

In addition, daily inspections of the aspects above shall be assigned to the JCE Site Agent, with the JCE Sub Agent acting as their deputy.

WSSC wishes to maintain high waste management performance levels on the site and targets shall be set for the construction period. Separate waste monitoring will be required, and this will involve the following:

- Visual inspection of waste storage areas to ensure they are contained and managed properly;

- Visual inspection of material recycling areas to ensure they are contained and managed properly;
- Check workforce recycling bins and replace when required;
- Check all waste containers for leaks;
- Ensure the Site Waste Management Plan (SWMP) is updated and all waste transfer notes are complete; and
- Ensure checks are undertaken to ensure waste is being transported to the correct waste disposal facilities.

A SWMP is not included in this CEMP, but shall be prepared as part of JCE's Project Management Plan.

The predicted environmental impacts during construction can be viewed in Appendix G.

5.4 Register of Environmental Actions & Commitments

Table 3 – Register of Environmental Actions & Commitments

Environmental Topic	Potential Impacts	Environmental Action / Commitment / Mitigation	Construction Monitoring
Air Quality	<ul style="list-style-type: none"> Changes in levels of dust and particulates at existing receptors due to on-site construction activities. 	<ul style="list-style-type: none"> To minimise the risk of adverse impacts during construction from dust, industry best practice measures are to be employed. The measures used will depend on the circumstances but may compromise the following: <ul style="list-style-type: none"> Damping down on dry surfaces, in-particular haul roads; Avoiding/minimising stockpiling of friable materials on-site in open areas; Locating stockpiles (if necessary) as far away from sensitive receptors as practicable; Seeding or screening of long-term inactive stockpiles; On-site speed restrictions to minimise dust entrainment; Sheeting/covering of lorries carrying potentially dusty materials; Wheel/chassis cleaning prior to exit onto the public highway; Requiring all on-site plant to comply with the latest EU emissions standards for non-road mobile machinery; and Requiring all contractor vehicles to be compliant with a minimum Euro emissions standard, for example Euro VI (6). <u>Site Management:</u> 	<ul style="list-style-type: none"> Monitoring to ensure effective implementation of mitigation measures throughout the construction stage - this will be undertaken by regular visual inspections to record the weather and ground conditions, activities taking place, mitigation measures being applied and any evidence of increased dust deposition and soiling in the area surrounding the works. Visual monitoring of dust deposition. Plant hire team to specify in each plant hire request. Euro VI data sheets will be obtained to prove compliance. Achievement to be recorded within plant sheets.

Environmental Topic	Potential Impacts	Environmental Action / Commitment / Mitigation	Construction Monitoring
		<ul style="list-style-type: none"> • Records of dust and air quality complaints to be kept, including likely causes and mitigation measures to reduce impacts if appropriate; • Keep site perimeter, fences etc. clean; • Visual inspections of dust deposition daily to ensure as far as is reasonably practicable, minimal dust is being generated at all times. • The complaints log should be made available to the local authority on request; • Any exceptional incidents that cause dust and/or air emissions, either on- or offsite should be recorded, and then the action taken to resolve the situation recorded in the log book. • Consideration must be given to monitoring of dust soiling at nearby residential properties, at locations agreed with the local authority. Linked to above for continued monitoring. Appropriate hoarding and/or dust busters shall be used as appropriate; and • Stabilisation of topsoil material bunds. • Site Planning: <ul style="list-style-type: none"> • Consideration of weather conditions, dust generating potential of material to be excavated prior to commencement of works; • Plan site layout to maximise distance from plant/stockpiles etc. to sensitive receptors; • Dusty materials should be removed from site, profiled or covered as soon as possible; 	

Environmental Topic	Potential Impacts	Environmental Action / Commitment / Mitigation	Construction Monitoring
		<ul style="list-style-type: none"> • Where practicable, use dust busters or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site; and • If work within 20m of residential properties cannot be avoided, erect solid screens at least as high as Stockpiles. • <u>Construction Traffic:</u> <ul style="list-style-type: none"> • Loads entering and leaving the site with dust-generating potential should be covered and wheel washing facilities shall be made available; • No idling of vehicles; • Vehicles to comply with site speed limits; • Water assisted sweeping of local roads to be undertaken if material tracked out of site; • Install hard surfacing as soon as practicable on site and ensure that they are maintained in good condition; • Avoid the use of diesel or petrol-powered generators and use mains electricity or battery powered equipment where practicable; • A Construction Traffic Management Plan (CTMP) incorporating construction logistics has been produced to manage the sustainable delivery of goods and materials; and reduce nuisance. • A Construction Worker Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing) has been prepared. • <u>Site Activities:</u> 	